

4 Chapter

Trends and Pattern of Macroeconomic Variables-Target Variables and Policy Instrument Variables

4.1 Introduction

This chapter deals with trend and pattern of various macroeconomic variables such as Real GVA, GDP deflator inflation, output gap, call money rate, REER(Real Effective Exchange Rate), reserve money (high power money) and velocity of money by focusing on their growth rate through tabular form and graphical representation.

The explanation of trend and pattern of various macroeconomic variables has discussed below separately.

Table 4.1 Growth Rate of Real GVA

Year	(Real GVA)	Year	(Real GVA)
1991-92	2.54	2002-03	3.88
1992-93	5.36	2003-04	7.97
1993-94	5.68	2004-05	7.05
1994-95	6.39	2005-06	9.48
1995-96	7.29	2006-07	9.57
1996-97	7.97	2007-08	9.32
1997-98	4.30	2008-09	6.72
1998-99	6.68	2009-10	8.59
1999-00	8.00	2010-11	8.91
2000-01	4.15	2011-12	6.69
2001-02	5.39		

Source: Handbook of Statistic on Indian Economy 2014-15.

Base year is 2011-12.

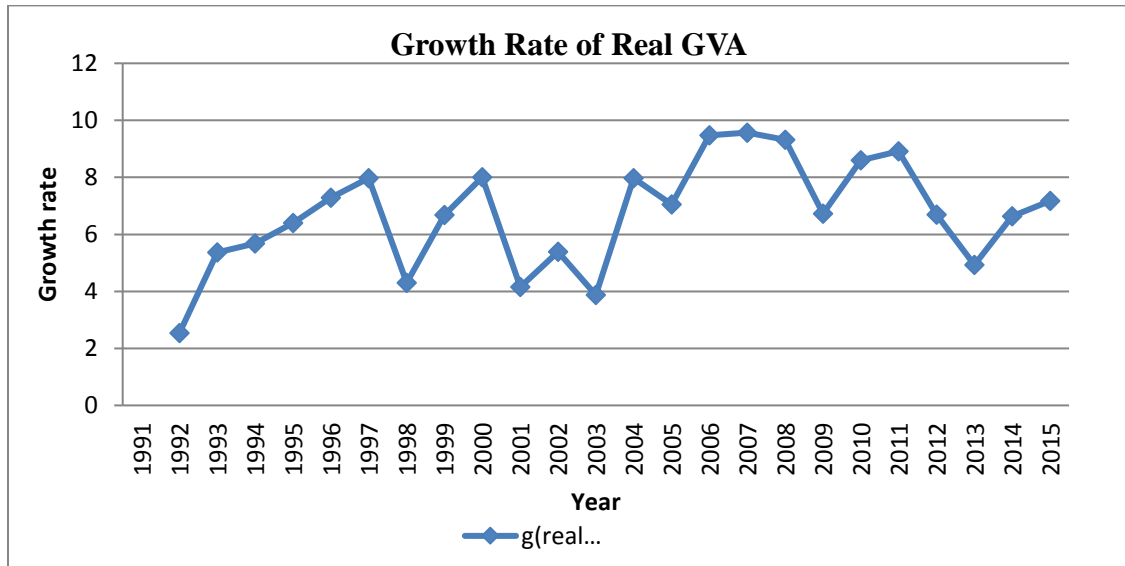


Figure 1: Growth Rate of Real GVA

Above Tabal 4.1 the data depicted from 1991-92 to 2014-15, From the year 1992 to 1997, there was increasing trend in real GVA was 2.54, 5.36, 5.68, 6.39 and 7.29 respectively. Reason behind it to start new polices were introduced in Indian economy, it were known as Liberalization, privatization globalization (LPG). Real GVA growth rate was fall sharply from 1997 to 1998, due to effect of Asian financial crises, the economy has suffer from a loss of energy and vigor during the year with a 4.30 percent reduction in the growth rate compared to the previous year's higher growth of 7.97 percent and even thought, the monetary authorities has took some steps to modulate credit and stabilize liquidity during the year, it didn't contribute much to progress. In the next two financial year, the economy recovered the higher condition by achieving a rate of 6.68 and 8 percent and it can be considered as India's average or moderate rate of growth. The lowest growth rate, after the reform period was marked as 3.8 percent in 2002-03. The RBI took some measures, reduced the CRR, bank rates along with Repo and reverse repo rates in order to cope with the situation, and to expand credit availability. But it only helped to make a better year ahead. In the very next year, we achieved a growth rate of 8.5 percent. Again 2005-08 has shown a higher growth trend of more than 9 percent per

year in real GVA. In the next five financial year, real GVA was shown decreasing trend due world financial crisis 2008 i.e. because of aggregate demand was fall these years. So we can conclude that Indian economy is enjoying a progressive rate of growth during the post-reform period.

4.2 Inflation rate (GVA Deflator) and Inflation gap

Inflation rate has been measured from the ratio of nominal GVA at basic price and real GVA at basic price (i.e GVA deflator) and as a result the inflation rate has been achieved by subtracting each preceding GVA deflator from its succeeding GVA Deflator.

