Direct and Indirect Impact of Foreign Direct Investment (FDI) on Domestic Investment (DI) in India

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ABSTRACT In recent years a much optimistic view on the role of Foreign Direct Investment (FDI) on Domestic Investment (DI) in the host country has evolved. Empirical studies reveal that the increase in DI due to FDI inflows would be greater than the amount of the FDI inflows in the host country and that this effect would be direct and indirect. Viewing the increasing trend of FDI inflows into India, this study explores the impact of FDI inflows on the DI in India. This study finds that the direct impact of FDI inflows on DI in India is positive but the indirect impact is ‘neutral’ on the DI in the long run. The study finds no evidence that the increase in DI due to FDI inflows is greater than the amount of the FDI inflows in India.

INTRODUCTION

Investment is a key factor in economic growth. In empirical studies the world around, there is no doubt regarding the positive relationship between high investment rates and high growth rates. According to UNCTAD (1999a), countries that devote high proportion of output to investment may sustain more rapid growth than countries that invest less. Investment is mainly financed by domestic savings. But developing countries short of domestic savings find it difficult to contribute towards high investment rates. FDI (Foreign Direct Investment) brings a relief to such countries by bringing non-debt creating inflows of foreign capital. Fischer (2002) observes that the emphasis on the role of FDI as a package of investment and skills to act as an instrument in increasing investment and growth in the host country is increasing by the day.

In India, the importance of FDI and technology needs no emphasis. India being a developing country with a huge population and low per-capita income, the domestic savings are very meager1. In this connection, Bajpai and Sachs (2000) observe that this shortfall in domestic savings can be filled by FDI so that the productive capacity of the economy is augmented to achieve the goal of sustained investment and growth. So, in 1991 some radical amendments were made and enacted through the New Economic Policy (NEP). The policy observed that while freeing the Indian economy from official controls, opportunities for promoting foreign capital and technology in India, should also be fully exploited. In this direction, the NEP liberalised, privatised and globalised the Indian economy towards foreign investments and technology.

These initiatives have resulted in a phenomenal rise in FDI inflow in India. FDI inflows have leaped to more than 75 times over the last 16 years, i.e., from just Rs 316 crores in 1991-92 to Rs 22,826 crores in 2006-2007. The objective of this study is to focus on the impact of FDI, direct and indirect2, on the DI in the Indian economy. The first part of this paper reviews the past literature and empirical studies revolving around interpreting the effects of FDI on the DI in the host country. The second part discusses the data and methodology used as part of the analysis to interpret the effects, both direct and indirect, of FDI on the DI in India. The third part of the study reveals the findings and discusses the impact of FDI on the DI in India.

Review of Literature

In recent years a much optimistic view on the role of FDI on investment in the host country has evolved. According to Caves (1996), Transnational Corporations (TNCs) through FDI can be more responsible to invest opportunities and incentives than local firms. Kogut (1993) in this direction observes that they can undertake projects for which domestic investors do not have capabilities, or projects considered too risky for host-country firms. According to UNCTAD (1999b), they can out-compete domestic firms in host-country financial markets. Substituting retained earnings and funds raised
outside a host-country for local funds can put them on a collision course with contractionary host country policies. By manipulating transactions that are internal for them (but would be at arm’s length for local firms), TNCs can, to some extent, choose where to declare profits to minimize their tax burden. Also, with the liquid financial means TNCs have available, they can engage in hedging transactions against exchange-rate movements with possible implications for balance of payments.

As regards the contribution of FDI flows to external financing, one of the three components of FDI, retained earnings, requires special attention. UNCTAD (1997) observes that retained or reinvested earnings may be viewed – based on a residence principle and in the absence of transfer from abroad – not as an infusion of fresh capital from abroad, but as domestic savings. So, FDI is one of the best substitutes for the staggering domestic savings in developing countries like India. But, the question regarding the stability of FDI as an assured investment still hovers over the policy makers of the host countries.

