

FDI Role and Impact on Indian Economy - A study

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Abstract

FDI equity inflows in India in 2019-20 (till October 19) stood at US\$ 23.35 billion, indicating that government's effort to improve ease of doing business and relaxation in FDI norms is yielding results. The net foreign direct investment stood at US\$ 2.15 billion in October 2019 and US\$ 1.93. Billion in September 2019 (DPIIT). The Objectives of the paper can be framed as, examining the impact of policy on efficacy of FDIs in the Indian economy. And, identify if FDIs in India are growth led or if growth in India is FDI led, or in other words to examine if FDIs in India are a result of economic growth or vice-versa. This study uses the Granger causality technique to test the feedback mechanism between the FDI inflows and the specified macroeconomic variables in India. Observations of the macroeconomic variables GDP at Factor Cost (GDP), Gross Domestic Capital Formation (GDFC), Imports (IM), Exports (EX), Per Capita Income (PCI), Foreign Exchange Reserves (FER) and Gross Domestic Savings (GDS) are analysed for causality with FDI. FDI inflows into India are neither large enough, though considerable, to catalyse neither GDP growth nor do they spread across all economic activities (organised and unorganised) to boost GDP growth. The result shows a bi-directional causality between FDI and GDCF, implying that the FDI inflows raised domestic capital formation and the vice versa. It can be concluded that FDI increased domestic investment through, creating forward and backward linkages. The causality from GDCF to FDI could be understood in two ways: that the augmented infrastructural facilities have succeeded in attracting FDIs and that increased domestic investments in various sectors have attracted further foreign investments.

Keywords: FDI, FDI Impact on India, Macroeconomic factors and FDI, FDI Role in Indian Economy.

Introduction

According to the Department for Promotion of Industry and Internal Trade (DPIIT), FDI equity inflows in India in 2019-20 (till October 19) stood at US\$ 23.35 billion, indicating that

government's effort to improve ease of doing business and relaxation in FDI norms is yielding results. The net foreign direct investment stood at US\$ 2.15 billion in October 2019 and US\$ 1.93 billion in September 2019. Data for Q1 2019-20 indicates that the telecommunications sector attracted the highest FDI equity inflow of US\$ 4.22 billion, followed by service sector - US\$ 2.79 billion, computer software and hardware – US\$ 2.24 billion, and trading – US\$ 1.13 billion. During Q1 2019-20, India received the maximum FDI equity inflows from Singapore (US\$ 5.33 billion), followed by Mauritius (US\$ 4.67 billion), Netherlands (US\$ 1.35 billion), USA (US\$ 1.45 billion), and Japan (US\$ 0.47 billion).

FDI has been imperative non-obligation money related compel behind the monetary upsurge in India. Unique venture vantages like modest cost wages and duty exceptions on the sum being put draw in remote organizations to put resources into India.

In the era of liberalization, privatization and globalization, FDI's enjoy considerable political patronage as they do not increase debt of a country. FDI inflows into a host economy result in setting up companies (usually subsidiaries to Multinational companies) to produce such goods and services that hitherto were imported or result in better quality and cost minimization through deployment of superior technology. This, in theory, means MNCs entering into the host countries will bring new technology and will result in desirable modernization. FDI's being backed by MNCs are expected to bring cutting-edge know-how to enhance quality and quantity in the host country's subsidiary. FDI's provide all these advantages without becoming burden on the exchequer.

Literature Review

In the literature, two most prominent concepts that are used for understanding the impact of FDI on host economy are a) Benevolent Model of FDI and Development and b) Malign Model of FDI and Development. These two theories also explain potential contribution of FDI to economic development of host economy. While the Benevolent Model, as the name suggests, focus on net addition of inputs that FDI bestows on host economy, Malign Model examines the role of the MNEs that hail from imperfectly competitive international industries and their possible impact on host economics that are caught in market imperfections (Moran, 1998).

