

Factors affecting external debt of India

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Abstract

The external debt has become a world-wide phenomenon and is crucial factor in any economy whether poor and developing or developed. It is the intention of this article to analyze the external debt and its effects on other important parameters of economy on domestic and international level. All these economic parameters are so intertwined with each other that any change in one parameter affects three or four other parameters. Effort is made to examine and observe India's economic scenario in the light of this analysis in context of persistent global volatility.

Objective: To analyze the factors affecting India's external debt and their causal relationship with each other and external debt.

Method and Statistical Analysis: The analysis is mainly based on widely accepted granger casualty test and multiple regressions co-efficient. The correlation coefficient matrix is used to find out the relationship of all the variables amongst themselves and with external debts. The period of data is covered for a span of more than 20 years from 1991 to 2015. The source of data is RBI, department of economic affair of government of India, economic survey's government of India, and balance of payment manual 5th addition international monetary fund.

Findings: The best route to achieve total overall growth and making any country's economy healthy and resonating goes through its own natural resources, demographic strengths, its plus and minuses. No country can progress bypassing its strengths and by ignoring its own individuals. Economic progress can only be achieved by formulating growth and development policies "by the people, of the people, and for the people". Considering the global volatility, the policy guidelines for Indian economy should be to strengthen its strong hold like agriculture and abundant natural resources. Developing agricultural sector would enhance the GDP and the same time will strengthen the Indian economy there by providing a healthy market environment for investors abroad. The basic focus of Indian economy should be towards developing every individual and should not be totally market oriented. The make in India, Skill India, startup India and Stand up India are some of the steps that would help Indian economy to go all out for overall sectorial development and march towards self-reliance.

Application: The findings can be used by government, RBI and government agencies involved in economic policy formulation to achieve overall economic growth and to realize the goal of India's self-reliance.

Keywords: External Debt, Fiscal and Current Account Deficit, Exchange Rates, Original Sin, Granger-Causality Test.

1. Introduction

The ancient times witnessed India as a powerful and flourishing economy with extremely advanced village and cottage industries. It was rightfully termed as "Sone kiChidiya" (the golden bird). In spite of the Mughal rule India had a major share of more than 30% in the world trade till 17th century. However, the British rule of around 150 years reduced India's world share and when India got freedom in 1947, its share of world trade was around 2 to 2.5% and it also inherited its first external debt from the British Empire. After Independence, for the overall development on fast track, India took to external debt as funding source. But poor planning and investing in non-remunerative sectors turned the external debt into heavy burden on Indian economy. Presently, all the key indicators of economy such as fiscal deficit, current account deficit, balance of payment, exports/imports etc are being precariously maintained at manageable levels and need continuous monitoring.

The global market is sluggish, with many countries not yet out of 2008 crisis and China too having economic upheavals, global economic scenario does not appear to be promising. Against this backdrop, this article attempts to study, analyze and suggest certain measures for utilization of external debt as a tool for overall development of economy with focus on individual citizen. Standard economic tools are used to find out the correlation between external debt and other relevant economic parameters. This is an effort to look upon external debt being instrumental in overall development rather than being a burden on Indian economy.

2. Factors affecting external debt

Since independence, India has been depending on external borrowings to cover up fiscal, trade and current account deficits. In addition, various economic movements in the global market as well as events on the international horizon like wars resulted in substantial rise in external debt of India. The main factors affecting external debt are listed below;

1. Fiscal deficit and current account deficit
2. Balance of payment position
3. External account
4. Exchange rate market and currency depreciation
5. Composition and sectorial changes in external debt
6. Utilization of external debt, debt servicing and debt management

1. Fiscal deficit and Current account deficit

1.1. Fiscal deficit

The Indian economy has been riddled with fiscal deficit problem because of two major reasons –

1.1.1. Poor planning

Since agriculture was the main driving force for Indian economy in the early years of free India, irrigation was the focus of investment. The large investment in this area proved to be non- remunerative because out of 246 irrigation projects floated in 1961, 181 were still incomplete in 1986. Same was the case with Integrated Rural Development Program (IRDP) projects where the entire external loan diverted to them has gone down the drain, and no benefit reached masses (As per Policy analysis study by Mr. Shyam J Kamath way back in 1992, viz Foreign Aid and India: Financing the Leviathan State) [1]. The agriculture sector further went down because of government interference in trading of agriculture products by way of poor pricing and poor distribution system. Thus, the huge delays in irrigation projects resulting in heavy cost escalations and poor management of agriculture sector put mammoth burden on exchequer. The fiscal deficit kept mounting year after year sometimes reaching dangerous levels of 6-7% and became a perpetual problem for India's economy.

1.1.2. Poor revenue collection

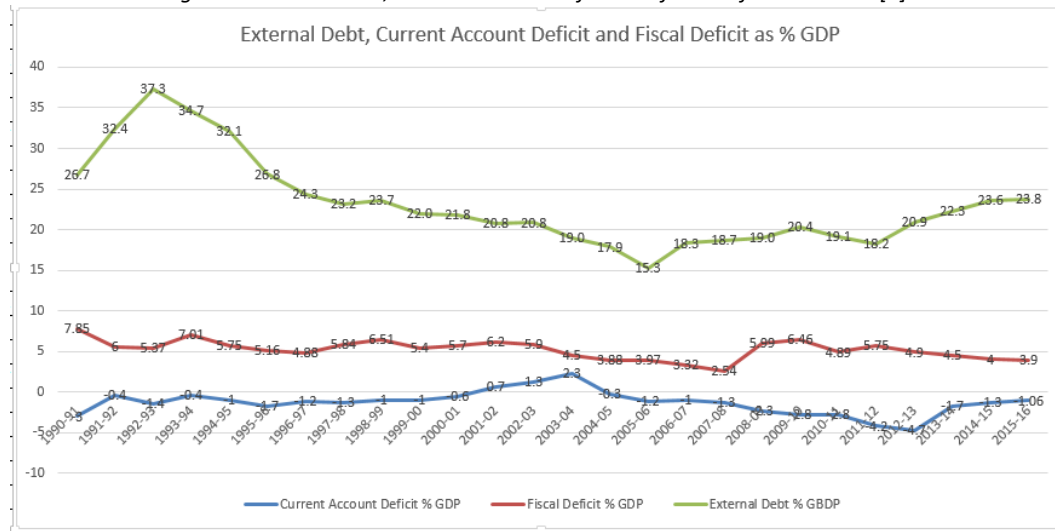
The inadequate taxation policy and rampant tax evasion is the major cause for poor revenue generation. According to various studies and articles published only 3% Indians are paying income tax as compared to 20 % Chinese, and total tax revenue of India is only 10% of the GDP which is the lowest among world economies [2]. In addition to this India has announced tax holidays many times and for many sectors in the hope of alluring foreign investment, give boost to manufacturing sector particularly medium and small industries and export oriented units. Thus, comprehensive reforms of tax structure, broadening tax base and efficient tax administration can bring down the tax evasion and increase the revenue. Increased revenue and regulating and minimizing the subsidies can help in bringing down the fiscal deficit.

