

An Empirical Analysis of Trade between India and European Union during 2000 to 2013

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Abstract:

European Union (EU) is a major trade partner of India accounting for 16% of India's exports and 11% of imports during April to June 2014. The volume of trade flows between India and EU is very significant. EU exports to and imports from India are on a steady upward trend. What will be the future trade performance and what are important determinants of trade flows between both trade partners? In order to know this, we have attempted to project the potential of the future trade between these two trade partners. Here we have applied projected growth rate formula to guess the volume of future trade between these two trade partners. Further, what are the factors responsible for the trade flows? To know the answer, we have further attempted to correlate important determinants of foreign trade with total trade position of the country with its trade partner. Empirical evidence underlines the importance of growth of gross domestic product, sector composition in GDP such as agriculture, manufacturing, service sector, domestic capital formation, trade position, trade openness, country's savings and debt position and etc. as potential determinants of trade flows. We have attempted a regression analysis between country's trades with the potential determinants of trade flows. This analysis is carried out for the period 2000 to 2013. World Bank country data for India and trade statistics of Government of India have been used for the analysis. Majority of the

explanatory variables specified in the econometric model are found to be significant in determining trade between India and EU.

Key words: Trade projection, trade openness, import and export, India and EU, econometric model

1. Introduction

Recent years have witnessed a shift in regional economic cooperation strategy from multilateral to regional and bilateral cooperation agreements (*Asian Development Outlook, 2007 and World Trade Development Report, 2007*). The study of India-EU economic relation in terms of trade ties-up is a reflection of this. The economic relations of India and European Community (EC) started in 1960s when European Commission was composed of only six countries. With increase in number of member nations to twenty eight, European Union (EU) became a strong potential regional trading block in the World. Thus, the economic relations between India and EU have also increased manifold with this increase in EU. EU and India could well gain from strengthening their mutual economic ties-up for a number of reasons. India aims to give a shape to its economic reform process of second phase (which will start recently), diversify its trade basket, and broaden the direction of its foreign trade and EU wants to expand and strengthen its global position and check the trade deterioration with trade partners. These developments point to the need to view India-EU relations in a way, which termed “relatedness” rather than relationship. The EU is India's single largest trading partner in both exports and imports and this trend has been growing over the years. An enlarged European Union appears with plenty of opportunities for India. It means more demand for Indian goods in the European market and vice-versa. The bilateral trade between India – EU constitutes a quarter of India’s total trade. EU is an important trading partner for India. EU’s total trade

with India was around 13.3%, accounting for 16% of Indian exports and 11% of imports in 2014-015 (April-June) (Ministry of Commerce and Trade, India). India's trade with EU has grown substantially in the last twenty-five years. In 1980s, Indian exports to Europe were less than 2 billion European Currency Units (ECUs). However, in 1990s it increased to 5 billion ECUs. In 2003, the level of EU trade was 28.6 billion €. It reached up to 72.7 billion € in 2013. The impact of EU on India's overall economy is much greater. However, the trade balance was consistently in EU's favor. The growth in volume of India-EU trade encompasses not only products in traditional sectors but almost in all sectors including industrial and service sectors.

The importance of India as an important trade partner of EU is evident from the data given in the table 1 below.

Table 1 shows the top 15 trading partners of EU in 2014.

Table 1: Top 15 Trade Partners of EU in 2014

Rank	Trade Partner	Trade Value (€ million)	Trade Share (%)
1	USA	484,361	14.2
2	China	428,392	12.5
3	Russia	325,926	9.5
4	Switzerland	263,871	7.7
5	Norway	140,289	4.1
6	Turkey	128,156	3.7
7	Japan	110,641	3.2
8	South Korea	75,808	2.2
9	Brazil	73,140	2.1
10	India	72,683	2.1
11	Saudi Arabia	63,833	1.9
12	Canada	58,912	1.7
13	Algeria	54,340	1.6
14	UAE	53,873	1.6
15	Singapore	46,757	1.4
16	Total EU Trade	3,420,553	100%

Source: Director General for Trade, European Commission, 27th August, 2014.