The Benevolent Model of FDI and Development

With an assumption that FDI is of more use to the economies that are strangled by vicious circle of poverty, the Benevolent Model states that FDI brings the host economy on growth path by all or some of its perceived benefits. Cardoso and Dornbusch (1989), propose that benefits of foreign investment such as augmented local savings, effective management, technology and better marketing would improve factor productivity. As growth of national income depends on

the quantity of capital flows and the elasticity of the demand for capital, foreign investment would boost factor utilization by incrementing capital in the economy. Technological and managerial inputs, transfers and spillovers would stimulate host economy's output by positively effecting local concerns. Further, FDI is believed to enhance competitiveness of host economy enabling efficient allocation of resources thereby expanding output and leading to higher economic growth in the host economy. New capital flows from foreign investors are expected to remove bottlenecks in the host economy to fuel development process of the host economy. This model is widely used by international business groups and multilateral agencies that call developing countries to embrace FDIs through minimizing capital flow restrictions.

However, this model suffers from theoretical reservations. The model assumes that the foreign capital would initiate long-term macroeconomic growth of the host economy through benefiting from high capital availability. It also assumes that the additional supply of capital by the foreign firms would lower capital costs and increase wages by augmenting demand for labor. These assumptions might not hold good for all economies due to varying macroeconomic policies and preferences and economic conditions. Thus, arguments of this model might not be generalized for all economies or in other terms, this model will work only for those economies with certain unique qualities and hence lacks justification.

In the quest to ascertain the benefits that foreign direct investment (FDI) bestows on the host economy – in the equal measure to investigate the detriments that FDI spells on the host economy – many academicians have studied the impact of FDIs. Those who propagate FDI point at the European capital (accompanying European immigrants) in the first-wave of globalization¹ that made the United States of America the modern economic power house, which ceased the urn from the erstwhile superpowers of Western Europe (Solimano and Watts, 2005).

One of the earliest study to assess the impact of foreign financial support was carried out by Chenery and Strout (1966) and suggested that foreign finance was a critical factor behind the growth of various countries across the globe such as Greece (Europe), Israel (Middle East), Taiwan and Philippines (Asia) during the 1950s. While the study assessed the importance of foreign funding in economic growth of these countries, it would be difficult to ascertain that such funding can qualify as FDI as per current definitions as major funding was mostly in forms of foreign grants and loans. Technically, though, Chenery and Strout showed that these countries growth had depended on foreign capital, irrespective of the form such capital has taken – equity

¹ Globalisation is usually divided into three phases: Phase I – 1870 to 1913 – was characterised by free movement of capital and labor internationally. The inter war periods between 1914 and 1945 were characterised by protectionist policies across the globe, thus are not considered as major contributors to globalization. Phase II – 1945 to 1980 are characterised by global restructuring policies (to emerge from the aftermath of both World Wars) under the realms of Bretton-Woods system and accompanying 'Gold Standard' till early 1970s and free capital movements thereafter. Phase III – 1980 to Present – witnessed a plethora of nations opening up their economies to allow access to foreign trade with little or no restrictions. This trend, commonly called as LPG, has resulted in free capital flows across political borders.

or debt. Similarly, since 1960, the discussion on the advantages and disadvantages of FDI has started and is still enduring. Reuber et al (1973), Lall and Streeten (1977) state that foreign assistance was the striking force for rapid and sustained growth by countries like Greece, Israel, Taiwan and the Philippines during 1950s. In each case, a substantial increase in investment, financed largely by foreign loans and grants, led to rapid growth of GNP followed by a steady decline in the dependence on external financing. Taking the case of Pakistan, the study has shown that the growth rate of the Pakistani economy after independence depended on external assistance as a prominent factor, which helped in raising their saving rate and growth rate of GDP. Kamath (1990) has stated that the FDI made substantial impacts in modernizing Chinese industries including the transfer of low and intermediate technologies, managerial expertise and marketing knowledge, thus helped in economic growth.

