Growth Acceleration of the Indian Economy in the Post-Independence Era : A Story of Sustained Savings and Investment

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Abstract

The present paper discussed the procyclicality story of savings in India since independence and then analyzed the trends in savings, investment, and economic growth of India for the period from 1950-51 to 2010-11, and finally examined the Feldstein-Horioka proposition by taking into account South Asia, East Asia, and Latin American economies. It strongly argued that India's growth is largely financed by the availability of domestic savings, and household savings are the main contributor to domestic savings. The Feldstein-Horioka proposition was validated for all the countries taken for the study, which suggested that domestic investments were predominantly determined by domestic savings. Moreover, India's long term capital-output ratio, which shows the efficiency of resource use is around 4, which can be compared to the best in the world. As household savings play a vital role in the domestic savings, and the deficit public sector and private sector draw on household savings to meet their investment requirements and finance the resource gaps, a two-pronged approach with the incentive-based measures to induce the motivation to save, and the productivity-based measures to increase income and strengthen the capacity to save would be useful to generate higher savings and reinforce the acceleration of income and growth.

Keywords: **savings, investment, economic growth**

JEL Classification: E21, E22 , O4

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Economic growth implies increased overtime in the actual output of goods as well as an increase in the economic capability to produce them. Increase in GDP, increase in per capita income, increase in GNP, and so forth are all the indicators of economic growth. To achieve sustained higher economic growth, more emphasis has been given on savings, investments, and total factor productivity (TFP). The central idea of Lewis's (1955) traditional growth theory depicts that higher savings lead to higher investment, which, in turn, will increase real output and employment if there are idle resources of labor, land, and capital, which can be absorbed in the economy. The Harrod-Domar growth model (Domar, 1946 ; Harrod 1939) also lay stress on the role of savings and investment in accelerating economic growth, stating that with a fixed capital-output ratio, the growth rate is dependent on the savings rate.

Economic planning, which is mostly associated with socialism, communism, and fascism and pitted against the laissez-faire philosophy, is the control and direction of economic activity by a central public authority. One of the prime objectives of economic planning is to increase the production in the economy and thus, increase the economic growth. There is a virtuous circle that operates from savings to growth. To increase production, capital formation is considered as the crucial determinant, and capital formation has to be backed by an appropriate

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volume of savings. Increase in savings will result in an increase in capital formation; use of increased capital formation will result in increased capital per worker, which will be again translated into an increase in productivity and higher per capita income, and increase in per capita income will again result in an increase in savings, and increased savings for a further increase in capital formation constitute the strategy behind economic growth (Domar, 1946 ; Harrod, 1939 ; Lewis, 1955 ; Lucas 1988 ; Romer, 1986 ; Rebelo, 1991 ; Mankiw, Romer, & Weil, 1992). On the other hand, economic growth also determines both savings and investments. Rapid growth raises the savings rate, which, in turn, releases resources necessary to sustain growth through higher investments. If investment is depressed, growth falls, and so does the savings rate. Therefore, it is implicitly evident that any study of savings rates must recognize the close interdependence among savings, investment, and economic growth rate. The main objective of the present study is to analyze the trends in savings, investments, and growth over the period from 1950-51 to 2010-11 and to investigate the validation of the Feldstein-Horioka hypothesis.

Data and Methodology

The present study is purely based on secondary data. The main objective of the present study is to analyze the trends in savings, investment, and growth over the period from 1950-51 to 2010-11 and to investigate the validation of the Feldstein-Horioka hypothesis. Relevant data for the study was obtained from RBI's Handbook of Statistics on the Indian Economy, 2011-12 and from World Bank's World Development Indicators. Hodrick-Prescott (HP)-filter and Band-Pass (BP) filter - the formal tools of pro-cyclicality were employed to study the cyclical behavior of real GDS.

Growth Acceleration over the Decades and Procyclicality of Savings in India

(1) Growth Acceleration over the Decades : The average Indian economic growth after three decades of independence (1951-52 to 1979-80) was around 3.5% . During this period, the average gross domestic savings as percentage of GDP was 13.5%. Average economic growth picked up to 5.6% in the 1980s (1980-81 to 1989-90) ; this decade also witnessed average GDS rate accentuating to 18.6% . The average economic growth during the post-reform period (since 1992-93 to 2010-11) further increased to 6.9%. During this period, the average savings rate rose up to 27.6%. The correlation coefficient between economic growth rate and savings rate during the period from 1992-2010 is 0.7 (statistically significant with *p*- value = 0.00). Particularly, with economic growth leaping to a higher growth trajectory of 8.6% during 2003-2010, the savings rate also concomitantly soared to 33.1%.

The average real GDP growth is plotted against a different range of GDS rate in Figure 1. Both the right and left panels depict that for lower savings rate, the average real GDP growth is low, while for higher GDS rates, the average real GDP growth is high.