The European Community (EC) has been India's largest trading partner for more than two decades followed by USA and

Japan¹. The EC's share in India's trade has been growing persistently over the years beginning 1981. Not only the EUs share in India's total trade increased over the years, but also the composition of India's exports to the EU has diversified significantly. India's trade with EU reached the level of €75.8 billion in 2012 but there exist fluctuations in trade balance due to fluctuations in India's exports and imports over the years. In 2000, India had a trade deficit with the EU to the volume of USD (-) 99 million, which increased in the subsequent years and the magnitude of the deficit reached at USD (+) 1683 million in 2013. India's export to EU has increased from 10,411 million USD in 2000 to USD 51,581 million 2013 recording an average annual growth rate of 13.1 % during this period. The import increased from 10,510 million USD in 2000 to 49,950 in 2013 recording an average annual growth rate of 12.7 % during 2000 to 2013. The total trade went up from 20,921 million USD in 2000 to 101,532 million USD in 2013 recording an average annual growth rate of 12.92 per cent. The compound average growth rate (CAGR) of India during last decade (2003 – 2013) was 13.121%².

India's exports, imports, total trade and trade balance with EU for the period 2000 to 2013 is presented in Table 2.

¹ EC was the amalgam of 12 countries up to 31 December 1994, and became 15 members' states thereafter. In the WTO, EC is considered as a single contracting party, because it is a trading bloc and has already completed integration of internal market, we consider EC as a single trade partner.

² CAGR Formula

If $\beta_1 = \beta_0 \{1+(r/100)\}^t$ then $r = \{ (\beta_1 / \beta_0)^{1/t} - 1 \} * 100$

where r = compound rate of growth , β_1 = estimated value of trade at the end of the year, β_0 = estimated value of trade at the beginning of the year, t= No. of Years; CAGR 2003 to 2013 = $((101532/29592)^{(1/10)}-1)*100$

Table-2: India’s Exports and Imports with EU During 2000 to 2013
(Value in million USD)

Year	Exports	Annual Growth Rate of Exports (%)	Imports	Annual Growth Rate of Imports (%)	Trade Balance	Total Trade	Annual Growth Rate of Total Trade (%)
2000	10,411	10.97	10,510	-4.01	-99	20,921	2.90
2001	9,846	-5.43	10,437	-0.69	-591	20,283	-3.05
2002	11,886	20.72	12,835	22.98	-949	24,721	21.88
2003	14,517	22.14	15,075	17.45	-558	29,592	19.70
2004	18,249	25.71	19,302	28.04	-1,053	37,551	26.90
2005	23,229	27.29	25,998	34.69	-2,769	49,227	31.09
2006	26,831	21.23	29,856	16.07	-3,025	56,687	15.15
2007	34,535	21.17	38,450	15.28	-3,915	72,985	28.75
2008	39,351	21.24	42,733	14.07	-3,382	82,084	12.47
2009	36,028	20.16	38,433	13.33	-2,405	74,461	-9.29
2010	46,039	18.33	44,540	12.05	1,499	90,579	21.65
2011	52,556	17.18	56,872	11.62	-4,316	109,428	20.81
2012	50,421	16.78	52,275	10.65	-1,854	102,696	-6.15
2013	51,581	16.41	49,951	11.10	1,630	101,532	-1.13
Compound Average Growth Rate (CAGR) of Total Trade during 2003 to 2013							13.12%

Source: Trade Statistics, Export-Import Data, Ministry of Commerce, Government of India.

Figure 1 shows the exports, imports and balance of trade of India with EU during the period 2000 to 2013.

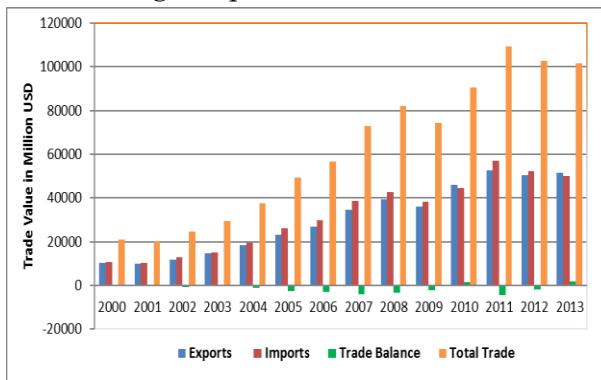


Figure 1 - India’s Trade with EU (2000-2013)

1.1 Composition of India's Imports and Exports from EU during 2009 to 2013:

During 2009 to 2013 the major items that India imported from EU were vegetable products, minerals, chemicals, textiles and textile products, base metals, precious metals, transport equipment and machinery & appliances. The major items of India's export to EU during this period were products of chemical and allied industries, plastics, rubber and articles thereof, pearls, precious metals and articles thereof, machinery and appliances, transport equipment and optical and photography instruments. Major items of India's imports from EU and exports to EU during the period 2009 to 2013 are presented in Table 3 and 4 respectively.