The recent literature, however, is far from unanimous in supporting the argument that FDI helps in economic development of a country. FDI is just a part (sometimes major and sometimes minor part depending on the size of the economy and the level of development) of a vast set of variables necessary for economic development. And these vast variable set cannot be homogenous across time and space, thus, any kind of investment cannot lead to similar results. Naturally, even FDI has exhibited varying effects on different countries and in different periods. Karalari (2012) found no evidence to state that FDI resulted in economic development of Ghana. On the other hand Chen et al (2005) could find a positive relation between FDI and GNP in Chinese economy. Chen et al used time-series data spreading across 1979-93 computed regression between GNP and FDI (also using domestic savings as another variable). In another study by Wang (also in 2015) concluded that growth differentials in the Chinese urban areas were because of the differentials in the technological spillovers arising out of FDI. Thus Wang established empirical evidence between FDI and economic growth, though through comparative attribution (this study uses the same technique of comparative attribution between domestic companies and FDI firms to find the efficacy of FDI in the Indian Auto Industry).

However, Razin, Sadka and Yuen (2009) observed that during the East Asian crisis when foreign loans and equity stopped, FDI did not show any decline into the Asian economies and subsequently the Asian economies recovered greatly being helped by FDI. On the same note, Sahoo et al., (2012) also established positive contribution of FDI towards GDP growth in China during the post- Mao era.

Earlier studies found that foreign ownership while had positive impact on exports, had a negative relation with employment. Not to say that foreign firms decreased employment, but that the foreign had lower impact on employment generation compared to the degree of impact on exports. Agarwal (2008), on studying cost for unit of factors of production for domestic and FDI firms, concluded that the foreign firms were capital intensive as cost of capital for foreign firms was less and that domestic firms were labor intensive as labor was cheaper for them. And he

further concluded that this differentiated technological choices for both sets of firms. Lall and Kumar (2001) observed that foreign firms in India were not export oriented. However, Lall and Sharief (2003) found that the export orientation exhibited positive correlation with foreign correlation. Kumar (1997) supported the hypothesis that foreign holdings of firms had positive impact on export orientation of respective firms, but further found a negative relation between foreign ownership and employment generation, thus supporting Agarwal's (2000) argument.

Subsequent studies that focussed on technological development, found that irrespective of the ownership of the firm (either foreign or domestic) technological imports depended much on R&D budgets (Sastry, 2000). Katrak (2010) observed that the technological imports had to be restrained as they had less social benefits and high private benefits. Pant (2005) concluded that the export orientation of the firms depended on import intensity, thus foreign firms exhibited higher export orientation. Dua and Rasid (1998) could not find any significant contribution of FDI to economic growth (the study had taken Index of Industry Production (IIP) as a proxy to GDP). However, Alam (2002) stated that though FDI had positive impact on growth, the degree of impact was not satisfactory. Sharma (2000) and Pailwar (2001) opined that exports of foreign firms did not have any significant effect on exports of total economy. Interestingly both studies supported the proposition of Subrahmaniam (2000), who stated that FDIs largely catered to the huge Indian market rather than focussing on exports. Further, Subrahmaniam found that no positive relation existed between technology imports and domestic technology developments. Chakraborty and Basu (2002) also supported these arguments. They further made a significant argument that FDI in India was labor displacing as FDI resulted in reduced unit labor cost and thus indirectly supporting Agarwal's (2009) observation.

Notwithstanding the above studies, it was widely held that studies relating to the impact of FDI were very limited. Kim and Hwang (2000) studied role of FDI in South Korea's economic growth and stated that stable inflow of FDI could help South Korea recover from the financial crisis of the 1990s and their empirical results showed that FDI inflow lowers the odds of a currency crash. Chan (2010) studies the relationship between FDI and economic growth in Taiwan and concluded that FDI is attracted by GDP growth and that FDI contributes to economic growth. He stated that FDI helps growth through technological advancement and not by increased capital accumulation.

