

## Contribution of Foreign Trade on Domestic Income of Labour Intensive Developing Economy-The case of India

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### Abstract

By an estimate of UNDP the total production of three emerging economies (India, China and Brazil) will surpass the total production of six developed economies (US, UK, Canada, France, Germany and Italy) by 2020. The access to technology, information and infrastructure in emerging economies like India has enabled the business fraternity to be abreast of the changing consumer and producer behaviour patterns. It is felt that the changing pattern of international trade is reflected in production of goods and services within the borders of an economy. This change in domestic production pattern of goods and services due to change in pattern of foreign trade is the topic of research analysis of this study. The study is done in three parts. Part one focuses on Gross Domestic product at factor cost of Indian economy and the changing pattern of contribution of three prime sectors namely, agriculture, industry and service sector. Part two focuses on pattern of foreign trade of Indian Economy since 1950. The final part analyzes the change in production within Indian economy due to change foreign trade of the economy itself.

The impact of international trade has been interpreted using regression analysis on secondary data taken from Central Bank's database. It is found that exports and imports of merchandize have greater and more significant impact on GDPfc than that of invisibles. The findings are exceptional for labour intensive economy which advocates improvement in services to focus on strength.

*Key words: Emerging economy, developing economy, foreign trade, merchandise, invisibles, exports, imports, GDPfc.*

JEL: F17, F41, F47

### Introduction

The national income earned by an economy indicates the health of the economy. The better the flow, the better is the sustainability of progress and development. The emerging economies like India have witnessed many changes in the composition of their national Income. National Income can be analyzed from production, consumption and expenditure point of view. It is felt that the trend of foreign trade of a country has impact on the production within its domestic boundaries. This work focuses on the gross domestic income from production point of view and impact of foreign trade on it. Gross domestic product (GDP) is the total production of goods and services within the

boundaries of an economy by various factors of production. This work is an attempt to show that GDPfc of an emerging open economy like India depends on the exports and imports of the economy itself. The reason is that the budding entrepreneurs, the vigilant policy makers, the opportunistic and competent investors are on constant look out for lucrative prospects of profit making and dampening the loss making ones. This study throws light on the changing pattern of composition of GDPfc due to improving accessibility of global markets. The work will extract an indicator of globalization in terms of impact of foreign trade on income of an economy.

Indian Economy has emerged as a service

oriented economy (67% of GDPfc- 2012-13) from core agricultural economy (52% of GDPfc- 1950-51). Many reasons have contributed to the present emergence of Indian economy. This research work intends to uncover the contribution of foreign trade in this changed composition of Indian Income. The foreign trade with reference to both goods and services have been analyzed for impact on GDPfc.

### **National Income and Factors affecting it**

Many researchers have analyzed the trends, composition and reasons of change in National Income of an economy as it depends on many direct and indirect stimulants. Bhattacharyya Ranajoy, Banerjee Tathagata (2006) in their research have applied gravity model to explain India's direction of trade and income. They have found that forty three percent of fluctuations in India's direction of trade can be studied through their model and that Indian direction of income responds less to size and more to distance of trade. The international trade of developing countries like India also depends on the countries that are strategically important to them, as in case of gold India is third largest importer of the world in gold; however, imports mostly from Switzerland and UAE though China and Hong Kong are nearby but India avoids importing from them. Banerjee Sharmila (2004) has studied Indian trade data from 1970 to 2000 and has highlighted the role of economic development in production. The improving ranking of India in Global competitiveness index also indicates the same and the improving financial, labour and economic goods market are a sign of improving development. It is also observed that Business Sophistication and innovation in Indian economy are exceptional and the top most contributors for its 71 ranking in GCI (2014-15). Bekhet Ali Hussain(2011), has interpreted the impact of Malaysian economic policies on nations economic production using input output model and has found that there still exists high dependency on primary sector and the role of agriculture is declining in present scenario. The