Table 3: India's Import from EU Trade Flows (Imports) by HS Section 2009-2013

<i>HS Section</i>		<i>Imports (Mio. €)</i>				
		<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
I	Live animals; animal products	490	550	621	638	627
II	Vegetable products	1,028	1,198	1,454	1,674	1,577
III	Animal or vegetable fats and oils	102	201	277	213	215
IV	Foodstuffs, beverages and tobaccos	393	463	607	669	757
V	Mineral products	2,146	5,002	5,344	5,365	5,210
VI	Products of the chemical or allied industries	2,861	3,708	4,685	4,891	5,055
VII	Plastics, rubber and articles thereof	621	888	1,221	1,147	1,317
VIII	Raw hides, skins and saddlery	966	1,134	1,304	1,292	1,356
IX	Wood, charcoal, cork and articles thereof	45	51	46	53	52
X	Pulp of wood, paper and paperboard	108	121	124	128	127
XI	Textiles and textile articles	6,018	6,692	7,527	6,416	6,492
XII	Footwear, hats and other headgear	990	1,203	1,295	1,147	1,208
XIII	Articles of stones, glass and ceramics	370	475	477	482	468
XIV	Pearls, precious metals and	1,628	2,322	3,016	2,602	2,399

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<i>HS Section</i>		<i>Imports (Mio. €)</i>				
		<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
	articles thereof					
XV	Base metals and articles thereof	1,734	2,243	3,239	2,914	3,002
XVI	Machinery and appliances	3,127	4,217	4,713	4,529	3,904
XVII	Transport equipment	2,031	2,020	2,426	1,802	1,890
XVIII	Optical and photography instruments, and etc.	225	278	324	363	369
XIX	Arms and ammunition	5	4	4	6	6
XX	Miscellaneous manufactured articles	434	512	511	547	532
XXI	Works of art and antiques	5	8	10	7	7
XXII	Not classified	176	175	704	563	239
Total		25,503	33,464	39,927	37,447	36,809

Source: Director-General for Trade, Units A4/G2, European Commission, 27.08.2014.

Table 4: India's Export to EU Trade Flows (Exports) by HS Section 2009-2013

<i>HS Section</i>		<i>Exports (Mio. €)</i>				
		<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
I	Live animals; animal products	26	23	83	27	26
II	Vegetable products	47	55	70	100	70
III	Animal or vegetable fats and oils	17	20	24	52	38
IV	Foodstuffs, beverages and tobaccos	116	193	204	230	247
V	Mineral products	381	275	466	488	370
VI	Products of the chemical or allied industries	2,369	3,099	3,346	3,435	3,362
VII	Plastics, rubber and articles thereof	1,039	1,424	1,635	1,940	1,781
VIII	Raw hides, skins and saddlery	114	133	148	146	136
IX	Wood, charcoal, cork and articles thereof	56	85	101	111	122
X	Pulp of wood, paper and paperboard	723	806	845	772	793
XI	Textiles and textile articles	229	311	361	356	362
XII	Footwear, hats and other headgear	32	36	33	26	31
XIII	Articles of stones, glass and ceramics	242	314	363	333	309
XIV	Pearls, precious metals and articles thereof	4,183	6,875	9,262	8,250	9,157
XV	Base metals and articles	3,494	4,097	4,666	4,452	3,171

<i>HS Section</i>		<i>Exports (Mio. €)</i>				
		<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
	thereof					
XVI	Machinery and appliances	10,001	11,844	13,550	11,614	10,202
XVII	Transport equipment	2,212	2,411	2,202	2,966	2,692
XVIII	Optical and photography instruments, and etc.	1,364	1,624	1,884	1,987	1,920
XIX	Arms and ammunition	67	33	32	7	14
XX	Miscellaneous manufactured articles	185	253	280	272	291
XXI	Works of art and antiques	3	30	5	7	14
XXII	Not classified	599	950	1,024	974	766
Total		27,499	34,891	40,582	38,543	35,874

Source: Director-General for Trade, Units A4/G2, European Commission, 27.08.2014.