Oua and Rasid (2008), taking Index of Industrial Product (IIP) as proxy for GDP, found a unidirectional causality from IIP to FDI, however the study could not prove the opposite. It is worthy to note here that IIP might not be a proper proxy for GDP as industrial sector contributed less than 30% to the GDP in India.² Subrahmaniam (2012), Pant (2015), and Chakraborty and

² A look at the India GDP composition sector wise throws up some interesting figures. The agriculture sector contributed 17.2%; industry contributed 29.1% while the service sector had a contribution of 52.7% according to 2008 estimates. Contribution of agriculture further reduced in the subsequent years and that of services increased while industrial contribution remained more or less consistent.

Basu (2002) had a divided opinion on impact of FDI on Indian economy. All these studies investigated the impact of imports and FDI on export capacity at firm level. While Subrahmaniam (1998) rejected even the probability of export capacity by import intensity upon using the quality response model, Pant (2005) and Chakraborty and Basu (2002) accepted a positive impact of import intensity on export capacity of the firms using import intensity as a quantitative dependent variable and estimated the model by simple OLS method. It can be noted, however, none of studies focused on the impact of FDI on other fundamental firm level variables like productivity and factor cost.

No absolute consensus on the positive effects of FDI have been reached by studies, reflecting differences in economic conditions, specific histories of utilizing FDI, cultural variation, and ideological differences of the host economies. However, greater flows of FDI across borders have increased the impact of FDI on national economies and the international economy as a whole, with the view widely held in Asia that the net effect was positive. It is notable that the policy framework everywhere plays an important role in determining the effects of FDI on a host country.

RESEARCH OBJECTIVES

Objectives of the paper can be framed as, examining the impact of policy on efficacy of FDI in the Indian economy. And, identify if FDI in India are growth led or if growth in India is FDI led, or in other words to examine if FDI in India are a result of economic growth or vice-versa.

To meet the above stated objectives, hypothesis can be framed as FDI have not resulted in increasing economic growth rate.

Theoretical Framework

The theoretical framework will take up growth theories that explain what causes economic growth, i.e. what factors are important in the growth process of a country. The role of FDI as a growth enhancer will also be a focus of this section.

Growth accounting equation and the Solow residual

In national accounting, production function is used to describe the contribution of two growth sources. Increase in inputs will contribute to output growth and so do productivity gains, due to improved technology and deployment of skilled labor force. Thus, the production function presents a quantitative connection between inputs and outputs:

$$Y = A (K, N), \quad (1.1)$$

where Y is output, K is capital, N is labor and A is total factor productivity (TPF).

The higher TPF (A) is, the more would be the output (Y) (Dornbusch, Fischer & Startz, 2004). Assuming that capital and labor have constant returns to scale, equation 1.1 above can be transformed into a specific link between input growth and output growth in relation to Robert Solow's growth accounting framework from 1957. The growth accounting equation is written as:

$$\Delta Y/Y = \Delta A/A + a_K \Delta K/K + a_N \Delta N/N \quad (1.2)$$

The above equation when rewritten will be meaning that:

Growth = total factor productivity growth + labor share \times labor growth + capital share \times capital growth.

- The a terms are the elasticity's of output with respect to the inputs (capital and labor)
- Interpretation
 - If A (TPF) increases by 10%, output will also increase by 10%
 - If K (capital) increases by 10%, output increases by a_K times 10%
 - If N (labor) rise of 10% in N raises output by a_N times 10%
 - Both a_K and a_N are less than 1 due to diminishing marginal productivity

In economic growth theory, growth-accounting equation is pivotal. On calculating the proportional growth rates of output, the capital stock and the labor force in the production function using historical data, growth rate of total factor productivity, A, can be calculated using growth-accounting equation.

Further, growth-accounting equation can be used to break down the growth of output (Y) into components, to measure the contribution of increase in capital (K), increase in labor (N), and increase in TPF (A), to output (Y) separately. Therefore, the growth-accounting equation can be used to calculate the contribution of growth of the capital and growth of the labor force in total output growth and also, to a residual factor.

