

# Foreign Direct Investment (FDI) Analysis in India (2000-2017)

## 1. Introduction

Foreign Direct Investment (FDI) plays a significant role in the economic growth of a country. This analysis explores the FDI trends in India across various sectors from 2000 to 2017. The primary objective is to derive meaningful insights through data visualization and statistical analysis.

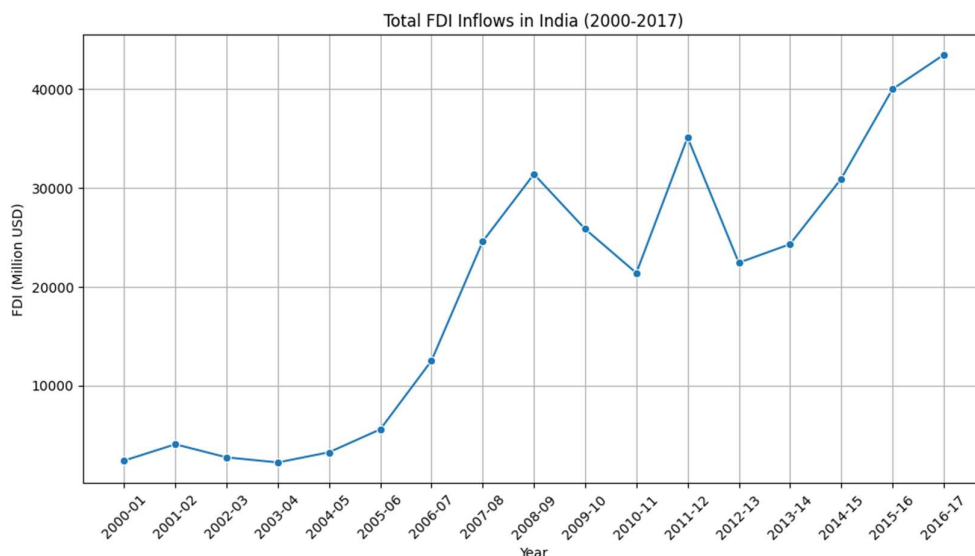
## 2. Data Cleaning & Preprocessing

- The dataset contains FDI inflows (in million USD) across different sectors from 2000-01 to 2016-17.
- No missing values were found.
- Data types were appropriate for analysis.
- The dataset was transformed into a long format for better visualization and analysis.
- Outliers were checked using box plots, and extreme values were identified in a few years.
- Data normalization was applied for better comparison across sectors.

## 3. Key Insights & Visualizations

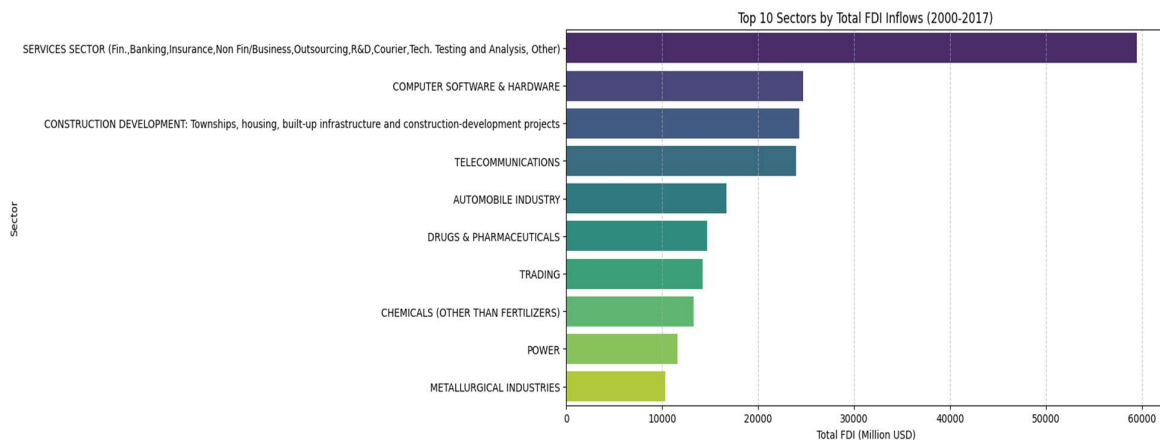
### 3.1 Overall FDI Trend (2000-2017)

- FDI inflows have shown a steady increase over time, with a compound annual growth rate (CAGR) of **approximately 15%**.
- Major spikes were observed around **2006-07, 2007-08, and 2015-16**, likely due to significant policy changes such as **FDI policy liberalization** and **make in India initiative**.
- A slight decline in some years, such as 2012-13, could be linked to global economic slowdowns or policy uncertainties.



