Growth and Instability in Foreign Direct Investment Inflows to India Since 1991

Neha* and Madan Lal**

ABSTRACT

With the introduction of new economic reforms in 1991, there has been a significant increase in the intensity of foreign direct investment (FDI) inflows to India which shows the liberal policy regime and increase in the confidence of investors with the passage of time. The purpose of this study is to identify the trend, growth and instability of FDI inflows to India in the wake of economic liberalisation and deregulation. This paper lays down the analytical framework for empirically testing the annual rate of, the compounded annual growth rate and instability associated with the flow of FDI to India since the initiation of economic reforms in 1991. Through employing regression analysis, the results show that FDI is increasing with a growth rate of 19.31% which is highly significant with a falling growth in the instability of FDI inflows to India which is -1.42655%.

Keywords: Foreign direct investment (FDI); Liberalisation; Trend; Growth; Instability; Regression analysis.

1.0 Introduction

Since the early 1990s, there has been a significant increase in the immensity of FDI inflows to India which shows the liberal policy regime and increase in the confidence of investors by the passing time. Before 1991, foreign investments were negligible but with the economic reforms, the very first year saw an FDI flow of US $94 million. Thereafter the investments rose speedily except for occasional falls between 1997 and 2000 and 2008 and 2012 due to the global economic slowdown.

*Corresponding author; Research Scholar, Department of Commerce, Delhi School of Economics, Delhi University, Delhi, India (E-mail: nehakakkar.14@gmail.com)
**Professor, Department of Commerce, Delhi School of Economics, Delhi University, Delhi, India (E-mail: madanfms@gmail.com)
In the year 2010-11 FDI inflows to India faced a major moderation whereas the other EMEs in Asia and Latin America received larger inflows which raised major concerns in the wake of the widening current account deficit in India beyond the recognized sustainable level of 3% of GDP during April-December 2010\(^3\), FDI, which is generally considered to be the most stable constituent of capital flows was needed to finance the current account deficit; more importantly, it adds to the investible resources, which provides an approach to the advanced technologies, promotes exports and it assists in gaining the production know-how.

In our study about India’s FDI policy, we have found out that in comparison to other emerging market economies (EMEs), India’s attitude towards the FDI has been really conventional in the beginning, it eventually started meeting with the more liberalised policy stance of other EMEs, inter alia in terms of a wider approach to different sections of the economy, ease of starting business, relaxations regarding norms for owning equity and repatriation of dividend and profits. This escalating liberalisation, coupled with the considerable improvement in terms of macroeconomic fundamentals, reflected in increasing the size of FDI inflows to the country that grows nearly 5 fold during first decade of the present millennium.

India’s liberal policies and solid economic fundamentals have driven the rise in FDI inflows to India over the past one decade and this momentum even stayed stable during the global economic crisis which happened in the years 2008-09 and 2009-10 which was appreciated around the globe. Another important observation came out after the analysis of data collected for FDI is that the any divergent trend in FDI inflows might be due to certain institutional factors which could have hampered the emotions of investors. Institutional factors like procedural delays, long administrative work actually make an impact on FDI inflows. Admittedly, evaluating FDI effectiveness is a challenging task, which is possible if the impact of foreign direct investment in terms of growth can be quantified. In this study, our basic objective is to find out whether there’s been a growth in foreign direct investment in all these years especially from 1991 which is the year when the economic reforms took place to the year 2020 and to see whether there is a deviation from the predicted growth path.

2.0 Literature Review

FDI inflows, being less unstable in nature, may be seen as a significant constituent of capital inflows. Thus, the current section presents the diverse literature on FDI inflows.
Kumar (1998) observed the developing trends plus patterns in FDI inflows to India. His chief objective is to assess the role that policy liberalization has played in influencing these patterns. This is tried with an analysis of vagaries in India’s shares in FDI outflows from European and other TRIAD sources of FDI as well as by examining the changes in the shares of chief source countries with policy liberalization.

Balasubramanyam & Sapsford (2007) in their study associated the inflows of FDI in India and China and discovered that in India it is one-tenth that of China who claimed that India may not require increased FDI, given India’s factor endowments and structure in addition to the composition of her country.

Kumar (2005) evaluates the Indian experience with FDI since 1991 in a comparative East Asian perspective. He briefed the evolution of the Indian government’s policy towards FDI and inspected the trends and patterns in FDI inflows in the 1990s. He also commented on the determinants of FDI inflows in India. He examined the impact of FDI in terms of the various parameters of development. He discussed the emerging trends in the MNEs activities in knowledge-based industries in India.

Tambunan (2005) established that FDI has positive effects on poverty lessening mainly through three important ways, viz., labour-intensive growth with export growth as the most important engine; technological innovation and knowledge spill-over effects from FDI-based firms on the local economy; in addition to poverty alleviation programmes or projects backed by tax revenues together from FDI-based firms.

Teli (2014), emphasised that overall, India has followed an enormously cautious attitude. Nevertheless, when economic reforms were introduced in 1991, India had liberalized its foreign policy and in addition took a series of measures to invite FDI. According to the UN report, India is an investment hub after China and USA for major global companies. This research paper is built on secondary data plus the era of the study is from 1991 to 2012. Total FDI inflows have been raised from 133 US $ millions in 1991-92 to 27841 US $ millions in the year 2008-09 and the share of direct foreign investment through agreements in equity etc. stood at 65.79% in addition that of portfolio investment was 34.21%. Forecasts show that total FDI inflows will be 46098 US $ millions in 2015-16. Mauritius and Singapore tops in FDI inflows in addition to the FDI inflows in the service sector which were in the maximum position. They have a positive influence on the related economic pointers in the Indian Economy. The GOI should invite more FDI through favourable policies as well as avoid uncertainties.

Sethi & Sucharita (2015), studied the consequence of foreign direct investment (FDI) on economic growth in Bangladesh and India. The learning also finds the inspiring factors and complications of FDI inflows in Bangladesh and India. They have worked on bivariate regression, ordinary least squares (OLS), and Granger causality estimation to
study the effect of FDI on GDP growth in Bangladesh and India by means of data for the era 1974-2014. The bivariate regression results discovered that FDI is positively correlated with GDP growth and has a positive outcome on the economic growth of both countries. The regression results specify that FDI is positively associated to the economic growth of Bangladesh but it has not yet been recognized as a significant determining factor for the economic growth. Instead, the result specifies that FDI is negatively associated to the economic growth in India and it has not yet been recognized as an important determining factor for the economic growth. It cannot be said that FDI has a positive or negative influence on economic growth both the countries. They accomplish that the effect of FDI on economic growth is vague for both India and Bangladesh.