same is indicated by declining contribution of agriculture in Indian Economy from 52% (1950-51) to 14% (2012-13). Study conducted by Palley I Thomas(2009) had studied income expenditure model to find the accountability of imports and vice versa. It was found that tax had greater impact on domestic income than the import decreasing policy initiatives in economies. However, in case of India, the increased duty on gold led to spectacular decrease in gold imports. Ball Donald, McCulloch, Gringer, Minor and McNett(2012) have stated that though more than half of the exports from developing countries go to developed countries, this proportion has decreased in the past 35 years and the countries are lately trading with the countries of same category lately; thus, the global market has recently shown change in the trade of countries and impact of trade on the domestic income is a matter of interest for research. Sook Lee, Srivastava (2010), have emphasized that the culture of countries indicate potential of trade between them and the trade is reflected in the domestic production of both economies. They have clearly demonstrated the culture of various countries and the how they impact the foreign trade and how foreign trade affects the Indian culture and economy. Bhala and Ramu Shiva (2008), have mentioned that the importer from any country studies the export market thoroughly and wants the best vendor and that the exporters are the prime movers of trade. Thus it can be expected that the exports may have higher impact on the domestic income as the export processes and products. Cherulian Francis (2009) has clearly stated India's gain from Trade in the light of WTO policies related to criticisms and exemptions for India from international trade. Daniels, Radebaugh, Sullivan, Salwan (2010) has stated the impact of multinational trading companies on creating employment in developing economies by dividing the value chain for small manufacturers and then integrating the same and selling the goods under their brand. Gains from international trade have been explained with the live example of England and France by Czinkota, Ronkainen and Moffett (2005)

emphasizing the point that without trade the countries consume what they produce and trade enhances the access to variety of products. Emerging economies like India have the potential to undertake research and development and produce the imported goods domestically thus the consumption expenditure of the economy increases, showing an impact on domestic income.

### The Research Problem

The domestic income of a developing economy is affected by various macro economic factors. The objective of this work is to identify how the composition of domestic income of India has changed from 1950-51 till 2012-13 and the role of foreign trade variables in changing the same. This research rests on studying the contribution of four foreign trade variables: Export and import of goods and services in changing the domestic income of developing economy like India. In context of international trade, the work identifies the variables which need to be varied and in what proportion so that domestic income of the economy can be increased to a particular level.

The exports are understood to increase the production and imports may or may not lead to decrease in production depending on the use it is put to, which may be domestic consumption or re-exports. Forecasting technique of regression analysis has been applied to find the relationship and contribution of foreign trade on domestic income of Indian economy.

### Research Methodology

The study has been undertaken in three parts:

- I. Study of Indian GDPfc and its components
- II. The BoP situation in India
- III. Impact of foreign trade on Indian Economy's GDPfc.

The secondary data from RBI database has been undertaken for the study. For studying the composition of GDPfc data from 1950-51 to 2012-13 is undertaken and to study the impact

of exports and imports on GDPfc the data from 1987-88 to 2012-13 is studied.

Regression analysis has been used for checking the extent of impact of export and import of goods and services on gross domestic product of Indian economy.

### Part I of the study: Study of Indian GDPfc and its components

GDPfc is the contribution of all factors of production in an economy towards production of goods and services. The composition of Indian GDPfc had higher role of agriculture in mid 20<sup>th</sup> century which has been taken away by service sector lately (2012-13).