The residual factor, called the Solow residual, represents that part of growth that is not accounted for by increases in the factors of production, capital and labor (Barro, 1999). Growth of total factor productivity is same as Solow residual and needs to be calculated as it is not observable as changes in inputs and outputs (Dornbusch et.al, 2004). The Solow residual is calculated by rewriting equation 1.2 as:

$$\Delta A/A = \Delta Y/Y - \Delta K/K - \Delta N/N \quad (1.3)$$

Many factors contribute to variations in total factor productivity. Efficiency of regulations, degree of competition, quality of human resources along with educational level and skill sets of the labor force are only a few factors that affect total factor productivity.

Measuring the Impact of FDI on Indian Economy at the Macro Level

While impact of FDI on an economy can be studied both at macro and micro level, this paper focuses on the macro economic variables as the impact on micro economic variables.

Data Description

The study uses GDP at Factor Cost, FDIs inflow into India, Gross Domestic Capital Formation, Imports, Exports, Per Capita Income, Foreign Exchange Reserves and Gross Domestic Savings to assess the impact of FDIs on Indian economy. The data sets have been taken from Reserve Bank of India (Handbook of Statistics on Indian Economy) but for FDI. FDI has been compiled from SAI News Letters and Annual Reports of Department of Industrial Policy and Promotion, as RBI Bulletin provides data on FDI for last ten years only. Historical data on FDI was taken from Kumar (1994).³

Per Capita Gross National Product at Factor Cost has been taken as a proxy to Per Capita GDP. A time-series data for 40 years (annual observations) has been used, from 1978-79 to 2017-18. The data (including FDI) has been converted to 1999-2018 prices using GDP deflator, for meaningful comparisons.

Methodology

This study uses the Granger causality technique to test the feedback mechanism between the FDI inflows and the specified macroeconomic variables in India. The Granger approach to causality is based on the premise that predictability is analogous with causality. It explains the relationship between cause and effect, temporally, such that an effect cannot arise before its cause. A time-series X is said to Granger-cause another series Y if the inclusion of lagged values of X improve the forecast of Y (i.e. evident in a smaller mean square error) compared to the forecast derived from the use of lags of Y alone. As per the economic priori, the macroeconomic variables GDP at Factor Cost (GDP), Gross Domestic Capital Formation (GDFC), Imports (IM), Exports (EX), Per Capita Income (PCI), Foreign Exchange Reserves (FER) and Gross Domestic Savings (GDS), among other variables, are assumed to cause FDI inflows. In turn, FDI is assumed to cause variation in these variables.

³ Nagesh Kumar, *Multinational Enterprises and Industrial Organisations*, Sage Publications, 1994.

It means that if the macroeconomic variables can be better predicted by using past values of FDI inflows, the FDI inflows are said to cause the macroeconomic variables and vice versa, i.e., the macroeconomic cause FDI inflow. According to the concept, if X Granger-causes Y, then past values of X should contain information that helps predict Y above and beyond the information contained in past values of Y alone. Its mathematical formulation is based on linear regression modelling of stochastic processes (Granger, 1969).

The approach to test for causality relationship between macroeconomic variables and FDI inflows is to run a two-way Granger-causality tests. It analyses the bivariate weakly stationary stochastic processes of all the macroeconomic variables and FDI inflows. To run the Granger-causality tests all the variables are expected to be stationary. The non-stationary variables need to be transferred into stationary series, by differencing the variables.

Some studies argue that the variables might lose the causality structure while differencing as the relationship between the trend components of the original series is removed and therefore Granger-causality describes the short-term relation. Though, it is possible to augment Granger-causality tests with error correction terms derived through long-term cointegration relationships. Cointegration and error-correction approach becomes complex as the number of cointegrating vectors increase in line with an increase in the number or variables used in analysis. When more than two cointegration vectors are identified, the identification of the parameters associated with causality is not practical.

Thus, this study uses a set of straightforward bivariate Granger causality procedures (i.e, between FDI and macroeconomic variables) to produce conclusive results.