Table 4.2 Inflation rate (GVA Deflator) and Inflation gap					
Year	inflation rate	Inflation gap	Year	inflation rate	Inflation gap¹
1991-92	13.74	-1.63	2003-04	3.76	-2.75
1992-93	8.86	-2.34	2004-05	5.71	-2.59
1993-94	9.98	-1.24	2005-06	4.22	-4.11
1994-95	9.78	0.38	2006-07	6.42	-3.82
1995-96	9.13	2.035	2007-08	6.02	-4.11
1996-97	7.78	3.03	2008-09	8.45	-2.27
1997-98	6.62	3.45	2009-10	6.07	-2.69
1998-99	8.05	5.65	2010-11	8.95	-0.36
1999-00	3.10	3.51	2011-12	8.51	1.74
2000-01	3.38	1.84	2012-13	7.59	3.23
2001-02	3.17	0.03	2013-14	6.20	3.72
2002-03	3.73	-1.29	2014-15	2.87	1.33
Source: Calculated by Author					
Base year is 2011-12.					

¹ Inflation gap calculate from actual inflation rate minus target inflation rate. (i.e. Target inflation rate measured by HP Trend.)

Inflation gap is deviation from inflation rate and their target inflation rate. Inflation gap is either positive or negative, positive inflation gap means inflation rate exit above the target.

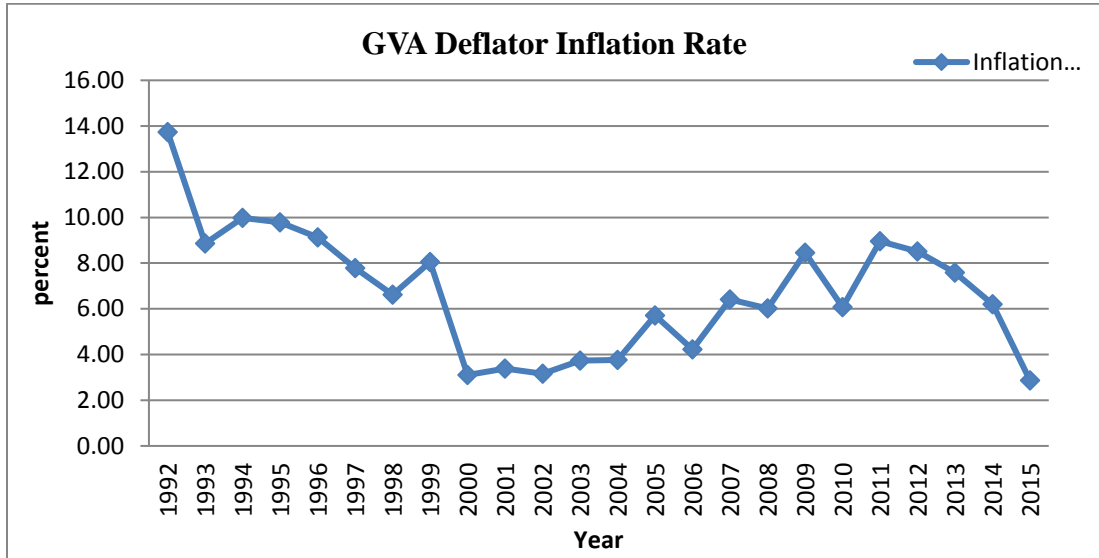


Figure 2: GVA Deflator Inflation Rate

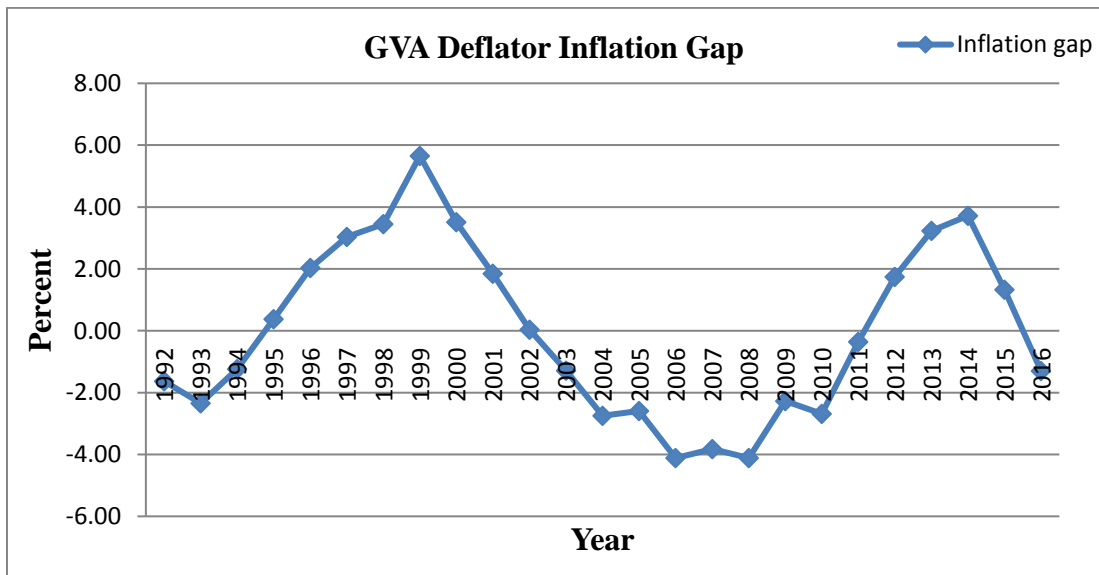


Figure 3: GVA Deflator Inflation Gap

When the inflation rate regularly gets in more than expected, it is normally a sign of high demand for goods and services is pushing against the limits of capacity. When the