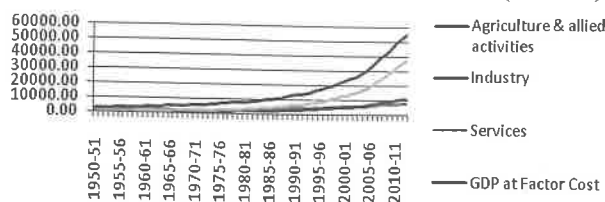
Table 1: Components of GDP (fc) at constant prices, base year: 2004-05 (Rs Bn)

Year	Agriculture & Allied Activities	Industry	Services	GDP at Factor Cost (Rs Bn)
1950-51	1450.52	310.26	968.42	2796.18
1950-51 (% of GDPfc)	51.88	11.10	34.63	100.00
2012-13	7536.10	10421.85	37096.40	55054.37
2012-13 (% of GDPfc)	13.69	18.94	67.41	100.04

Source: based on data from RBI

The above data emphasizes the fact that there is change in composition of GDPfc and the agriculture sector has witnessed decrease in percentage share in GDPfc. At the same time it is noteworthy that the contribution of agriculture sector has increased in comparison to 1950. However, in comparison to other sectors the rate of increase is less. In 1950s the land was ample, the literacy was less and the British ruled India had lesser avenues for manufacturing and service sector. Later on the improvement in skills of manpower, the interaction with outer world, the ambitious projects of government and private sector have all contributed towards the enormous growth of industrial and service sectors and their contribution to GDPfc.

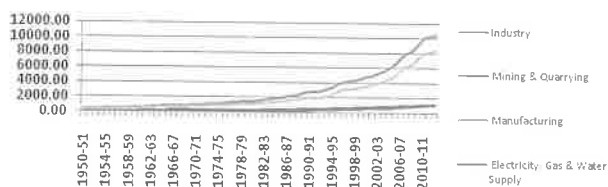
Figure 1: Composition and trend of GDPfc (Rs. Bn.)



Source: Based on data from RBI

Till 1986-87, Indian economy was following Hindu growth rate of 3-4%, however, post 1992-93, the growth of Indian economy picked up momentum and the star performers were the service and industry sectors. Agriculture showed a relatively slow rate of growth; however, the production of all three sectors witnessed growth in all the years. The implementation of five year plans, the changing social indicators and the progressive role of Indian economy in globalized years have all contributed towards changing composition of Indian Gross domestic product at factor cost, though the role of India as an open economy cannot be overlooked.

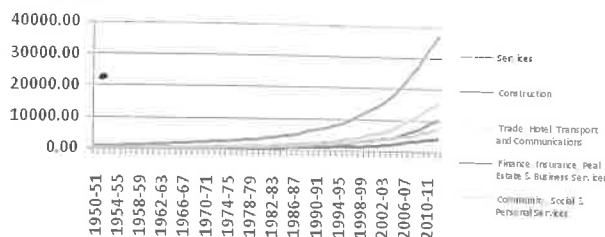
Figure 2: Composition and trend of Industry Production and its subsectors



Source: Based on data from RBI.

The study of various subsectors of Industrial sector shows that the manufacturing sector has contributed more than the other two industrial sub sectors namely mining & quarrying and electricity, gas & water supply. Mining and quarrying being the primary sector has not shown much change till 1990s; however, post liberalization a positive change in its contribution towards industrial output is witnessed. Post 1992, the liberalization of various sectors has led to improvement in investments and production and thus the infrastructure contribution from electricity, gas and water supply also increased.

Figure 3: Composition and trend of Service Sector:



Source: Based on data from RBI

The service sector has contributed immensely towards the Indian GDPfc and the role of trade, hotel, transportation and communications has highest contribution in it followed by finance, insurance, real estate and business services which have shown increased role post 2006. Community, social and personal services have shown increased contribution post liberalization (1990 onwards) however construction has shown increased momentum after 2005 only.

## Part II: Foreign Trade of India (Annexure 1)

The trade balance of India has been negative since 1950s and it is the same till today. However, the service sector has played an important role in diffusing its impact to some extent and the current account has been positive for a mere eleven years (1950-51, 1952-53 to 1955-56, 1973-74, 1976-77, 1977-78, 2001-02 to 2003-04). The producers and the policy makers have been studying this trend and it is understood that the way the exports and imports move, the same trend is followed to some extent in the domestic production of an economy. The domestic producers keep a track of imports in their domain and in this competitive world, adapt the latest technologies to satisfy their domestic consumers by moulding their production patterns. On the other hand, the increase in exports of a particular commodity makes the other producers aware of a particular kind of good being manufactured and selling it in local market.