Figure 1. Growth of Real GDP and Gross Domestic Savings

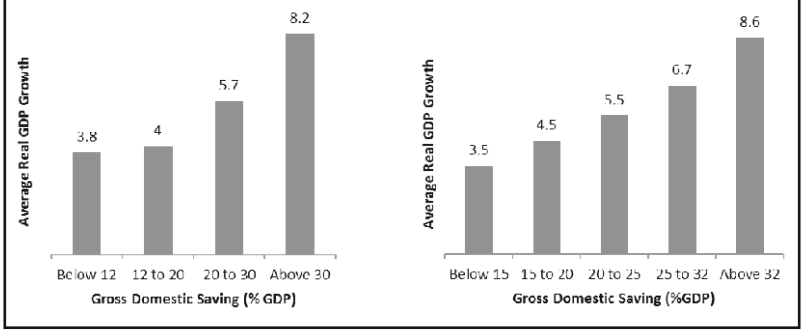
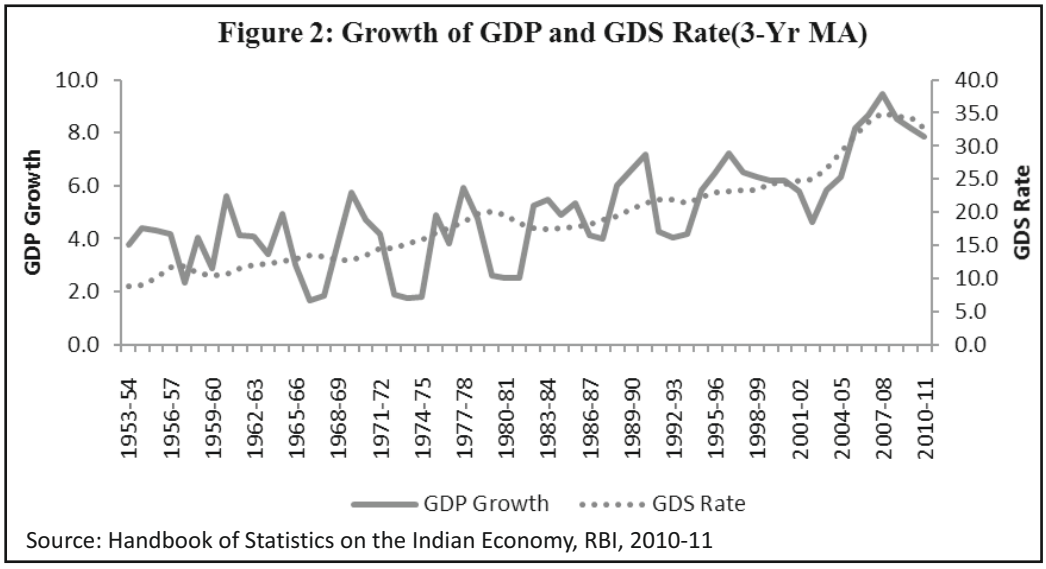


Table 1. Persistent Increase in Savings and Economic Growth in India

Years	GDP Growth	GDS Rate
1951-52 to 1979-80	3.5	13.5
1980-81 to 1989-90	5.6	18.6
1992-93 to 2002-03	5.9	23.4
2003-04 to 2010-11	8.4	33.1

Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11.



Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11

(2) Procyclicality of Savings in India - Preliminary Evidences : The most widely discussed concept, that is, business cycle, in the literature of macroeconomics involves episodic reoccurrences of busts and booms of economic activity representing the simplest example of cyclicality in economics (Samantaraya, 2007) [1]. In this section, we attempt to look at the association between gross domestic saving rates (GDS) and economic growth (GDP). We can observe a close association between economic growth and domestic savings from the Table 1.

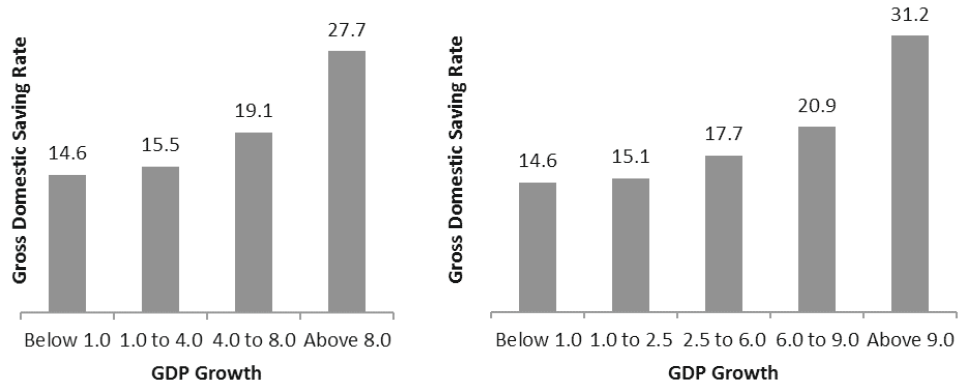
The Table 1 portrays that the average economic growth after three decades of independence (1951-52 to 1979-80) was around 3.5%. During this period, the average gross domestic savings as percent of GDP were 13.5%. The average economic growth picked up to 5.6% in the decade of 1980s (1980-81 to 1989-90), which also witnessed average GDS rate accentuating to 18.6%. The average economic growth during the post-reforms period (since 1992-93 to 2010-11) further increased to 6.9%. During this period, the average savings rate rose up to 27.6%. The correlation coefficient between economic growth rate and savings rate during this period (1992-2010) is 0.7 (statistically significant with p -value = 0.00). Particularly, with economic growth leaping to a higher growth trajectory of 8.6% during 2003-2010, the savings rate also concomitantly soared to 33.1%.