inflation rate regularly gets in less than expected, it is commonly an indication of weak demand and of spare or unutilized capacity. The above figure (4.2) shows the inflation rate and inflation gap from year 1992 to 2015. In year 1992, In this year inflation rate very high at 13.74 percent due to more expenditure by government. From year 1993 to 1998, inflation rate has been continuously decreasing, it was happened because LPG was introduced by government. Inflation rate was stagnant from year 2000 to 2005. And again inflation rate was gone up trend till year 2011, due to high oil prices and effect of 2008 financial crisis. After 2011, it was shown decreasing trend because of decreasing oil prices. Above figure shows that fluctuations of inflation gap from year 1992 to 2015 basis of year over year. From year 1993 to 1999, inflation gap was indicating as positive trend, it means demand of goods and services were higher. It was reached to 6 percent in year 1999. It was indicating as negative trend, it is commonly an indication of weak demand and of spare or unutilized capacity.

4.3 Potential output and Output gap

The potential output indicates to the at most point of output which comprise the highest level of capacity of utilization and simultaneously the low and stable inflation. It is pure statistical phenomena; trend level of perceived output is generally taken as potential output. And output gap is to refer to the result obtained on the ground of subtraction of potential output from the actual output (i.e. real GVA). If output gap is positive, it means the actual GVA is more than the potential GVA. Consequently the total demand extents, which bears to point inflationary pressure, when, in the short run the supply side variable are considered to remain constant. This takes place due to the rapid economic growth which has at most pressure on wage and other output casts in competitive environment. The inference of output gap is measured on the ground of at levels not on the ground of at growth rate. The growth rate in an economy takes place faster than its potential when the time of regaining from trap, which is actually not inflationary pressure in respect of output gap is negative.

A negative output gap means downward pressure on inflation and increase the unemployment rate. If potential GVA is greater than actual GVA there is a negative

output gap. Some factor resources such as labour and capital goods are underused and the main problem is that higher unemployment exist. A rising number of people are unemployed due to an excess supply of labour, which causes pressure on real wage rates.

Table 4.3 Potential output and Output gap							
Year	Real GVA At basic price	Potential output²	Real Output gap	Year	Real GVA At basic price	HP Trend of GVA	Real Output gap
1991-92	21352.36	20933.61	1.98	2003-04	43351.40	44915.88	-3.55
1992-93	22497.65	22363.01	0.60	2004-05	46408.06	48362.32	-4.12
1993-94	23775.82	23822.72	-0.20	2005-06	50806.21	52163.48	-2.64
1994-95	25296.24	25331.31	-0.14	2006-07	55667.92	56307.87	-1.14
1995-96	27139.87	26906.92	0.86	2007-08	60857.32	60770.39	0.14
1996-97	29304.18	28567.31	2.55	2008-09	64949.83	65519.56	-0.87
1997-98	30564.74	30332.58	0.76	2009-10	70531.60	70524.76	0.01
1998-99	32607.50	32230.19	1.16	2010-11	76817.21	75749.7	1.40
1999-00	35217.48	34289.95	2.67	2011-12	81955.46	81158.11	0.98
2000-01	36678.37	36545.42	0.36	2012-13	85992.24	86724.44	-0.85
2001-02	38653.74	39039.42	-0.99	2013-14	91697.87	92431.09	-0.80
2002-03	40152.64	41816.14	-4.06	2014-15	98270.89	98253.15	0.02

Source: Handbook of Statistic on Indian Economy 2014-15.
Base year is 2011-12.

A positive output gap means upward pressure on inflation. If potential GVA is less than actual GVA then there is a positive output gap. Some factors of resources including labour are employed more than their desired capacity e.g. making extra use of shift work & overtime. The main problem is that a boots of demand-pull and cost-push inflation. A

² Potential output measured by HP Trend.

positive output gap is associated with countries where an economy is over-heating because of fast and rising demand - a good example of this might be countries such as India and China.

