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A study on the volatility of FDI with respect to its determinants growth

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Abstract
FDI may be defined as an investment involving a lasting interest and control by an investor who is a resident of another economy, other than that of the host economy. In the simple sense, FDI implied that the investor has a significant degree of influence on the management. Foreign Direct Investments are investments made by residents of one economy with the objective of establishing a lasting interest in a company located in another economy (host economy).
FDI refers to the purchase by the citizens of one country of non-financial assets in another country. Foreign direct investment involves the acquisition or establishment of a firm, company or enterprise in a country outside of the registered corporate home country. FDI in real estate involves acquisition of land or building across all commercial, residential and retail segments. Any construction activity is also included in FDI.

Keywords: FDI, Economic, Investment

1. Introduction
Using a variety of econometric techniques, we find that while FDI as such has (the expected) positive effect on growth, volatility of such flows has a negative effect. There are a number of reasons why volatility of FDI inflows may be negatively associated with growth. A first possibility is that volatility itself has a negative effect on growth. The recent endogenous growth literature on FDI provides some arguments why this might be so. This literature shows that FDI positively affects growth by decreasing the costs of R&D through stimulating innovation. If FDI inflows are uncertain, costs of R&D are uncertain, which negatively affects incentives to innovate. It may then be the case that volatility of FDI undermines investment, and thus has an adverse effect on growth. A second possibility might be that the volatility of FDI flows is a proxy for economic or political uncertainty; FDI volatility may reflect underlying uncertainty (political and economic) in a country.
Lensink and Morrissey (2000) and Guillaumont and Chavet (1999) suggest that economic uncertainty is an important determinant of both growth and the productivity of investment. By 'economic uncertainty' they refer to the tendency of some developing countries to be particularly vulnerable to shocks that have the immediate effect of reducing income and, if recurrent, tend to reduce growth (or constrain the ability of an economy to reach its steady state growth rate). These shocks may be external, such as terms of trade shocks or financial crises induced by the volatility of capital flows, or 'acts of nature', such as severe drought or floods. While FDI tends to be less volatile than other private flows, it is possible that sudden changes in the volume of FDI inflows can have a de-stabilising impact on the economy.

1.1 A Brief Overview of the Literature
The contribution of FDI to economic growth has been debated quite extensively in the literature. The 'traditional' argument is that an inflow of FDI improves economic growth by increasing the capital stock, whereas recent literature points to the role of FDI as a channel of international technology transfer. There is growing evidence that FDI enhances technological change through technological diffusion, for example because multinational firms are concentrated in industries with a high ratio of R&D relative to sales and a large share of technical and professional workers .
Multinational corporations are probably among the most technologically advanced firms in the world. Moreover, FDI not only contributes to imports of more efficient foreign technologies, but also generate technological spillovers for local firms. In this approach, technological change plays a pivotal role in economic growth and FDI by multinational corporations is one of the major channels in providing developing countries (LDCs) with access to advanced technologies. The knowledge spillovers may take place via imitation, competition, linkages and/ or training. Although it is in practice rather difficult to distinguish between these four channels, the underlying theory differs.
The *imitation* channel is based on the view that domestic firms may become more productive by imitating the more advanced technologies or managerial practices of foreign firms (the more so the greater the technology gap). In the absence of FDI, acquiring the necessary information for adopting new technologies is too costly for local firms. Thus, FDI lowers the cost of technology adoption and may expand the set of technologies available to local firms.
The *competition* channel emphasises that the entrance of foreign firms intensifies competition in the domestic market, encouraging domestic firms to become more efficient by upgrading their technology base. The *linkages* channel stresses that foreign firms may transfer new technology to domestic firms through transactions with these firms. By purchasing raw materials or intermediate goods a strong buyer-seller relationship may develop that gives rise to technical assistance or training from the foreign firm to the domestic firm.
Finally, the *training* channel arises if the introduction of new technologies requires an upgrading of domestically available human capital. New technologies can only be adopted when

the labour force is able to work with them. The entrance of foreign firms may give an incentive to domestic firms to train their own employees. If labour moves from a multinational to a local firm (through labour turnover), the physical movement of workers causes knowledge to move between firms.

Empirical evidence that FDI generates positive spillovers for local firms is mixed. Some studies find positive spillover effects, some find no effects and some even conclude that there are negative effects (on the latter see Aitken and Harrison, 1999) [3]. This does not necessarily imply that FDI is not beneficial for growth (for a survey of FDI and growth in LDCs, see De Mello and Luiz. 1997) [13]. It may be that the spillovers are of a different nature. Aitken *et al* (1997) [3], for instance, point to the importance of the entry of multinationals for reducing entry costs of other potential exporters. Moreover, FDI may also contribute to growth by means of an increase in capital flows and the capital stock.