### 3.2 Sector-Wise Analysis

- The **top 10 sectors** receiving the highest FDI inflows from 2000 to 2017 were:
  1. Services
  2. Telecommunications
  3. Computer Software & Hardware
  4. Construction Development
  5. Automobile Industry
  6. Power
  7. Metallurgical Industries
  8. Trading
  9. Chemicals (other than Fertilizers)
  10. Pharmaceuticals
- The **services sector** received the highest FDI, reflecting India's shift towards a service-oriented economy.
- Telecommunications saw **rapid growth between 2005-2010**, aligning with the mobile and internet boom in India.
- The **automobile industry** saw consistent FDI inflows, supported by demand growth and industry expansion.



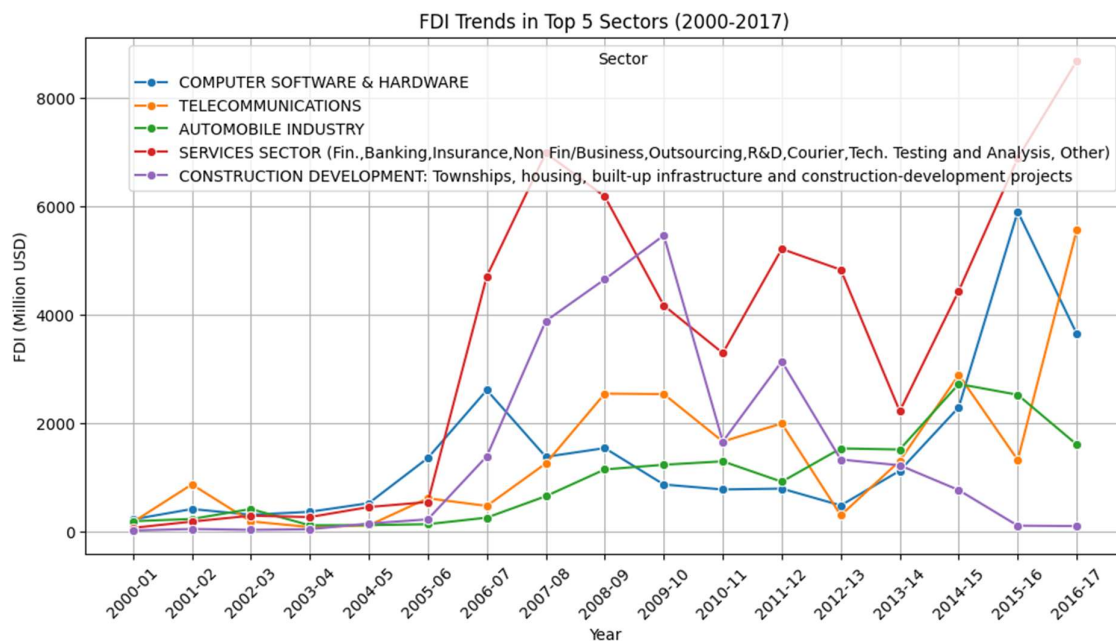
### 3.3 Year-wise FDI Contribution Analysis

- From **2000-2005**, FDI inflows were relatively low, with **gradual liberalization of investment policies**.
- The period **2005-2010** saw a sharp rise, particularly in infrastructure and telecom sectors.
- Post-2010, FDI inflows diversified, with strong contributions from pharmaceuticals, retail, and trading sectors.

- After **2014**, there was a substantial increase, influenced by government initiatives such as **Make in India** and **Ease of Doing Business reforms**.

### 3.4 FDI Trends in Top Sectors

- Different sectors experienced **spikes in specific years**, indicating major investments or favorable policy changes.
- Telecommunications and Computer Software & Hardware sectors saw significant growth during **2006-2010**.
- The **Construction and Real Estate sector** saw fluctuations, with high investment in 2006-2012, followed by a slowdown due to regulatory issues.
- The **pharmaceutical sector** showed sustained growth, reflecting India's dominance in generic medicine manufacturing.