1.2. Current account deficit

Thus, closed economic policy, poor exports, large imports and huge repayment schedule due to investments in non-productive sectors aggravated the problem of current account deficits particularly in pre-liberalization period. India's GDP kept hovering around 3 % and ever-increasing imports particularly oil and defense equipment made the situation worse. During the 1995 – 2000 periods the current account deficit reached dangerous level of 3.5 % of GDP.

Only due to exponential rise in invisible receipts due to export of software and services India did not land into another Balance of Payment crisis. The net invisible receipts rose so sharply that during 2001 – 2004 India actually had a current account surplus. But again, an increase in imports and rising oil prices pushed current account deficit to 4.2 % in 2011-12 and to 6.7% in Dec 2012. However, the sudden nose dive of oil prices from 130\$ per barrel to 40\$ per barrel was a tremendous relief and now for last 2 years the current account deficit has been hovering around manageable level of 1.5% of GDP. The following Figure 1 depicts the position of India’s external debt, current account deficit and fiscal deficit as percentage of GDP from 1991 to 2016.

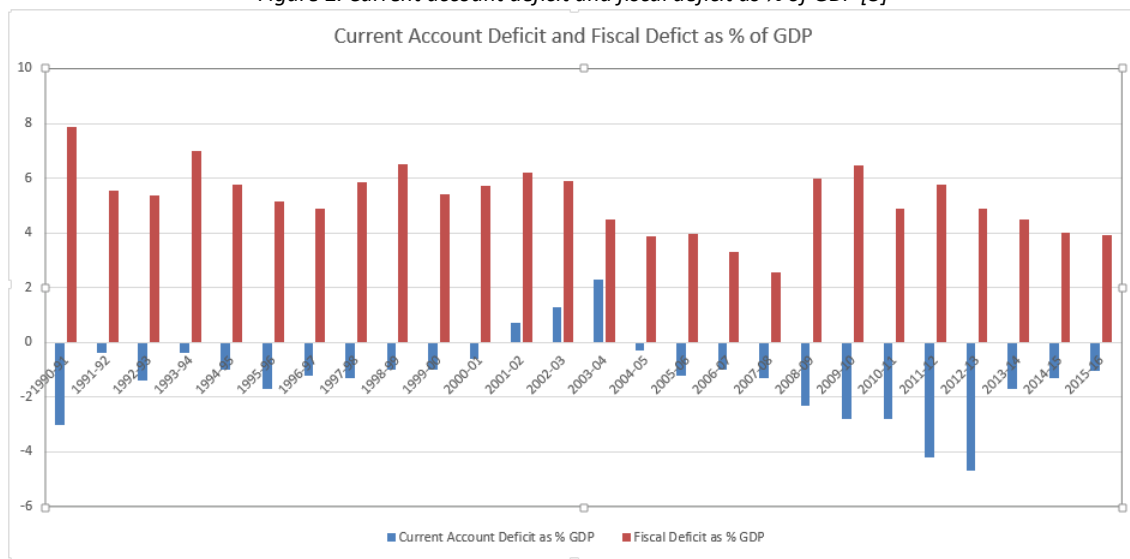
Figure 1. External debt, current account deficit and fiscal deficit as % GDP [3]



1.3. The twin deficits

It is a well-known fact that fiscal deficit and current account deficit are called as twin deficits. *In lieu* of the leading economies of the world (Ref: Article by Michael Kumhof and Douglas Laxton in economic dynamics and control 37(2013) Journal) [4] “A permanent increase of 1% of fiscal deficit of GDP leads to a short run current account deterioration of 0.5% of GDP and to a long run deterioration of 0.75% for the economy of the size of USA and 1% for smaller economies”. In India’s case, this can be inferred from the data reflected in Figure 2. In case of India, the Indian economists in their research papers (Current Account Deficit and Fiscal Deficit – A Case Study by Anuradha Agrawal [5]. India’s twin deficits –some fresh empirical evidence by Suchismita Bose and Sudipta Jha December 2011 in ICRA bulletin Money Finance [6] have established causal effect between Current Account Deficit and Fiscal Deficit.

Figure 2. Current account deficit and fiscal deficit as % of GDP [3]



They conclude that “An improvement in fiscal deficit (usually driven by the increase in the surplus of trade balance) will cause to decrease current account surplus and increase its deficit”. The results of granger causality test show the unidirectional causality relationship between current account and fiscal deficit. The research by Suchismita Bose and SudiptaJha shows that oil imports cause current account deficit, and therefore the fiscal deficit.

Table 1. Breakup of external account

I	Merchandize Trade Account
li	Invisible Account
lii	Current Account - (i + ii)
Iv	Capital Account
V	Balance of Payments - (iii + iv)
Vi	Change in Foreign Exchange Reserves ("-" sign signifies Increase in the reserves and "+" signifies Decrease)
Vii	v + vi = 0; That is, any balance of payments surplus means a corresponding increase in the Foreign Exchange Reserves; any balance of payments deficit means a corresponding reduction in the reserves

Since the fiscal deficit has to be compensated from current account, it puts pressure on current account deficit and subsequently on balance of payment position resulting in more borrowing and increasing the level of repayments. Recurrent fiscal deficit over the years has produced similar results for Indian Economy and increased external debt. The Table 1, 2 shows the fiscal deficit and current account in crores. From 1991 to 2013. Below is the correlation coefficient between fiscal deficit and current account, in support to the earlier studies showing interdependency between the two factors?

Table 2. Fiscal deficit and current account in ₹ in Crores from 1991 – 2013 [7]

FY	Fiscal Deficit in Crores Rs.	Current Account in Crores Rs.
1991	36325	-17366
1992	40173	-2235
1993	60257	-12764
1994	57703	-3634
1995	60243	-10583
1996	66733	-19646
1997	88937	-16282
1998	113349	-20883
1999	104716	-16789
2000	118816	-20331
2001	140955	-11598
2002	145072	16426
2003	123273	30660
2004	125794	63983
2005	146435	-12174
2006	142573	-43737
2007	126912	-44383
2008	336992	-63535
2009	418482	-127621
2010	373592	-179708
2011	515990	-210110
2012	490190	-376078
2013	113349	-479653

X= Current Account

Y = Fiscal Deficit

X Values

$\sum = -1578041$

Mean = -68610.478

$\sum(X - Mx)^2 = SSx = 371842764433.739$

Y Values

$$\sum = 3946861$$

$$\text{Mean} = 171602.652$$

$$\sum(Y - My)^2 = SSy = 463978255395.217$$

X and Y Combined

$$N = 23$$

$$\sum(X - Mx)(Y - My) = -231003488241.826$$

R Calculation

$$r = \frac{\sum((X - Mx)(Y - My))}{\sqrt{(SSx)(SSy)}}$$

$$r = -231003488241.826 / \sqrt{(371842764433.739)(463978255395.217)} = -0.5561$$

Meta Numerics (cross-check)

$$r = -0.5561$$

Key

X: X Values

Y: Y Values

Mx: Mean of X Values

My: Mean of Y Values

X - Mx & Y - My: Deviation scores

(X - Mx)² & (Y - My)²: Deviation Squared

(X - Mx)(Y - My): Product of Deviation Scores.

