GROWTH AND PATTERN OF SAVINGS AND KEYNESIAN MULTIPLIER OF THE INDIAN ECONOMY

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ABSTRACT:

Gross Domestic Saving consists of household sector saving, corporate sector saving and public sector saving. The growth of these three components of Gross Domestic Saving has been studied in this research work over a period of sixty years from 1950-51 to 2009-2010. This period is divided into six sub periods consisting of 10 years each. The structure of Gross Domestic Saving is also analysed over this period. Further the trend and compound growth rate of Gross Domestic Saving for these six sub periods have also been estimated through regression model. The saving function of Indian Economy is fitted for each sub period by taking Gross Domestic Saving as the dependent variable and Gross Domestic Product as the independent variable of the linear regression Model. The regression coefficient in this case measures the marginal propensity to save. Through this marginal propensity to save, the Keynesian Multiplier is estimated for the six sub periods

Key Words: Gross Domestic Saving, Saving Functions, Marginal Propensity to Save, Keynesian Multiplier.

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I.   Introduction

Saving is an important indicator of development of an economy. Higher the level of saving, higher will be the level of investment and capital formation. Economies with higher level of saving can grow at a higher rate provided the saving is mobilized and utilised. When income is low, the scope for saving is limited. Even if the income is higher, if it is spent completely, the potential for saving is reduced. Governments are taking measures through fiscal and monetary policies to promote saving. In this research work, an attempt has been made to study the growth of saving and pattern of saving for the Indian Economy over a period of 60 years. Further, the saving function of the Indian Economy over this period is fitted and the marginal propensity to save is also estimated to work out the Keynesian Multiplier.

II.   Review

Studies on savings and related aspects are available in limited number in the literature. Behavior of saving is studied by Tarlok Singh (2010), Upender, M and Reddy N.L (2007), Md. Abdus Salam and Umma Kulsum (2002) and S.L.Shetty (1990). The relationship between saving and economic growth has been studied by Shradha H. Budhedeo (2015) and Tarlok Singh (2000). Rate of saving and its determinants have been studied by Pulgora Balakrishnan (1996) and K.Krishnamurthy and P.Saibaba (1981). Economic Reforms and Rate of savings have been studied by Prem Chandra Athukarala and Kunal Sen (1995). Different components of saving have been studied by Tarujyoti Buragohain (2009), L.M.Bhole and Jitendra Mahakud (2005), Norman Loayza and Rashmi Shankar (2000) and Brijesh C Purohit (1990). A few other aspects have been studied by Rekha Mehta (2013), Ritesh Kumar Singhal (2008), Ashima Goyal (1992) and so on. However, structures of saving, estimation of MPS and Keynesian multiplier have not been studied much.

III. Methodology

For this research work, data on Household Sector Saving, Corporate Sector Saving, Public Sector Saving and Gross Domestic Saving, GDP, price index number are required. The investigation period is 60 years from 1950-51 to 2009-10. This period is divided into 6 sub periods and each sub period consists of 10 years. The required data have been collected from the different issues of Hand Book of Statistics on the Indian Economy published by the Reserve Bank of India.

For the analysis of data, mean, index number, annual growth rate and percentage have been used. To estimate the trend value and compound growth rate, simple linear regression model semi-log linear regression model have been used respectively. The estimate the saving function, simple linear regression model has been used by taking GDP as the independent variable and Gross Domestic Saving as the dependent variable. The regression coefficient in this case will measure the Marginal Propensity to Save (MPS) and it is tested for the null hypothesis that its value is zero by using t test. Then the Keynesian Multiplier is worked out for the each sub period using the formula for Keynesian Multiplier.

IV. Growth of Household Sector Saving

The Gross Domestic Saving consists of three important components namely, household sector saving, private corporate sector saving and public sector saving. The data on household sector saving expressed in billions of Rupees are given in Tables 1 to 6 for the six sub periods along with index numbers and annual growth rates.

Household sector saving has grown from Rs. 6.81 billions in 1950-51 to Rs. 16307.99 billions in 2009-10. In terms of index numbers, the highest growth has been registered in the decade 1980-81 to 1989-90. Average annual growth rate is also the highest in this decade. However, in absolute terms, the value of savings is very high during the decade 2000-01 to 2009-10.

Ten year average of the household sector saving was 9 billions of Rupees in 1950-51 to 1959-60. It increased to 24.15 billions of Rupees in the next decade. During the 1970-71 to 1979-80, the average increased to 99.28 billions of Rupees. In the succeeding decades, the average increased to 404.98 billions of Rupees, 2170.10 billions of Rupees and 8937.87 billions of Rupees respectively. During this sixty years period the household sector savings increased by 2400 times approximately. This is a phenomenal growth.

V.   Growth of Private Corporate Sector Savings

The data on private corporate sector savings over a period of six decades expressed in billions of Rupees have been given in Tables 7 to 12, along with averages, index numbers and annual growth rates.

