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Make in India: A quantitative approach

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Abstract
Make in India, a flagship project of the Government of India was launched in September 2014 with an aim to position India as a global manufacturing hub in order to attract greater Foreign Direct Investment (FDI) by fostering ease of doing business. Many economists and experts have suggested that the campaign is all about empty slogans and propaganda. This paper attempts to quantify the impact of the campaign on the Indian Economy by studying major indicators like FDI, GDP (Gross Domestic Product), Trade Openness, Exchange Rate etc. using basic econometric tools. This paper also attempts to develop some recommendations to the government basis the predictions and show the future of the campaign provided that it continues with the present vigor. We conclude that the campaign has been a success so far mainly because it is backed by major legislative and bureaucratic reforms and has a great potential to succeed in future too.

Keywords: Foreign direct investment, make in India, growth, Indian economy

Introduction

India is a nation which claims to have a huge amount of natural resources. The country boasts its skilled and unskilled workforce having the requisite skill and determination. Labor here is aplenty. With all eyes on the east for outsourcing activities, India aims at becoming a preferred manufacturing destination for its partners as well as new investors. To tap this opportunity, Make in India was launched as a marketing campaign on September 25, 2014 with an objective to attract existing stakeholders as well as strategic investors to invest and choose India as their manufacturing place. In order for a complete manufacturing transition, the country needed a strategy that empowers and enables in an unvarying manner, to attain global competitiveness. Thus, it was imperative to welcome capital and technology across the globe to make the foundation of the program.

The program aims to increase the share of manufacturing sector in the Gross Domestic Product (GDP) from 16% presently to 25% by 2025. With 25 target sectors (See Table 1) ranging from automobiles to IT and business processes, Make in India seeks to enhance job creation, move up the ease of doing business ladder, foster innovation and promote development of skills. In this process, the nation aims to attract Foreign Direct Investment (FDI), with a promise to the investors for making it a pleasant experience with minimum bureaucracy.

To make the program a success, the country needs to be in line with the foreign technology as well as capital. With gradual inflows of funds and expertise from outside the border, India will be able to make a huge chunk of its GDP out of manufacturing. The presence of a huge jobless crowd explains the urgency to launch this program. Continuous engagement of the manpower in the aforesaid sectors is expected to reduce the number of the unemployed. With opening of new sectors like Defense and Railways, the program is expected to give a long-term benefit rather than short term results.

After the initiation of the campaign, transparent and user-friendly systems have taken the place of obsolete and slow processes to drive investment proposals. IFC (Investor Facilitation Cell) was set up in 2014, to help them seeking regulatory approvals. Building upon the strong relations with Japan, a special team, Japan plus, was formed to fast track investments proposals. Industrial corridors are being developed across 6 cities to boost the campaign.

The logo, which represents the flagship program, is a story in itself. The logo is an elegant lion inspired by the Ashok Chakra, designed to represent success in all spheres thus communicating a holistic growth approach of the campaign.

Literature Review

The study for success of Make in India is very important for the economy. A paper published by Dr TV Ramana, Andhra University Campus focuses on the classical theory of economics linking the demand of the goods with the supply side. The paper also covered issues relating to the sectors involved, and worldwide response from various critics and economists. The paper concluded that there will be a free flow of capital thus increasing investments. The researcher was able to show the producers will be incentivized to produce more, but economic viability and future prospects of the program still remain unanswered.

A global perspective by Dr. (Smt.) Rajeshwari Shettar, SM Sheshgiri Commerce college for Women showed that the program will bring about a drastic change in fields like automobiles, aviation, biotechnology, chemicals. The researchers proved that Make in India will boost the manufacturing sector with an impact on electronics. Moreover, the researcher tries to convince that the long term program will help in generation of employment, "through continuous foreign investments, the progress of the Indian economy can be made sustained and India should consciously work towards attracting greater FDI into Research and Development". The question, how the Foreign Investments will affect the Indian Economy still needs to be found out.

A joint effort by Profs. Samriddhi Goyal, Prabhjot Kaur and Kawalpreet Singh, Punjab showed that how Human resources and Financial services play an important role in the program. The researchers focused on economic growth and employment generation, by fostering innovation and minimizing brain drain. The paper also highlighted the need for financial advisors to kickstart the program for industrialists.

Inferences drawn from Literature Review

1. The Program's success can be linked with the domestic as well as international demand, thus India needs to care about continuous foreign investments.
2. India will be able to boost up its manufacturing sector with special focus on 25 sectors and generate employment through attraction of foreign funds.
3. To make India a manufacturing hub, financial services and human resource must be taken into account.