Studies, especially for developing countries such as Argentina, Chile, Mexico, and the East Asian countries during the financial crisis in the late 1990s, suggest that FDI is more stable than other types of private flows (Agosin and Ffrench 1997; Radelet and Sachs 1998). Tests comparing the volatility of FDI flows with other private flows into developing countries as a group also found that, during the period 1992-1997, commercial bank loans displayed the highest volatility, as measured by the coefficient of variation, followed by total portfolio investment and FDI. A further test for 12 major developing economies and countries in transition by UNCTAD (1998a) for the same period, based on annual data, has confirmed, with a few exceptions, greater volatility of foreign portfolio investment than FDI. One study by Claessens et al. (1995), however, found that FDI can be just as volatile as other short-term flows. Thereby, still keeping the door opened to the question raised regarding FDI’s stability.

As regards Mergers and Acquisitions (M and As), they appear to be a dominant component of FDI inflows in developed countries, while, at least until recently, Greenfield projects were the dominant mode of entry of TNCs into developing countries. Recently, there is a trend towards an increase of M and As in some developing countries. Many of these deals relate to privatization and therefore are likely to lead to sequential investment (UNCTAD 1995; Chudnovsky et al. 1997; Agosin 2008). Although M and As do not have a direct impact on a host country’s investment at the moment of entry, they may have an indirect impact on this investment.

Recent experience provides examples of these effects at the industry level. According to Chudnovsky et al. (1997), crowding-in has taken place in the case of Argentina’s telecommunications privatization, where the development of domestic subcontractors was part and parcel of the privatization agreement with foreign investors and appears to be working well. UNCTAD (1998b) in this connection observes that the recent decision of Intel to build a large microprocessor plant in Costa Rica will undoubtedly contribute to domestic capital formation. Obviously, this investment as such will not displace local entrepreneurs, because they do not exist, even potentially. There are estimates that the Intel affiliate, which operates under EPZ status, will give rise to investments by about 40 local suppliers, and more locally-produced goods and services. On the other hand, there are already complaints by local business people that Intel’s investment crowds them out of the labour market by absorbing skilled programmers.

Examples from countries in East Asia-Indonesia, Malaysia, and Thailand- that have relied heavily on FDI, show that it may take some time for indirect effect on DI to take place. According to Jomo (1997), TNCs have invested in new industries of the economies of those countries, mainly microelectronics-related, and also toys and other consumer goods for export markets. In the absence of TNCs, it is unlikely that these investments would have been made at all. Initially, however, many of the foreign affiliates were essentially assemblers with few linkages to the rest of the economy. Over time, domestic suppliers of services and inputs have emerged.

The implication of these studies is that in countries that do not have the required know-how or skills, FDI may contribute to capital formation directly through investments in foreign affiliates. In countries with competitive domestic firms operating in the same industries and markets, however, FDI may have crowding-out effects.
The empirical evidence on crowding-in or crowding-out at the country level can be traced to an early example, relating to Canada, of the few studies addressing this question. Some regression coefficients, taken at face value, implied that a one dollar direct investment led to a three dollar capital formation. A later study of FDI in Canada by Van Loo (1977), with somewhat different methods, a slightly longer time span and annual rather than quarterly data, found a positive direct effect on capital formation greater than the amount of the FDI. A study of the impact of FDI on economic growth, utilizing data on FDI flows on a yearly basis from 1970 to 1989, has found, among others, that FDI has stimulated DI: A one dollar increase in the net inflow of FDI is associated with an increase in total investment in the host economy of more than one dollar. The value of the point estimates place the total increase in investment at between 1.5 and 2.3 times the increase in the flow of FDI. An econometric exercise carried out to investigate this issue by UNCTAD (1999a), takes a time period from 1970-1996. The results with respect to the effects of FDI on investment by individual countries show that neutral effects dominate while the number of crowding-in and crowding-out cases were equal: out of the 12 Latin American countries included in the test, none was in the group with crowding-in effects and none of the 12 Asian countries was in the crowding-out group: while neutral and crowding-in effects prevailed in Asia, neutral and crowding-out effects prevailed in Latin America. African countries are found in all three groups.