The Figure 2 presents a 3-year moving average of growth rates and gross domestic savings as percentage of GDP. It can be observed from the Figure 2 that largely, low/high savings rate is associated with corresponding low/high economic growth rate.

The average GDS rate is plotted against a different range of economic growth in Figure 3. Both the right and left panels depict that for lower economic growth rates, the average GDS rate is low; while for higher economic growth rates, the average GDS rate is high.

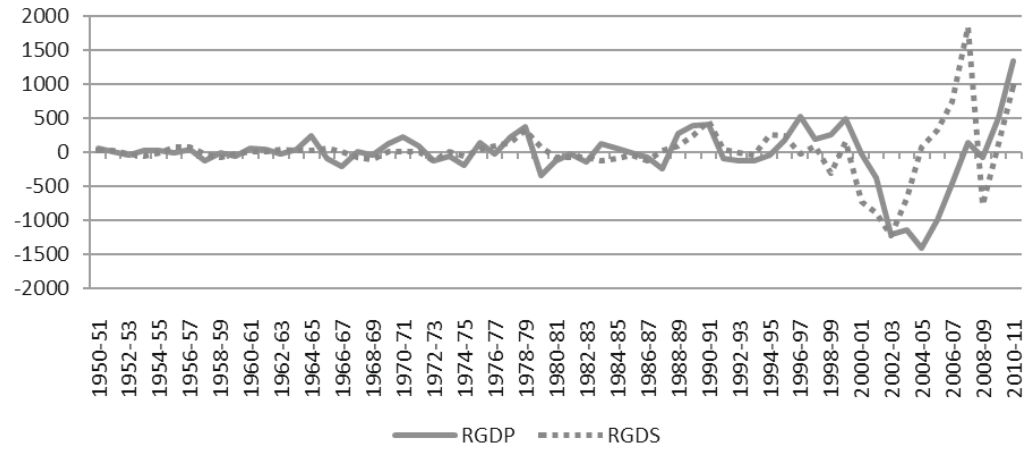
The Hodrick-Prescott (HP)-filter and Band-Pass (BP) filter - the formal tools of procyclicality were employed (presented in the Figure 4 and Figure 5, respectively) to study the cyclical behavior of real GDP and real GDS. GDS is used in real terms adjusted by implicit GDP deflator, respectively. The Christiano-Fitzgerald full length

Figure 3. Growth of Real GDP and Gross Domestic Savings



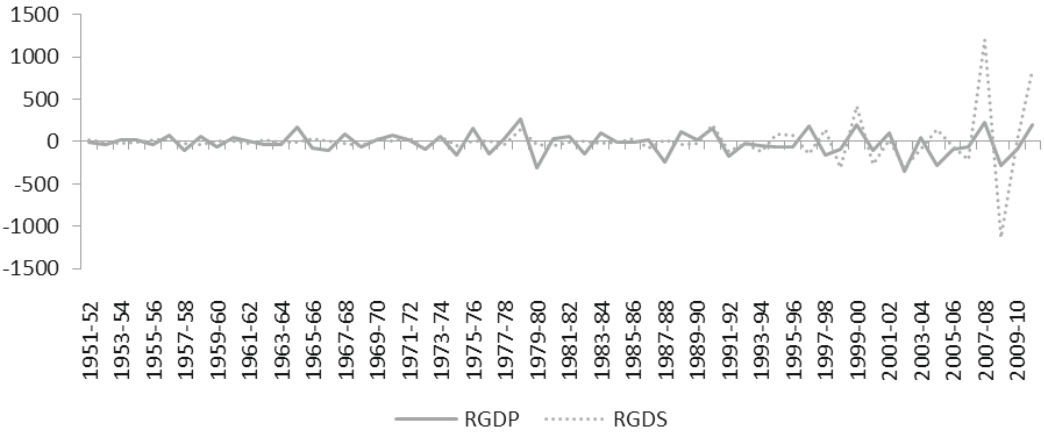
Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11

Figure 4: Cyclicality of RGDP & RGDS (HP Filter)