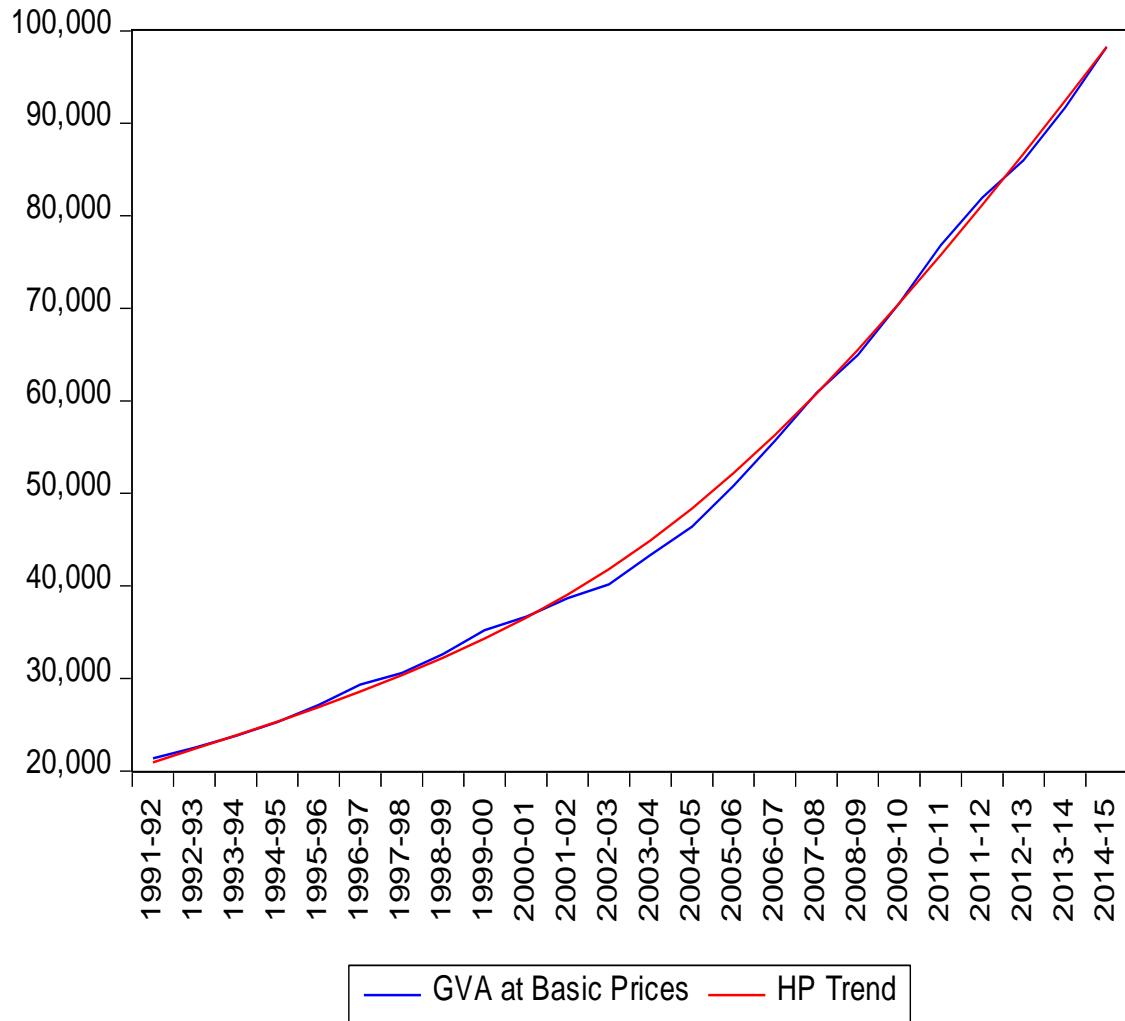


Figure 4: GVA at Basic price and HP Trend

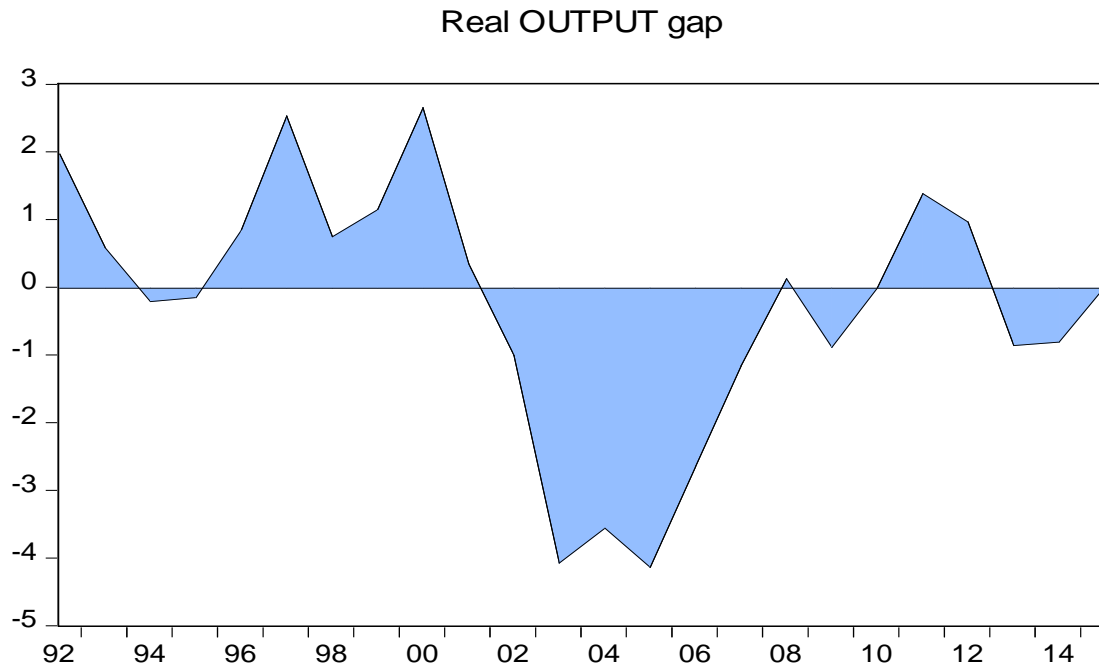


Figure 5: Real output gap

4.4 Call Money rate

Call money rate is the short-run interest rate at which funds are loan & borrowed in money market. In other words, it is the interest rate that banks give short-run loan to brokers, brokers gets margin account when also give lend the money to investors. In call money rate we have seen many fluctuations from year 1992 to 2015. In year 1992 we have experienced the highest call money rate .i.e. of 19.57 percent. It was because of high inflation rate in economy. Further in year 1993 it was 14.42 percent which were fallen to 6.9 in year 1994. In year 1995 it has started increasing and went up to 9.4 percent and again went up to 16.64 in year 1996. In year 1997 it has fallen down to 7.83 and from here till year 2001 there were minute fluctuation into the call money rate that might be due to that time development of domestic and international financial markets, including foreign exchange market.

Table 4.4 Call Money rate			
Year	call money rate	Year	Call money rate
1991-92	19.57	2003-04	4.62
1992-93	14.42	2004-05	4.65
1993-94	6.99	2005-06	5.60
1994-95	9.40	2006-07	7.22
1995-96	16.64	2007-08	6.07
1996-97	7.84	2008-09	7.26
1997-98	8.69	2009-10	3.29
1998-99	7.83	2010-11	5.89
1999-00	8.87	2011-12	8.22
2000-01	9.15	2012-13	8.09
2001-02	7.16	2013-14	8.28
2002-03	5.89	2014-15	7.97