Ndikumana and Verick (2008), in their study of Sub-Saharan African countries, posit that a key channel of the impact of FDI on development is through its effects on domestic factor markets, especially DI and employment. In this context, this study analyses the two-way linkages between FDI and DI in Sub-Saharan Africa. The results suggest that firstly, FDI crowds in DI, and secondly, countries will gain much from measures aimed at improving the DI climate. While Adams (2009) analyzes the impact of FDI and DI on economic growth in Sub-Saharan Africa for the period 1990-2003 and reveals that DI is positive and significantly correlated with economic growth in both the Ordinary Least Squares (OLS) and fixed effects estimation, but FDI is positive and significant only in the OLS estimation. The study also found that FDI has an initial negative effect on DI and subsequent positive effect in later periods for the panel of countries studied. The sign and magnitude of the current and lagged FDI coefficients suggest a net crowding out effect. The review of the literature and findings of the study indicate that the continent needs a targeted approach to FDI, increase absorption capacity of local firms, and cooperation between government and MNE to promote their mutual benefit. On the contrary, Arndt et al. (2010) using industry-level data on the stock of German FDI, have found evidence for a positive long-run impact of FDI on the domestic capital stock.

So, the inherent character of FDI in influencing investment in the host country is both direct and indirect; directly, through their own investment activities and indirectly through affecting investment by host country firms. Further, the previous empirical work on the link between domestic and foreign investment has provided mixed results. Hence, this paper analyses the impact of FDI on the DI in India.

**METHODOLOGY**

The main source of data for this study is the online database of the RBI (Reserve Bank of India) covering the 16 year period from 1991-92 to 2006-07. The study does not take the years 2007-08 and 2008-09 in order to avoid the repercussions of the recent global economic crisis. The data includes the Inflow of FDI into India, Real GDP, Rate of Growth of Real GDP, and Gross Domestic Investment.

Coming to the methodology part, DI is determined by many variables. Among them, FDI is of much importance in the Indian context even though its percentage is only four to five per cent of the Gross Fixed Capital Formation\(^1\). Therefore, the direct and indirect effects of FDI on DI can be determined only after one has controlled for the effects of other variables. According to Rama (1993), there is a large literature on investment in developing countries which offers wide choice of models. But, a model developed by UNCTAD (1999a) is of much significance with respect to this study, as this model has been developed from an unbiased dimension and studies both the direct impact of FDI on DI and the indirect impact, i.e., ‘crowding-in’ or ‘crowding-out’ effect of FDI. Hence, the
UNCTAD (1999a) model with lags has been adopted for the study. The basic model is algebraically expressed as follows:

\[ I = \alpha + \beta_1 G + \beta_2 FDI \]  

(1)

where, \( I \) is the domestic investment (DI), \( G \) is the rate of growth of Real GDP, \( FDI \) is the inflow of FDI, \( \alpha \) is the constant and \( \beta_1 \) and \( \beta_2 \) are the coefficients of the rate of growth and inflow of FDI respectively. A lagged version of this model is used in the study to allow for the lags in the execution of investment projects, which is,

\[ I_t = \alpha + \beta_1 F_{t-2} + \beta_2 G_{t-1} \]  

(2)

where, \( I = \) investment to GDP ratio; \( F = \) FDI to GDP ratio; \( G = \) growth of GDP; \( \alpha \) is the regression constant; \( \beta_1 \) and \( \beta_2 \) are the respective regression coefficients; \( t \) is the time period in years.

ANALYTICAL FRAMEWORK

The direct impact of FDI on DI has been analysed through the MLR (Multiple Linear Regression) model with robust standard errors\(^4\). The criteria to determine the long-term crowding-in or crowding-out effect of FDI on DI in the host country is performed by using the Wald test\(^5\). For this the relevant coefficient is:

\[ \beta_{LT} = \sum \beta_i / 1 - \sum \beta_i \]  

(3)

To check the consistency of the data sequence of the variables, the Augmented Dicky Fuller test (ADF) has been employed by the present study\(^6\). The results of the ADF tests for the variables are displayed in table 1.

Table 1: ADF test results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Actual ( t )</th>
<th>( P )-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DINV</td>
<td>-3.027*</td>
<td>0.100</td>
</tr>
<tr>
<td>FDI</td>
<td>-5.137***</td>
<td>0.000</td>
</tr>
<tr>
<td>GDP</td>
<td>-2.539*</td>
<td>0.100</td>
</tr>
</tbody>
</table>

\* & *** Significance at 1% and 10% level respectively \( P \)-values based on MacKinnon [JAE 1996]

It can be seen from table 1 that the ‘\( t \)’ statistic corresponding to all the variables and their corresponding P-values show that all the variables do not have the presence of a unit root and are stationary in their original form. Hence, all the variables have been taken in their original logarithmic form at 1993-94 prices for the analysis.