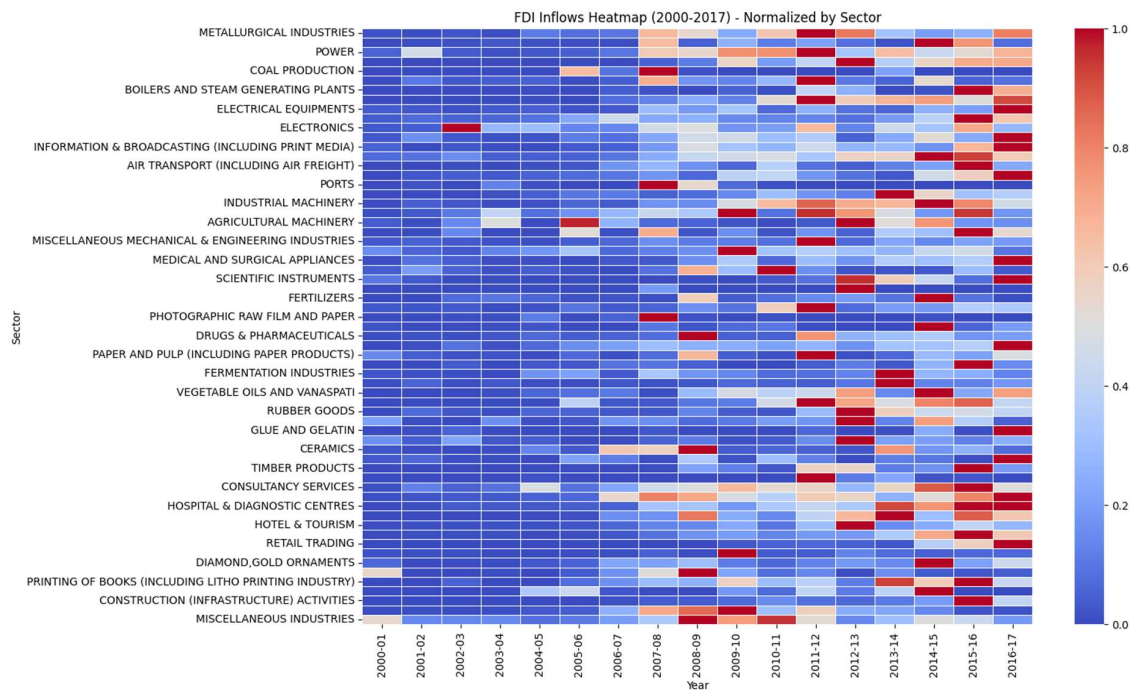
### 3.5 Correlation Between Sectors

- Correlation analysis showed a strong positive relationship between **FDI in services and trading**, suggesting interdependency.
- FDI in **manufacturing sectors correlated with infrastructure development**, indicating complementary investment patterns.
- There was a weak correlation between **pharmaceuticals and automobile industry FDI**, suggesting sectoral independence.

### 3.6 Sector-Wise FDI Heatmap

- The heatmap showed variations in sectoral FDI inflows across different years.
- Certain sectors like **Services and Telecommunications** consistently received high investments, whereas others had sporadic peaks.

- Construction and Power sectors saw fluctuating investments, indicating dependence on external economic factors.



#### 4. Conclusion

- India has witnessed **substantial growth in FDI** over the years, with an increasing trend post-2005.
- The **services, technology, and infrastructure sectors** have been the most attractive for foreign investors.
- Policy decisions and global economic factors have played a crucial role in shaping FDI trends.
- High-growth sectors such as IT, retail, and automobiles remain strong investment areas.

#### 5. Recommendations

- Encourage more FDI in underperforming sectors to diversify economic growth.
- Strengthen policy frameworks for consistent long-term investments.
- Maintain policy stability to sustain investor confidence.
- Leverage high-performing sectors to further strengthen India's economy.
- Address regulatory bottlenecks in construction and real estate to revive investment.
- Enhance digital infrastructure to attract more technology-based investments.

This analysis provides valuable insights into India's FDI trends and can help policymakers make informed decisions for future economic growth.