TABLE 1

Household Sector Savings in India During 1950-51 to 1959-60

(Rupee in Billions)

Year	Household Sector Saving	Index No	Annual Growth Rate
1950-51	6.81	100.00	-
1951-52	6.34	93.10	-6.90
1952-53	6.95	102.06	9.62
1953-54	6.72	98.68	-3.31
1954-55	7.74	113.66	15.18
1955-56	10.41	152.86	34.50
1956-57	12.22	179.44	17.39
1957-58	10.28	150.95	-15.88
1958-59	9.86	144.79	-4.09
1959-60	12.67	186.05	28.50
Average	**9.00**		**9.56**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 2

Household Sector Savings in India During 1960-61 to 1969-70

(Rupee in Billions)

Year	Household Sector Saving	Index No	Annual Growth Rate
1960-61	12.26	100.00	-3.24
1961-62	12.37	100.90	0.90
1962-63	15.19	123.90	22.80
1963-64	15.89	129.61	4.61
1964-65	18.97	154.73	19.38
1965-66	25.96	211.75	36.85
1966-67	31.61	257.83	21.76
1967-68	32.75	267.13	3.61

1968-69	32.77	267.29	0.06
1969-70	43.75	356.85	33.51
Average	**24.15**		**28.54**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 3

Household Sector Savings in India During 1970-71 to 1979-80

(Rupee in Billions)

Year	Household Sector Saving	Index No	Annual Growth Rate
1970-71	45.31	100.00	3.57
1971-72	52.29	115.40	15.40
1972-73	53.30	117.63	1.93
1973-74	80.20	177.00	50.47
1974-75	86.77	191.50	8.19
1975-76	97.90	216.07	12.83
1976-77	112.06	247.32	14.46
1977-78	136.79	301.90	22.07
1978-79	164.82	363.76	20.49
1979-80	163.38	360.58	-0.87
Average	**99.28**		**28.95**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 4

Household Sector Savings in India During 1980-81 to 1989-90

(Rupee in Billions)

Year	Household Sector Saving	Index No	Annual Growth Rate
1980-81	181.16	100.00	10.88
1981-82	190.13	104.95	4.95
1982-83	219.72	121.29	15.56
1983-84	269.55	148.79	22.68

1984-85	327.96	181.03	21.67
1985-86	366.66	202.40	11.80
1986-87	421.11	232.45	14.85
1987-88	573.04	316.32	36.08
1988-89	670.63	370.19	17.03
1989-90	829.85	458.08	23.74
Average	**404.98**		**39.79**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 5

Household Sector Savings in India During 1990-91 to 1999-2000

(**Rupee in Billions**)

Year	Household Sector Saving	Index No	Annual Growth Rate
1990-91	1086.03	100.00	30.87
1991-92	1056.32	97.26	-2.74
1992-93	1279.43	117.81	21.12
1993-94	1514.54	139.46	18.38
1994-95	1871.42	172.32	23.56
1995-96	1985.85	182.85	6.11
1996-97	2246.53	206.86	13.13
1997-98	2841.27	261.62	26.47
1998-99	3521.14	324.22	23.93
1999-00	4388.51	404.09	24.63
Average	**2179.10**		**33.79**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 6

Household Sector Savings in India During 2000-01 to 2012-13

(**Rupee in Billions**)

Year	Household Sector Saving	Index No	Annual Growth Rate

2000-01	4637.50	100.00	5.67
2001-02	5452.88	117.58	17.58
2002-03	5641.61	121.65	3.46
2003-04	6575.87	141.80	16.56
2004-05	7636.85	164.68	16.13
2005-06	8689.88	187.38	13.79
2006-07	9943.96	214.43	14.43
2007-08	11183.47	241.15	12.46
2008-09	13308.73	286.98	19.00
2009-10	16307.99	351.65	22.54
Average	**8937.87**		**27.96**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

In general, private corporate sector savings are less than the household sector savings in all the years. In the decade 1950-51 to 1959-60, the private corporate sector saving remained around one billion of Rupees. The average for this decade is 1.24 billions of Rupees. In the next decade, private corporate sector saving started exceeding 2 billions of Rupees and it was slowly growing and reached 5.49 billions of Rupees in 1969-70. The average for this decade is 3.96 billions of Rupees.

In the decade 1970-71 to 1979-80, private corporate sector saving has grown from 6.72 billions of Rupees to 23.98 billions of Rupees. The average for this decade is 12.52 billions of Rupees. Index numbers indicate that private corporate sector saving has increased by 3.56 times in this decade.

In 1989-90, private corporate sector saving has reached 118.45 billions of Rupees from 23.39 billions of Rupees in 1980-81. The average for this decade is 52.20 billions of Rupees. Private corporate sector saving has grown by five times in this period. In the next decade, it has increased from 151.64 billions of Rupees to 872.34 billions of Rupees. In this decade, it has increased by 5.75 times.

During 2000-01 to 2009-10, private corporate sector saving has touched the highest value of 5409.55 billions of Rupees. In this decade, private corporate sector saving has registered the highest growth rate and has increased by 6.67 times. Hence, on the whole, private corporate sector saving has increased tremendously, during the sixty year period under investigation.

VI.   Growth of Public Sector Saving

The data on public sector saving from 1950-51 to 2009-10 expressed in billions of Rupees have been given in Tables 13 to 18, along with index numbers, annual growth rates and averages. The public sector saving has grown from a meager amount of 2.15 billions of Rupees in 1950-51 to 119 billions of Rupees in 1989-90. However, from 1990-91 on words, it shows fluctuations and in some years, it is negative. The fluctuations are more in the decade 2000-01 to 2009-10. The highest value of public sector saving is 2489.62 billions of Rupees and it is reached in the year 2007-08. It remains negative from 1998-99 to 2002-03. In the year 2009-10, it is 105.85 billions of Rupees. Due to the liberalization policy followed in India since 1991, public sector saving remains in general less than the private corporate sector saving.