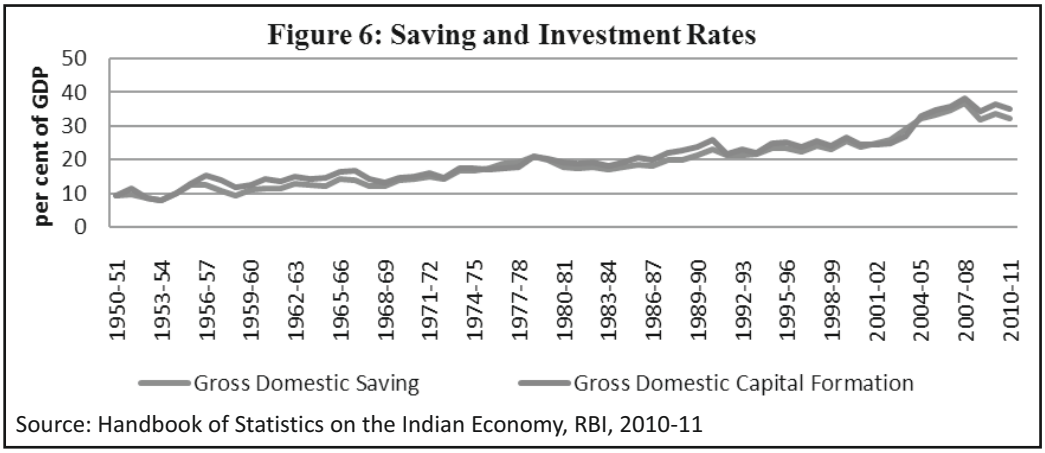


Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11

Figure 5: Cyclicality of RGDP and RGDS (BP Filter)



Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11



asymmetric filter was used as the BP-filter.

From the Figure 4, it is clear that cyclical movement in real gross domestic savings could not be outlined. Since mid-1980s, the downward/upward waves in real gross domestic savings are clearly observed to be associated with similar movements in real GDP. The cyclical movements, moreover, seem to be more prominent in both series in the last decade or so. A mild cyclical movement is also captured by BP-filter even prior to mid- 1980s. The BP-filter, like the HP-filter, also captures the amplitudes of the cycle magnifying since the late 1990s.

Savings and Investments in India : Trends and Patterns

The current section surveys the savings and investment performance in India in the post-independence period. Apart from delineating the overall trends, particular attention is placed on specific episodes of dips and upswings in investment and savings behavior. India's savings -investment is also compared with that of other developing countries.

(1) Trends in Savings and Investments in India : In the post-independence era, savings and investment rates have been consistently increasing, though with considerable fluctuations from year to year (refer Figure 6). During the 1950s, the gross domestic savings rate was 10.2%, which increased to 17.3% in 1970s, and further to 18.6 % in 1980s, and then to 22.3% and 24.6% during the period from 1991/92 to 1996-97 and 1997-98 to 2002-03, respectively. The gross domestic savings rate further rose up to 33.1% during the period from 2003-04 to 2010-11. The gross domestic investment rate increased from 11.3% during the 1950s to 17.5% in the 1970s and then to 20.4 % during the 1980s. The investment rate again rose up to 23.5% - 25% during the period from 1991-92 to 1996-97 and 1997-98 to 2002-03, which further increased to 34.3% during the period from 2003-04 to 2010-11. Both the gross domestic savings and investment rates exhibited significant cyclical behavior, with the savings rate being more volatile than the investment rate. The coefficient of variation over the period from 1950-2011 is 13 for the savings rate as compared to 12.9 for the investment rate.

(2) Trends in Gross Domestic Savings (GDS) and its Components : Domestic investment in India has been predominantly financed through domestic savings. Foreign savings (or foreign capital inflows) which represent the difference between domestic savings and investments have been less than 2% of the GDP during the period under consideration. *Importantly, the consistent uptrend in India's gross domestic savings since independence is because of the consistent rise in household savings, household financial savings, and private corporate savings (see Table 2).* Hence, let us have a glance at the composition of the gross domestic savings.

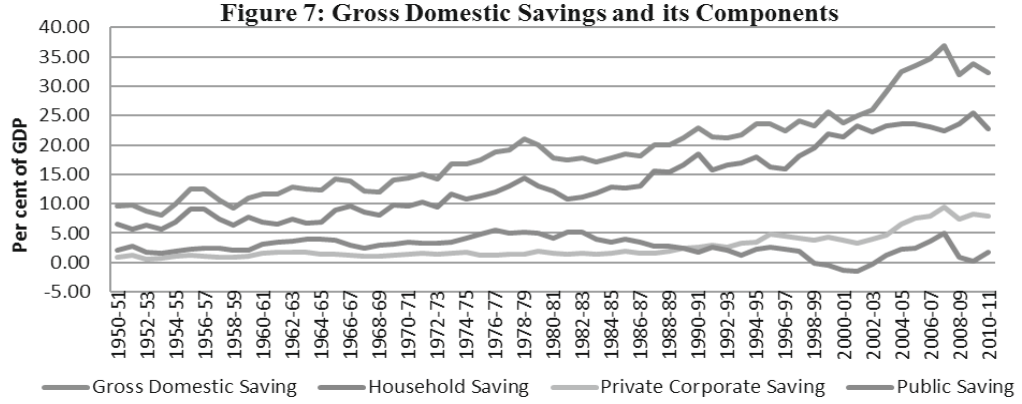
Gross domestic savings constitute household savings, private corporate savings, and public savings. Out of these constituents of gross domestic savings, household savings, which constitute financial savings and physical

Table 2. Gross Domestic Savings (GDS) and its Components as a % of GDP, 1950-2011