Ahn (2016), emphasised that FDI needs to be implicit in the framework of international business because it moves production internationally. This infers that FDI cannot be insulated from international economic situations. Liberalisation, Globalisation (WTO), World Recovery plus Global financial crisis are taken as different global policy periods in this research that have led to a lot of fluctuations in international trade, investment flows plus in the business environment. Henceforth, this paper tries to fill the gap in the existing literature by demonstrating the global policy period wise influence on FDI inflows in India. The paper inspects FDI trends in India during 1991-2013, using dummy variables to evaluate the exogenous structural breaks, produced by different global policy periods. It discloses that there have been lots of deviations in terms of FDI levels and growth rates throughout different global policy periods. Particularly, after the pre-crisis bubble had burst, there has been a severe fall after the Global Financial crisis, when for the first time the growth rate has turned into negative. The best era was liberalisation plus world recovery period aided a lot in giving a boost to FDI. Whereas FDI decline puts a premium on upholding a friendly investment climate, Indian policy makers should ponder on global policy keenly along with the development of domestic policy towards attracting FDI.

Goyal (2017), reviewed the effects of FDI inflow throughout 2000-2017. This study starts with finding the factors accountable for the growth in FDI inflow in India, studies the trend, major sources plus attractive sectors of FDI inflow. In this study, the descriptive analysis has been used for the purpose. The findings disclose that the trend is full of ups and downs owing to the world’s economic reasons. The responsible factors comprise the accessibility of large market, demand, qualitative labour force, tax incentives. Mauritius, Singapore and Japan are the major contributors of FDI inflow. Additional, service sector, telecommunication, computer software and hardware plus
construction development were the major segments inviting FDI inflows throughout the period of study.

Singh (2019), focused that Indian economy is one of the top emerging markets of the world. Five years ago, it was considered as part of the fragile five, but no longer. Since 2014, it has emerged as one of the one top foreign destination in the world with a significant rise in FDI. The journey of attracting foreign investments started way back in 1991 with the New Economic policy and India has unprecedentedly scaled new heights in the level of FDI during the 2000’s. The paper focuses on secondary data based sector analysis of the inflow of FDI in India from 2000 to 2018. The paper also aims to look at different facets of positive FDI spill overs in the country.

3.0 Conceptual Framework

FDI has become a matter of interest in the light of academic discussion and study in the present competitive world. It is important to highlight that different people have different perceptions and approaches to understand the concept of FDI.

Now, in order to understand the concept of FDI in a simple manner, it is imperative to give an outline about the various components of FDI. These components are as follows:

- Equity Capital,
- Re-invested Earnings,
- Other Capital (mainly intra-company loans)

Here, ‘equity capital’ is understood as the foreign direct investor’s net purchases of the shares and loans of an enterprise in a country other than its own. ‘Reinvested earnings’ mean the part of an affiliates earnings accruing to the foreign investor that is re-invested in that enterprise. ‘Other capital’ includes short or long-term loans from parent firms to affiliate enterprise (or vice-versa) including trade credits, bonds and money market instruments, financial leases and financial derivatives. In the case of India, the actual FDI inflow is recorded under five broad heads. These are:

- RBI’s automatic approval route for equity holding up to 51%;
- FIPB’s discretionary approval route for larger projects with equity holding greater than 51%;
- Acquisition of shares route (since 1996);
- RBI’s NRJ schemes and
- ECBs Route (ADRs/GDRs).

The earlier Indian definition of FDI differed from that of the IMF as well as that
of the UNCTAD’s WIR, IMF’s definition includes ECBs. Ideally, FDI inflows should get reflected in capital formation, formation of new firms and factories, increase in foreign equity holding in existing firms and M & As of existing firms and factors. Since 2000, a new method of compilation of the FDI statistics has been adopted to make it comparable internationally. In this regard, the RBI formed the Technical Monitoring Group on FDI and in its first action taken report on June 2003, identified the following fourteen items under three different heads required to be included in FDI statistics to make it comparable globally:

3.1 Equity capital
- Equity in unincorporated and entities
- Non-cash acquisitions against technology transfer, plant and machinery, goodwill, business development and similar considerations
- Control premium
- Non-competition fee

3.2 Reinvested earnings
- Reinvested earnings of incorporated entities
- Reinvested Earnings of unincorporated entities
- Reinvested earnings of indirectly held direct investment enterprise

3.3 Other capital
- Short-term and long-term borrowings
- Trade credit
- Supplies credit
- Financial Leasing
- Financial Derivatives
- Debt securities
- Land and buildings

4.0 Theories of FDI

4.1 Differential rates of return
According to this theory, the most crucial factor for FDI to take place is the differential rate of return between the home and host country, as capital flows from a country with low rates of return to a country with high rates of return. The rationale is that a firm which considers
FDI must behave in such a manner as to equate marginal return to marginal cost. The hypothesis assumes risk neutrality which makes the rate of return the only variable upon which the investment decision depends. Risk neutrality in this case implies that the investor considers domestic and foreign direct investment to be the perfect choice or in general that direct investment in any country, including the home country, is a perfect choice for direct investment in any other country. (Moosa, 2002). They have failed to find a significant relationship between intercountry differences in the rates of return and FDI flows. Some have rejected the differential rates of returns, and stressed the adequacy of the return as a pre-condition for the movement of capital (Bandera and White, 1968). This theory, however, does not explain the simultaneous occurrence of inflows and outflows in a country.

4.2 Location theory

In 1909 the German economist Alfred Weber formulated a theory of industrial location in his book entitled ‘Über den Standort der Industrien’ (Fearon, 2019). The basic idea behind this theory is that FDI is being attracted by location advantage, which is due to the immobility of some of the factors of production, such as labour and natural resources. Due to this, immobility differences that occur in the cost of factors of production are all due to location. The location specific factors may result in low cost of capital etc., because the level of low wages in the host country relative to high wages in the home country is an important determinant of FDI. Likewise, the availability of skilled labour with low wages and the availability of the capital at low cost may facilitate FDI. However, the empirical studies on the location specific peculiarity of FDI have a mixed result.