TABLE 7

Private Corporate Sector Savings in India During 1950-51 to 1959-60

(Rupee in Billions)

Year	Private Corporate Sector Saving	Index No	Annual Growth Rate
1950-51	0.93	100.00	-
1951-52	1.36	146.24	46.24
1952-53	0.64	68.82	-52.94
1953-54	0.90	96.77	40.63
1954-55	1.18	126.88	31.11
1955-56	1.34	144.09	13.56
1956-57	1.55	166.67	15.67
1957-58	1.21	130.11	-21.94
1958-59	1.40	150.54	15.70
1959-60	1.85	198.92	32.14
Average	**1.24**		**10.99**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 8

Private Corporate Sector Savings in India During 1960-61 to 1969-70

(Rupee in Billions)

Year	Private Corporate Sector Saving	Index No	Annual Growth Rate
1960-61	2.81	100.00	51.89
1961-62	3.20	113.88	13.88
1962-63	3.44	122.42	7.50
1963-64	3.94	140.21	14.53
1964-65	3.89	138.43	-1.27
1965-66	4.05	144.13	4.11
1966-67	4.24	150.89	4.69
1967-68	4.10	145.91	-3.30
1968-69	4.39	156.23	7.07
1969-70	5.49	195.37	25.06
Average	**3.96**		**10.60**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 9

Private Corporate Sector Savings in India During 1970-71 to 1979-80

(Rupee in Billions)

Year	Private Corporate Sector Saving	Index No	Annual Growth Rate
1970-71	6.72	100.00	22.40
1971-72	7.69	114.43	14.43
1972-73	8.06	119.94	4.81
1973-74	10.83	161.16	34.37
1974-75	14.65	218.01	35.27
1975-76	10.83	161.16	-26.08
1976-77	11.81	175.74	9.05
1977-78	14.13	210.27	19.64

1978-79	16.52	245.83	16.91
1979-80	23.98	356.85	45.16
Average	**12.52**		**28.54**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 10

Private Corporate Sector Savings in India During 1980-81 to 1989-90

(Rupee in Billions)

Year	Private Corporate Sector Saving	Index No	Annual Growth Rate
1980-81	23.39	100.00	-2.46
1981-82	25.60	109.45	9.45
1982-83	29.80	127.40	16.41
1983-84	32.54	139.12	9.19
1984-85	40.40	172.72	24.15
1985-86	54.26	231.98	34.31
1986-87	53.36	228.13	-1.66
1987-88	59.32	253.61	11.17
1988-89	84.86	362.80	43.05
1989-90	118.45	506.41	39.58
Average	**52.20**		**45.16**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 11

Private Corporate Sector Savings in India During 1990-91 to 1999-2000

(Rupee in Billions)

Year	Private Corporate Sector Saving	Index No	Annual Growth Rate
1990-91	151.64	100.00	28.02
1991-92	203.04	133.90	33.90
1992-93	199.68	131.68	-1.65
1993-94	298.66	196.95	49.57

1994-95	352.60	232.52	18.06
1995-96	591.53	390.09	67.76
1996-97	625.40	412.42	5.73
1997-98	660.80	435.77	5.66
1998-99	691.91	456.28	4.71
1999-00	872.34	575.27	26.08
Average	**464.76**		**52.81**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 12

Private Corporate Sector Savings in India During 2000-01 to 2012-13

(Rupee in Billions)

Year	Private Corporate Sector Saving	Index No	Annual Growth Rate
2000-01	810.62	100.00	-7.08
2001-02	769.06	94.87	-5.13
2002-03	992.17	122.40	29.01
2003-04	1298.16	160.14	30.84
2004-05	2125.19	262.17	63.71
2005-06	2772.08	341.97	30.44
2006-07	3385.84	417.69	22.14
2007-08	4690.23	578.60	38.52
2008-09	4174.67	515.00	-10.99
2009-10	5409.55	667.33	29.58
Average	**2643.76**		**63.04**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 13

Public Sector Savings in India During 1950-51 to 1959-60

(Rupee in Billions)

Year	Public Sector Saving	Index No	Annual Growth Rate

Year		Index No	Annual Growth Rate
1950-51	2.15	100.00	-
1951-52	3.09	143.72	43.72
1952-53	1.95	90.70	-36.89
1953-54	1.81	84.19	-7.18
1954-55	2.13	99.07	17.68
1955-56	2.47	114.88	15.96
1956-57	3.18	147.91	28.74
1957-58	3.36	156.28	5.66
1958-59	3.25	151.16	-3.27
1959-60	3.51	163.26	8.00
Average	**2.69**		**7.03**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 14

Public Sector Savings in India During 1960-61 to 1969-70

(Rupee in Billions)

Year	Public Sector Saving	Index No	Annual Growth Rate
1960-61	5.72	100.00	62.96
1961-62	6.54	114.34	14.34
1962-63	7.50	131.12	14.68
1963-64	9.29	162.41	23.87
1964-65	10.72	187.41	15.39
1965-66	10.85	189.69	1.21
1966-67	9.41	164.51	-13.27
1967-68	9.44	165.03	0.32
1968-69	11.65	203.67	23.41
1969-70	13.61	237.94	16.82
Average	**9.47**		**15.33**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 15

Public Sector Savings in India During 1970-71 to 1979-80

(Rupee in Billions)

Year	Public Sector Saving	Index No	Annual Growth Rate
1970-71	16.18	100.00	18.88
1971-72	16.89	104.39	4.39
1972-73	18.16	112.24	7.52
1973-74	23.63	146.04	30.12
1974-75	33.40	206.43	41.35
1975-76	41.92	259.09	25.51
1976-77	51.95	321.08	23.93
1977-78	52.53	324.66	1.12
1978-79	59.76	369.34	13.76
1979-80	63.31	391.29	5.94
Average	**37.77**		**32.37**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 16

Public Sector Savings in India During 1980-81 to 1989-90

(Rupee in Billions)