Year	1950s	1960s	1970s	1980s	1990-91	1991-92 to 1996-97	1997-98 to 2002-03	2003-04 to 2010-11
1	2	3	4	5	6	7	8	9
Gross Domestic Saving (% of GDP)	10.2	12.7	17.3	18.6	22.9	22.3	24.6	33.1
Household Savings	7.1	8.0	11.5	13.2	18.5	16.5	21.1	23.5
Financial Savings	1.8	2.6	4.4	6.5	8.5	9.7	10.0	11.1
Physical Savings	5.3	5.4	7.1	6.7	10.1	6.8	11.0	12.3
Private corporate Savings	1.0	1.4	1.5	1.7	2.6	3.6	3.9	7.4
Public Sector Saving	2.1	3.3	4.3	3.7	1.8	2.2	-0.3	2.2
Memo: Saving Investment Gap Domestic Sector (Foreign Saving)	-1.1	-1.9	-0.1	-1.8	-3.1	-1.2	-0.4	-1.2
Household Sector	1.8	2.6	4.4	6.5	8.5	9.7	10.0	11.1
Private Corporate Sector	-0.8	-1.4	-1.0	-2.6	-0.5	-10.5	-1.1	-5.4
Public Sector	-2.4	-3.9	-4.0	-7.4	-8.8	-7.0	-7.5	-6.1

Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11.

Figure 7: Gross Domestic Savings and its Components

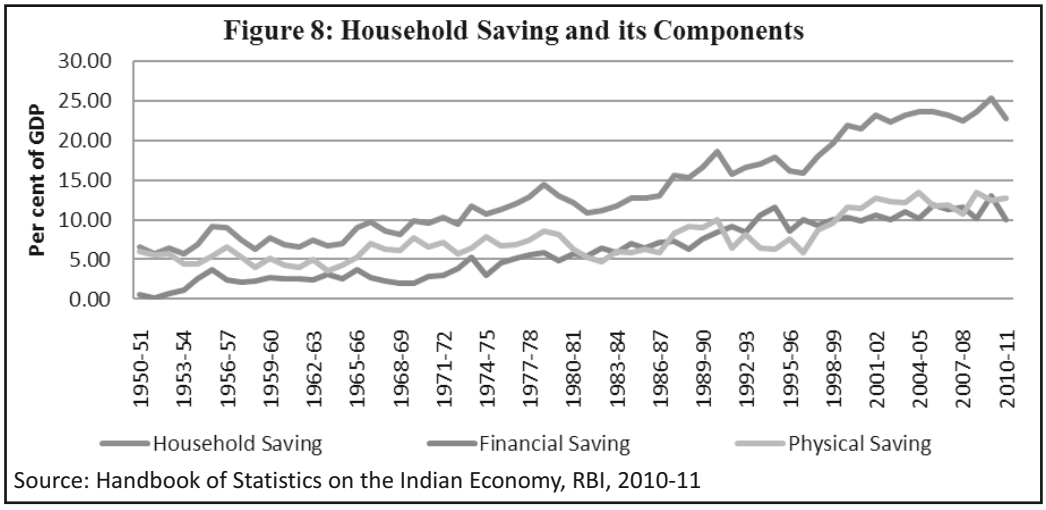


Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11

savings, contribute more (see Table 2 and Figure 7). A notable feature of the Indian macroeconomic story is that household savings have been continuously and consistently increasing since independence. During the 1950s, household savings' contribution to the gross domestic savings was only 7%, which further increased to 13.18% in 1980s, and became 18.5% in 1990-91. Again, the household savings increased to 21.05% and 23.46% during the period from 1997-98 to 2003-04 and 2003-04 to 2010-11, respectively.

The private corporate savings during 1950s to 1980s were less than 2%, but it has been steadily growing over time from 1950s to 2010-11. During 1950s, private corporate savings were only 0.98%, which increased to 3.59% and 3.88% during the period from 1991-92 to 1996-97 and 1997-98 to 2002-03, respectively. However, it doubled (i.e. 7.43%) during the period from 2003-04 to 2010-11. Importantly, the consistent upward rise in private corporate savings is also another factor behind the secular uptrend in domestic savings since 1950s.

The public sector savings as percentage of GDP on an average was only 2.13% during the 1950s, which slowly and steadily increased to 4.31% during the 1970s. However, during 1980s, the public sector savings slightly fell down to 3.71% and further to 2.19 % during 1991-92 to 1996-97 and became negative (i.e. -0.33%) during the period from 1997-98 to 2002-03. However, thereafter, it rose up to 2.17% during the period from 2003-04 to 2010-11. Thus, total public savings became positive again during the period from 2003-04 to 2010-11. As a result



of which, domestic savings increased from 24.58% during 1997/98- 2002/03 to 33.09% over the period from 2003-04 to 2010-11. *Thus, the consistent upward trend in India's gross domestic savings since independence is because of the continuous and steady rise in household savings and private corporate savings.*

The continuous uptrend in household savings (which constitutes financial savings and physical savings) was strongly related with consistent rise in financial savings since independence. Household financial savings have been steadily rising since independence, but these lagged behind the physical savings from 1950s up to 1980s (see Table 2 and Figure 8). Household financial savings during 1950s were only 1.84%, which steadily increased to 6.52% in 1980s, which further increased to 9.74% over the period from 1991-92 to 1996-97. During 1997-98 to 2003-04, the household financial savings slowly rose up to 10.01% and further to 11.13% during the period from 2003-04 to 2010-11.