The value of R is -0.5561. This is moderate negative correlation which indicates that there is a tendency of high value of variable X (Current Account) with low value of variable Y (fiscal deficit). The P-Value is 0.006362 when R is -0.5561, N=23. The result is significant at $p < 0.05$. Thus we can say that when the current account goes in deficit it will cause the fiscal deficit to grow. Similarly when the fiscal deficit grows, the current account deficit increases i.e. the balance of current account decreases.

3. Balance of payment position

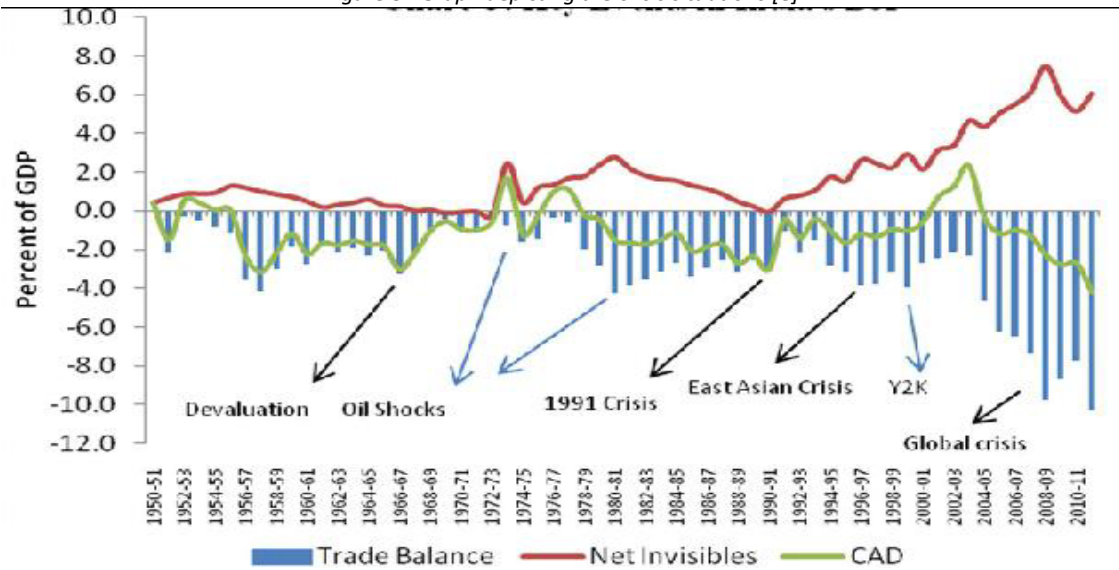
Increase in the current account deficit due to any reason such as sudden increase in import, decrease in exports, or any reason caused by global market events/ international situations culminates into balance of payment crisis. India had to go through these crisis situations many times because of delicate and vulnerable position of current account deficit.

1. 1965 - War and devaluation of Rupee
2. 1973-74 - Oil prices rise
3. 1979 – 80 - Oil prices doubled
4. 1991 Crisis – India had to pledge 67 tons of gold to avoid default on international payment commitments
5. Global crisis of 2008

The graph in the following (Figure 3) depicts all the above crisis situations. The Balance of payment crisis is like a stigma attached to Indian economy and this problem cannot be dealt with in isolation as it engulfs many parameters such as:

1. Current account deficit
2. Foreign capital – Inflows/Outflows
3. Global trends affecting export growth
4. Fiscal deficit
5. Currency strength in global market
6. Overall Domestic economy outlook

Figure 3. Graph depicting the crisis situations [8]



Presently, India has come out of the crisis of 2013, when the current account deficit had gone as high as 6.7% of GDP. In the last 2 years some parity is established and currently it stands at 1.4% of GDP. However, the economic crisis of China, sluggish global markets and slowdown of Indian economy due to structural reforms are the parameters to be observed closely with cautious approach. Each economic crisis, whether domestic or global, affects current account deficit and balance of payment position. Therefore, the Balance of Payment is very tricky, sensitive and complicated parameter to deal with.

4. External account

The External account has following factors

1. Foreign exchange reserve and gold reserve
2. Exports and Imports
3. Current account deficit
4. Balance of Payment
5. External Debt
6. Foreign capital inflows-outflows

Out of these factors, current account deficits and balance of payment have been discussed earlier; however, the Balance of Payment is so intertwined with each and every parameter of external and domestic economy that it can be defined as a crystallized indicator of total economy of the country.

The remaining factors are therefore:

4.1. Foreign exchange reserve and Gold reserve

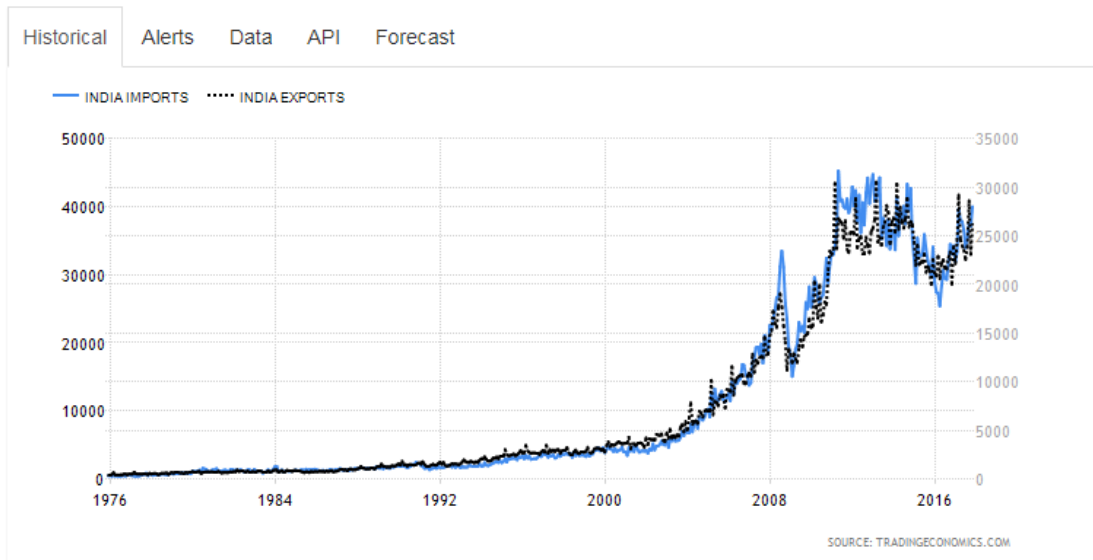
The trade surplus and balance of payment surplus will build up foreign exchange reserves. Use of Indian currency for International trade can also augment the foreign exchange reserves. The precious foreign currency is required for oil imports. Historically gold was used as a means of trading. In recent history the paper currency issued by governments promised a legal claim to physical gold. In this era the currency is not backed by gold anymore but the governments still build up gold reserves as a cushion to fall back upon in case of economic calamity as India did in 1991.