Year	Public Sector Saving	Index No	Annual Growth Rate
1980-81	61.35	100.00	-3.10
1981-82	91.20	148.66	48.66
1982-83	100.04	163.06	9.69
1983-84	90.30	147.19	-9.74
1984-85	89.50	145.88	-0.89
1985-86	113.22	184.55	26.50
1986-87	112.46	183.31	-0.67
1987-88	104.71	170.68	-6.89
1988-89	119.43	194.67	14.06
1989-90	119.00	193.97	-0.36
Average	**100.12**		**10.44**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 17

Public Sector Savings in India During 1990-91 to 1999-2000

(Rupee in Billions)

Year	Public Sector Saving	Index No	Annual Growth Rate
1990-91	106.41	100.00	-10.58
1991-92	175.94	165.34	65.34
1992-93	167.09	157.02	-5.03
1993-94	116.74	109.71	-30.13
1994-95	242.66	228.04	107.86
1995-96	315.27	296.28	29.92
1996-97	311.94	293.15	-1.06
1997-98	295.83	278.01	-5.16
1998-99	-31.46	-29.56	-110.63
1999-00	-92.38	-86.82	193.64
Average	**160.80**		**-20.76**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 18

Public Sector Savings in India During 2000-01 to 2012-13

(Rupee in Billions)

Year	Public Sector Saving	Index No	Annual Growth Rate
2000-01	-292.66	100.00	216.80
2001-02	-368.20	125.81	25.81
2002-03	-71.48	24.42	-80.59
2003-04	363.72	-124.28	-608.84
2004-05	744.99	-254.56	104.83
2005-06	889.55	-303.95	19.40
2006-07	1529.29	-522.55	71.92
2007-08	2489.62	-850.69	62.80

2008-09	542.80	-185.47	-78.20
2009-10	105.85	-36.17	-80.50
Average	**593.35**		**-15.13**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

VII. Growth of Gross Domestic Savings

The total of household sector saving, private corporate sector saving and public sector saving is taken as the Gross Domestic Saving. The data on Gross Domestic Saving expressed in billions of Rupees have been given in Tables 19 to 24 along with index number, annual growth rates and averages.

The value of Gross Domestic Saving has increased from 9.89 billions of Rupees to 18.03 billions of Rupees during 1950-51 to 1959-60 with marginal fluctuations. However, from 1960-61 to 2009-10, Gross Domestic Saving has increased continuously, with an exception in the year 2008-09. It has reached 21823.38 billions of Rupees in 2009-10 from 20.79 billions of Rupees in 1960-61. On the whole, Gross Domestic Saving has increased by 2200 times during the period of 60 years under investigation. The phenomenal growth of Gross Domestic Saving indicates the potential for economic growth of Indian Economy and it is a trend to be welcome.

Gross Domestic Saving of India increased at the rate of 9.15 per cent during 1950-51 to 1959-60. In the next decade, it increased by 22.48 per cent. In successive decades, it increased by higher rate and in the decade 2000-01 to 2009-10, it increased by the highest rate of 35.92 per cent per year.

TABLE 19

Gross Domestic Savings in India During 1950-51 to 1959-60

(Rupee in Billions)

Year	Gross Domestic Savings	Index No	Annual Growth Rate
1950-51	9.89	100.00	-
1951-52	10.79	109.10	9.10
1952-53	9.54	96.46	-11.58
1953-54	9.43	95.35	-1.15
1954-55	11.05	111.73	17.18
1955-56	14.22	143.78	28.69
1956-57	16.96	171.49	19.27
1957-58	14.85	150.15	-12.44
1958-59	14.50	146.61	-2.36
1959-60	18.03	182.31	24.34
Average	**12.93**		**9.15**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 20

Gross Domestic Savings in India During 1960-61 to 1969-70

(Rupee in Billions)

Year	Gross Domestic Savings	Index No	Annual Growth Rate
1960-61	20.79	100.00	15.31
1961-62	22.11	106.35	6.35
1962-63	26.13	125.69	18.18
1963-64	29.12	140.07	11.44
1964-65	33.58	161.52	15.32
1965-66	40.86	196.54	21.68
1966-67	45.26	217.70	10.77

1967-68	46.29	222.66	2.28
1968-69	48.81	234.78	5.44
1969-70	62.85	302.31	28.76
Average	**37.58**		**22.48**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 21

Gross Domestic Savings in India During 1970-71 to 1979-80

(Rupee in Billions)

Year	Gross Domestic Savings	Index No	Annual Growth Rate
1970-71	68.21	100.00	8.53
1971-72	76.87	112.70	12.70
1972-73	79.52	116.58	3.45
1973-74	114.66	168.10	44.19
1974-75	134.82	197.65	17.58
1975-76	150.66	220.88	11.75
1976-77	175.82	257.76	16.70
1977-78	203.45	298.27	15.71
1978-79	241.10	353.47	18.51
1979-80	250.68	367.51	3.97
Average	**149.58**		**29.72**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 22

Gross Domestic Savings in India During 1980-81 to 1989-90

(Rupee in Billions)

Year	Gross Domestic Savings	Index No	Annual Growth Rate
1980-81	265.90	100.00	6.07
1981-82	306.92	115.43	15.43
1982-83	349.56	131.46	13.89

1983-84	392.39	147.57	12.25
1984-85	457.86	172.19	16.68
1985-86	534.14	200.88	16.66
1986-87	586.93	220.73	9.88
1987-88	737.07	277.20	25.58
1988-89	874.92	329.04	18.70
1989-90	1067.30	401.39	21.99
Average	**557.30**		**33.49**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 23