2.0 Literature Review

The India-EEC economic cooperation began in 1962, when India established its diplomatic relations with the European Community (EC) in Brussels. The relationship received a boost in 1973, when the UK became a member of the EC along with Denmark and Ireland. EC was the first to have granted (in 1971) the Generalized System of Preference (GSP) facility to India. It was first among the Asian countries. Apart from extension of the GSP facility to manufactured goods, the EC also extended tariff benefits to India as the Most Favored Nation (Chopra and Lall, 1984).

Wadhwa (1973) stated that European Common Market (ECM) was an important market for India in 1970s. The economic cooperation and trade between India and European Economic Community (EEC) / European Common Market (ECM) mostly highlighted the impact of tariffs and preferences. Both tariff and non-tariff variables were important determinant and important decisive factors for determining the exports of a non-EEC country to ECM.

Angarish (1973) pointed out the Commercial Cooperation Agreement (CCA) between India and EEC in view

of the importance of the enlarged community for the future of India's foreign trade.

Lall and Streeten (1977) revealed that few western European MNCs were major exporter to India. The reason for this was India's own import substitution policies that encouraged direct investment for local market operations.

Yeats (1979) analyzed ECs trade with factual evidence which; shows that since mid-seventies the EC has become more protectionists towards India especially in areas of labor intensive goods with less value addition.

Cline (1980) and Goldin et.al. (1994) stated that the entire gamut of the EC's imports of agricultural goods has been protected by the variable levies under Common Agricultural Programme (CAP) since the sixties.

Mehta (1981) pointed out that though India shares an important affinity with EEC, Europe sometimes seems to look upon India as a competitor. At other times, Europe views India as a potential economic collaborator and trading partner.

Ramesh (1981) studied the historical context of the European MNCs and developing countries with special reference to India.³

Sen Gupta (1981) analyzed the type of advance technology needed from Western Europe for the advancement of India economy. His paper also revealed the attractiveness of investment climate in India for West European investors and the comparative advantage accrued from the West European tie-ups.

Sharma (1984) highlighted the discriminatory quota entitlement in textiles and clothing under the Multi-Fiber Agreement (MFA) and India was a beneficiary of this quota allocation. Textiles and clothing was an important item of import of European Community (EC) from India.

³ Export restriction clauses were the largest in the' agreements of MNCs and India according to the UNCT AD study (1971) on Restrictive Business Practices: See especially on India).

Thus, in 70s and 80s the commercial & economic cooperation agreements, research & development in economic, scientific and technological field and exchange of advance technology from European MNCs to India were some of the important consideration of development of Indo-EU trade. However, various form of quantitative restrictions such tariff, protectionist movement, trade diversification; discriminatory quota and Non-tariff barriers were accounted for reduction of trade between the two partners.

Parthasarathy (1990) systematically highlighted the trading relation between India and EU. Based on product-wise data of 1980s the analysis indicated India as a non-significant trade partner of the European Community while European Community as a major trade partner India. He pointed out that the main items of India's import from EU were high value products such as manufacturing and scientific instruments etc. in 1970s and 1980s. Whereas EC's main imports from India during the same period were low value products such as textiles, leather, coffee, tea and spices, marine products etc. He suggested a suitable alteration in India's policies, procedures, and strategies for maintaining future international economic relations amongst the trading blocks.

Ramachandriah (1992) studied about the prospects of export potential of items like textiles, clothing, readymade garments, leather and leather products diamonds and jewelry, bulk drugs, marine products, households and toiletry products, tea, coffee, jute, chemicals, engineering goods, and electronics in EU market. The paper highlights on harmonization of technical standards, enhancement of quality of the product to the international standards, adherence to the health, safety, and environment directives, and also quality packaging with labeling requirement of member states of the EC etc.

Abrham (2001) stated two areas as potential sector for Indo-EU collaboration such as Information Technology (IT) and Pharmaceuticals. He argued inherent strengths in the IT

market of India expertise and competitive pricing are well known in Europe. The Joint Declaration issued at the EU-India Summit (2000), specifically mentions about such potential cooperation⁴.