Objectives of the Study

Following are the primary objectives of this study

1. To analyze the correlation between Foreign Direct Investment inflows and other major macroeconomic variables such as GDP, Imports, Exports, Index of Industrial Production etc. so as to understand how these variables interact with each other.
2. To develop a regression model that can be used in determining the target areas for government policy formulation so as to attract greater amount of Foreign Direct Investment in the future
3. To develop a basic forecast for GDP, Exports and Gross Fixed Capital Formation based on past trends and trends post the launch of Make in India campaign
4. To determine whether the campaign has been successful or not and to recommend future course of action accordingly

Variables Defined

This study has used a variety of macroeconomic indicators for analysis. All data pertains to the Indian Subcontinent). Variables chosen for this study cover both, the domestic production and health of the economy as well as its interaction with foreign partners.

Following are the variables used for the study

1. **Foreign Direct Investment:** It refers to the investment made by a company or an individual of one country in another company of a foreign country. This can be in the form of setting up a new business in a foreign country, or taking over an already established business or buying partial control of a foreign business. This is in contrast to portfolio investment wherein investors simply buy equities in a foreign country. FDI leads to an effective control over the decisions of a business. FDI has been chosen largely because Make in India campaign has been focused on increasing the FDI inflows in the economy, making FDI as the best indicator to gauge the success of the campaign
2. **Gross Domestic Product:** It is the sum of the market values of all the 'final' goods and services used in the economy during a given period (year/quarter)
3. **Exports:** It refers to the value of goods and services sold abroad
4. **Imports:** It refers to the value of goods and services purchased from abroad
5. **Trade Openness:** It is the measure of openness of an economy with respect to trade and is calculated by dividing the sum of imports and exports with the GDP.
   Trade Openness = (Exports + Imports)/GDP
6. **Index of Industrial Production:** It is used to measure the growth rates of different industry groups of an economy within a particular period of time.
7. **Exchange Rate:** It refers to the value of one currency for the purpose of converting it to other. We have used the conversion rate for INR to US Dollar.
8. **Gross Fixed Capital Formation:** It is the net increase in the assets (physical assets) in the economy, does not include land purchases and not accounts for depreciation.
9. **Fiscal Deficit:** It refers to the sum of Primary deficit and the interest payments due
10. **Political Ideology (dummy variable):** this dummy variable takes two values 0 and 1. 0 has been allocated to the UPA regime (whose ideology was more focused towards secularism and benefit of the poor using freebies; left wing ideology) and 1 has been allocated to NDA regime (whose ideology was more focused towards establishment of industries in the economy; right wing ideology)

Data Source

All data has been collected from RBI's 'Handbook of Statistics on the Indian Economy' which is available on RBI's online Data Warehouse (see References for the website link). This data source was found to be the most authentic among all the data sources available.

Period of Study

The data has been collected for the financial years 2004-05 to 2016-17. This period covers the UPA regime, a period of recession (2008-09) and the NDA regime (2014 onwards) hence making it the perfect period for study for the impact of the Make in India campaign.

Research Methodology

This study has been divided into three parts: Correlation Analysis, Regression Modelling and Forecasting.

Correlation Analysis has been done using basic MS Excel formula of "=CORREL". This method gives the Karl Pearson's Coefficient of Correlation for the two variables in question. It can be used for finding out multiple correlation too.

Regression Analysis has been done using E Views software package taking FDI as the dependent variable and GDP, Index of Industrial Production and Exchange Rate as the independent variables. Data till 2015-16 Fiscal Year has been used only for regression so as to avoid distorting the equation due to the demonetisation impact.

Lastly, forecasts have been calculated with 95% confidence using MS Excel's Forecast sheet tool. Forecasts have been made till the financial year ending 31st March, 2021, which cover Modi Government's tenure and show the impact of the campaign beyond the 5 years of BJP rule.

Results and Interpretation

I. Correlation Analysis

Following table shows the Karl Pearson's coefficient of correlation between FDI and various macroeconomic variables of the economy.

Macroeconomic Variable	Coefficient of Correlation
GDP	0.917546757
Trade Openness	0.111425909
Exports	0.817143813
Imports	0.794713638
Index Of Industrial Production	0.852139013
Exchange Rate	0.836842352
Gross Fixed Capital Formation	0.891193035
Fiscal Deficit	0.822563742
Political Ideology	0.794103932

Similar results have been obtained by Maheshwari, J (2015).