Gross Domestic Savings in India During 1990-91 to 1999-2000

(Rupee in Billions)

Year	Gross Domestic Savings	Index No	Annual Growth Rate
1990-91	1344.08	100.00	25.93
1991-92	1435.30	106.79	6.79
1992-93	1646.21	122.48	14.69
1993-94	1929.94	143.59	17.24
1994-95	2466.68	183.52	27.81
1995-96	2892.65	215.21	17.27
1996-97	3183.87	236.88	10.07
1997-98	3797.90	282.57	19.29
1998-99	4181.59	311.11	10.10
1999-00	5168.46	384.54	23.60
Average	**2804.67**		**31.62**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

TABLE 24

Gross Domestic Savings in India During 2000-01 to 2012-13

(Rupee in Billions)

Year	Gross Domestic Savings	Index No	Annual Growth Rate
2000-01	5155.45	100.00	-0.25
2001-02	5853.75	113.54	13.54
2002-03	6562.29	127.29	12.10
2003-04	8237.75	159.79	25.53
2004-05	10507.03	203.80	27.55
2005-06	12351.51	239.58	17.55
2006-07	14859.09	288.22	20.30
2007-08	18363.32	356.19	23.58
2008-09	18026.20	349.65	-1.84
2009-10	21823.38	423.31	21.06
Average	**12173.98**		**35.92**

Source: Hand Book of Statistics on the Indian Economy 2013-14.

VIII. Trend Analysis of Gross Domestic Savings

To know the trend and Compound Growth Rate of Gross Domestic Saving, simple linear and semi-log linear trend have been fitted by taking Gross Domestic Saving as the dependent variable and time as the independent variable, for the various decades. The results are given in Table 25.

During 1950-51 to 1959-60, Gross Domestic Saving increased annually by 0.918 billion of Rupees. The compound growth rate of Gross Domestic Saving was 7.36 per cent. In both the cases, the regression coefficient is significant at 1 per cent level. The value of R^2 exceeds 0.7 in both the cases and hence more than 70 per cent of the variations in the dependent variable is explained by the independent variable.

In the next decade, that is during 1960-61 to 1969-70, Gross Domestic Saving increased annually by 4.375 billions of Rupees. Now the compound growth rate has increased to 12.75. In both the

cases the regression coefficient is significant at one per cent level. The value of R^2 is greater than 0.95 and therefore the Gross Domestic Saving has registered a linear trend in this decade.

During 1970-71 to 1979-80, Gross Domestic Saving increased by 21.884 billions of Rupees. The compound growth rate has now increased to 16.88. In this decade also, the regression coefficients are significant and Gross Domestic Saving has registered a linear trend.

During 1980-81 to 1989-90, Gross Domestic Saving increased annually by 83.552 billions of Rupees and the compound growth rate is 16.30. In both the cases, the regression coefficient is significant at one per cent level. The value of R^2 is greater than 0.9 and Gross Domestic Saving has registered a linear trend in this decade also.

Gross Domestic Saving increased by Rs 415.695 billions of Rupees annually during 1990-91 to 1999-2000. The compound growth rate is 16.65 and there is not much change in the compound growth rate between this decade and earlier two decades. Both the regression coefficients are significant at one per cent level. The value of R^2 exceeds 0.95 and Gross Domestic Saving has registered a linear trend during this decade also.

During 2000-01 to 2009-10, Gross Domestic Saving has increased annually by 1914.740 billions of Rupees. Comparing the earlier decades, this increase is several times higher. The compound growth rate has also increased to 18.43. Therefore Gross Domestic Saving has grown phenomenally during this decade. The regression coefficients, in both the cases are significant. The value of R^2 is also very high. Gross Domestic Saving has registered a linear trend in this decade too.

TABLE 25

Trend of Gross Domestic Savings in India During 1950-51 to 2009-10

Year	Model	a	b	SE of b	t	Sig	R^2	Adj.R^2	CGR
1950-51 to 1959-60	Simple linear	7.875	0.918	0.181	5.080	0.001	0.763	0.734	-
	Semi-log linear	2.142	0.071	0.014	5.160	0.001	0.769	0.740	7.36
1960-61 to 1969-70	Simple linear	13.515	4.375	0.328	13.354	0.000	0.957	0.952	-
	Semi-log linear	2.904	0.120	0.006	19.152	0.000	0.979	0.976	12.75
1970-70 to 1979-80	Simple linear	29.219	21.884	1.189	18.402	0.000	0.977	0.974	-
	Semi-log linear	4.049	0.156	0.008	19.815	0.000	0.980	0.978	16.88
1980-81 to 1989-90	Simple linear	97.764	83.552	8.406	9.940	0.000	0.925	0.916	-
	Semi-log linear	5.396	0.151	0.005	31.761	0.000	0.992	0.991	16.30
1990-91 to 1999-2000	Simple linear	518.346	415.695	30.030	13.843	0.000	0.960	0.955	-
	Semi-log linear	6.994	0.154	0.005	31.538	0.000	0.992	0.991	16.65
2000-01 to 2009-10	Simple linear	1642.905	1914.740	119.427	16.033	0.000	0.970	0.966	-
	Semi-log linear	8.361	0.169	0.008	22.335	0.000	0.984	0.982	18.41

IX. Structure of Gross Domestic Saving

The structure of Gross Domestic Savings during the period of six decades are given in Tables 26 to 31. During 1950-51 to 1959-60, Household sector saving formed 69.63 per cent. Private corporate sector saving formed 9.56 per cent. Contribution of public sector is 20.81 per cent. In the next decade, the share of household sector has come down to 64.27 per cent. The

shares of public sector and private corporate sector have gone up slightly. During 1980-81 to 1989-90, the contribution of household sector has improved further and it forms 72.67 per cent to the Gross Domestic Savings. The contribution of private corporate sector has improved marginally and it is now 9.67 per cent. The share of public sector has been reduced to 17.96 per cent.