Household physical savings during the 1950s up to 1980s were more than the household financial savings. The household physical savings during 1950s were 5.25%, which increased to 7.15% during 1970s, but it declined to 6.66% during the 1980s. The household physical savings during 1991-92 to 1997-98 slightly increased to 6.78% ; the figure again increased to 11.04% and further to 12.33% during the period from 1997-98 to 2002-03 and 2003-04 to 2010-11,respectively. However, after 1991-92 to 1996-97, household physical savings were more or less equal with the financial savings and grew at the rate between 10-12% during the period from 2003-04 to 2010-11.

Therefore, it is clearly evident that the consistent rise in household financial savings is the main cause for the consistent uptrend in household savings, which is the major contributor to the gross domestic savings.

↳ **Facts Behind the Consistent Rise in Household Financial Savings and Private Corporate Savings :** The persistent uptrend in both household savings (which is strongly associated with a consistent rise in household financial savings) and private corporate savings are the major contributor to the gross domestic savings. The facts behind the consistent rise in both household financial savings and private corporate sector savings are discussed below.

The phenomenon of household financial savings outperforming physical savings, and thereby, the consistent rise over time after 1990 could be attributed to increased financial intermediation, enlarging and diversification of the financial system with a spacious spread of accessible financial assets, higher rates of returns on household financial savings, the choice of households for less risky bank deposits, contractual savings, and small savings instruments. Financial intermediaries played a crucial role in the process as they provided savers an array of portfolio choices with diverse maturities and dissimilar risks. As they function on scales which facilitate pooling of independent risks, they have been able to raise and apportion savings more efficiently. This has assisted in raising aggregate savings and investments in the economy as is manifested in steadily rising financial savings

Table 3. Share of Components of Household Financial Savings (in %)

Year	1970s	1980s	1990-91	1991-92 to 1996-97	1997-98 to 2002-03	2003-04 to 2010-11
1	2	3	4	5	6	7
Currency	13.9	11.9	10.6	10.8	8.6	10.5
Bank deposits	45.6	40.3	31.9	33.1	38.7	46.7
Non-Banking Deposits	3.0	4.6	2.2	9.4	2.4	0.7
Life insurance fund	9.0	7.5	9.5	9.5	13.2	18.7
Provident Fund	19.6	17.5	18.9	17.6	19.0	11.5
Claims on Government	4.2	11.1	13.4	7.1	15.0	8.1
Shares & Debentures	1.5	3.9	8.4	8.3	3.7	3.8
Unit of UTI	0.5	2.2	5.8	5.0	0.1	-0.4
Trade Deficit (Net)	2.7	0.9	-0.8	-0.8	-0.7	0.5
Total Financial Saving	100.0	100.0	100.0	100.0	100.0	100.0

Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11.

since the 1970s. Contractual savings like life insurance funds, provident, and pension funds emerged as important financial assets in the household financial sector's portfolio (see Table 3). Contractual savings account for the second largest share in financial savings after deposits, as instruments of savings. It can also be argued that the sharp rise in national savings following the nationalization of banks and vigorous branch expansion beginning in 1969 was spurred by a rapid growth in financial savings in the 1970s.

Private corporate savings have also been steadily increasing over time since 1950s, which is also another cause for sustained increase in domestic savings and investments. The profit after tax, investment opportunities, availability of external funds, and cost of equity are the major determinants of sustained increase in corporate savings in India. The corporate sector savings were much higher during the period from 2003-04 to 2010-11 because of the reduction in corporate tax from 45% in 1992-93 to 30% by 2005-06. Income tax during that time was also reduced. The customs duty on non-agricultural goods also gradually reduced from 150% in 1991-92 to 10% in 2007-08. As a result of this, the corporate sector savings increased tremendously during the period from 2003-04 to 2010-11.

Importantly, it is worthwhile to mention that the economic growth of India is largely hinged upon the availability of domestic savings. Household savings is the main contributor to the gross domestic savings. *The consistent upward trend in India's gross domestic savings since independence is because of the consistent rise in household savings, household financial savings, and private corporate savings (see Figure 9).*

(3) Trends in Gross Domestic Capital Formation (GDCF) and its Components : Turning to investment, the gross domestic investment has also continuously increased from an average of 11.3% to 20.4% during the 1980s and it further rose up to 23.5 % during 1997-98 to 2003-04 and reached a value of 34.26% during the high growth period, that is, from 2003-04 to 2010-11 (see Table 4).