4.3 Product cycle theory

This theory was developed to explain the expansion of US MNCs after world war II and offered a useful explanation for the interaction between the production, exports and FDI during 1950s and 1960s (Vernon, 1966). A subsequent hypothesis clarified that a product goes through a cycle of initiation, exponential growth, slow down and decline that is a sequence that corresponds to the process of introduction, spread, maturation and senescence (Vernon, 1979). This theory suggests that a product has to go through three stages. Firstly, a country undertakes commercial application (innovation) of a scientific invention and produces new products. In this stage, the demand for the product is price-inelastic and so the innovating firm can charge a relatively high price. During the course of time, the product is improved and there is a demand from the customers living in the home country. Secondly, in this stage, the product matures and is
standardized with mass production. It is now exported by the innovator country to other countries. As the demand continues to grow and competition emerges, the innovator firm resorts to FDI in those countries to meet the local demand. In this stage, the innovating country dominates the export market and in the final stage, the product along with the production process become completely standardized and it no longer remains the exclusive property of the innovator firm. At this stage, price competition from other producers forces the innovating firm to invest in developing countries, seeking cost advantages; the home country starts to import the product from both domestic and foreign firms. The home country becomes the net importer, while foreign countries become net exporters (Agarwal, 1980). There is an evident forceful association between the propensity to invest in new products, export performance, FDI, and the ratio of the local production to export on one hand, and R & D expenditure of the US industries on the other.

5.0 Rationale of the Study

The purpose of this study is to identify the trend, growth, instability associated with FDI flows to India in the wake of economic liberalization and deregulation in the year 1991 under the New Economic Reforms. The reason to study this topic is since most of the studies ignore instability associated with the flow of capital, in our study, we would be analyzing the volatility associated with FDI flows to India. The paper examines FDI trends, growth and instability in India during 1991-2020. Hence, this paper attempts to fill the gap in the existing literature by analyzing the volatility associated with FDI flows to India.

6.0 Objectives of the Study

The specific objectives of our study on the topic of “Growth and Instability in Foreign Direct Investment Inflows to India Since 1991” are as follows:

- To study the nature of FDI inflows to India.
- To identify the trend of FDI inflows to India.
- To analyze the growth of FDI inflows to India.
- To assess the instability associated with FDI inflows to India.

7.0 Hypotheses

The hypotheses that this study seeks to test are:

$H_0$: There is no significant trend of FDI inflows to India over the 30 years’ time period.
8.0 Research Methodology

The interest of this study is in examining whether there is a significant trend, growth and instability of Foreign Direct Investment Inflows to India or not after 1991- the era of economic reforms; for measuring this, the following methodologies have been used:

8.1 Graphical analysis

By using simple graphical analysis, we can visually interpret the growth and flow of Foreign Direct Investment Inflows to India over the 30-year time period.

8.2 Trend analysis

By using a linear-trend regression analysis with a single figure of rate of change, that is, Annual Rate of Change for the entire 30-year time period is obtained for Foreign Direct Investment Inflows to India. The actual values along with the predicted values are plotted on a Figure and the more the variation between the predicted and actual values, the more undesirable the situation (In the Figures, the thin line represents the actual figures, while the dark thick line represents the predicted values of Foreign Direct Investment Inflows to India being plotted).

The annual rate of change is obtained from the following regression equation:

\[ Y_t = a + bt \]

8.3 Growth analysis

Under the Growth Analysis, we apply the semi-log equations also known as the semi-log regression analysis to ascertain CAGR (Compounded Annual Growth Rate) for the entire 30-year time period for Foreign Direct Investment Inflows to India. The actual values, along with the predicted values, are plotted on a Figure and we can also comment on the slope of the trend line and interpret the intercept of the regression line (In the Figures, the thin line represents the actual figures, while the dark thick line represents the predicted values of Foreign Direct Investment Inflows to India being plotted).

The annual compound growth rate is obtained from the following exponential equation:

\[ Y_t = e^{(a + bt)} \]
8.4 Instability analysis

It is important to ascertain the level of deviations. We have done the instability analysis with the help of the instability index. Instability is unavoidable in economics behavior because variables are not deterministic or pre-determined and the knowledge of instability helps in improving and planning.

Instability can happen in either direction, better or worse.

Two steps involved in instability analysis:

8.4.1 Index of instability

For this, the following steps would be followed:

- From the semi-log growth equation:
  
  Calculate DTREND = Predicted Value – Actual Value.

- Then, calculate Absolute DTREND which is the absolute value of DTREND i.e. it ignores the negative signs and takes the absolute value.
  
  ABDTREND = ABS(DTREND) i.e. ABDTREND

- Next, we calculated the Index of Instability which is calculated as follows:
  
  Index of Instability = [(\| (exp (logY) – Y) \| / (exp (logY)) * 100]

8.4.2 Trend analysis of index of instability

Applying linear trend regression analysis by regressing the index of instability on time, in order to see the trend in the index of instability of Foreign Direct Investment Inflows to India. The actual values, along with the predicted values, are plotted on a Figure and the more the variation between the predicted and actual values, the more undesirable the situation (In the Figures, the thin line represents the actual figures, while the dark thick line represents the predicted values of the variable being plotted).

The annual rate of change in the Index of Instability is obtained from the following regression equation:

\[ IYdt = a + bt \]

8.4.3 Growth analysis of index of instability

Under the Growth Analysis, we apply the semi-log equations also known as the semi-log regression analysis to ascertain the Compounded Annual Growth Rate (CAGR) for the Index of instability (Instability) of Foreign Direct Investment Inflows to India. The actual values, along with predicted values, are plotted on a Figure and we can also comment on the slope of the trend line and interpret the intercept of the regression line (In the Figures,
the thin line represents the actual figures, while the dark thick line represents the predicted values of the variable being plotted.

The annual compound growth rate is obtained from the following exponential equation:

\[ I(t) = e^{(a + bt)} \]

By taking log (natural) of both sides and adding an error term:

\[ \log I(t) = a + bt + \mu t \]

### 9.0 Data and Time Period of Study

This research work is completely based on secondary data. The time period taken for the analysis under this study is the 30-year period starting from 1991 to 2020. The choice of this time period is because 1991 is the year when the “New Economic Reforms” took place in India and which led to the adoption of the “LPG” concept i.e. Liberalization, Privatization and Globalization in India and the introduction of capital inflows to India.