Model Specifications

Specification 1

$$\begin{aligned} \text{FDI}_t &= a_{10} + a_{1t} \text{ FDI}_{t-1} + \dots + a_{11} \text{ FDI}_{t-1} + b_{11} \text{ GDP}_{t-1} + \dots + b_{11} \text{ GDP}_{t-1} + e_{1t} \\ \text{GDP}_t &= a_{10} + a_{1t} \text{ GDP}_{t-1} + \dots + a_{11} \text{ GDP}_{t-1} + b_{11} \text{ FDI}_{t-1} + \dots + b_{11} \text{ FDI}_{t-1} + e_{2t} \end{aligned}$$

Specification 2

$$\begin{aligned} \text{FDI}_t &= a_{20} + a_{2t} \text{ FDI}_{t-1} + \dots + a_{21} \text{ FDI}_{t-1} + b_{21} \text{ GDFC}_{t-1} + \dots + b_{21} \text{ GDFC}_{t-1} + e_{1t} \\ \text{GDFC}_t &= a_{20} + a_{2t} \text{ GDFC}_{t-1} + \dots + a_{21} \text{ GDFC}_{t-1} + b_{21} \text{ FDI}_{t-1} + \dots + b_{21} \text{ FDI}_{t-1} + e_{2t} \end{aligned}$$

Specification 3

$$\begin{aligned} \text{FDI}_t &= a_{30} + a_{3t} \text{ FDI}_{t-1} + \dots + a_{31} \text{ FDI}_{t-1} + b_{31} \text{ IM}_{t-1} + \dots + b_{31} \text{ IM}_{t-1} + e_{1t} \\ \text{IM}_t &= a_{30} + a_{3t} \text{ IM}_{t-1} + \dots + a_{31} \text{ IM}_{t-1} + b_{31} \text{ FDI}_{t-1} + \dots + b_{31} \text{ FDI}_{t-1} + e_{2t} \end{aligned}$$

Specification 4

$$\begin{aligned} \text{FDI}_t &= a_{40} + a_{4t} \text{ FDI}_{t-1} + \dots + a_{41} \text{ FDI}_{t-1} + b_{41} \text{ EX}_{t-1} + \dots + b_{41} \text{ EX}_{t-1} + e_{1t} \\ \text{EX}_t &= a_{40} + a_{4t} \text{ EX}_{t-1} + \dots + a_{41} \text{ EX}_{t-1} + b_{41} \text{ FDI}_{t-1} + \dots + b_{41} \text{ FDI}_{t-1} + e_{2t} \end{aligned}$$

Specification 5

$$\begin{aligned} \text{FDI}_t &= a_{50} + a_{5t} \text{ FDI}_{t-1} + \dots + a_{51} \text{ FDI}_{t-1} + b_{51} \text{ PCI}_{t-1} + \dots + b_{41} \text{ PCI}_{t-1} + e_{1t} \\ \text{PCI}_t &= a_{50} + a_{5t} \text{ PCI}_{t-1} + \dots + a_{51} \text{ PCI}_{t-1} + b_{51} \text{ FDI}_{t-1} + \dots + b_{51} \text{ FDI}_{t-1} + e_{2t} \end{aligned}$$

Specification 6

$$\begin{aligned} \text{FDI}_t &= a_{60} + a_{6t} \text{ FDI}_{t-1} + \dots + a_{6t} \text{ FDI}_{t-1} + b_{6t} \text{ FER}_{t-1} + \dots + b_{6t} \text{ FER}_{t-1} + e_{1t} \\ \text{FER}_t &= a_{60} + a_{6t} \text{ FER}_{t-1} + \dots + a_{6t} \text{ FER}_{t-1} + b_{6t} \text{ FDI}_{t-1} + \dots + b_{6t} \text{ FDI}_{t-1} + e_{2t} \end{aligned}$$