4.2. Exports and Imports

Imports/Exports are a trading account which directly affects current account deficit and balance of payments and hence are important factors of external account. After independence for many decades India had a closed or restricted economy. The exports were meager but imports kept rising particularly because of oil, gold, and defense equipment. The trade deficit kept on mounting year after year and so did the external borrowings to keep balance of payment at manageable levels.

This ultimately resulted in 1991 crisis when all external agencies refused to give any more loans and the Indian Government was forced to mortgage 67 tons of gold. The structural adjustment program and liberalization had to be accepted as conditions from IMF for further borrowings and crisis was averted. However, the SAP format of IMF that was supposed to increase the exports and hence address the current account deficit problems helped very little. But the Liberalization and advent of IT and software sector brought in large invisible receipts in the same time period (Figure 4) and assisted India to maintain the trade deficit at manageable level.

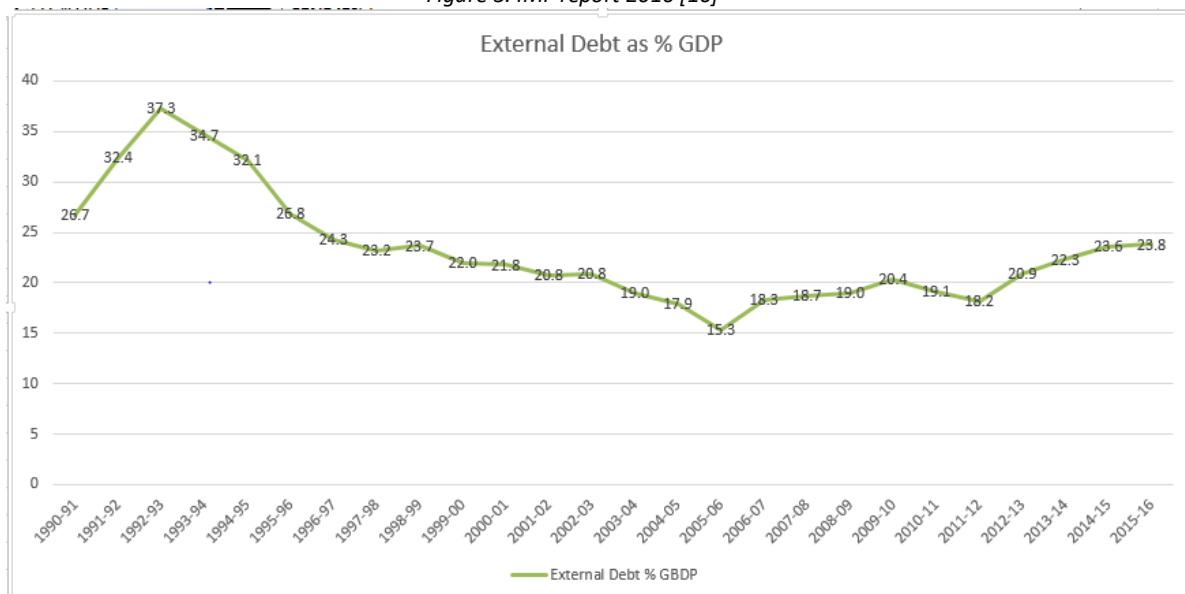
Figure 4. India's Imports and Exports [9]



4.3. External debt

After Independence India took recourse to external borrowings and invested in non-remunerative sectors like health and education. The Investment in infrastructure always has a gestation period for returns. The investments made in agriculture and irrigation sectors went down the drain as projects took 40-50 years to complete. Hence the return on investment was negligible and as a result the repayment amount went on mounting every year and high interest loans had to be taken to fulfill repayment commitments of the earlier loans so much so that the external loans reached as high as 38.7% of GDP landing India into 1991 crisis.

Figure 5. IMF report 2016 [10]



After liberalization the IT and software boom lifted the exports substantially and this ratio of external loan to GDP came down to 27% in 1996, 22.5% in 2001 and since then has been in manageable limits of 15% - 20% of GDP as shown in Figure 5. The gist is that external loans have to be used judiciously and return on investment has to be the prime factor in utilizations of loans. The Make in India Scheme and focus on agriculture sector in the last few budgets can help produce efficient return on investment.

4.4. Foreign capital inflows/outflows

With liberalization foreign capital became the major player in external account. Favorable domestic economic conditions will attract the inflow of foreign capital covering up the current account deficit. Unfavorable conditions will trigger the outflow of foreign capital increasing the current account deficit. Therefore, it is advisable not to rely heavily on FII as they are extremely fluid, volatile and are susceptible to global market sensitivity.

5. Exchange rate market and Currency depreciation

The global exchange rate market has undergone a sea change from being a barter exchange market to its existing floating rate market structure. A floating exchange rate pattern came into existence with US dollars still retaining its status of powerful currency for global trading. So far as currency depreciation is concerned, India with its weak economy over the years after independence, could never bargain in favour of its currency in the global market. In fact, its currency went down unabated against the USD increasing the repayment burden on domestic economy. The global market movements always lead to its depreciation and had a direct bearing on the external debt stock value every time.

5.1. Concept of the original sin

US economy being the largest economy (and the most indebted too) in the world, its currency is completely dominating the global economic and market scenario. Every nation wanting to carry out trading activities or to borrow from foreign countries, or even from international lending agencies like IMF and World Bank, are forced to trade or borrow in USD.

Table 3. India's external debt a status report 2015 [12]

FY	External Debt USD billions	External Debt in Crores Rs.
1991	83.8	163001
1992	85.3	252910
1993	90	280746
1994	92.7	290418
1995	99	311685
1996	93.7	320728
1997	93.5	335827
1998	93.5	369682
1999	96.9	411297
2000	98.3	428550
2001	101.3	472625
2002	98.8	482328
2003	104.9	498804
2004	112.7	495459
2005	134	586305
2006	139.1	620522
2007	172.4	751402
2008	224.4	897290
2009	224.5	1142125
2010	260.9	1178638
2011	317.9	1366292
2012	360.7	1767702
2013	404.9	2119620

The inability to borrow or to carry out training activities in their own currencies is termed as the ‘Original Sin’. It is termed as ‘Sin’ because no country can bargain for trade and borrowing in their own currency and has to pay more effectively – especially for debt [11]. The external debt, thus, is worst hit by currency depreciation. The following table explains it well. From Table 3, we can see that the percentage increase in India’s external debt in dollars is 483.17% whereas the increase of percentage in India’s External debt is approximately 1300.37%. This is the effect of currency mismatch where the value of INR per USD was 22.72 in 1991 and 58.53 in 2013.