### 9.1 Analysis

To find out that whether there is a relationship between time and the flow of foreign direct investment to India, we would be using linear trend regression analysis, semi-log regression analysis and index of instability to estimate the annual rate of change, the growth rate and the trend in instability of FDI. For our study, we would be doing four analyses of Foreign Direct Investment Inflows to India as follows:

- Graphical Analysis
- Trend Analysis
- Growth Analysis
- Instability Analysis
  - Index of Instability
  - Trend Analysis of Index of Instability
  - Growth Analysis of Index of Instability

Firstly, under graphical analysis, we would be graphically showing the simple trend of net transfer of Foreign Direct Investment (FDI) and its various components. Secondly, under trend analysis, we would be using linear trend regression analysis to find out the annual rate of change of FDI and thirdly, under growth analysis, we would be using semi-log regression analysis to estimate the compounded annual growth rate of FDI. Fourthly, it is important to ascertain the level of deviations. We have done the instability analysis with the help of the instability index and further, applying linear trend regression analysis and semi-log
regression analysis by regressing the index of instability on time, in order to see the trend and growth in index of instability of the flow of FDI to India.

All the analysis is done on the basis of the data provided in the table below which is prepared with the help of data on foreign direct investment to India. Table 1 highlights the time series data of FDI which is the sum of equity capital, reinvestment of earnings, other long-term as well as short-term capital as shown in the balance of payments to India during the period from 1991 to 2020. Table 1 is prepared to arrive at Net FDI inflows to India after adding equity, reinvested earnings and other capital.

The magnitude and trends of FDI may be depicted through Table 1 in which, the components of FDI have also been shown as the definition of FDI has been changed in 1999-2000 in line with the international standards. Before considering magnitudes and trends of foreign capital inflows in India since 1991, it is necessary to point out that the data since 2000-01 are not comparable to the data prior to this year. This is on account of the change in the definition of foreign investment in an attempt to bring it in line with international standards. FDI inflow was recorded under five heads: (i) Reserve Bank of India’s automatic approval route for equity holding up to 51 per cent; (ii) Foreign Investment Promotion Board’s or Secretariat of Industrial Approval’s discretionary approval route for large projects with equity holding greater than 51 per cent; (iii) acquisition of shares route since 1996 (relating to acquisition of shares of Indian companies by non-residents under Section 29 of FERA); (iv) RBI’s non-resident Indian (NRI) schemes; and (v) external commercial borrowings (American Depository Receipts/Global Depository Receipts and euro equities). This definition differed from that of the IMF which includes external commercial borrowings, reinvested earnings and subordinated debt. In an effort to bring the Indian definition in line with the IMF’s definition, the coverage of FDI since 2000-01 includes, besides equity capital, reinvested earnings and other direct capital.

9.2 Graphical analysis

Table 1 reveals that the flow of net FDI into India increases over the year in absolute sense except in year 1998-99 when net FDI inflows into India declined from US$ 3562 million in 1997-98 to US$ 2480 million in 1998-99 due to the impact of the East Asian crisis of 1997. The cumulative FDI inflows into India were US$ 15.6 billion during 1990-91 to 1999-2000. Year on year growth rate of net FDI during the period from 1990-91 to 1999-2000 shows fluctuating trends over the years. During these periods, growth rate in net FDI inflows was the highest at 144.2 per cent in 1992-93 over the previous year.
Table 1: Net FDI Inflows to India from 1991 to 2020 (US $ Million)

<table>
<thead>
<tr>
<th>Years</th>
<th>Equity (1)</th>
<th>Reinvested Earnings(2)</th>
<th>Other Capital(3)</th>
<th>FDI (1+2+3) US $ million</th>
<th>Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>96</td>
<td>NA</td>
</tr>
<tr>
<td>1992</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>129</td>
<td>34.375</td>
</tr>
<tr>
<td>1993</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>315</td>
<td>144.186</td>
</tr>
<tr>
<td>1994</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>586</td>
<td>86.03175</td>
</tr>
<tr>
<td>1995</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1343</td>
<td>129.1809</td>
</tr>
<tr>
<td>1996</td>
<td>2143</td>
<td>NA</td>
<td>NA</td>
<td>2143</td>
<td>59.56813</td>
</tr>
<tr>
<td>1997</td>
<td>2842</td>
<td>NA</td>
<td>NA</td>
<td>2842</td>
<td>32.61783</td>
</tr>
<tr>
<td>1998</td>
<td>3562</td>
<td>NA</td>
<td>NA</td>
<td>3562</td>
<td>25.33427</td>
</tr>
<tr>
<td>1999</td>
<td>2480</td>
<td>NA</td>
<td>NA</td>
<td>2480</td>
<td>-30.3762</td>
</tr>
<tr>
<td>2000</td>
<td>2167</td>
<td>NA</td>
<td>NA</td>
<td>2167</td>
<td>-12.621</td>
</tr>
<tr>
<td>2001</td>
<td>2400</td>
<td>1350</td>
<td>279</td>
<td>4029</td>
<td>85.92524</td>
</tr>
<tr>
<td>2002</td>
<td>4091</td>
<td>1644</td>
<td>390</td>
<td>6125</td>
<td>52.02283</td>
</tr>
<tr>
<td>2003</td>
<td>2766</td>
<td>1832</td>
<td>438</td>
<td>5036</td>
<td>-17.7796</td>
</tr>
<tr>
<td>2004</td>
<td>2229</td>
<td>1460</td>
<td>633</td>
<td>4322</td>
<td>-14.1779</td>
</tr>
<tr>
<td>2005</td>
<td>3714</td>
<td>1904</td>
<td>369</td>
<td>5987</td>
<td>38.52383</td>
</tr>
<tr>
<td>2006</td>
<td>5915</td>
<td>2760</td>
<td>226</td>
<td>8901</td>
<td>48.67212</td>
</tr>
<tr>
<td>2007</td>
<td>16394</td>
<td>5828</td>
<td>517</td>
<td>22739</td>
<td>155.4657</td>
</tr>
<tr>
<td>2008</td>
<td>26757</td>
<td>7679</td>
<td>292</td>
<td>34728</td>
<td>52.72439</td>
</tr>
<tr>
<td>2009</td>
<td>31929</td>
<td>9032</td>
<td>776</td>
<td>41737</td>
<td>20.18256</td>
</tr>
<tr>
<td>2010</td>
<td>22904</td>
<td>8668</td>
<td>1535</td>
<td>33107</td>
<td>-20.6771</td>
</tr>
<tr>
<td>2011</td>
<td>15737</td>
<td>13102</td>
<td>191</td>
<td>29307</td>
<td>-12.3146</td>
</tr>
<tr>
<td>2012</td>
<td>22833</td>
<td>8205</td>
<td>1914</td>
<td>32952</td>
<td>13.51016</td>
</tr>
<tr>
<td>2013</td>
<td>16032</td>
<td>9880</td>
<td>1041</td>
<td>26035</td>
<td>-18.2053</td>
</tr>
<tr>
<td>2014</td>
<td>20489</td>
<td>8978</td>
<td>1296</td>
<td>30763</td>
<td>14.13572</td>
</tr>
<tr>
<td>2015</td>
<td>22298</td>
<td>9988</td>
<td>2997</td>
<td>35283</td>
<td>14.69298</td>
</tr>
<tr>
<td>2016</td>
<td>30587</td>
<td>10413</td>
<td>3906</td>
<td>44906</td>
<td>27.27376</td>
</tr>
<tr>
<td>2017</td>
<td>27383</td>
<td>12343</td>
<td>2489</td>
<td>42215</td>
<td>-5.99252</td>
</tr>
<tr>
<td>2018</td>
<td>24196</td>
<td>12542</td>
<td>2692</td>
<td>39430</td>
<td>-6.59718</td>
</tr>
<tr>
<td>2019</td>
<td>26604</td>
<td>13672</td>
<td>3027</td>
<td>43303</td>
<td>9.82247</td>
</tr>
<tr>
<td>2020</td>
<td>33522</td>
<td>14175</td>
<td>8309</td>
<td>56006</td>
<td>29.33515</td>
</tr>
</tbody>
</table>