This trend continues during 1990-91 to 1999-2000 also. The share of household sector has now gone up to 77.70 per cent and the share of private corporate sector has increased to 16.57 per cent. Contribution of public sector has now come down to 5.73 per cent. The share of private corporate sector has increased to 19.87 per cent. Public sector saving has touched the minimum of 3.30 per cent.

Therefore from 1950-51, household sector contributes more and now it contributes three-fourth of the Gross Domestic Savings. The remaining portion is shared by private corporate sector and public sector. The contribution of public sector is very low. Therefore, in India Gross Domestic Saving comes mainly from household sector. Due to liberalization policy, public sector saving is reduced to its minimum size.

X. GDS as a proportion of National Income

Gross Domestic Saving as percentage to GDP for the period of 60 years is given in Tables 32. In 1950-51, Gross Domestic Saving was 9.51 per cent of GDP. With marginal fluctuations, it has increased to 11.00 per cent in 1959-60. The percentage of Gross Domestic Saving has registered continuously an upward trend till 1999-2000 with a few exceptions. The highest percentage of 36.82 is reached in the year 2007-08. The decennial averages show that Gross Domestic Saving

as a percentage of GDP is increasing gradually. In the decade 1950-51, the average was 10.25 per cent. In the next decade it has increased to 12.82 per cent. During 1970-71 to 1979-80, it further increased to 18.02 per cent. In the next decade it touched 19.03 per cent. During 1990-91 to 1999-2000, it has reached 23.36 per cent. The highest value of average 30.66

TABLE 26

STRUCTURE OF GROSS DOMESTIC SAVINGS DURING 1950-51 TO 1959-60

Year	Household Sector	Private Corporate Sector	Public Sector	Gross Domestic Savings
1950-51	6.81 (68.86)	0.93 (9.40)	2.15 (21.74)	9.89 (100)
1951-52	6.34 (58.76)	1.36 (12.60)	3.09 (28.64)	10.79 (100)
1952-53	6.95 (72.85)	0.64 (6.71)	1.95 (20.44)	9.54 (100)
1953-54	6.72 (71.26)	0.90 (9.54)	1.81 (19.20)	9.43 (100)
1954-55	7.74 (70.05)	1.18 (10.68)	2.13 (19.28)	11.05 (100)
1955-56	10.41 (73.21)	1.34 (9.42)	2.47 (17.37)	14.22 (100)
1956-57	12.22 (72.09)	1.55 (9.15)	3.18 (18.76)	16.95 (100)
1957-58	10.28 (69.23)	1.21 (8.15)	3.36 (22.63)	14.85 (100)
1958-59	9.86 (67.95)	1.40 (9.65)	3.25 (22.40)	14.51 (100)
1959-60	12.67 (70.27)	1.85 (10.26)	3.51 (19.47)	18.03 (100)
Average	**9.00** (69.63)	**1.24** (9.56)	**2.69** (20.81)	**12.93** (100)

Figure in Parentheses are percentages to the total

TABLE 27

STRUCTURE OF GROSS DOMESTIC SAVINGS DURING 1960-61 TO 1969-70

Year	Household Sector	Private Corporate Sector	Public Sector	Gross Domestic Savings
1960-61	12.26 (58.97)	2.81 (13.52)	5.72 (27.51)	20.79 (100)
1961-62	12.37 (55.95)	3.20 (14.47)	6.54 (29.58)	22.11 (100)
1962-63	15.19 (58.13)	3.44 (13.17)	7.50 (28.70)	26.13 (100)
1963-64	15.89 (54.57)	3.94 (13.53)	9.29 (31.90)	29.12 (100)
1964-65	18.97 (56.49)	3.89 (11.59)	10.72 (31.92)	33.58 (100)
1965-66	25.96 (63.53)	4.05 (9.91)	10.85 (26.56)	40.86 (100)
1966-67	31.61 (69.84)	4.24 (9.37)	9.41 (20.79)	45.26 (100)
1967-68	32.75 (70.75)	4.10 (8.86)	9.44 (20.39)	46.29 (100)
1968-69	32.77 (67.14)	4.39 (8.99)	11.65 (23.87)	48.81 (100)
1969-70	43.75 (69.61)	5.49 (8.74)	13.61 (21.65)	62.85 (100)
Average	**24.15** (64.27)	**3.96** (10.52)	**9.47** (25.21)	**37.58** (100)

Figure in Parentheses are percentages to the total

TABLE 28

STRUCTURE OF GROSS DOMESTIC SAVINGS DURING 1970-71 TO 1979-80

Year	Household Sector	Private Corporate Sector	Public Sector	Gross Domestic Savings
1970-71	45.31 (66.43)	6.72 (9.85)	16.18 (23.72)	68.21 (100)
1971-72	52.29 (68.03)	7.69 (10.00)	16.89 (21.97)	76.87 (100)
1972-73	53.30 (67.23)	8.06 (10.13)	18.16 (22.84)	79.52 (100)
1973-74	80.20 (69.95)	10.83 (9.44)	23.63 (20.61)	114.66 (100)
1974-75	86.77 (64.36)	14.65 (10.87)	33.40 (24.77)	134.82 (100)
1975-76	97.90 (64.98)	10.83 (7.19)	41.92 (27.83)	150.66 (100)
1976-77	112.06 (63.73)	11.81 (6.72)	51.95 (29.55)	175.82 (100)
1977-78	136.79 (67.24)	14.13 (6.94)	52.53 (25.82)	203.45 (100)
1978-79	164.82 (68.36)	16.52 (6.85)	59.76 (24.79)	241.10 (100)
1979-80	163.38 (65.17)	23.98 (9.57)	63.31 (25.26)	250.67 (100)
Average	**99.28** (66.38)	**12.52** (8.37)	**37.77** (25.25)	**149.58** (100)