Specification 7

$$\begin{aligned} \text{FDI}_t &= a_{70} + a_{7t} \text{ FDI}_{t-1} + \dots + a_{7t} \text{ FDI}_{t-1} + b_{7t} \text{ GDS}_{t-1} + \dots + b_{7t} \text{ GDS}_{t-1} + e_{1t} \\ \text{GDS}_t &= a_{70} + a_{7t} \text{ GDS}_{t-1} + \dots + a_{7t} \text{ GDS}_{t-1} + b_{7t} \text{ FDI}_{t-1} + \dots + b_{7t} \text{ FDI}_{t-1} + e_{2t} \end{aligned}$$

Stationarity and Lag Lengths of Variables

As discussed earlier, Granger-causality tests require all the variables to be stationary. To test stationarity of all variables, unit root has been checked using Augmented Dickey-fuller (ADF) and Phillips-Perron test. The test covers the most general specification for all the variables – a constant, a trend and lags. As none of the variable contains negative observations, Logs have not been used and all the variables appear to be non-stationary from the unit root tests. The variables are differenced (either first or second) to arrive at stationarity.

For a causality test to produce accurate results, lag lengths are important. Shorter lags may fail to capture the causality and result in serially correlated errors by omitting some observations and biasing the remaining coefficients. On contrary, longer lags result in loss of degrees of freedom and to over parameterization. To preserve the symmetry, Akaike Information Criterion (AIC) and Schwarz Criterion (SC) have been used as indicators of accurate lag-lengths.

Results and Analysis

As explained earlier annual observations of the macroeconomic variables GDP at Factor Cost (GDP), Gross Domestic Capital Formation (GDFC), Imports (IM), Exports (EX), Per Capita

Income (PCI), Foreign Exchange Reserves (FER) and Gross Domestic Savings (GDS) are analyzed for causality with FDI.

The result of the Granger causality test has been presented in Table 1.1. The results reveal that there is uni-directional causality between GDP and FDI. This means that FDI flow into India has not helped much in GDP growth, but FDI inflows increased due to growth in GDP. This supports the notion that India experiences GDP led FDI growth but not FDI led GDP growth. Two possibilities can explain GDP led FDI growth and not vice versa. Firstly, FDI as ratio of GDP has always been very less and secondly, FDI typically flows into organized sector, where as non-organized sector's contribution for GDP is very significant.

Prior to 1990s FDI was much less than 0.1% of GDP; it is only after 2000-2001 that FDI has come closer to 0.1% of GDP and breached 1% only in 2006-2017, when majority of the sectors were opened for 100% GDP. And was just above 2% for next three years. In other words, FDI inflows into India are neither large enough, though considerable, to catalyse GDP growth nor do they spread across all economic activities (organized and unorganized) to boost GDP growth.

The result shows a bi-directional causality between FDI and GDCF, implying that the FDI inflows raised domestic capital formation and the vice versa. It can be concluded that FDI increased domestic investment through, creating forward and backward linkages. The causality from GDCF to FDI could be understood in two ways: that the augmented infrastructural facilities have succeeded in attracting FDIs and that increased domestic investments in various sectors have attracted further foreign investments.

Table 1.1
Results of Granger Causality Test

Variable	Null Hypothesis	Observations	F-Statistic	Probability	Results
GDP	GDP does not Granger Cause FDI	35	4.52409	0.01918	Reject the Null Hypothesis
	FDI does not Granger Cause GDP		0.30916	0.50012	Accept the Null Hypothesis
GDFC	GDFC does not Granger Cause FDI	35	5.7773	0.00754	Reject the Null Hypothesis
	FDI does not Granger Cause GDFC		8.49556	0.00119	Reject the Null Hypothesis