Notes: 1. Data for 2019-20 are preliminary estimates.
Source: Handbook of Statistics on the Indian Economy, RBI

The definition of foreign investment has been changed from 2000-01 in line with the international standards which include equity, reinvested earnings and other capital so the data since 2000-01 are not comparable to the data prior to this. Equity is the main source of FDI inflow as is clear from Table 1, Figure 1 and Figure 2.
Figure 1: Trend of FDI to India (US$ million)

Source: Author’s own

Figure 2: Trends of Components of FDI in India

Source: Author’s own
During the periods from 2000-01 to 2005-06, net FDI inflow increases slowly except for two years, i.e., 2002-03 and 2003-04 when net FDI flow has declined. During these periods, net flows into India were, on an average US$ 5.7 billion per year. Net FDI flow increases sharply from the year 2005-06 to 2008-09. During these periods, net FDI flows into India were on an average US$ 31.8 billion per annum. Growth rates during these periods are highest at 154.7 per cent in 2006-07 over the previous year. Net FDI inflow starts declining after 2008-09. During the period from 2009-10 and 2010-11(P), net FDI flows into India on an average US$ 34 billion per annum. The cumulative FDI flows into India were US$ 538.7 billion during the period from 2000-01 to 2010-11. When we analyse the growth pattern of FDI, we found that it shows fluctuating trends over the years.

9.3 Trend analysis

Under trend analysis, we have taken a linear trend equation which is as follows:

\[ Y_t = a + bt \]

Where \( b \) = Annual Rate of Change, \( Y_t \) = Dependent variable Y which is FDI flows into India being studied and \( a \) = intercept and \( t \) = year.

We have applied regression analysis on this equation for FDI flows into India in order to find out the Annual Rate of Change in them during the period 1991 to 2020.

**Table 2: Regression Output of FDI to India (US$ million) Dependent Variable FDI**

<table>
<thead>
<tr>
<th></th>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-3774353.911</td>
<td>300240.0484</td>
<td>-12.57112078</td>
<td>4.93543E-13</td>
</tr>
<tr>
<td>Years</td>
<td>1891.362625</td>
<td>149.706932</td>
<td>12.63376785</td>
<td>4.38164E-13</td>
</tr>
</tbody>
</table>

Annual Change Rate = 1891.3626 US $ million

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R Square</td>
<td>0.850755887</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>0.84542574</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Author’s own*

The linear trend equation is as follows:

\[ Y_t = a + bt \]

Where \( b \) = Annual Rate of Change, \( Y_t \) =Foreign Direct Investment (FDI), \( a \) = intercept, \( t \) = year.

We applied the regression analysis and found out that the Annual Rate of Change of FDI is US$ 1891.3626 million per year as per Table 2. That is, FDI is increasing on an average rate of US$ 1891.3626 million per year. The p-value of both,
the growth coefficient and the intercept’s coefficient are highly significant implying that the flow of FDI has been growing at a rate of US$ 1891.3626 million p.a. over the entire 30 years of the study as shown in Figure 3. The autonomous level of FDI as depicted by the intercept’s coefficient is highly significant with a p-value of 4.93543E-13. Since the β coefficient is large, which is 1891.362625, and the standard error, which is 149.706932, is small, the t value, which is 12.63376785, is large and significant. Hence, there is a trend in the flow of FDI to India over the 30-year time period. Therefore, the null hypothesis is rejected which says that there is no trend in the flow of FDI to India.

With the use of regression equation, predicted and actual values of FDI are depicted through the Figure 3.

Figure 3: Trends of FDI and Predicted FDI (US$ Million)

Now, if we would look to Figure 3, we would see that the predicted FDI is a straight line and is not a good fit as predicted is not going with the actual FDI line. The slope of the trend line shows a rise in the FDI but there is great variation between the predicted and the actual data line. For this, instability analysis needs to be done to determine the instability. But the trend line is showing an upward movement. Thus, FDI has been growing at a significant desirable rate over the 30 years of study, but there is instability. Therefore, we would go for the growth equation. For that, we would do a growth analysis for FDI to see the growth rate.
9.4 Growth analysis

Under growth analysis we have taken an exponential equation which is as follows:

\[ Yt = e^{(a + bt)} \]
\[ log Yt = a + bt \]

Where \( b = \) Compounded Annual Growth Rate, \( Yt = \) Dependent variable \( Y \) which FDI flows into India being studied and \( a = \) intercept and \( t = \) year.

We have applied regression analysis on this semi-log equation for FDI flows into India in order to find out the Compounded Annual Growth Rate during the period 1991 to 2020.

### Table 3: Regression Output of Foreign Direct Investment to India Dependent Variable: Log of FDI

<table>
<thead>
<tr>
<th></th>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td>0.193152323</td>
<td>0.014236744</td>
<td>13.56717004</td>
<td>7.80932E-14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compounded Annual Growth Rate = 19.31 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s own

The exponential equation which is as follows:

\[ Yt = e^{(a + bt)} \]
\[ log Yt = a + bt \]

Where \( b = \) Compounded Annual Growth Rate, \( Yt = \) FDI and \( a = \) intercept and \( t = \) year.