The foreign trade of Indian economy in terms of goods can be categorized into three stages:

The first stage from 1987 to 1994 was the phase that hardly witnessed any spectacular increase in foreign trade, be it imports or exports and thus there was not much difference between the foreign trade variables and the trade balance was not a concern. In the second stage from 1994 to 2005-06, some fluctuation was felt in imports and corresponding exports. It is observed that the gap between imports and exports started widening here which gave way to negative trade balance. However, w.e.f. 2005-06, the imports have shown vertical shoot up (Rs. Bn. 6954: to Rs. Bn. 27321) but the export of goods have not been able to catch this stride (Rs. Bn. 4657 to Rs. Bn. 16677) and the gap between the imports and exports have become spectacular (Rs. Bn. -2296 to -10645). In the larger picture, the role of services that is the contribution of invisibles has been to decrease the negative impact of imports on balance of trade account; however, as this period had a recessionary phase from 2007-08, the growth of net invisibles was not very stunning. However, the service sector must be applauded for maintaining positive contribution to foreign trade (2006-07: Rs. Bn. 2356 to 2012-13: Rs. Bn. 5848). The negative impact of imports of goods has been subsided by growth in export of services. The invisibles which comprise of the services have played a prominent role in diffusing the negative impact of imports of goods through positive performance. The receipts on account of receipts from services was Rs. 1.39 Bn in 1950-51 which became Rs. 12189 Bn. in 2012-13 and the imports were Rs. .98 Bn. which increased to Rs. 6340 Bn. ensuring positive net invisibles. Subsequently the balance of current account witnessed negative movement in a speedy way (2006-07: Rs. Bn. -443 to 2012-13: Rs. Bn. -4796).

### Part III: Research Findings

In order to find the impact of foreign trade on GDPfc of Indian economy, regression model is used to test if the GDPfc of Indian economy depends on exports and imports of goods and services. For this, GDPfc was taken as

dependent variable and the four variables of foreign trade were taken as independent variables. The independent variables of model are exports and imports of goods and services from 1986-87 to 2012-13. It is expected that the export of goods and services increases the GDPfc as the exports are done from the production in the economy; only in addition to it, the producers who were not into international trade also improve their skill and begin producing the products and services being exported by others. The imports are expected to lead to decrease in production to some extent however, the emerging economies have access to various technologies through which they can quickly adapt the production techniques used by other countries by honing their skills. Thus, the relationship seems to be a bit uncertain; however, in the model expected relationship is taken as negative.

Following is the notation of the model.

$$\text{GDPfc} = \alpha + \beta_1 X_g - \beta_2 M_g + \beta_3 X_s - \beta_4 M_s$$

Where,

GDPfc= Gross domestic product at factor cost  
 $\alpha$ = alpha the intercept denoting the value of GDPfc at no international trade level of Indian economy

$\beta_1$ = Slope or the rate of change in GDPfc due to one unit change in export of goods

$\beta_2$ = Slope or the rate of change in GDPfc due to one unit change in import of goods

$\beta_3$ = Slope or the rate of change in GDPfc due to one unit change in export of services

$\beta_4$ = Slope or the rate of change in GDPfc due to one unit change in import of services

$X_g$ = Value of exports of goods

$M_g$ = Value of import of goods

$X_s$ = Value of exports of services

$M_s$ = Value of imports of services

After processing the data for multivariate analysis, it has been found that 99.2% of variation in GDPfc is being defined by the model and thus the further study was conducted (Sig. .00). The ANOVA model has shown high residue as the model is of different nature however the variance leading to GDPfc is worth studying as it is not due to chance and

significant at 5% level of significance.