Source: Handbook of Statistics on the Indian Economy (in percent)
Base year is 2011-12

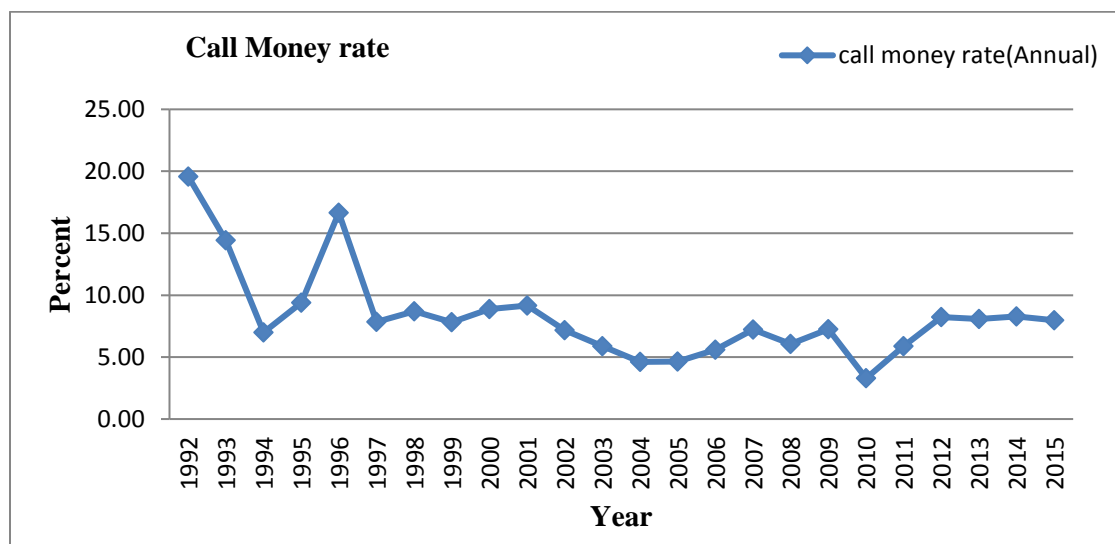


Figure 6: Call Money Rate

If we have a look on the above graph we will find that, in year 1998 call money rate was 8.69 percent and it was 7.83 percent in year 1999, again it had slightly went up to 8.87 in year 2000. In year 2001 call money rate was 9.10. Now from year 2002 to 2005 the call money rate had started decreasing at decreasing rate. It can observe from the above graph that in year 2002 the rate was 7.16 percent in 2003 the rate went down to 5.89. It went down to 4.62 in 2004 further in 2005 the call money rate had slightly increased to 4.65 percent. In 2006 it has rate had went up to 5.6. Further in 2007 it has increased to 7.22 percent and 6.07 percent in 2008. In 2009 it had slightly increased to 7.26 percent. In 2010 we have experienced the rate 3.29 percent which was the lowest call money rate from 1992 till 2015 and it was because of inflation rate was high due to more fluctuations in oil prices. In 2011 the rate was 5.89 percent which was increased to 8.22 percent in 2012. Now from 2013 to the trend was almost the same of call money rate. In 2013 the rate was 8.08 which were 8.27 percent in 2014 and 7.97 percent in 2015. Since 1992 to 2010 there was lots of fluctuation in the call money rate which was might because of negative inflation gap or positive output gap. In year 1997 to 2015, the rate has more and less stagnant.