6. Composition and Sectorial changes in external debt

The general composition of external debt in government sector comprises of:

6.1. Foreign aid with no or Negligible interest

Immediately after independence India received foreign aid or concessional loan for development of infrastructure, industry, health and education. Because Indian government could not finance the repayments due to poor domestic economy and very little export more borrowings were inevitable. The lending agencies got more bargaining power and pushed for harsher terms of lending. So, the percentage of concessional loans to external debt kept in falling from 45.97% in 1991 to 10.6% in 2013-14 (As per MOF and RBI data shown in Figure 6).

Figure 6. India's external debt status report 2015 [13]

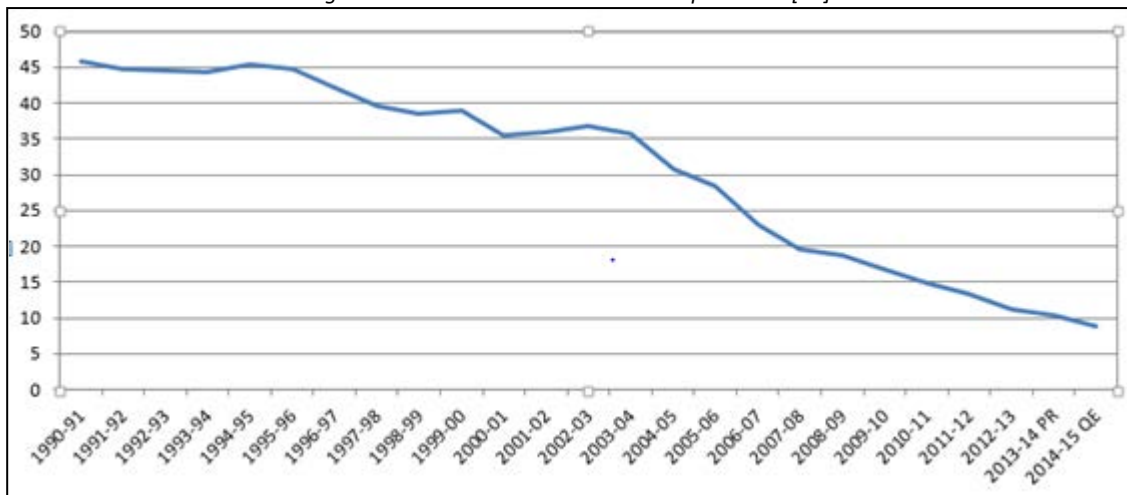
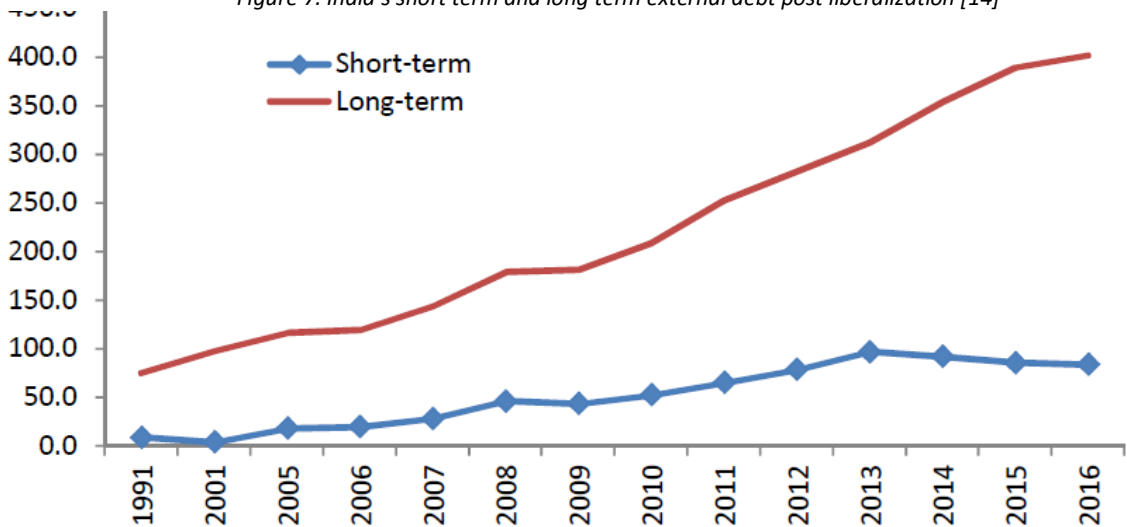


Figure 7. India's short term and long term external debt post liberalization [14]



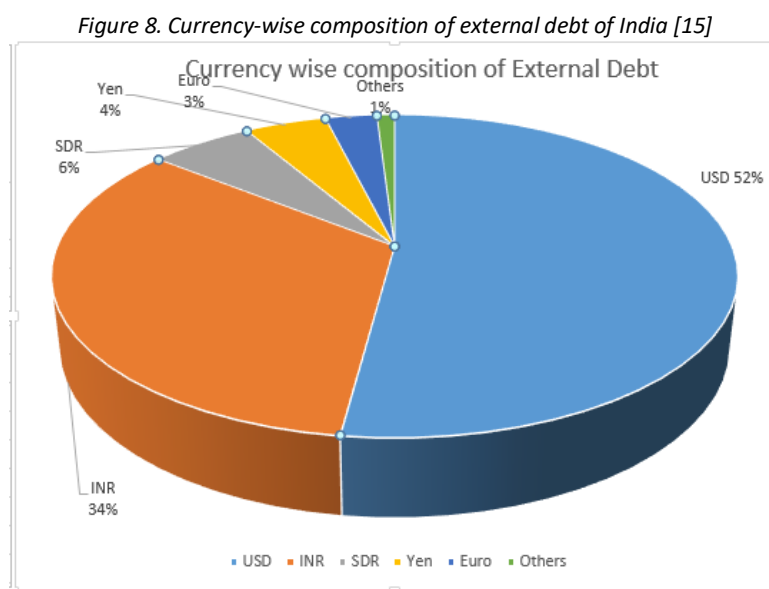
6.2. Long term and short-term loans

Since liberalization there is a significant rise in short term borrowings. The ratio of short term debt to total debt has seen a prominent rise, from 2.8% in 2001-02 to 20.3% in 2013-14. The long term loans still form a major chunks accounting for around 75-80% of total external debt (Figure 7). The external commercial borrowings, NRI deposits and multilateral borrowings constitute around 67% of this long-term debt while bilateral borrowings, export credit, IMF and rupee debts cover the remaining portion.