1. **Gross Domestic Product:** There is a high degree of positive correlation between FDI and GDP. This happens because a strong GDP indicates that the economy is in a good condition overall and has a large market to cater to (hence the large production) which attracts foreign investors towards the economy, leading to an increase in the FDI
2. **Trade Openness:** There is a low correlation between FDI and Trade Openness. This is primarily due to the effect of two opposing forces. One school of thought propagates that companies or investors view FDI as a substitute to importing so more FDI will result in lesser openness and so on. On the other hand, some economists also believe that Trade Openness make a market more familiar to foreign investors hence attracting more investment. The low degree of correlation is largely due to the net effect of these two factors
3. **Exports:** There is a high correlation between FDI and Exports which is due to the fact that as exports increase, a nation's goods become better known in the market and hence act as a pull factor for the investors
4. **Imports:** The high degree of correlation between FDI and imports arises mainly due to the fact that high level of imports show a greater demand and scope for expansion via domestic production in the economy, hence attracting foreign investors.
5. **Index of Industrial Production:** High degree of correlation between FDI and Index of Industrial Production shows that foreign investors are attracted towards an industrial sector that is in a better shape in terms of production, hence increasing FDI.
6. **Exchange Rate:** Prima Facie, it is observed that an increase in FDI leads to Increase in exchange rate. A higher exchange rate shows that the economy is offering goods and labour at a cheaper price which attracts foreign investors, hence the relation.
7. **Gross Fixed Capital Formation:** With new investments used in purchase and setup of Fixed assets and machinery, the positive correlation can be explained between GFCF and FDI. Which means, foreign investments are being put to good use.
8. **Fiscal Deficit:** A rise in fiscal deficit is not necessarily to be linked with FDI inflows. Conditions like increasing oil imports and farm loan waiver schemes has accelerated the deficit for quite a time.
9. **Political Ideology:** The right wing of Indian Politics seems to have an ideology towards more foreign investments vis-a-vis the central and left front. Thus, huge Amount of FDI can be seen during the NDA regime

II. Regression Analysis

An equation has been estimated using the least squares method with the log values of FDI, GDP, IIP and Exchange Rate so as to predict prospective FDI inflows given the GDP, IIP and Exchange Rate in the economy.

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	1.113211	2.122980	0.524363	0.6142
X1_GDP	-4.352618	1.799509	-2.418781	0.0419
X2_IIP	11.41737	3.036233	3.760372	0.0055
X3_EXCHANGE RATE	5.217142	2.368821	2.202421	0.0588

R- Squared = 0.940443

Adjusted R Squared = 0.918108

Equation is

Y_FDI = 1.11 - 4.35 (X1_GDP) + 11.41 (X2_IIP) + 5.22 (X3_EXCHANGE RATE)

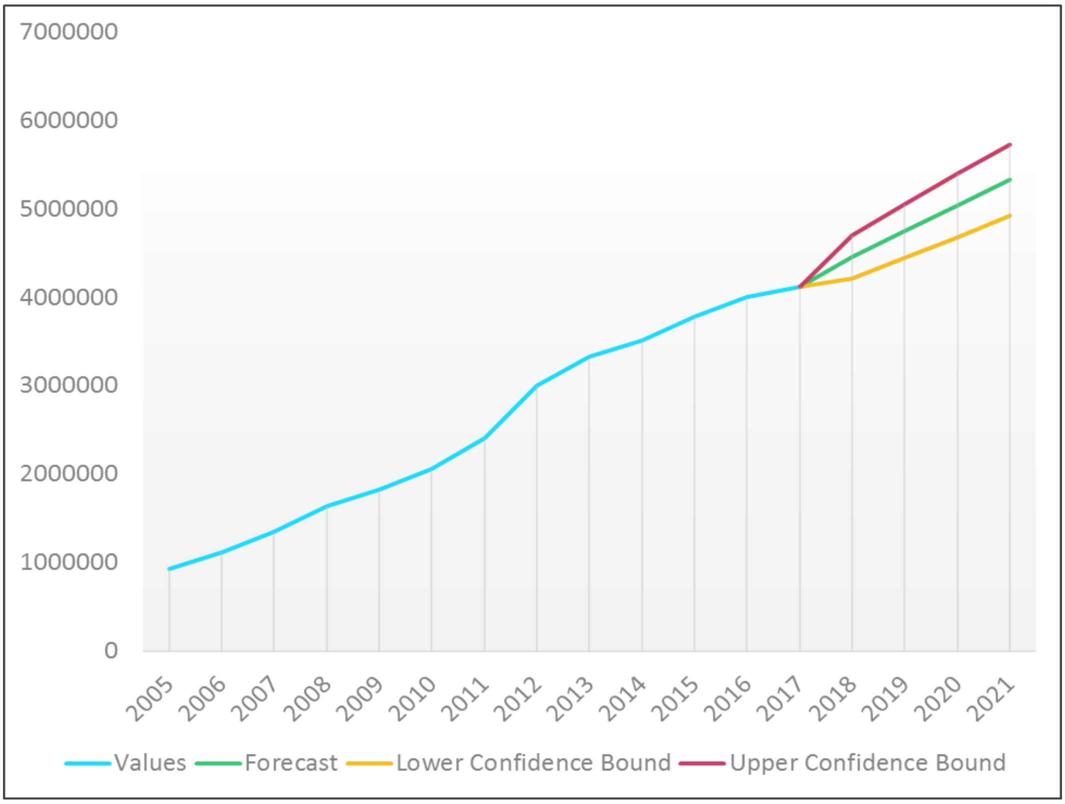
The equation is most appropriate to predict FDI because:

1. The P - values of the three independent variables are less than or equal to 0.05, rejecting the null hypothesis that the coefficients of these variables is zero, making them good predictors of FDI
2. The R- squared and adjusted R- squared values are greater than 0.9 (0.949443 and 0.918108) which shows that the equation explains most of the variation in the data even after adjusting it for 3 variables.

III. Forecasts

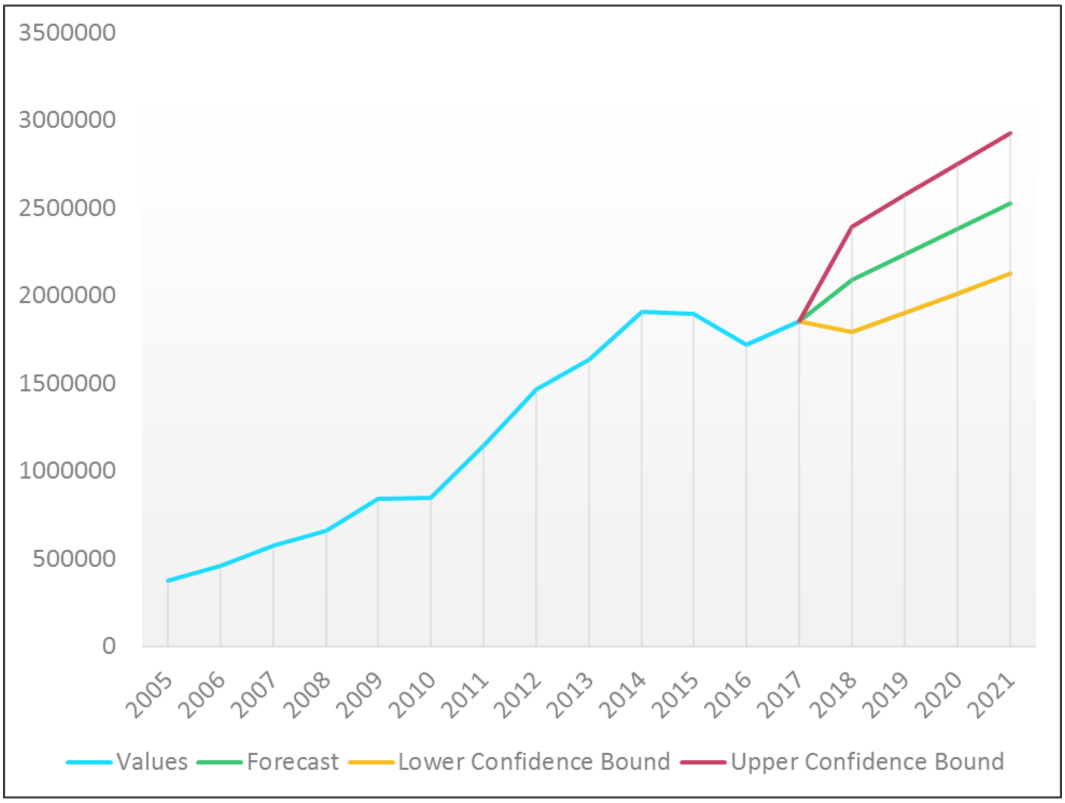
This paper discusses forecast of three major economic variables namely GDP, Exports and GFCF (Gross Fixed Capital Formation). All of these have been calculated at 95% confidence