Some recent studies have argued that the contribution of FDI to growth is strongly dependent on the circumstances in recipient countries. Balasubramanyam *et al* (1996) find that the effect on growth is stronger in countries with a policy of export promotion than in countries that pursue a policy of import substitution. In a very influential paper, Borensztein *et a*l (1998) suggest that the effectiveness of FDI depends on the stock of human capital in the host country. Only in countries where human capital is above a certain threshold does FDI positively contribute to growth.

Borensztein *et al* (1998) develop a growth model in which technical progress, a determinant of growth, is represented through the variety of capital goods available. Technical progress is itself determined by FDI as foreign firms encourage adoption of new technologies and increase the production of capital goods, hence increase variety.

Thus, FDI leads to growth via technology spillovers that increase factor productivity. Certain host country conditions are necessary to ensure the spillover effects. In particular, human capital (an educated labour force) is necessary for new technology and management skills to be absorbed. Where the issue is addressed, empirical studies consistently find a negative effect of uncertainty (measured in various ways) on investment.

Serven (1998) [35] uses seven measures of uncertainty for five variables (such as growth, terms of trade) and finds evidence for all having a negative impact on levels of private investment for a large sample of developing countries. As investment is a robust determinant of growth we hypothesise that uncertainty will have a negative impact on growth. A number of recent papers have begun to address aspects of risk and vulnerability in the context of the aid-growth relationship (and we note that investment is the principal mechanism through which aid enhances growth).

Lensink and Morrissey (2000) argue that aid instability, measured as a residual of an autoregressive trend estimate of aid receipts; can proxy for two forms of uncertainty that may be growth-reducing. First is recipient uncertainty regarding future aid receipts, which may have adverse effects on investment? Second, is economic uncertainty, as the incidence of shocks will tend to attract unanticipated aid, hence increase measured instability of aid flows. Lensink and Morrissey (2000) find that the coefficient on the aid instability measure is negative and significant and infer that economic uncertainty is growth-retarding. This result is robust for the sample of African countries and the full sample of developing countries.

Guillaumont and Chauvet (1999) address the implications of including a measure of the 'vulnerability' of the economic environment (what we term economic uncertainty) in an aid-growth regression. They construct an index of a 'good environment' comprising four ariables. First is the instability of agricultural value added, to capture the effect of climatic shocks? This is weighted by the ratio of agricultural value added to GDP to represent the significance of the shock. Long-term trade shocks are represented by the trend of the terms of trade, while the index of instability of the real value of exports represents short-term shocks. The logarithm of population captures the degree of exposure to trade shocks. All of these instabilities are inverted and weighted to construct the index. They find that growth is lower in more vulnerable economies and present evidence that aid flows in greater amounts to countries suffering from adverse shocks (and aid mitigates the adverse effects of vulnerability), which lends support to the interpretation of Lensink and Morrissey (2000).

Dehn and Gilbert (1999) look specifically at instability of commodity prices (highly positively correlated with export commodity concentration) and how this impacts on growth. They test the hypothesis that vulnerability to commodity price variability reduces growth, and find supporting evidence although much depends on how governments respond. An appropriate government response can reverse the adverse effects of commodity price variability, although an inappropriate response exacerbates the adverse effects.

1.2 Why India Has Emerged As Host Destination For FDI?

India is becoming an attractive location for global business on account to its buoyant economy, its increasing consumption market, and its needs in infrastructure and in the engineering sector. To date, India is becoming a favourite destination for foreign enterprises. According to experts and TNCs managers, it is just ranked behind China and behind or on equal terms with USA (WIR, 2005); this trend was again recently confirmed by AT Kearney's FDI Confidence Index (IBEF, 2006). TNCs invest in India to improve competitiveness and profits by means of cutting costs and to take a step in the Indian market. India has many comparative advantages for TNCs.

Though low literacy and education rates could suggest that labour is not skilled enough, it is not the case when human resources are normalized by the population size. Indeed, Indian skills in research, product design, and customization of services are acknowledged. India is one of the largest pools of scientists, engineers, technicians in the world, more particularly in information technology, with competitive wage levels when compared to those of industrial countries and the use of English in business and in technical and managerial education.

The contribution of Indians of the Diaspora to human resources is noteworthy. Until the end of the 1990's, this Diaspora was still rather resented for its success abroad; but it is no more the case. The government sees it as a potential source of skills, of entrepreneurship, of knowledge and of capital. It is even creating conducive conditions to favour its return: the idea is to turn the original "brain drain" into "brain gain". As a result, more and more Indians expatriated in industrial countries (mainly in United States and United

Kingdom) start to come back to work in foreign affiliates or local companies; some of them creating their own business. Furthermore, these last years, qualified workers went less abroad, seeing their country as a land of opportunity.