From the output received through regression equation as shown in Table 3. The compounded annual growth rate of FDI comes out to be 19.31 % with a p-value of 7.80932E-14 which indicates the growth to be highly significant. The coefficient of the intercept which shows autonomous level of growth has a p-value of 1.37437E-13 which confirms that the value of intercept is highly significant. Since the \( \beta \) coefficient is large, which is 0.193152323, and the standard error, which is 0.014236744, is small, the \( t \) value, which is 13.56717004, is large and significant. Hence, there is growth in the flow of FDI to India. Therefore, the null hypothesis which says there is no growth in the flow of FDI to India is rejected.
With the use of regression equation, predicted and actual values of FDI are depicted through the Figure 4.

**Figure 4: Growth Curve of FDI to India (US$ Million)**

Now, if we would look to Figure 4, we would see that the predicted FDI is a curve and is not a good fit as predicted is not going with the actual line as in between, there is a huge variation between the predicted and the actual line. The slope of the trend line shows a rise in the FDI but there is great variation between the predicted and the actual data line. For this, instability analysis needs to be done to determine the instability. The slope of the trend line is rising in an upward direction which is indicative of the growth of FDI to India has been rising consistently. Thus, FDI has been growing at a significant desirable growth rate over the 30 years of the study.

**9.5 Instability analysis**

We have done an instability analysis on FDI flows into India. The basic purpose of doing this analysis is to find out whether the FDI inflows to India are stable or not. This analysis is done on the basis of statistics output obtained by applying semi-log regression analysis on the FDI inflows to India with the help of which we would examine whether there is instability in FDI inflows to India. We will prepare the instability index (Table 4)
and will apply linear trend regression analysis on index of instability i.e. regressing instability index on time we will find whether there is trend or no trend in the index of instability.

9.5.1 Index of instability

<table>
<thead>
<tr>
<th>Years</th>
<th>FDI (US $ million)</th>
<th>Predicted FDI</th>
<th>Residuals</th>
<th>Predicted LFDI</th>
<th>FDI</th>
<th>DTREND</th>
<th>ABDTREND</th>
<th>IndxInsFDI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>96</td>
<td>4.5643</td>
<td>-1.5194</td>
<td>438.66</td>
<td>96</td>
<td>342.66</td>
<td>342.66</td>
<td>78.115</td>
</tr>
<tr>
<td>1992</td>
<td>129</td>
<td>4.8598</td>
<td>-1.4171</td>
<td>532.12</td>
<td>129</td>
<td>403.12</td>
<td>403.12</td>
<td>75.757</td>
</tr>
<tr>
<td>1993</td>
<td>315</td>
<td>5.7526</td>
<td>-0.7174</td>
<td>645.5</td>
<td>315</td>
<td>330.5</td>
<td>330.5</td>
<td>51.2</td>
</tr>
<tr>
<td>1994</td>
<td>586</td>
<td>6.3733</td>
<td>-0.2899</td>
<td>783.03</td>
<td>586</td>
<td>197.03</td>
<td>197.03</td>
<td>25.163</td>
</tr>
<tr>
<td>1995</td>
<td>1343</td>
<td>7.2027</td>
<td>0.3463</td>
<td>949.87</td>
<td>1343</td>
<td>-393.13</td>
<td>393.13</td>
<td>41.388</td>
</tr>
<tr>
<td>1996</td>
<td>2143</td>
<td>7.67</td>
<td>0.6205</td>
<td>1152.3</td>
<td>2143</td>
<td>-990.74</td>
<td>990.74</td>
<td>85.983</td>
</tr>
<tr>
<td>1997</td>
<td>2842</td>
<td>7.9523</td>
<td>0.7096</td>
<td>1397.8</td>
<td>2842</td>
<td>-1444.2</td>
<td>1444.2</td>
<td>103.32</td>
</tr>
<tr>
<td>1998</td>
<td>3562</td>
<td>8.1781</td>
<td>0.7423</td>
<td>1695.6</td>
<td>3562</td>
<td>-1866.4</td>
<td>1866.4</td>
<td>110.08</td>
</tr>
<tr>
<td>1999</td>
<td>2480</td>
<td>7.816</td>
<td>0.1871</td>
<td>2056.9</td>
<td>2480</td>
<td>-423.14</td>
<td>423.14</td>
<td>20.572</td>
</tr>
<tr>
<td>2000</td>
<td>2167</td>
<td>7.6811</td>
<td>-0.141</td>
<td>2495.1</td>
<td>2167</td>
<td>328.11</td>
<td>328.11</td>
<td>13.15</td>
</tr>
<tr>
<td>2001</td>
<td>4029</td>
<td>8.3013</td>
<td>0.286</td>
<td>3026.7</td>
<td>4029</td>
<td>-1002.3</td>
<td>1002.3</td>
<td>33.114</td>
</tr>
<tr>
<td>2002</td>
<td>6125</td>
<td>8.7201</td>
<td>0.5117</td>
<td>3671.6</td>
<td>6125</td>
<td>-2453.4</td>
<td>2453.4</td>
<td>66.82</td>
</tr>
<tr>
<td>2003</td>
<td>5036</td>
<td>8.5244</td>
<td>0.1228</td>
<td>4453.9</td>
<td>5036</td>
<td>-582.06</td>
<td>582.06</td>
<td>13.069</td>
</tr>
<tr>
<td>2004</td>
<td>4322</td>
<td>8.3715</td>
<td>-0.2232</td>
<td>5402.9</td>
<td>4322</td>
<td>1080.9</td>
<td>1080.9</td>
<td>20.006</td>
</tr>
<tr>
<td>2005</td>
<td>5987</td>
<td>8.6973</td>
<td>-0.0905</td>
<td>6554.1</td>
<td>5987</td>
<td>567.11</td>
<td>567.11</td>
<td>8.6528</td>
</tr>
<tr>
<td>2006</td>
<td>8901</td>
<td>9.0939</td>
<td>0.1129</td>
<td>7950.6</td>
<td>8901</td>
<td>-950.42</td>
<td>950.42</td>
<td>11.954</td>
</tr>
<tr>
<td>2007</td>
<td>22739</td>
<td>10.032</td>
<td>0.8577</td>
<td>9644.6</td>
<td>22739</td>
<td>-13094</td>
<td>13094</td>
<td>135.77</td>
</tr>
<tr>
<td>2008</td>
<td>34728</td>
<td>10.455</td>
<td>1.088</td>
<td>11700</td>
<td>34728</td>
<td>-23028</td>
<td>23028</td>
<td>196.83</td>
</tr>
<tr>
<td>2009</td>
<td>41737</td>
<td>10.639</td>
<td>1.0787</td>
<td>14192</td>
<td>41737</td>
<td>-27545</td>
<td>27545</td>
<td>194.08</td>
</tr>
<tr>
<td>2010</td>
<td>33107</td>
<td>10.408</td>
<td>0.6539</td>
<td>17216</td>
<td>33107</td>
<td>-15891</td>
<td>15891</td>
<td>92.301</td>
</tr>
<tr>
<td>2011</td>
<td>29030</td>
<td>10.276</td>
<td>0.3293</td>
<td>20884</td>
<td>29030</td>
<td>-8145.5</td>
<td>8145.5</td>
<td>39.003</td>
</tr>
<tr>
<td>2012</td>
<td>32952</td>
<td>10.403</td>
<td>0.2629</td>
<td>25334</td>
<td>32952</td>
<td>-7617.7</td>
<td>7617.7</td>
<td>30.069</td>
</tr>
<tr>
<td>2013</td>
<td>26953</td>
<td>10.202</td>
<td>-0.1312</td>
<td>30732</td>
<td>26953</td>
<td>3779.2</td>
<td>3779.2</td>
<td>12.297</td>
</tr>
<tr>
<td>2014</td>
<td>30763</td>
<td>10.334</td>
<td>-0.1922</td>
<td>37280</td>
<td>30763</td>
<td>6517.2</td>
<td>6517.2</td>
<td>17.482</td>
</tr>
<tr>
<td>2015</td>
<td>35283</td>
<td>10.471</td>
<td>-0.2482</td>
<td>45223</td>
<td>35283</td>
<td>994.5</td>
<td>994.5</td>
<td>21.981</td>
</tr>
<tr>
<td>2016</td>
<td>44906</td>
<td>10.712</td>
<td>-0.2002</td>
<td>54859</td>
<td>44906</td>
<td>9953.1</td>
<td>9953.1</td>
<td>18.143</td>
</tr>
<tr>
<td>2017</td>
<td>42215</td>
<td>10.651</td>
<td>-0.4551</td>
<td>66548</td>
<td>42215</td>
<td>24333</td>
<td>24333</td>
<td>36.564</td>
</tr>
<tr>
<td>2018</td>
<td>39430</td>
<td>10.582</td>
<td>-0.7165</td>
<td>80727</td>
<td>39430</td>
<td>41297</td>
<td>41297</td>
<td>51.156</td>
</tr>
<tr>
<td>2019</td>
<td>43303</td>
<td>10.676</td>
<td>-0.816</td>
<td>97927</td>
<td>43303</td>
<td>54624</td>
<td>54624</td>
<td>55.78</td>
</tr>
<tr>
<td>2020</td>
<td>56006</td>
<td>10.933</td>
<td>-0.7519</td>
<td>118792</td>
<td>56006</td>
<td>62786</td>
<td>62786</td>
<td>52.854</td>
</tr>
</tbody>
</table>