RESULTS AND DISCUSSION

In the empirical analysis, attempts have been made to establish the impact of FDI on DI in India. The results of the multiple determination model are displayed in table 2. The model has yielded an R square value of 0.708 which implies that 70 percent of the variation in DI (\( I_t \)) is caused by the regressors involved in the model. The corresponding ‘\( F \)’ statistic is 14.560 and the corresponding P value is 0.001. Hence, it is significant and implies that the model is a good fit for the data.

Table 2: Impact of FDI on DI in India

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Beta (( \beta ))</th>
<th>( t )</th>
<th>( P )-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-</td>
<td>18.341</td>
<td>0.000</td>
</tr>
<tr>
<td>( F_{t-2} )</td>
<td>0.727</td>
<td>4.629</td>
<td>0.001</td>
</tr>
<tr>
<td>( G_{t-1} )</td>
<td>0.345</td>
<td>2.196</td>
<td>0.048</td>
</tr>
</tbody>
</table>

Dependent Variable: Domestic Investment as a % of Real GDP

\( R^2 \) Value = 0.708; \( F \)-value = 14.560; \( P \)-Value = 0.001

The ‘\( t \)’ statistic corresponding to the partial regression coefficient of the regressor \( F_{t-2} \) is 4.629 and the corresponding P value is equal to 0.001 which implies that the regression coefficient is significant and so \( F_{t-2} \) is a variable which is a positive determinant of DI (\( I_t \)). It also registers as the highest determinant of DI (\( I_t \)). The Wald coefficient for the regressor \( F_{t-2} \) is 1.10 which is not significantly greater than one.

The other partial regression coefficient of the model \( G_{t-1} \) growth of real GDP in the model has student ‘\( t \)’ statistic value of 2.196 with P value equal to 0.048. This explains that the regression coefficient corresponding to the variable is significant and so the variable \( G_{t-1} \) growth of real GDP is also a positive determinant of DI (\( I_t \)), but registers a lower significance than FDI \( F_{t-2} \) in determining DI (\( I_t \)).

The direct impact of the FDI on the DI is significantly positive, i.e., it leads to increase in DI initially. A one dollar increase in FDI inflow leads to a 0.7 dollar increase in DI initially. But when we bring in the time bound effects of FDI inflow, according to the Wald test (\( \beta_{LT} = 1.10 \), which is not significantly greater than one), the indirect impact of the FDI on DI in the long-term is ‘neutral’. That
is, there is no evidence of either crowding-in or crowding-out of DI in the long-term in India. So, even though FDI adds to DI directly in India, it fails to crowd in local firms in the long run. That is, unlike argued in the literature review, a one dollar inflow of FDI does not even lead to a one dollar increase in DI, save more than one dollar increase in DI in India (Van Loo 1977; Jomo 1997; Ndikumana and Verick 2008; Arndt et al. 2010). The time bound effects of inward FDI are ‘neutral’ in India. This suggests that higher FDI inflows may add to DI initially, but in the long run they would play a neutral role in adding to DI.

Now why does FDI not have a crowding in effect on DI in India as argued in the review of literature (Van Loo 1977; Jomo 1997; Ndikumana and Verick 2008; Arndt et al. 2010). One main reason for this may be the vast domestic market and cheap labour in India. The foreign firms or TNCs in the consumer goods and luxuries sector that come into India mainly for export activities may be slowly lured by the immense size of the domestic market and cheap labour in India. So, instead of promoting local ancillary units (which means crowd in DI) they may themselves jump into the arena. The literature on FDI also identifies a number of factors which attract foreign firms to specific locales including the size of the domestic market for goods and services, the rate of growth of incomes in the host country, macroeconomic stability identified with price and exchange rate stability, a distortion-free economic environment and a stable political and policy environment (Dunning 1972; Balasubramanyam and Sapsford 2006). Further, it is argued that the contributions through such reinvested earnings are treated as FDI inflow, without the inflow of any fresh foreign capital. So, this can be attributed as another reason for the neutral effect of FDI on the DI in the long run.