1. GDP



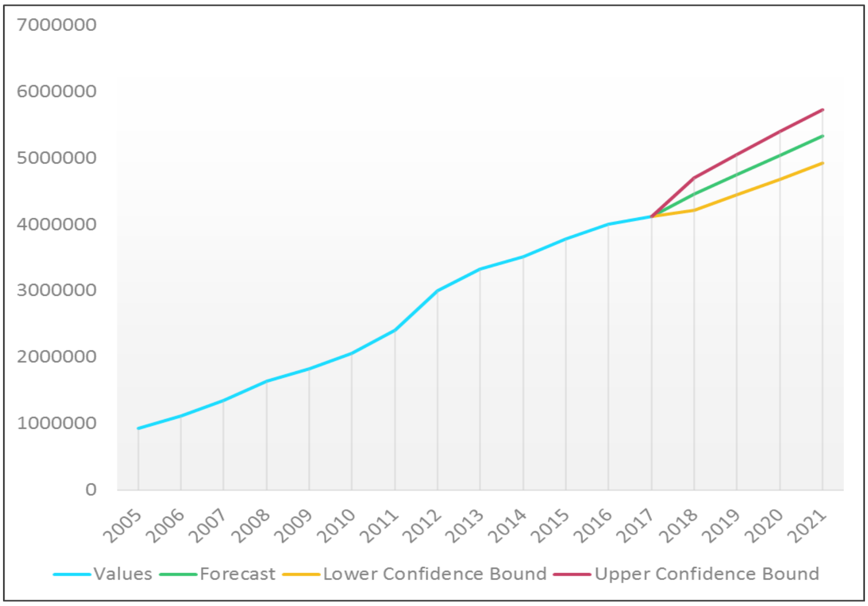
GDP is likely to increase at a faster pace during the coming years assuming that the campaign goes at the same pace. This is due to the fact that FDI will provide synergy to R&D and manufacturing activities leading to faster growth. Ease of doing business will help domestic manufacturers along with foreign producers

2. Exports



Exports are likely to increase at a faster pace during the coming years assuming that the campaign goes at the same pace. This is due to the fact that FDI will help in augmenting domestic capital for exports, helping to transfer technology and new products for exports, facilitating access to new and large foreign markets, providing training for the local workforce, and upgrading technical and management skills.

3. GFCF



GFCF is likely to see a steady growth. This is due to the fact that FDI involves financing i.e. direct investment in a company and might result in funds floating from one company to the other without actually contributing to the real investments. However, FDI can act as a good proxy for Real investments in long term

Appendix

Table: Key Areas under Make in India

Automobiles	**Food Processing**	**Renewable Energy**	**Automobile Components**	**IT and BPM**
Leather	Space	Biotechnology	Media and Entertainment	Textiles and garments
Thermal Power	Construction	Oil and Gas	Tourism and Hospitality	Defense manufacturing
Electrical	Machinery	Ports	Electronic Systems	Pharmaceuticals
Roads and highways	Chemicals	Wellness	Railways	Aviation

Recommendations and Conclusion

With a high degree of correlation between FDI and GDP, it's a statistical proof that increasing FDI is acting as a catalyst for improving GDP figures of the country, thus the country must aim at procuring more and more investment proposals. Short term benefits can also be seen via Index of Industrial Production (IIP), which is moving in line with increasing investments. Thus, planning must be done accordingly to continue this process. With increasing Investments, India must also strengthen its position among the BRICS nations in terms of ease of doing business ranking to lure investors and strategic partners. Increasing Oil imports has caused trouble to the deficit. With a huge budgetary deficit, foreign funds must be put into proper use for revenue generation to tackle this problem. Rather than political gimmicks, nation's interest must be put in the first place.

This paper concludes that the government has been successful to a great extent in terms of positioning India as a global manufacturing hub not only on the basis of slogans and propaganda, but on the basis of the small steps taken in every sphere of the economy. These small actions, from reducing the export formalities to setting up an Investor Facilitation Cell, have been the real catalysts behind this campaign and are at its core. It is also evident that the campaign has great opportunities for India's future and hence must be pursued with equal vigor in the coming years. However, the government also needs to strike a balance when it comes to spending money on infrastructure and should use the Public Private Partnership Model as an alternative to the same. Many other researches on this subject have reached the similar conclusion. There is a lot of scope for further research on this topic mainly at the time of 2019, when the Modi Government's term ends.

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