4.5 Reserve Money & Money Velocity of Reserve Money

Reserve money can also be known as monetary base, high powered money (H), base money, primary money or government money. Money made available to the monetary authority of a country is referred as Reserve money. In India, high-powered money is constructing by Reserve Bank of India and Government of India. Reserve Bank of India calls high-powered money as monetary base or reserve money. High- powered money includes (i) currency with the public (C) + (ii) cash reserves of banks (R) + (iii) other deposits with the Reserve Bank of India (OD).³

³ RBI publication

Table 4.5 Growth Rate of Reserve Money Growth and Velocity					
Year	Reserve money growth rate	Growth rate of reserve money velocity	Year	Reserve money growth rate	Growth rate of reserve money velocity
1991-92	13.36	2.89	2003-04	18.28	-5.28
1992-93	11.33	3.03	2004-05	12.06	0.99
1993-94	25.18	-7.15	2005-06	16.93	-2.42
1994-95	22.07	-4.32	2006-07	23.94	-5.92
1995-96	14.87	1.93	2007-08	30.95	-11.49
1996-97	2.84	13.16	2008-09	6.43	8.75
1997-98	13.21	-1.77	2009-10	16.97	-1.53
1998-99	14.52	0.66	2010-11	19.14	-0.40
1999-00	8.20	2.91	2011-12	3.60	11.75
2000-01	8.11	-0.40	2012-13	6.21	6.29
2001-02	11.43	-2.43	2013-14	14.38	-1.00
2002-03	9.20	-1.33	2014-15	11.30	-0.95
Source: calculate by Researcher					

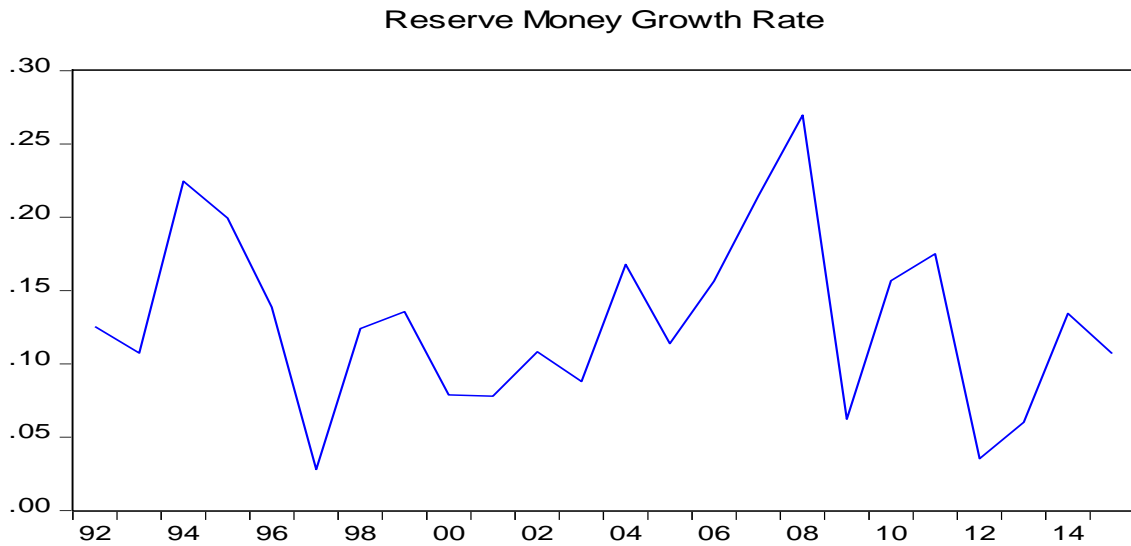


Figure 7: Reasever Money Groeth Rate

Table no. represent reserve money growth rate and growth rate of velocity of reserve money of 24 yearly from 1991-92 to 2014-15. Large variations have been observed in this time period of analysis. Above figure shows that growth rate of reserve money has increased in maximum years except for few years. The contribution of currency in circulation is larger than the banker's deposit with RBI and other deposit with RBI. Among these, banker's with RBI is the most relevance in monetary policy implementations. The reason behind this that monetary authority can affect the real GVA economics variation only through change in cash reserve other two components of reserve money cannot be directly significant influenced by it. The reason behind that decline of growth rate of reserve money in 1996-97, 2008-09 and 2011-12 was decline banker's deposits with RBI. Expansionary monetary policy is the reason behind this, adopted by monetary authority during period. IT can be observed that during the two years, circulated currency has experienced a rising trend indicating a rise in money supply. CRR, SLR, Repo, Reverse Repo all instrument have used in intensively by RBI to augment the lendable resources of banks and to show the stance of monetary policy, facing the economic recession. As a consequence of the correct corrective measures from the monetary authority, the economic slowdown of 1997-98 to 2009-10 has showed robust progress in monetary policy. Next four years it was stagnant.