CONCLUSION

This study establishes that inflow of FDI has a significantly positive impact on the DI in India. The study also finds that FDI inflow is a much more dominant factor than the growth in real GDP in directly contributing to DI in India during the study period. However, the study does not find any proof of FDI being a positive influence on the DI in India in the long run. The present study concludes that the indirect impact of FDI is neutral on the DI in India in the period between 1991-92 and 2006-07. FDI inflow neither leads to crowding-in nor crowding-out of DI in India. The results clearly suggest that the currently prevailing euphoria about FDI leading to a greater DI regime in the long run does not hold good in India. The results in this study are further supported by Agrawal and Shahani (2005), who reckon that it is the quality of FDI that matters for a country like India rather than its quantity. Chakravathy and Nunnenkamp (2006) observe that the structure and type of FDI have been hardly considered in previous empirical studies on the FDI-growth links in India. Hence, continuing on the same track, if not disastrous, may not yield higher DI in the Indian economy in the long run as expected. So, the policy framework with regard to FDI in India may be reassessed and steps may be taken to maximise the crowding-in effect of FDI on the DI in India.

SUGGESTIONS

To reassess the policy framework regarding FDI, most importantly, the Government of India must recognize that FDI can complement domestic efforts to meet development objectives. For this to happen, FDI policies cannot be pursued in isolation. Instead, they must be inextricably linked with policies in core areas of economic development. For this, the selection of FDI projects is of vital importance. FDI projects should be selected such that they would lead to investment spillovers rather than consumption spillovers in the domestic market.

One such method can be seen from the Chinese FDI policy framework. According to Rudolph (2006), the Chinese FDI policy framework offers a number of fiscal incentives to foreign firms but the recipients of these favors are also hemmed in by a number of restrictions. The restrictions include compulsory joint ventures with locally owned firms, compulsion to export and restrictions on the choice of location of foreign-owned plants. This could certainly pave the way for investment spillovers to the Indian firms.

Secondly, FDI inflows into India can be decentralised. Instead of concentrating on a few, already crowded, metropolitan cities, establishment of foreign industries in smaller cities can be thought upon, which would ultimately lead to crowding-in new domestic entrepreneurs.
Thirdly, backward linkage programmes with TNCs can be started through a dialogue process by the Government of India in order to disseminate knowledge and technology in addition to training to local manufacturers who could provide a supply chain for the TNCs. In return, the Government of India may offer better incentives for such TNCs.

Lastly, gaps in the domestic manufacturing can be identified. This could be done by examining the imports of finished goods and analysing whether such goods could be produced domestically just with the help of technology and capital. If so, FDI may be sought in that industry. This may lead to the establishment of a new industrial base which would in turn lead to complementing DI.

These measures may lead to an increase in the complementary effect of FDI on DI and may ultimately lead to higher economic growth and prosperity.

NOTES

1. The domestic savings rate in India hovered around 20 – 22 per cent of GDP during the 1990s which was quite low considering the growth target of 7 – 8 per cent per annum which in turn required an investment rate of 32 per cent of GDP and an ICOR of 4.5 (Rao 1994; DIPP 2009).
2. The direct impact of FDI refers to the addition made to the total investment in the host economy. The indirect impact refers to the long-term crowding-in or crowding-out effect of FDI on DI in the host country (UNCTAD 1999a).
3. India is a developing country with a huge population and low per-capita income, with the domestic savings being very meager. This shortfall in domestic savings can be filled by FDI so that the productive capacity of the economy is augmented to achieve the goal of sustained investment and growth (Bajpai and Sachs 2000).
4. The OLS (Ordinary Least Squares) method in the MLR model assumes that errors are independent and identically distributed; robust standard errors relax that assumption and help in giving reasonably accurate P-values for the test statistics.
5. An empirical finding that $\hat{\beta}_1$ is significantly greater than 1 is evidence of crowding-in and $\hat{\beta}_2$ significantly less than 1 is evidence for crowding-out of DI in the long-term.
6. ADF is a one-sided test whose null hypothesis is $\beta = 0$ versus the alternative $\beta < 0$. Under the null, $y_t$ must be differenced at least once to achieve stationarity; under the alternative, $y_t$ is already stationary and no differencing is required. Hence, large negative values of the test statistic lead to the rejection of the null hypothesis.
7. The quality of FDI refers to the long run impact of FDI in crowding-in DI of the host nation.

REFERENCES