6.3. Currency composition

1. US Dollar: 52.1 %
2. INR : 33.6%
3. SDR: 5.8 %
4. Yen: 4.6 %
5. Euro : 2.9
6. Others : 1 %

According to India's external debt a status report 2001, the percentage change in external debt borrowed in dollars was 41.4 % in 1994 which has increased to 52.1% in 2016. Similarly borrowing in Indian Rupee has also gone up from 14.8 % in 1994 to 33.6% in 2015. Borrowing in Japanese Yen has however fallen down 13% in 1994 to 4.6 % in 2016. Thus, there has been a significant shift in the currency composition of external debt over a period of time as depicted in the (Figure 8).



6.4. Sovereign and Non - Sovereign Loans

Prior to liberalization, only government and authorized agencies were allowed external borrowings. After liberalization, opening of free international trade, increase imports, heavy current account deficit and precarious position of balance of payments forced India to allow free inflow of foreign capitals on commercial terms to individuals and companies. Because of much lower interest rates than domestic loan rates, there was a huge foreign capital inflow 65.6% of government debt in the year 2000 as against 45.3% in 1991. The private loans went on increasing to 70% and onwards in the last 5 years and stand at 81.6% of government loans in September 2015. Thus, liberalization shifted the composition of external debt leaning more towards private loans and the concessional aid loans were reduced to 8.8% in 2015 from 45.5% in 1991.

7. Utilization of External debt, debt servicing and debt management

Utilization of debt requires detailed planning and timely implementation for any project or economy. The basic nature of economy with its strong and weak points needs careful consideration in planning growth and development. Return of investment is also one of the major factors to be considered for repayment.

After independence, India invested heavily in infrastructure, heavy industries, power, communication and agriculture sectors. Most of the projects controlled by government had long gestation periods for return on investment. Moreover, all these projects incurred heavy losses year after year. As for agriculture sector, the irrigation projects which started in 1st five year plan took a very long period to complete providing no assistance to farmers. Secondly import of 50 million tons of food grains from U.S. under PL-480 scheme every year shattered the agriculture sector as farmers never got fair market price for their produce. Hence all the sectors started showing no or negative return of investment, no growth in exports due to closed economic policies and easy availability of concessional loans pushed India to secure more and more external assistance year after year and pushing India into current account deficit and balance of payment problems. No return on investment in sight and increased defense expenditure due to three wars, rising oil prices along with oil shocks, put India into deep hole in 1991. Thus, it can be seen that easy loan availability at no or negligible interest rates in 1st five year plan, tied aid project or source in 2nd and 3rd five year plan and then loans at market interest along with loans with high interest in crisis situation depicts the scenario of external debt progress. In short, due to improper utilization of loan, no thought given to return on investment, total mess of planning and implementation, heavy losses in all the sectors, even debt-servicing required further loan. But to India's credit India never defaulted on international commitments.

8. Analysis of the factors discussed

Following is the (Table 4) showing the figures for the factors discussed above.

Table 4. India's external debt, with some of the factors affecting it [16-19]

FY	External Debt In Crores Rs.	Current Account in Crores Rs.	INR per USD	Imports in Crores Rs.	Short Term Debt in crores Rs.	Fiscal Deficit in Crores Rs.	Total Forex in Crores Rs
1991	163001.0	-17366	22.72	47851	16775	36325	11416
1992	252910.0	-2235	28.14	63375	20642	40173	23850
1993	280746.0	-12764	31.26	73101	19804	60257	30744
1994	290418.0	-3634	31.39	89971	11375	57703	60420
1995	311685.0	-10583	32.43	122678	13448	60243	79780
1996	320728.0	-19646	35.52	138920	16637	66733	74384
1997	335827.0	-16282	36.36	154176	24153	88937	94932
1998	369682.0	-20883	41.33	178332	19929	113349	115905
1999	411297.0	-16789	43.12	215529	18137	104716	138005
2000	428550.0	-20331	45	230873	17162	118816	165913
2001	472625.0	-11598	47.23	245200	16919	140955	197204
2002	482328.0	16426	48.62	297206	13396	145072	264036
2003	498804.0	30660	46.6	359108	22180	123273	361470
2004	495459.0	63983	45.28	501065	19251	125794	490129
2005	586305.0	-12174	44.01	660409	77528	146435	619116
2006	620522.0	-43737	45.17	840506	87155	142573	676387
2007	751402.0	-44383	41.2	1012312	122631	126912	868222
2008	897290.0	-63535	43.41	1374436	182881	336992	1237965
2009	1142125.0	-127621	48.32	1363736	220656	418482	1283865
2010	1178638.0	-179708	45.65	1683467	236188	373592	1259665
2011	1366292.0	-210110	46.61	2345463	290149	515990	1361013
2012	1767702.0	-376078	53.34	2669162	399962	490190	1506139
2013	2119620.0	-479653	58.53	2714182	525930	113349	1588418

After the 1991 crisis and liberalization, the imports increased much more as compared to exports pushing the current account deficit to alarming levels, but the advent of IT sector came as a big helping hand for Indian economy. This sector took care of major part of trade deficit by way of its invisible receipts. Open economy paved the way for external commercial borrowing, FDI, FII, etc., giving boost to Indian economy increasing domestic consumption as well as exports. Government started disinvestment from the loss making public sector projects, strong current-account position helped to pay and repay some of the loans. The loans in the form of tied aid were completely paid off. The 3% share of private sector in external debt in 1991 has increased to more than 80% of total external debt. This major shift of investment in profit making private sector has ensured return on investment to a great extent. External debt management unit incorporated in finance ministry is closely monitoring the situation in terms of debt servicing, new debt proposals, restriction on imports, thus ensuring the debt sustainability.

8.1. Granger causality test

Following is the (Table 5) for Granger causality between Imports, Current Account and Rupee Devaluation.

Table 5. Granger causality between imports, current account and rupee devaluation

Granger Cause X~Y	Probability (%) when Lag = 2	Probability(%) when Lag = 3
External Debt ~Imports	11.4	30.3
Interpretation	Imports do not granger cause External debt (Null Hypothesis)	Imports in does not granger cause External debt (Null Hypothesis)
External Debt ~Current Account	36.65%	33.58%
Interpretation	Current Account does not granger cause external debt(Null Hypothesis)	Current Account does not granger cause external debt(Null Hypothesis)
External Debt ~Rupee Devaluation	68.87%	9.87%
Interpretation	Rupee devaluation does not granger cause External debt (Null Hypothesis)	Rupee devaluation does not granger cause External debt (Null Hypothesis)

Granger causality test is used to determine the cause and effect between independent variable and dependent variable. The results indicate that import is not a function of external debt but it is possible that external debt is affected due to rise in imports. The same results can be drawn about current account and rupee valuation, where the two entities are not a function of external debt; but external debt gets affected due to their rise. Following Table 6 is the correlation coefficient and multiple regression coefficients for the mentioned factors with external debt.