Figure in Parentheses are percentages to the total

TABLE 29

STRUCTURE OF GROSS DOMESTIC SAVINGS DURING 1980-81 YO 1989-90

Year	Household Sector	Private Corporate Sector	Public Sector	Gross Domestic Savings
1980-81	181.16 (68.13)	23.39 (8.80)	61.35 (23.07)	265.90 (100)
1981-82	190.13 (61.95)	25.60 (8.34)	91.20 (29.71)	306.92 (100)
1982-83	219.72 (62.85)	29.80 (8.53)	100.04 (28.62)	349.56 (100)
1983-84	269.55 (68.69)	32.54 (8.30)	90.30 (23.01)	392.39 (100)
1984-85	327.96 (71.63)	40.40 (8.82)	89.50 (19.55)	457.86 (100)
1985-86	366.66 (68.64)	54.26 (10.16)	113.22 (21.20)	534.14 (100)
1986-87	421.11 (71.75)	53.36 (9.09)	112.46 (19.16)	586.93 (100)
1987-88	573.04 (77.74)	59.32 (8.05)	104.71 (14.21)	737.07 (100)
1988-89	670.63 (76.65)	84.86 (9.70)	119.43 (13.65)	874.92 (100)
1989-90	829.85 (77.75)	118.45 (11.10)	119.00 (11.15)	1067.30 (100)
Average	**404.98** (72.67)	**52.20** (9.67)	**100.12** (17.96)	**557.30** (100)

Figure in Parentheses are percentages to the total

TABLE 30

STRUCTURE OF GROSS DOMESTIC SAVINGS DURING 1990-91 TO 1999-2000

Year	Household Sector	Private Corporate Sector	Public Sector	Gross Domestic Savings
1990-91	1086.03 (80.80)	151.64 (11.28)	106.41 (7.92)	1344.08 (100)
1991-92	1056.32 (73.59)	203.04 (14.15)	175.94 (12.26)	1435.30 (100)
1992-93	1279.43 (77.72)	199.68 (12.13)	167.09 (10.15)	1646.21 (100)
1993-94	1514.54 (78.47)	298.66 (15.47)	116.74 (6.04)	1929.94 (100)
1994-95	1871.42 (75.87)	352.60 (14.29)	242.66 (9.84)	2466.68 (100)
1995-96	1985.85 (68.65)	591.53 (20.45)	315.27 (10.90)	2892.65 (100)
1996-97	2246.53 (70.56)	625.40 (19.64)	311.94 (9.80)	3183.87 (100)
1997-98	2841.27 (74.81)	660.80 (17.40)	295.83 (7.79)	3797.90 (100)
1998-99	3521.14 (84.20)	691.91 (16.55)	-31.46 (-0.75)	4181.59 (100)
1999-00	4388.51 (84.91)	872.34 (16.88)	-92.38 (-1.79)	5168.46 (100)
Average	**2179.10** (77.70)	**464.76** (16.57)	**160.80** (5.73)	**2804.67** (100)

Figure in Parentheses are percentages to the total

TABLE 31

STRUCTURE OF GROSS DOMESTIC SAVINGS DURING 2000-01 TO 2009-10

Year	Household Sector	Private Corporate Sector	Public Sector	Gross Domestic Savings
2000-01	4637.50 (89.95)	810.62 (15.72)	-292.66 (-5.67)	5155.46 (100)
2001-02	5452.88 (93.15)	769.06 (13.14)	-368.20 (-6.29)	5853.75 (100)
2002-03	5641.61 (85.97)	992.17 (15.12)	-71.48 (1.09)	6562.29 (100)
2003-04	6575.87 (79.83)	1298.16 (15.76)	363.72 (4.41)	8237.75 (100)
2004-05	7636.85 (72.68)	2125.19 (20.23)	744.99 (7.09)	10507.03 (100)
2005-06	8689.88 (70.36)	2772.08 (22.44)	889.55 (7.20)	12351.51 (100)
2006-07	9943.96 (66.92)	3385.84 (22.79)	1529.29 (10.29)	14859.09 (100)
2007-08	11183.47 (60.90)	4690.23 (25.54)	2489.62 (13.56)	18363.32 (100)
2008-09	13308.73 (73.83)	4174.67 (23.16)	542.80 (3.01)	18026.20 (100)
2009-10	16307.99 (74.73)	5409.55 (24.79)	105.85 (0.48)	21823.38 (100)
Average	**8937.87** (76.83)	**2642.76** (19.87)	**593.35** (3.30)	**12173.98** (100)