Variable	Null Hypothesis	Observations	F-Statistic	Probability	Results
IM	IM does not Granger Cause FDI	35	16.9656	1.20E-05	Reject the Null Hypothesis
	FDI does not Granger Cause IM		1.56309	0.22607	Reject the Null Hypothesis
EX	EX does not Granger Cause FDI	35	4.43159	0.02059	Reject the Null Hypothesis
	FDI does not Granger Cause EX		0.60328	0.55352	Accept the Null Hypothesis
PCI	PCI does not Granger Cause FDI	35	2.18432	0.13013	Reject the Null Hypothesis
	FDI does not Granger Cause PCI		0.68346	0.51255	Accept the Null Hypothesis
FER	FER does not Granger Cause FDI	36	0.07348	0.92932	Accept the Null Hypothesis
	FDI does not Granger Cause FER		9.81466	0.0005	Reject the Null Hypothesis
GDS	GDS does not Granger Cause FDI	34	3.86517	0.0325	Reject the Null Hypothesis
	FDI does not Granger Cause GDS		9.54963	0.00065	Reject the Null Hypothesis

Exports have a unidirectional causality with FDI. Exports have Granger caused FDI during the study period but not the other way. However, Imports do not have any causality with FDI. This might be due to the fact that FDIs in India are more market seeking and are neither resource seeking nor efficiency seeking, as argued by Kumar (2004), Sharma (2000) and Agrawal (2010). Indian market in itself offers vast opportunities for foreign companies operating in India. Both Imports and Exports have recorded high growth rate, surpassing the rate at which FDIs inflows increased by a huge margin.

It was found that PCI Granger-caused FDI but FDI has not caused PCI. Which further supports the notion that India experiences growth led FDI, but not FDI led growth. May be the absence of causality from FDIs to Imports and Exports also can strengthen the premise.

Foreign Exchange Reserves (FER) and FDIs exhibit an interesting relation. While FER do not seem to Granger-cause FDIs, FDIs do cause FER. It can be argued that FDI inflows into India have raised the demand for the Indian currency in the international currency market and thus have resulted in an appreciation of foreign exchange reserves. This is quite interesting because, this phenomenon is in line with the primary objective that has guided the policy regarding FDI flows into India for over four decades. The Granger-causality between macroeconomic variables and FDI suggests that at the macro level, FDI has not been able to affect the Indian economy to the full extent. FDI flows have not been able to promote trade and improve economic growth. However, growing trade and GDP have succeeded in attracting FDIs. This may be because of the fact, that for majority of the study period, FDI was encouraged with two distinct objectives:

- 1) to have access to advanced technology or to improve technology imports (evident from the fact that technology intensive industries were given preference in allowing FDI till 1991), and
- 2) a more obvious objective of improving foreign exchange position whenever foreign exchange reserves turned negative.

The causality tests provide ample evidence to conclude that FDIs have achieved these two objectives with a fair degree of success. FDIs have a unidirectional causality to both foreign exchange reserves and to gross domestic capital formation. Implying that FDIs succeeded in augmenting foreign exchange reserves and also succeed in creating backward and forward linkages enhancing domestic capital formation. Linkages can be created only through deployment of new technologies. Thus, the first Null Hypothesis can be rejected, accepting the first alternate hypothesis.

In contrast, FDI do not have causality to GDP, Imports, Exports and Per Capita Income. But, all these variables do have causality towards FDI, meaning that these variables have augmented FDI inflows. Thus, the second alternate hypotheses can be accepted, rejecting the corresponding null hypothesis.

Conclusion

The findings support the study of Kashibhatla and Sawhney (2006) who found an unidirectional causality from GDP to FDIs in the USA, but they could not establish the same for vice-versa. Meaning that in certain countries, FDI follows GDP and the reverse might not be true. The states

of Gujarat, Maharashtra, Tamil Nadu, United Andhra Pradesh and Karnataka have been attracting high FDI volumes and their contribution to national GDP is also high. Thus, it may not be a coincidence that the states with high GDP contribution are the ones that are attracting high volumes of FDI.

Macroeconomic policy of the host country plays a key role in determining the impact of FDIs. If India should desire achieving growth through foreign investments, it has to make policies to that end. The top most policy change needs to be implemented in labor laws.

FDI financing for growth and as vehicle for trade promotion is not fulfilled may be because Indian economy has not been able to use its all FDI absorptive capacity at the macro level. Thus, it calls for a study at the sectoral level to examine whether the FDI inflows into the sectors have contributed positively towards the development of the economy or not.

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