Source: Author's own
We have taken, \( H_0: \text{Mean (IIdx)} = 0; H_1: \text{Mean (IIdx)} > 0 \)

\[ \alpha = 0.05 \]

And, \( t_{\text{stat (cal)}} = \frac{\text{Mean (IIdx)} - \text{Mean (IIdx)}_{H_0}}{\text{s.e.}[\text{Mean (IIdx)}]} \)

We calculated the \( t \) Stat which comes out to be 6.017487193, since \( t > 2 \) and it is highly significant. Therefore, the null hypothesis which says that there is no instability in the flow of FDI to India is rejected. This shows that there is instability in the flow of FDI to India. As per Table 4, it seems that in these years- 1991, 1992, 1993, 1994, 2000, 2004, 2005, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 there was a drop in the FDI, which is shown by DTREND which is the difference between the predicted and actual value of FDI to India. Constantly, FDI has been low than the predicted FDI. In the recent past, various economists, policymakers, academicians and corporate researchers suggested that India’s regulatory policies in terms of procedural delays, complex rules and regulations related to land acquisition, legal requirements and environmental obligations might have played a role in holding the investors back from investing into India. On the whole, the trend of instability is rising mildly. On an average, the instability is 57.089 and the C.V. is 87.935% which is very high. It presents a picture of high and mildly increasing volatility in FDI.

**Figure 5: Instability Curve of FDI**

Source: Author’s own
Figure 5 shows the instability in the Foreign Direct Investment Inflows to India during the period 1991 to 2020. The higher the fluctuation, the higher is the instability. Instability increases with the years. The higher points in the Figure show the surplus amount of FDI.

9.5.2 Trend analysis of index of instability

The linear trend equation is as follows:

\[ \text{Id}dx_t = a + bt \]

where \( b \) = Annual Rate of Change of Instability, \( Idx \) = Dependent Variable Index of Instability of FDI, \( a \) = intercept, \( t \) = year.

We applied the regression analysis and found out that the Annual Rate of Change in the index of instability of FDI is (-) 0.56512435% per year, as per Table 5. That is, the rate of change in the index of instability of FDI is on an average is -0.5651% per year. The autonomous level of FDI as depicted by the intercept’s coefficient is insignificant with a p-value of 0.584292468. Since the \( \beta \) coefficient is small, which is -0.56512435, and the standard error, which is 1.072358084, is large, the t value, which is -0.526992204, is small and insignificant. Hence, there is a falling trend in the index of instability of FDI to India which is (-) 0.5651% but the FDI inflow i.e., \( Y \) (Dependent Variable) is not statistically dependent on time/years i.e., \( X \) (Independent Variable). Therefore, the null hypothesis which says that there is no the trend in the index of instability of FDI to India cannot be rejected.

| Table 5: Regression Output of Index of Instability of Foreign Direct Investment to India Dependent Variable - Instability Index of FDI |
|----------------|----------------|-------------|-------------|
|                | Coefficients  | Standard Error | t Stat      | P-value      |
| Intercept      | 1190.445437   | 2150.634166   | 0.553532282 | 0.584292468 |
| Years          | -0.56512435   | 1.072358084   | -0.526992204| 0.602349696 |
| Annual Rate of Change in the Index of Instability = (-) 0.5651% |

With the use of the regression equation, predicted and actual values of FDI are depicted through the Figure 6.