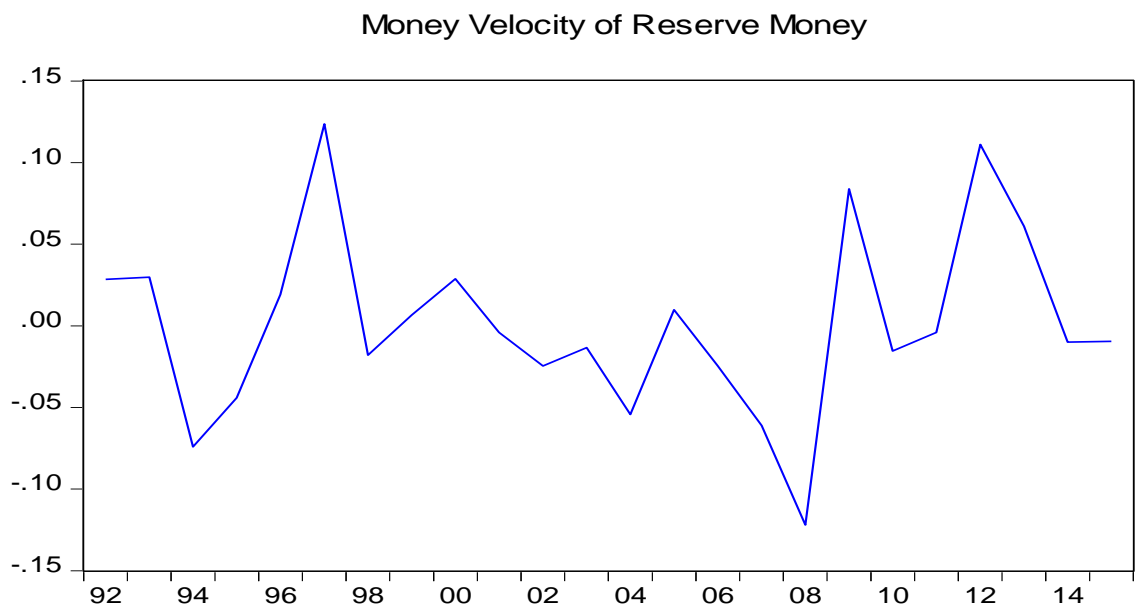


Figure 8: Money Velocity of Reserve Money

The above figure shows growth rate of velocity of reserve money from the year 1991-92 to 2014-15. During this period there were many fluctuations in growth rate of velocity of reserve money. During the session 1993-94, the decrease came at -7.15% in the growth rate of velocity of reserve money because of the effect of balance of payment crises. During the session 1996-97, there was a huge boom because of and then there was a regular decrease in growth rate of velocity of reserve money till 2007-08. In year 2007-08, it was at -11.49%, because that slow down demand in domestic as well as international and suffers from financial crises. Then year 2008-09, there was increase in growth rate of money velocity because of aggregate demand was high. During the session 2011-12 was at 11.75%, it was high due to favour of credit facilities, volume of trade, business condition.

4.6 Performance of Real effective exchange rate & Nominal effective exchange rate

Exchange rate is a more crucial variable to good performance of real GVA/GDP for any countries number of factors influence exchange rate such as inflation rate, rate of interest, capital of account balance, role of speculators, cost of manufacture, debt of the country, growth rate of Gross Value added (GDP), trade portion of trade- export and import, balance of payment, Employment data, Relative strength of other currencies and total output of countries. NEER is an index of number related to base year calculated by value of a domestic currency before adjusting inflation regarded the countries against the a basket of foreign currencies with average trade weightage. REER is value of adjusting inflation of a basket of foreign currencies against the domestic currency. Effective exchange rate means overall performance of currencies with a domestic currency. A decrease in the level of REER index shows that depreciation of domestic currency and vice-versa. Performance of NEER & REER are depict in below. Below the figure, before 1991-1992, monetary policy and fiscal policy had working as an expansionary, so that negative balance of payment is much higher and current account deficit also higher.