Figure in Parentheses are percentages to the total

TABLE 32

Gross Domestic Savings as a Percentage to GDP

year	Percentage	year	Percentage	year	Percentage	year	Percentage	year	Percentage	year	Percentage	year	Percentage
1950-51	9.51	1960-61	11.59	1970-71	14.32	1980-81	17.77	1990-91	22.93	2000-01	23.77		
1951-52	9.76	1961-62	11.63	1971-72	15.07	1981-82	17.46	1991-92	21.30	2001-02	24.93		
1952-53	8.79	1962-63	12.79	1972-73	14.15	1982-83	17.78	1992-93	21.25	2002-03	25.93		
1953-54	7.98	1963-64	12.41	1973-74	16.76	1983-84	17.13	1993-94	21.65	2003-04	29.03		
1954-55	9.89	1964-65	12.27	1974-75	16.69	1984-85	17.84	1994-95	23.59	2004-05	32.41		
1955-56	12.51	1965-66	14.16	1975-76	17.38	1985-86	18.45	1995-96	23.58	2005-06	33.44		
1956-57	12.52	1966-67	13.85	1976-77	18.82	1986-87	18.12	1996-97	22.43	2006-07	34.60		
1957-58	10.64	1967-68	12.10	1977-78	19.22	1987-88	20.02	1997-98	24.15	2007-08	36.82		
1958-59	9.32	1968-69	12.05	1978-79	21.03	1988-89	20.03	1998-99	23.19	2008-09	32.02		
1959-60	11.00	1969-70	14.09	1979-80	19.94	1989-90	21.26	1999-00	25.69	2009-10	33.69		
Average	**10.19**	**Average**	**12.69**	**Average**	**17.338**	**Average**	**18.586**	**Average**	**22.98**	**Average**	**30.66**		

Figure in Parentheses are percentages to the total

TABLE 33

Relationship between Gross Domestic Savings and GDP in India

Year	Model	a	b	SE of b	t	Sig	R^2	Adj.R^2
1950-51 to 1959-60	Simple linear	-2.793	0.125	0.030	4.177	0.003	0.686	0.646
1960-61 to 1969-70	Simple linear	-3.428	0.140	0.011	12.695	0.000	0.953	0.947
1970-70 to 1979-80	Simple linear	-53.598	0.245	0.009	26.842	0.000	0.989	0.988
1980-81 to 1989-90	Simple linear	-106.788	0.227	0.008	29.917	0.000	0.991	0.990
1990-91 to 1999-2000	Simple linear	-321.987	0.260	0.010	26.443	0.000	0.989	0.987
2000-01 to 2009-10	Simple linear	-2817.199	0.392	0.021	18.460	0.000	0.977	0.974

per cent has been reached in the decade 2000-01 to 2009-10. The percentage in the year 2009-10 is 33.69. This means that people in India on an average save one-third of their income. Globally this is one of the highest level of saving. The highest level of saving gives more scope for investment. This is a trend to be welcome.

XI. Keynesian Multiplier for the Indian Economy

Keynesian multiplier is the ratio between increase in national income due to increase in investment. More specifically,

Keynesian Multiplier, $k = \dfrac{\Delta Y}{\Delta I}$

Where ΔY is the increase in national income,

and ΔI is the increase in Investment.

When the entire saving is mobilized and invested, that is,

When $I = S$, $\qquad\qquad k = \dfrac{\Delta Y}{\Delta S}$

$$= \dfrac{1}{\Delta S/\Delta Y} \quad = \dfrac{1}{MPS}$$

To measure the MPS of the Indian Economy, Linear saving function is fitted by taking Gross Domestic Saving as the dependent variable and Gross Domestic Product as the independent variable. The regression coefficient in this case measures the increase in Gross Domestic Saving when Gross Domestic Product increases by one unit this, therefore represents the Marginal Propensity to Save. This is tested for its significance through t test. The MPS is estimated for the six decades under investigation and the regression coefficients along with other important results have been given in Table 33.

 Based on the estimated regression coefficient, that is MPS, the Keynesian Multiplier has been worked out for the various decades and they are given in Table 34.

Table 34 Keynesian Multiplier for Various Decades

Decade	Keynesian Multiplier
1950-51 to 1959-60	8.0
1960-61 to 1969-70	7.14
1970-71 to 1979-80	4.08

1980-81 to 1989-90	4.40
1990-91 to 1999-2000	3.85
2000-01 to 2009-10	2.54

The value of Keynesian Multiplier is slowly declining and it has come down from 8 in 1950-51 to 1959-60 to 2.54 in 2000-01 to 2009-2010. This indicates that the effect of investment on national income shows a declining trend. Government should be careful while investing further and it should invest in sectors where the investment will increase the national income.

XII. Conclusion

The three components of Gross Domestic Saving are: Household sector saving, Private corporate sector saving and Public sector saving. During the period of 60 years, household sector saving has increased from 6.81 billions of Rupees to 16307.99 billions of Rupees. Private corporate sector saving has increased from 0.93 billion of Rupees to 5409.55 billion of Rupees Public sector saving increased over a period of 40 years from 1950-51 to 1989-90, from 2.15 billions of Rupees to 119 billions of Rupees. However from 1990-91, Public sector saving is fluctuating due to the liberalization policy.

Among the three components of Gross Domestic Savings, household sector contributes approximately three-fourth of Gross Domestic Saving. The contribution of private corporate sector is around 20 per cent. Public sector saving forms 3 per cent during the decade 2000-01 to 2009-10. Therefore, in India, the major proportion of saving comes from household sector.

When Gross Domestic Saving is worked out as a percentage to GDP, it is gradually rising from 9.51 per cent in 1950-51 and reached 33.69 per cent in 2009-10. Therefore Indian people have saved one-third of their income and it is a remarkable achievement. However, after 2009-10, it started showing a declining trend and in 2012-13, it has come down 30.09 per cent. This is a warning signal to the Government. The income tax policy and policy of other taxes should not discourage the saving behavior of the people. Government should be very careful in designing Income tax policy and more efforts should be taken to promote the incentive of saving of the

people and this will be more helpful to generate more funds for domestic investment and to maintain the stability of the economy.

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