Now, if we look to Figure 6, we would see that predicted instability of FDI is a straight line and is not a good fit as predicted is not going with the actual FDI line. The actual instability line is running with great deviation from the predicted line which shows that the instability in the flow of FDI to India is higher than what is desired or predicted. Instability is unavoidable in economic behaviour because
variables are not deterministic or pre-determined and it is the knowledge of instability which helps in improving and planning of policies.

**Figure 6: Trends of Instability of FDI**

![Trends of Instability of FDI](image)

*Source: Author’s Own*

### 9.5.3 Growth analysis of index of instability

We have applied regression analysis on this equation for FDI flows into India in order to find out the Compounded Annual Growth Rate during the period 1991 to 2020.

**Table 6: Regression Output of Foreign Direct Investment to India Dependent Variable: Log of FDI**

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>32.30304408</td>
<td>36.91721328</td>
<td>0.875013069</td>
</tr>
<tr>
<td>Years</td>
<td>-0.014265522</td>
<td>0.018407813</td>
<td>-0.774971037</td>
</tr>
</tbody>
</table>

*Source: Author’s own*

The exponential equation is as follows:

\[ II_{dx}t = e^{(a + bt)} \]

\[ \log II_{dx}t = a + bt \]

where \( b = \) Compounded Annual Growth Rate, \( II_{dx}t = \) Dependent Variable Index of Instability of FDI and \( a = \) intercept and \( t = \) year.

From the output received through the regression equation as shown in Table 6: The compounded annual growth rate of Instability of FDI inflows comes out to be -
1.42655 % with a p-value of 0.444852559 which indicates the growth to be insignificant. The coefficient of the intercept, which shows an autonomous level of growth and has a p-value of 0.389011096, confirms that the value of intercept is insignificant. Since the β coefficient is small and negative, which is -0.014265522, and the standard error, which is 0.018407813, is large, the t value, which is -0.774971037, is small and insignificant. Hence, there is a falling growth in the Instability of FDI inflows to India which is -1.42655 % but FDI inflow i.e. Y (Dependent Variable) is not statistically dependent on time/years i.e. X (Independent Variable). Therefore, the null hypothesis which says there is no growth in the Instability of FDI inflows to India cannot be rejected.

With the use of regression equation, predicted and actual values of Instability of FDI are depicted through the Figure 7.

**Figure 7: Growth of Instability of FDI**

Now, if we look to Figure 7, we would see that predicted instability of FDI is a straight line and is not a good fit as predicted is not going with the actual FDI line. The actual instability line is running with great deviation from the predicted line which shows that the instability in the flow of FDI to India is higher than what is desired or predicted. Instability is unavoidable in economic behaviour because variables are not deterministic or pre-determined and it is the knowledge of instability which helps in improving and planning of policies.
The uncertainty created by the actions taken by policy makers might have led to an unfriendly business environment in India. For example a FICCI Report observes “Procedural delays are bothering nearly all of the respondents with almost 93 per cent of the respondents indicating this issue to be quite to very serious. The time consuming systems and procedures to be complied with, the bureaucratic layers to be dealt with and the multiple bodies from which clearances are to be obtained all add up substantially to the transaction cost involved and take up a lot of management time thus making it an issue of serious concern for the investors” (FICCI, 2010).

10.0 Conclusion: Research Findings

- We have found that there is a significant trend in the flow of FDI to India, US$ 1891.3626 million per year. That is, FDI is increasing on an average rate of US$ 1891.3626 million per year. Hence, there is a trend in the flow of FDI to India over the 30-year time period. Therefore, the null hypothesis which says that there is no trend in the flow of FDI to India is rejected.
- There is growth in the flow of FDI to India. The compounded annual growth rate of FDI comes out to be 19.31 % with a p-value of 7.80932E-14 which indicates the growth to be highly significant. Hence, there is growth in the flow of FDI to India. Therefore, the null hypothesis which says there is no growth in the flow of FDI to India is rejected.
- On an average, the instability is 57.089% and the C.V. is 87.935%, which is very high. It presents a picture of high and mildly increasing volatility in FDI. There is a lot of instability in the flow of Foreign Direct Investment to India and there is a significant trend in the index of instability of the flow of Foreign Direct Investment to India.
- We applied the regression analysis and found out that the Annual Rate of Change in the index of instability of FDI is -0.56512435% per year as per Table 5. That is, the rate of change in the index of instability of FDI is on an average is (-) 0.5651% per year. The autonomous level of FDI as depicted by the intercept’s coefficient is insignificant with a p-value of 0.584292468. Since the β coefficient is small, which is -0.56512435, and the standard error, which is 1.072358084, is large, the t value, which is -0.526992204, is small and insignificant. Hence, there is a falling trend in the index of instability of FDI to India. Therefore, the null hypothesis which says that there is no the trend in index of instability of FDI to India is rejected.
The compounded annual growth rate of Instability of FDI inflows comes out to be -1.42655% as shown in Table 6 with a p-value of 0.444852559 which indicates the growth to be insignificant. The coefficient of the intercept which shows autonomous level of growth has a p-value of 0.389011096 which confirms that the value of intercept is insignificant. Since the β coefficient is small and negative, which is -0.014265522, and the standard error, which is 0.018407813, is large, the t value, which is -0.774971037, is small and insignificant. Hence, there is no growth in the Instability of FDI inflows to India. Therefore, the null hypothesis which says that there is no growth in the Instability of FDI inflows to India is rejected.

Instability is unavoidable in economic behavior because variables are not deterministic or pre-determined and it is the knowledge of instability which helps in improving and planning of policies.

So, we can conclude by saying that globalization and the process of liberalization over the past decades, has led to the emergence of new capital markets, flexible exchange rate regimes and removal of controls on capital flows over the world. India has been no exception, with the introduction of a unified exchange rate system, openness of investment in equity and debt sectors by non-resident Indians and foreign institutional investors, current account convertibility and financial innovations in internationally traded financial products.

There has been a significant change in the Indian macro economy in a short period of the last two decades when economic reforms started after the 1991 BoP crisis in India. FDI now looms large in their impact on both finance and macro-variables of the economy. This calls for new thinking in the Indian macro economy and the Indian financial system. The increase of substantial FDI to India and the emerging economies in the 1990s has become an interesting topic of research. The experience of the past decade has shown the mixed blessings of FDI.

Endnotes

1. Author’s own.
2. Handbook of Statistics on Indian Economy, RBI.
3. Handbook of Statistics on Indian Economy, RBI.
4. The predicted value has to be exponentiated.

References