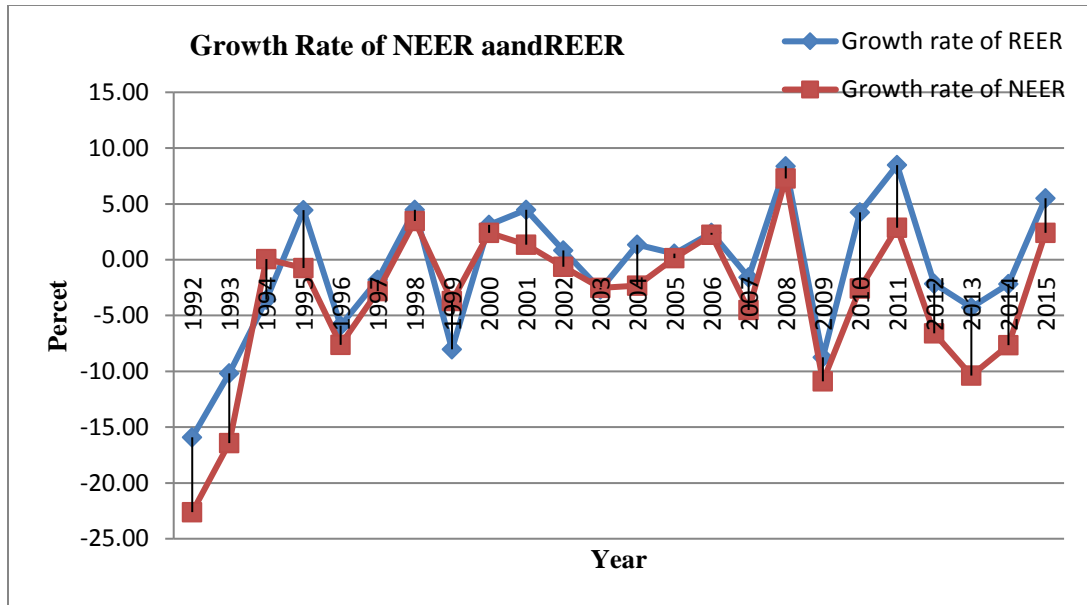


Figure 9: Growth Rate of REER & NEER

Exchange rate was worked as less free and at all most fixed i.e. Indian economy was not opened in that era. Fluctuations of NEER & REER are higher rather than prior period after 2008. This is reason behind that big financial crisis had come in all over world, and total trade and export of India has less.

4.7 Target Nominal GVA and Nominal output gap

A output gap is to refer to the result obtained on the ground of subtraction of actual output (i.e. nominal GVA) from the potential output. If nominal output gap is positive, it means the target nominal GVA is more than the actual nominal GVA. If nominal output gap is negative, it means actual nominal GVA is more than target nominal GVA. When the nominal GVA is less than target nominal GVA, the monetary authority should be temporarily increase monetary base and vice-versa. i.e. When the nominal GVA above their target, the monetary authority should be temporality decrease monetary base growth rate.

Shows the nominal output gap of time period of year 1992 to 2015, with 24 years. In year 1992, nominal output gap is 0.4%, after this year, it starts decline to 0.26%, -0.10%, -0.28% and -0.39% from year 1993 to 1997, respectively. This trend is decline. But seven years it starts to increase trend till the year 2004, excepting two year 2000 and 2003, values are -0.27% and 0.45%, respectively. After year 2004 to 2008, it is decreasing trend then next four year it is stagnant.

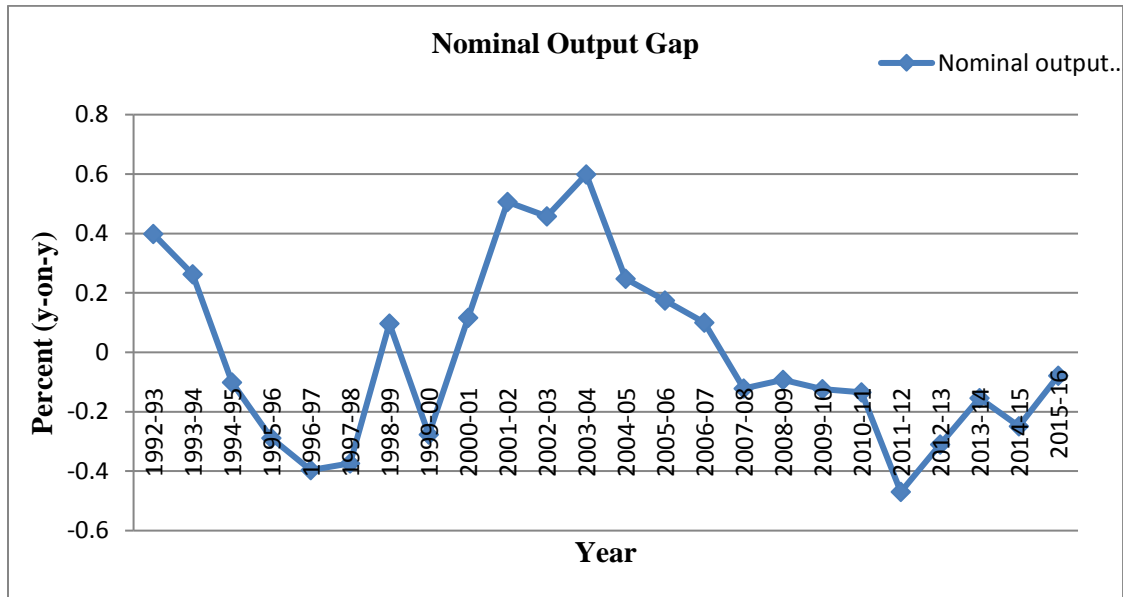


Figure 10: Nominal Output Gap

4.8 Conclusion

It has observed through analysis that the overall growth rate of real GVA, velocity of reserve money and real effective exchange rate has been upward sloping while on other hand downward sloping or decreasing trend has found in inflation rate, inflation gap, output gap, call money rate, nominal output gap and reserve money with respect to time.