The relative contribution of households, private corporates, and public sector have changed considerably in the period under consideration (see Table 3 and Figure 10). *The increase in the overall investment rate during 1950s to 1980s was driven mainly by increases in public investments.* The public investments rate improved from 4.6% in 1950s to 11.1% in 1980s, and a (nearly) doubling of the investment rate from 11% to 20.4% took place in the 1980s. However, after that, it declined to 9.15% and further to 7.19% during the period from 1991-92 to 1996-97 and 1997-98 to 2002-03, respectively. However, it got momentum after 2002-03 and reached at 8.32% over the period from 2003-04 to 2010-11. *However, the rise in the investment rate from the 1980s up to 1996-97 can be attributed mostly to an increase in private corporates and household investments.*

Private corporate investments were also less than 2% during the 1950s, which slightly increased to 2.8%

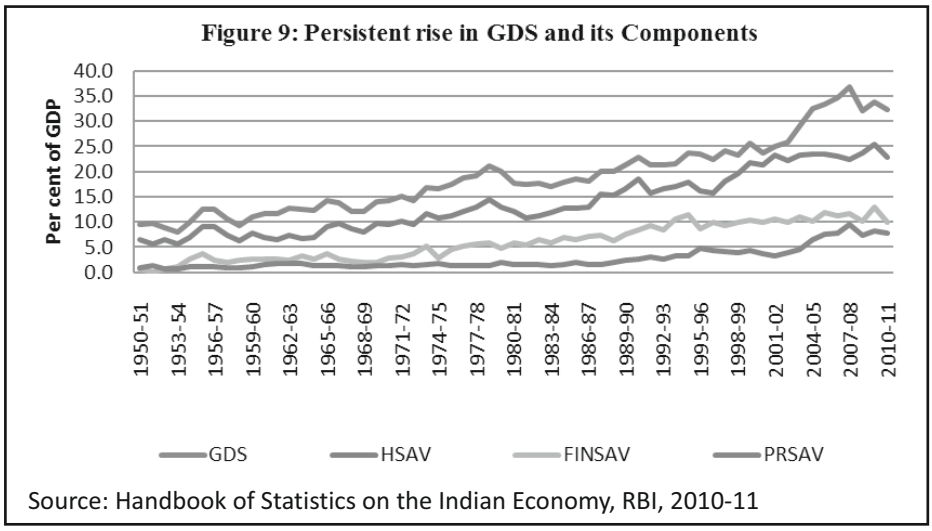
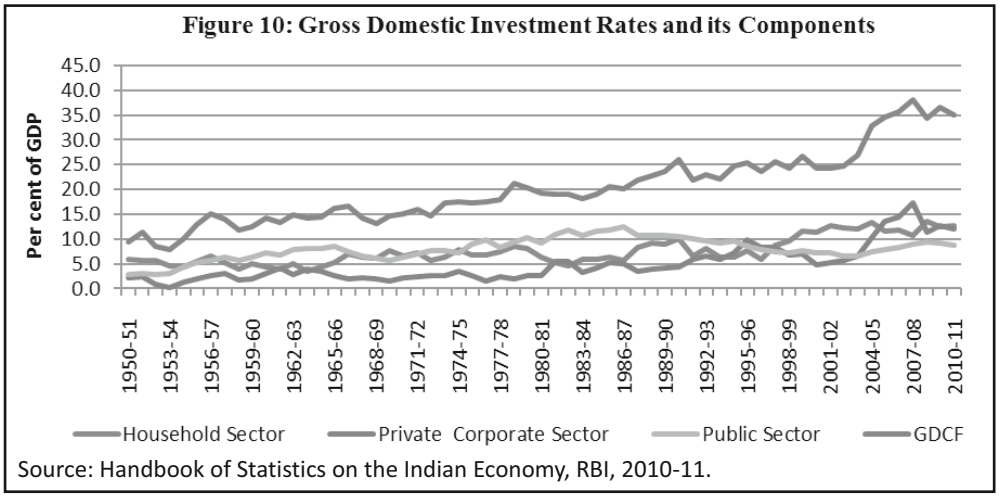


Table 4. Gross Domestic Capital Formation and its Components as a % of GDP, 1950-2011

Years	1950s	1960s	1970s	1980s	1990-91	1991-92 to 1996-97	1997-98 to 2002-03	2003-04 to 2010-11
1	2	3	4	5	6	7	7	8
Household	5.3	5.4	7.1	6.7	4.4	6.8	11.0	12.3
Private Corporate	1.8	2.8	2.4	4.3	14.3	14.1	-5.0	12.8
Public	4.6	7.2	8.3	11.1	10.6	9.1	7.2	8.3
GDCF	11.3	14.6	17.5	20.4	26.0	23.5	25.0	34.3

Source: Handbook of Statistics on the Indian Economy, RBI, 2010-11.



during the 1960s, but slightly declined to 2.4% during the 1970s. However, after that, these investments got momentum in 1980s, when these were only 4.3%, and suddenly rose up to 14.1% during 1991-92 to 1996-97. Thereafter, these fell down and became negative, that is, -5.0% during 1997-98 to 2002-03. However, these recovered and rose up to 12.8% during the period from 2003-04 to 2010-11, which was the period of high growth surge.