India has signed a *Bilateral Investment Protection Agreements (BIPA)* with 16 members of EU-28 to facilitate the flow of investment and joint ventures between India and the EU member nations. India has also signed a *Double Taxation and Avoidance Agreement (DTAA)* with 18 members of EU – 28. Efforts are still on to sign the above-mentioned with Lithuania, Estonia, Latvia, and Slovenia. India is giving emphasis on signing Mutual Legal Assistance Agreement with EU for Civil and Commercial Matters in the line of Trade Secret Act, IT Act, and the various agreements on TRIPS under WTO for protection of Intellectual Property Rights in order to complete the enhanced cooperation with EU in bilateral trade. There exist several restrictions by EU member states, which repeatedly create problems for the entrepreneurs and investors of developing countries including India. This goes against the spirit of strategic trade partnership. However, the bilateral trades between both trade partners are on an up line trend.

India's major trading partners in EU are Germany accounting for 2.6% of total trade of India, followed by Belgium with 2.5 %, UK with 1.8%, and Italy with 1.2 % in October 2014

⁴ _____ The declaration said: "We recognize the significant growth achieved in India in respect of Information technology. We also recognize the mutual benefits of a substantial increase in flows of investment, technology, expertise and service provides between the EU and India in the new knowledge-based economy, particularly in the area of information technology, telecommunications, and biotechnology. We agree to work closely with each n these sectors which have a vast potential to improve the standards of living and quality of life for our citizens". The European Commission, Text of Joint Declaration issued after the EU-India summit on 28th June 2000 (Lisbon, Portugal), June 2000.

_____ See comments by Commissioners Erkki Liakanen, Member of Information Society and Enterprise of the European Union on a "Joint Vision Statement on IT" in Press Release: 2001: July, CII news, Confederation of Indian Industry, July 2001.

(Ministry of Commerce and Industry, Government of India, Oct., 2014).

Trade in services reached € 22.2 billion in 2011. Indian service exports to the EU grew by 18.68% to €10.8 billion from € 9.1 billion in 2010. Indian service imports which stood at € 11 billion in 2010 remained more or less stable at € 11.4 billion.

The empirical evidence shows that GDP of a country is an indicator of the size of the market. A growing and potential market with substantial size ensures economies of scale thus helps in both export and import process. Trade flows towards a country with stable or accelerating growth of output. Growth of agriculture, manufacturing and service sector strengthen the GDP, thus are indirectly related to trade growth. Savings generates investments and hence is important for GDP per capita growth and capital formation. Inflationary spiral in the economy makes prices of consumer items more expensive, so it affects the flow of trade. Similarly trade openness makes the import and export more lucrative.

The critical role of the above-mentioned factors in explaining trade flows in developing countries, however, is practically unexamined. In this paper, we have attempted, to fill the gap in existing literature by empirically identifying India's specific features, particularly the GDP growth, growth of different sectors of the economy, trade openness, gross capital formation, savings, inflation, GDP per capita, debt in explaining the trade flows.

3. Objectives of the Study:

The objective of this paper is to find out the factors responsible for trade flows between India and European Union during the period 2000-2013 and the future prospects of India-EU trade.

4. Methodology:

4.1 Projection of India-EU Trade:

The future prospects of India - EU trade has been projected taking into account the average annual growth rate of trade for the past periods. Here we have used projected growth rate formula to calculate the trade for future period. The formula is given below:

$$T_{pn} = T_{n-1} + (T_{n-1} * X \%)$$

Where T_{pn} = Trade Projection for n –year

T_{n-1} = Trade in n-1 year

X % = Compound Average Growth Rate of trade for a time period.

4.2 Factors responsible for trade flows between India and EU:

We have analyzed the potential factors responsible for trade flows between India and European Union during the period 2000 to 2013 with the help of following regression equation:

Regression Model:

$$Trade (Ind_EU)_t = \beta_0 + \beta_1 Agril_t + \beta_2 Ind_t + \beta_3 Ser_t + \beta_4 GCF_t + \beta_5 OP_t + \beta_6 GDP_t + \beta_7 TT_t + \beta_8 Sav_t + \beta_9 Infl_t + \beta_{10} Deb_t + \beta_{11} Per_t + \sigma$$