In the 1980's, some foreign companies such as Texas Instruments (semiconductor design) and Astra-Zeneca biopharmaceuticals were pioneers in research activities in India. They were followed in the 1990s by groups such as Motorola (telecommunications software), Microsoft (computer operating systems), ST Microelectronics (semiconductor design), Daimler- Benz (avionics systems), and Pfizer (biometrics). Nowadays, more than 100 TNCs run research activities in India and their number is growing fast.

The availability of qualified workers, the existence of internationally reputed R&D institutes (Indian Institute of Technology, Indian Institute of Science, Indian Institute of Chemical Technologies, Centre for Drug Research), and the emergence of many Indian firms as service providers or as partners contributed to attract TNCs in India to perform R&D. On account of its cost advantages, India is nowadays the third destination for R&D, just behind China and USA (WIR, 2005). It also benefits from the fact that the kind of R&D that is suited for expansion in developing countries is not very different from that which may be kept at home (WIR 2005).

Being the second most populous country in the world, India is also attractive for market-seeking FDI. Half of the population is under 25 years of age. India's consumer market is growing quickly (with an average over 12 percent a year). Living standards are rising, a vibrant middle class - estimated to 300 million- with spending power is emerging in the cities, and infrastructures needs are tremendous.

1.3 Significance of the Study

Foreign capital played an important role in the early stages of industrialization of most of the advanced countries of today like, the countries of Europe (including the Russia) and North America. Though the problems of development of developing countries of today are not very much similar to those faced by the advanced countries in the past, there is a general view that foreign capital, if properly directed and utilized, can assist the development of the developing countries.

Borenstein and others (1995) tested the effects of FDI on economic growth in across –country regression framework, utilizing data on FDI flows from industrial countries to 69 developing countries over two decades. Their results suggest the following conclusions:

1) FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investments.
2) For FDI to produce higher productivity than domestic investment, the host country must have a minimum threshold stock of human capital.
3) FDI has the effect of increasing total investment in the economy more than proportionately which suggests the predominance of complementary effects with domestic firms.

More recent studies have focused on such factors as technological status, brand name, openness of the economy, macro trade policies of the government and intellectual property protection. Some of these variables are country specific rather than pertaining to a specific region or a State within a country. Keeping the above in mind the present study will focus on the trends and behaviour (i.e flow, growth and volatility of FDI) of FDI in India since 1991.

1.4 Research Methodology of the Study

Research methodology refers to the various sequential steps along with a rationale of each step to be adopted in research work by the researcher with a certain objective in view. For the present study, the secondary data have been made use of as the main aim of this thesis work is to study the flow, growth and volatility of foreign direct investment in India. Beside these other published source by Govt. and non- Govt. organization have also been used. Mostly tabular analysis is used to analyze the data. Moreover, the study would be built on the existing research studies and methodologies, to test the determinants of foreign investment in India. Relevant studies, done so far, have been both quantitative and qualitative in nature. The qualitative methods used include surveys and questionnaires and oral interviews. However, there are a number of challenges and issues that crop up when qualitative are used. Therefore the present study would be based on quantitative aspects. In order to estimate the statistical interference statistical package such as SPSS will be used.

2. Objectives of the study

The present study will be conducted:

1. To analyze the extent and flow of FDI in India
2. To analyze the growth of FDI in India since the reform period and its regional distribution.
3. To analyze the volatility of FDI with respect to its determinants growth
4 To suggest measures to increase the FDI in India and recommend guidelines for policy formulation and execution by government.

2.1 Source of Data

The present study would be based on secondary data. The secondary data is collected through the bulletins and reports of Ministry of Commerce and Industry, Center for Monitoring Indian Economy, RBI website, statistical abstracts, Economic survey of India (various issues), Magazines and Newspapers etc. Apart from above data would be collected from various journals, newspaper and internet websites.

2.2 Data analyses and interpretation

For the purpose of analysis and logical conclusions from the data the simple statistical tool and techniques, such as average, bi-variants correlation, multiple regression, cross sectional and time series will be used.

2.3 Scope of study

The study would be covering the pattern of FDI since economic reforms. It include various sectors of economy of India to study the various aspect of FDI such as Power and fuel, Telecommunication, Service Sector, Chemicals (other than fertilizers), Food processing, Transport, Metallurgical Industry, Electricity Equipments (including software), Textiles, Paper and paper products and Industrial Machinery.

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