Table 6. Correlation coefficient and multiple regression coefficients

	Current Account in Crores Rs.	INR per USD	Imports in Crores Rs.	Short Term Debt In crores Rs.	Fiscal Deficit in Crores Rs.	Total Forex in Crores Rs.	External Debt In Crores Rs.
Current Account in Crores Rs.	1	-0.58	-0.907	-0.967	-0.556	-0.8	-0.942
INR per USD	-0.58	1	0.69	0.646	0.55	0.707	0.75
Imports in Crores Rs.	-0.907	0.69	1	0.972	0.781	0.964	0.98
Short Term Debt In crores Rs.	-0.967	0.646	0.972	1	0.66	0.919	0.987
Fiscal Deficit in Crores Rs.	-0.556	0.55	0.781	0.66	1	0.813	0.703
Total Forex in Crores Rs.	-0.8	0.707	0.964	0.919	0.813	1	0.937
External Debt In Crores Rs.	-0.942	0.75	0.98	0.987	0.703	0.937	1

8.2. Regression coefficients

The multiple regression equation is of the general form

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_kX_k$$

where a is a starting-point constant analogous to the intercept in a simple two-variable regression, and b_1, b_2, \dots , are the non-standardized regression weights for X_1, X_2, \dots , each analogous to the slope in a simple two-variable regression. In the present analysis,

$a = -128055.98$ and the values of b are as indicated below.

The values listed as B , in Table 7 are the standardized regression weights.

Table 7. Standard regression weights

	B	B	B x r _{xy}
Current Account in Crores Rs.	0.0707	0.0179	-0.0169
INR per USD	10999.918	0.1809	0.1358
Imports in Crores Rs.	0.0753	0.1266	0.124
Short Term Debt In crores Rs.	2.8383	0.7859	0.7756
Fiscal Deficit in Crores Rs.	0.1245	0.0353	0.0248
Total Forex in Crores Rs.	-0.0451	-0.0488	-0.0458
Multiple R ² = 0.9976			
Adjusted Multiple R ² = 0.9966			

8.3. ANOVA

The correlation coefficient matrix depicts the relationship of all the variables that is current account, rupee valuation, imports, short term debt, forex reserves among themselves and with external debt.

Table 8. Standard error for multiple estimate

Standard Error of Multiple Estimate	25348.5839
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The first variable, current account balance shows negative relationship with rupee valuation which means whenever the value of rupee goes down against US and current account deficit will increase, similarly with imports and short term debt, current account has a strong correlation value of -0.907 and -0.967 respectively indicating the obvious effect of increased imports and short term debt on current account deficit. Their negative correlation co-efficient for external debt (-0.942) indicates that whenever current account balance increases external debt will come down which alternatively means that a rise in current account deficit will increase external debt.

The second variable is imports, which has a direct and strong negative bearing on current account balance. However with rupee movement against US and the imports have positive co-efficient of 0.69 which means increase in imports would increase INR/US that is rupee will be depreciated. Similarly imports have a strong positive correlation with short term debt. (0.972). Fiscal deficit (0.781), forex reserves (0.964) and with external debt (0.98) indicating that any rise in imports will be matched by rise in these.

Third variable short term debt has negative correlation with current account indicating that short term debt reduces current account balance. Again short term debt has positive correlation with INR/USD, imports, fiscal deficit, forex reserves and external debt. Exhibiting that any rise in short term debt will be reflected in rise in all of these variables. With specific reference to forex reserves, short term external debt related capital flows would obviously increase forex reserves.

The fourth variable – Fiscal deficit has negative relationship with current account (-0.556) confirming the twin deficit concept and also implying that an increase in fiscal deficit would decrease current account balance. Fiscal deficit has a strong positive co-relation with all the other variables. For INR/US dollars, fiscal deficit coefficient implies that whenever fiscal deficit will increase, rupee per dollar will increase hence depreciate against US dollar. Fiscal deficit indicating strong positive correlation (0.813) with forex reserves means that whenever fiscal deficit will increase the necessity if foreign capital inflow rises to increase the forex reserves. Any rise in Fiscal deficit will increase external debt as depicted by the correlation value of 0.703.

The Fifth variable – forex reserves indicating the negative value of -0.8 implies that any increase in current account balance would be through drawing down of forex reserves. External debt and current account have strong negative correlation coefficient of -0.942. The fall of current account balance will cause increase in external debt. External debt to INR/USD also has a moderately strong positive correlation coefficient of 0.75.

External debt to imports, short term and forex reserves also shows a very strong positive correlation coefficient greater than 0.9. The multiple regression coefficients determine the combined effect of multiple factors on the dependent variable which here is shows a very strong coefficient of 0.9976. Hence we come to the conclusion that the factors discussed namely current account, rupee valuation, imports, short term debt, fiscal deficit, foreign exchange reserve have strong impact on external debt individually as shown by the correlation coefficients with external debt and the combined effect of the same where the multiple regression coefficient is 0.9976. The ANOVA table (Analysis of Variance, Table 9) shows that sigma value $P < .0001$ which is significantly less than the standard value (0.05) which implies that the factors are very close bound and have a significant effect on external debt.

Table 9. Analysis of variants (ANOVA Table)

Source	SS	df	MS	F	P
Regression	5763640597450.74	6	960606766241.79	1087.27	<.0001
Residual	14136115476.5645	16	883507217.2853		
Total	5777776712927.305	22			

9. Observations and Conclusions

The analysis of various parameters leads to following observations and conclusions as regards the maintenance of external debt at sustainable levels

1. Robust Domestic Economy – The development in all sectors and particularly in agriculture sector with people centric policy rather than market centric policy can help control fiscal deficit and yet overall development can be achieved. Giving impetus to export oriented industries in manufacturing sector is the key to maintain current account at manageable levels.
2. Effort towards augmenting the government revenue by enhanced and improved tax base and structure, with better administration needs immediate attention. GST can prove to be a landmark in this effort.
3. The current account balance has to be watched closely in terms of Rupee value against USD, short term high interest debts.
4. The existing export spread needs further push to make it more competitive globally. Global market surveys should be conducted to explore new opportunities and avenues for boosting exports.
5. The imports have strong correlation with short term debt, fiscal deficit, forex reserves as well as external debt and hence prudent control on imports needs to be exercised. Alternative oil substitutes like ethanol would help reduce imports.
6. The defense relation products are already being given a push to be manufactured and produced indigenously which would cut on defense import expenditure.
7. India should regulate and monitor imports and prevent dumping policy of its trade partners to
8. Avoid unnecessary rise in import bills
9. Safeguard its domestic manufacturing sector because India has already witnessed huge dumping of steel by China, which has affected domestic steel units, same was the case with coal.
10. All these efforts are aimed at reducing trade deficit and consequently current account deficit.
11. Any increase in current account deficit results in drawing down of the forex reserves hence current account position needs continuous monitoring.