Trade (Ind_EU)_t = Trade Inflow from India to EU in year t

Agril_t = Agriculture value added (% of GDP of India) in year t

Ind_t = Industry value added (% of GDP India) in year t

Ser_t = Service etc. value added (% of GDP India) in year t

GCF_t = Gross capital formation (% of GDP India) in year t

OP_t = Trade openness of the economy in year t

GDP_t = GDP growth (% annual) in year t

TT_t = Total trade of India (% of GDP) in year t

Sav_t = Adjusted savings: gross savings (% of GNI of India) in year t

Infl_t = Inflation, consumer prices (annual %) of India in year t

Deb_t = Central government debt, total (% of GDP) of India in year t

Per_t = GDP per capita growth (annual %) of India in year t

σ = Random error.

β_0 = Constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}$ and β_{11} are coefficient of various determinants of trade flows between India and European Union such as *Agril, Ind, Ser, GCF, OP, GDP, TT, Sav, Infl, Deb* and *Per* respectively. The significance of these coefficients has been analyzed with the help of regression analysis.

4.2.1 Assumptions:

We have assumed that the Agriculture (Agril), Industry (Ind), Service (Ser), Gross Capital Formation (GCF), Trade Openness (OP), Total Trade (TT), Savings (Sav), Debt (Deb), Gross Domestic Product (GDP), GDP Per capita (Per), Inflation (Infl) are the main factors of trade flows between India and EU. The following assumptions about the variables have been considered.

- i. There exist a positive relationship between GDP growth and trade flows;
- ii. Growth of agriculture sector increases the trade flow between India and EU;
- iii. Growth of industry increases the trade flow between India and EU;
- iv. Growth of service sector increases the trade flow between India and EU;
- v. There exist a positive relationship between gross capital formation and trade;
- vi. The trade openness results in more trade;
- vii. Total trade of India positively related to trade between India and EU;
- viii. Savings are positively related to trade flows;
- ix. Debt of the country is negatively related to trade flows;
- x. Inflation is negatively related to trade flows;
- xi. There exists a positive relationship between per capita GDP and trade flows.

5. Analysis and Results

5.1 Projection of India-EU Trade:

The future trade between India and EU has been projected taking into account the average annual growth rate of trade for the past periods. Here we have projected the future trade using the following formula⁵:

$$T_{pn} = T_{n-1} + (T_{n-1} * X \%)$$

Where T_{pn} = Trade Projection for n -year

T_{n-1} = Trade in $n-1$ year

$X \%$ = Compound Average Annual Growth Rate of trade for a time period.

For the projection of Indo-EU trade in 2014 to 2020, we have taken compound average growth rate (CAGR) of trade for the past ten year between India-EU trades i.e. 2003-2013 presented in Table 2. The compound average annual growth rate of trade during the above-mentioned period was 13.121%. The future trade (approximate) between India-EU has been calculated applying above CAGR for the years from 2014 to 2020. The trade projection is shown in Table 5. The calculated projected trade is 129,924 million USD for the year 2015 and 240,660 million USD for the year 2020.

⁵ For calculation of India-EU Trade in 2014, We have used the formula:

$$T_{pn} = T_{n-1} + (T_{n-1} * X \%)$$

Where T_{pn} = Trade Projection for n -year =2014

T_{n-1} = Trade in $n-1$ year = Actual Trade in 2013 = 101,532 million USD

$X \%$ = Compound Average Growth Rate of Trade (annual) for a time period.

= Average Annual Growth Rate of Trade from 2003-2013 (past ten years growth rate in trade

= 13.121% (Values are taken from Table 2)

This is calculated using formula mentioned above in End Note 2.

$$T_{2014} = 101532 + (101532 * 13.121\%) = 114,854$$

Table 5: India-EU Trade Projection During 2014 to 2020

(In Million USD)

<i>Year</i>	<i>Projected Trade (approx.)</i>
2014	114,854
2015	129,924
2016	146,971
2017	166,255
2018	188,070
2018	212,746
2020	240, 660

NB: Calculated at existing compound average growth rate of 13.121%.