The Model shows the following relationship between GDPfc and the international trade variables.

$$\begin{aligned} \text{GDPfc} &= 8 \quad +\beta_1 X_g \quad -\beta_2 M_g \quad +\beta_3 X_s \quad -\beta_4 M_s \\ \text{GDPfc} &= 13103.7 + 6.7X_g - 4.9M_g + 6.3X_s - 2.26M_s \\ \text{Sig.} &\quad .00 \quad .00 \quad .00 \quad .00 \quad .272 \end{aligned}$$

As per the expectation, the exports have shown positive contribution towards GDPfc and imports have shown negative impact. The results of all the constants in the model are significant however; the relationship between the GDPfc and import of services is due to chance and not significantly proven.

In the absence of international trade, the GDPfc of Indian economy shall remain Rs.13103 Bn (It is to be noted that GDPfc in 2012-13 was Rs 55034 Bn). A change in exports of goods by one unit will lead to increase in GDPfc by 6.7 times and a unit change in export of services will lead to 6.3 times in the same GDPfc. The increase due to exports of goods is higher the reason can be found in the quantity of exports of goods which is higher than services. The more the import of goods the lesser would be the GDPfc of the economy as represented by the minus sign in corresponding to slope of goods (-4.9) and services(-2.26). However, the imports of services are not significant at 5% level of significance and thus have to be omitted in final analysis.

## Conclusion

From 1987 to 1994, there was not much difference between the foreign trade variables and the trade balance was not a concern. However, from 1994 to 2006, fluctuations in imports and exports were observed. The gap between imports and exports started widening in this period which gave way to negative trade balance which has widened further with time. In the larger picture the role of services that is the contribution of invisibles have been to

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As per the expectation, the exports have shown positive contribution towards GDPfc and imports have shown negative impact. Further, the trade of merchandize has a greater impact on GDP in comparison to imports. In terms of exports, amongst the two components of goods and services, goods export has more positive impact on GDP in comparison to services. Similar is the case with imports, greater imports of goods have greater negative impact on GDP in comparison to import of services.

Thus, the exports have greater and positive impact on GDP and export of services has the greatest and positive most impact amongst 4 variables of trade. The imports have lesser impact which is clear for goods however the impact of imported services is not significantly proven. And it is possible that the imported services may actually lead to increase of production in the country. Re-iterating the point that trade can have positive result for developing economies like India if done for further development.

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<http://reports.weforum.org/global-competitiveness-report-2014-2015/>

## Annexure:

### Annexure I : Key components of India's balance of payments – (Rs. Bn.)

Year / Item	I. Merchandise - A) Exports, f.a.b.	I. Merchandise - B) Imports, c.i.f.	II. Trade balance (A-B)	III. Invisibles, net
1950-51	6.47	6.50	-0.03	0.42
2012-13	16677.00	27321.00	-10645.00	5848.00
IV. Current account (I+II)	IV. Capital account (A to F)	IV.1 Foreign Investment	V. Overall balance (III+IV)	VII. Reserves (increase / decrease +)
0.39	-0.10	0.04	0.29	-0.29
-4796.00	5003.00	2983.00	207.00	-207.00

### Annexure II: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.996a	.992	.990	1325.21789

a. Predictors: (Constant), V. Invisibles, Payments (I to IV), III. Total Imports/All Commodities, V. Invisibles, Receipts (I to IV), V. Total Exports/All Commodities

### Annexure III: ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.441E9	4	1.110E9	632.211	.000 <sup>a</sup>
Residual	36880251.709	21	1756202.462		
Total	4.478E9	25			

### Annexure IV: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	13103.702	443.742		29.530	.000
V. Total Exports/All Commodities	6.765	1.344	2.303	5.033	.000
III. Total Imports/All Commodities	-4.918	.709	-2.718	-6.939	.000
V. Invisibles, Receipts (I to IV)	6.324	.966	1.694	6.543	.000
V. Invisibles, Payments (I to IV)	-2.265	2.009	-.308	-1.128	.272

a. Dependent Variable: GDPfc

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