Besides these it would be beneficial to consider the following

By continuously adopting policies of globalization/liberalization advocated by IMF and World Bank under the strict conditions put on by them while advancing loans, Indian economy is being gradually pushed towards a market based economy. Therefore, during the 2008 recession Indian economy also felt the tremors and had to face repercussions of the global crisis to a great extent. Although there is an impertinent need to develop infrastructure sector and hence industries, our domestic economic policies should give prime importance to agricultural sector and agro-based industries. This would never mean that industrial sector is ignored.

The need of the hour is to strike a correct balance between agriculture and industrial sector so that they stand in perfect harmony with each other rather than standing opposite and conflicting with each other's interest. It is an issue to ponder upon why so much importance being given to capital inflows. The prime importance must be given to improving our domestic economic conditions, which will automatically catalyze the capital inflows/investments with a resonating, sound market conditions. Being looked upon as a fastest growing economy, India's capital inflows have increased considerably. Capital inflows have become crucial also because of rising current account deficit (as per latest data available for Q2 of July – September 2017) widened to 1.2 percent of GDP as against 0.6% in the same period a year ago – double than last year. Oil imports and gold cover major percentage of imports. The following would prove effective in reining in the widening current account deficit:

Curbing gold imports finding alternating fuels or ways and means to replace oil. The present venture of electric vehicles, battery operated vehicles and economizing ethanol to replace import oil wherever possible. Using solar power as one of the energy sources by making it more viable and cheaper. It has already been mentioned earlier that the Indian economy – basically known to be an agro-based economy – is now been pushed towards a market based, wherein the best advertisers take the cake. The obvious outcome of the open market and highly lucrative advertisement is increasing imports of mobiles and LCD & LED TVs. Besides gold, a major chunk of import is of these highly luxurious items. India can stop imports of such items by manufacturing them indigenously. The need is to develop and upgrade the Indian electronics industry and avoid these imports. India must have the confidence that, if it can develop super computers like PARAM, then it can definitely design and manufacture mobiles and LED & LCDs, and in fact start exporting them. Make in India is proving to be a boon for our economy. This is being implemented with all seriousness. Manufacturing of defense equipment indigenously is one such welcome step. Further efforts are gaining momentum and a lot of foreign companies are moving towards the Make in India venture.

Make in India endeavor would have the following impact on India's economy:

1. It would reduce imports of products that would now be indigenously manufactured, thereby reducing import bill significantly. This further implies it would further help controlling current account deficit gap
2. It would not allow the profits to be moved out of India and help enhance India's GDP growth.
3. Be it F16s to small electronic devices like mobile phones, Make in India would bring in much required and talked about Technology transfer to India.
4. Consequently, many SMEs as subsidiaries can come up and flourish, giving boost to presently sluggish manufacturing sector.
5. All this can enable India to export these products with its advantage of cheaper labour and much improved rating to 'Ease of Doing' business index.
6. Further, all the above would conclusively push India's GDP to much higher level.
7. Utilization - and judicious, proper one at that of external debt - is extremely important. This would avoid costly borrowed funds lying idle and ensure that they are deployed at profitable propositions.
8. The make in India, Skill India, Start-up India and Stand-up India are some of the steps that would help India to march towards self-reliance
9. The development of Smart cities would be able to establish forward and backward link between the rural and metropolitan population. This would also ensure market access for agriculture sector. Thus, farmers would be able to get a fair price for their produce. The present budgetary allocation for strengthening and supporting agriculture sector can act as catalyst in this process.
10. Local solutions to local problems would develop and strengthen the rural economy.
11. External debt's proper utilization with holistic approach to address certain fundamental issues like poverty, inequality, price stability of basic agricultural goods can prove to be a boon for the economy.
12. The best route to achieve total overall growth and making any country's economy healthy and resonating goes through its own natural resources, demographic strengths, its plus and minuses. No country can progress bypassing its strengths and by ignoring its own individuals. Economic progress can only be achieved by formulating growth and development policies "by the people, of the people, and for the people".

10. References

1. Kamath Shyam. Policy analysis: foreign aid and India: financing the leviathan state. Cato institute policy analysis No. 170. Policy Analysis. 1992; 1-14.
2. Deutsche Bank. https://en.wikipedia.org/wiki/Deutsche_Bank. Date accessed: 29/08/2018.
3. Fiscal Deficit in India- Historical Data. <http://www.knowledge.fintotal.com/Fiscal-Deficit-in-India-Historical-Data/6551#sthash.uNLqLPhO.KNrBgKfm.dpbs>. Date accessed: 19/09/2013.
4. Michael Kumhof, Douglas Laxton. Fiscal deficits and current account deficits. *Economic Dynamics and Control*. 2013; 37(10), 2062-2082.
5. Anuradha Agrawal. Current account deficit and fiscal deficit. *Abhinav Journal*. 2014; 3, 1-7.
6. Suchismita Bose, SudiptaJha. India's Twin deficits- some fresh empirical evidence. *ICRA bulletin Money & Finance*. 2011; 98-101.
7. Reserve Bank of India. https://en.wikipedia.org/wiki/Reserve_Bank_of_India. Date accessed: 20/09/2018.
8. Ministry of Statistics and Programme Implementation. https://en.wikipedia.org/wiki/Ministry_of_Statistics_and_Programme_Implementation. Date accessed: 19/09/2018.
9. Tradingeconomics.com. <https://tradingeconomics.com>. Date accessed: 2018.
10. International Monetary Fund Report. <http://www.imf.org/external/pubs/ft/ar/2016/eng/index.htm>. Date accessed: 01/09/2016.
11. Ricardo Hausmann, Ugo Panizza Barry Eichengreen. Redemption or abstinence? Original sin, currency mismatches and counter- cyclical policies in the new Millenium. Harvard Kennedy School, Harvard University. 2010; 1-194.
12. India's External Debt a status report. <https://www.finmin.nic.in/external-debts#>. Date accessed: 18/05/2018.
13. India's External Debt. Ministry of Finance, Govt. of India. <https://www.finmin.nic.in/external-debts#>. Date accessed: 12/2015.
14. India's External Debt Status Report 2016. Government of India. 2016; 1-79.
15. India's External Debt Status Report 2016-17. <https://dea.gov.in/external-debt#>. Date accessed: 15/09/2017.
16. 7th International Business Research Conference," in Indian Education society's Management Collage and Research Centre. <http://webcache.googleusercontent.com/search?q=cache:cfXLVAOZUKwJ:www.htcampus.com/article/7th-international-business-research-conference-at-iesmrcrc5245/+&cd=1&hl=en&ct=clnk&gl=in>. Date accessed: 18/03/2016.
17. Data book for PC. http://planningcommission.nic.in/data/datatable/data_2312/comp_data2312.pdf. Date accessed: 22/12/2014.
18. Centre's Gross Fiscal Deficit. <http://www.thehindu.com/business/Economy/indias-gross-fiscal-deficit-to-exceed-target/article8429683.ecec>. Date accessed: 03/04/2016.
19. Forecast-chart.com. <http://forecast-chart.com/usd-indian-rupee.html>. Date accessed: 01/2018.

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