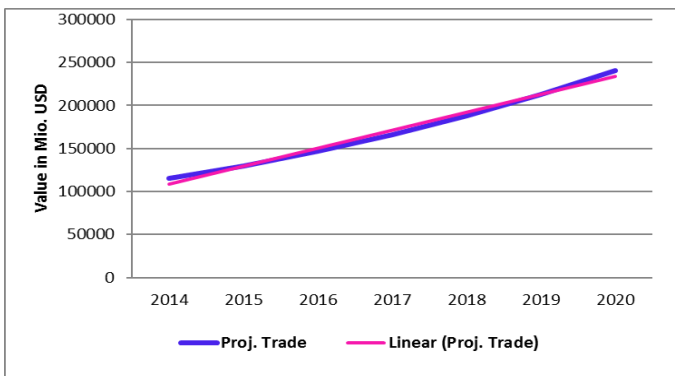


Figure 2: Trade Projection from 2014 -2020

5.2 Factors responsible for trade flows:

The summary data used for analyzing trade flows between India and EU are presented in Table 6 and 7. These data have been compiled from World Bank’s Country data for India. The data belong to time period 2000 to 2013 except the data on adjusted savings and central government debt which are for the time period 2000 to 2012.

Table 6: India’s Country Data by World Bank during 2000 to 2013

<i>Year</i>	<i>EU Trade (% of GDP)</i>	<i>GDP growth (annual %)</i>	<i>Agriculture, value added (% of GDP)</i>	<i>Industry, value added (% of GDP)</i>	<i>Services, etc., value added (% of GDP)</i>	<i>Gross Capital Formation (% of GDP)</i>	<i>Trade Openness</i>
2000	4.39	3.84	23.02	26.00	50.98	24.11	0.20
2001	4.11	4.82	22.92	25.08	51.99	25.57	0.19
2002	4.72	3.80	20.70	26.17	53.13	24.97	0.22

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Year	EU Trade (% of GDP)	GDP growth (annual %)	Agriculture, value added (% of GDP)	Industry, value added (% of GDP)	Services, etc., value added (% of GDP)	Gross Capital Formation (% of GDP)	Trade Openness
2003	4.79	7.86	20.74	26.01	53.25	26.14	0.23
2004	5.20	7.92	19.03	27.93	53.05	32.45	0.27
2005	5.90	9.28	18.81	28.13	53.06	34.28	0.30
2006	5.97	9.26	18.29	28.84	52.87	35.87	0.33
2007	5.89	9.80	18.26	29.03	52.71	38.03	0.33
2008	6.71	3.89	17.78	28.29	53.93	35.53	0.40
2009	5.45	8.48	17.74	27.76	54.50	36.30	0.34
2010	5.30	10.26	18.21	27.16	54.64	36.53	0.36
2011	5.82	6.64	17.86	27.22	54.91	36.39	0.42
2012	5.53	4.74	17.52	26.21	56.27	34.70	0.43
2013	5.41	5.02	18.20	24.77	57.03	30.02	0.41

Source: Country Data for India Downloaded on 27.09.2014 from World Bank Website

Table 7: India's Country Data by World Bank during 2000 to 2013

Year	Inflation, consumer prices (annual %)	GDP per capita growth (annual %)	Total Trade of India (% of GDP)	Adjusted savings: gross savings (% of GNI)	Central government debt, total (% of GDP)
2000	4.01	2.12	19.95	25.26	54.1
2001	3.68	3.12	19.28	27.07	58.0
2002	4.39	2.15	21.78	26.59	61.5
2003	3.81	6.18	22.96	28.46	61.1
2004	3.77	6.29	27.31	32.98	61.5
2005	4.25	7.68	30.24	33.90	61.2
2006	6.15	7.72	32.89	35.24	59.1
2007	6.37	8.30	33.49	36.76	56.5
2008	8.35	2.51	39.95	34.06	56.1
2009	10.88	7.07	34.21	34.10	54.3
2010	11.99	8.84	36.34	34.52	50.6
2011	8.86	5.28	42.30	32.67	43.7
2012	9.31	3.42	42.56	30.68	49.7
2013	10.91	3.72	40.74	-	-

Source: Country Data for India Downloaded on 27.09.2014 from World Bank Website.

5.2.1 Explanation of the Data Used:

GDP growth (annual %): Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the

sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

Agriculture, value added (% of GDP): Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.

Industry, value added (% of GDP): Industry corresponds to ISIC divisions 10-45 and includes manufacturing (ISIC divisions 15-37). It comprises value added in mining, manufacturing (also reported as a separate subgroup), construction, electricity, water, and gas. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.

Services, etc., value added (% of GDP): Services correspond to ISIC divisions 50-99 and they include value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, health care, and real estate services. Also included are imputed bank service charges, import duties, and any statistical discrepancies noted by national compilers as well as discrepancies arising from rescaling. Value added is the net output of a sector after

adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The industrial origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.

Gross Capital Formation (% of GDP): Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.

EU Trade (% of GDP): The imports and exports of EU to India as percentage of GDP of India.

Trade Openness: Trade openness is the imports and exports of India divided by Total GDP of India.

Inflation, consumer prices (annual %): Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.

GDP per capita growth (annual %): Annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and

minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

Total Trade of India (% of GDP): Total exports and imports of India as percentage of GDP.

Adjusted savings: gross savings (% of GNI): Gross savings are the difference between gross national income and public and private consumption, plus net current transfers.

Central government debt, total (% of GDP): Debt is the entire stock of direct government fixed-term contractual obligations to others outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares, and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. Because debt is a stock rather than a flow, it is measured as of a given date, usually the last day of the fiscal year.

5.2.2 Regression and Results

A regression analysis was carried out of the data presented in Table 6 and 7. Here, trade is considered as dependent variable and all others variables (assumed determinants) as independent variables. The summary result of the regressions is presented in Table 8. Most of the explanatory variables specified in the regression model are seems to be significant elements in determining the trade inflows between India and EU during the specified period.

Table 8: Summary Results of Regression

<i>Dependent Variable (Y)</i>	<i>Independent Variable (X)</i>	<i>Coefficients</i>	<i>R²</i>	<i>t-Statistics</i>	<i>Significance</i>
Trade	GDP Growth	0.11	0.10	1.18	-Ve
Trade	Agriculture	-1.25	0.77	-6.37	+Ve
Trade	Industry	1.88	0.51	3.55	+Ve

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Trade	Service	1.88	0.18	1.62	-Ve
Trade	GCF	0.69	0.73	5.66	+Ve
Trade	Trade Openness	0.39	0.69	5.13	+Ve
Trade	Total Trade	0.39	0.69	5.13	+Ve
Trade	Savings	0.96	0.71	5.24	+Ve
Trade	Inflation	0.16	0.29	2.23	-Ve
Trade	Debt	-0.28	0.04	-0.71	-Ve
Trade	GDP Per capita	0.10	0.15	1.43	-Ve

The above results explain about 95 % of the variation. Summary results are presented below:

- i. The coefficient +0.11 with R² value 0.10 and t –Statistics 1.88 makes GDP growth an insignificant factor of trade flows.
- ii. Agriculture with a coefficient of -1.25 with R² value 0.77 and t –Statistics 6.37 makes it a significant factor of trade flows.
- iii. Industry with a coefficient of +1.88 with R² value 0.51 and t –Statistics 3.55 makes it a significant factor of trade flows.
- iv. Service with a coefficient of +1.88 with R² value 0.18 and t –Statistics 1.62 makes it an insignificant factor of trade flows.
- v. The coefficient of +0.69 with R² value 0.73 and t-statistics 5.66 makes gross capital formation (GCF) another significant factor of trade flows.
- vi. Trade openness with a co-efficient of +0.39 and R² value 0.69 and t –Statistics 5.13 turns out to be a significant factor of trade flows.
- vii. The coefficient of +0.96 with R² value of 0.71 and t-statistic of 5.24 makes savings a significant factor of trade flows.
- viii. Inflation with a coefficient of +0.16 with R² value 0.29 and t-statistics 2.23 turn out to be a non-significant factor of trade flows.

- ix. Debt with a coefficient of -0.28 and R^2 value $+0.04$ and t -Statistics of -0.71 turns out to be a non-significant factor of trade flows.
- x. GDP per capita with a coefficient of $+0.10$ and R^2 value $+0.15$ and t -Statistics of $+1.43$ turns out to be a non-significant factor of trade flows

6. Conclusion:

Trade prospects of India's with EU is highly promising with a projected total trade reaching up to 240,660 million USD at least in the year 2020. Further, on the aspects factor responsible for trade flows between India and EU are the growth of agriculture and industry sector, gross capital formation, trade position of India in the World, trade openness and savings. However, the GDP growth, GDP per capita, service sector growth, inflation and debt position of the country found to be non-significant factors.

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