During the period from 1997-98 to 2002-03, the overall investments were mainly enabled by the increase in household investments. During this period, the public investment rate fell down from 9.1% to 7.2%, and the

investment rate of the private corporate sector was negative, while the savings from the household sector increased from 6.8% during 1991-92 to 1996-97 to 11% during the period from 1997-98 to 2002-03. *Again, during the period from 2003-04 to 2010-11, the gross domestic investment rose up to 34.3%, which was due to a simultaneous increase in investment rate of households, private corporates, and the public sector*, although the private corporate sector investment rate was much higher as compared to the other two. Private corporate investment increased from negative (-) 5% to 12.8% during that period (i.e. 2003-04 to 2010-11).

It was because the economic reform process created a policy environment that was more conducive for more efficient entrepreneurial activity. The corporate tax rate steadily reduced to 30% by 2005-06 from 45% in 1992-93. Gradually, the custom duty on non-agricultural goods was reduced to 10% in 2007-08 from 150% in 1991-92. Monetary policy also contributed to a sustained moderation in inflation leading to a reduction in nominal interest rates. There was an overall reduction in the debt equity ratios of the corporate sector due to the financial restructuring of firms. The corporate sector's competitiveness and profitability were also enhanced by the reduction in debt servicing costs. Due to the improvement in corporate financial performance, the private sector savings rate doubled from 3.88% in 2001-02 to 7.43% in 2010-11, and the private sector investment also recovered from negative (i.e. -5%) during the period from 1997/98 -2002/03 to 12.8% during 2003-04 to 2010-11.

India's Comparative Savings and Investment Performance

In Tables 5 and 6, India's savings and investment performance during 1960-2011 is compared with other developing nations for which data are readily available. It is evident that savings performance of India was superior to that of many other developing countries in 1960s. Interestingly, India's saving rate at that time (13.7%) was much higher than that of Indonesia, Korea, and Singapore, and only slightly lower than that of Malaysia and Thailand. In the 1970s, the increase in the savings rate of India continued to lag behind that of all these 'High Performing Asian Economies' (HPAEs). By the mid-1990s, India's savings rate (22.8%) amounted to a little over the average rate for the HPAEs. India's performance among the South Asian countries has continued to be impressive, apart from some notable catching-up by Sri Lanka, following the market oriented policy reforms in the late 1970s. In Latin America, only two countries - Venezuela and Panama- have maintained consistently superior savings records as compared to India during this period. Countries like Argentina, Brazil, Mexico, and Peru, which had higher savings rates than India in the 1960s to 1980s, ended up with lower or comparable rates in the mid-1990s.

During the period from 1997- 2002, India's savings rate was better than that of the other South Asian countries such as Pakistan, Sri Lanka, and Bangladesh. However, the savings rate of India consistently lagged behind the East Asian countries during the same period. India's savings rate was higher than all other Latin American countries except Venezuela and Panama. During the period from 2003- 2011, the savings rate of India was quite comparable to East Asian countries and was much higher than the savings rate of other South Asian countries. India's savings rate crossed the savings rate of all Latin American countries except Venezuela. In general, India's savings performance has been consistently superior to that of the overall Latin American and other South Asian countries, and now can be compared to the savings rate of the East Asian economies. Beneath these general patterns, there are large, inter-country differences, presumably including differences in demographic structure, national cultures, taxation policies, and the overall macroeconomic climate.

The overall inter-country patterns in investment performance and India's relative investment performance are remarkably similar to the patterns observed above relating to savings performance. Generally, countries with increasing savings rates also have increasing investment rates. These similarities are consistent with the Feldstein-Horioka proposition that, as against the popular perception about rapid globalization of capital, domestic investment is fundamentally determined by domestic savings (Feldstein & Horioka, 1980). This is because gross international flows of funds are often part of offsetting transactions that leave no net transfer of

Table 5. Gross Domestic Savings (% GDP) for India and Selected Developing Countries, 1960-2011

Countries	1960s	1970s	1980s	1990-96	1997-02	2003-11
South Asia						
India	13.7	17.5	20.2	22.8	23.7	30.8
Pakistan	9.9	8.2	8.3	15.3	15.4	13.2
Sri Lanka	12.4	13.7	12.9	14.8	17.4	16.7
Bangladesh	8.4	1.9	7.7	12.1	16.9	17.5
East Asia						
China	_	30.4	35.4	41.2	39.9	49.7
Hong Kong ,China	24.2	30.8	33.6	32.8	30.7	31.0
Singapore	-3.6	29.1	42.4	47.8	47.0	49.6
Korea, Rep.	8.6	22.1	30.9	36.3	34.1	31.6
Thailand	18.7	22.3	26.5	35.5	32.8	32.0
Indonesia	8.0	25.0	31.6	32.0	28.1	31.3
Malaysia	21.7	27.1	30.2	38.1	45.0	42.2
Latin America						
Paraguay	12.6	18.7	19.7	14.3	11.5	13.6
Venezuela, RB	34.2	37.8	25.0	24.4	32.4	35.3
Costa Rica	13.6	15.3	17.1	14.2	18.2	18.5
Brazil	19.8	20.8	23.4	19.6	16.0	19.5
Mexico	16.8	21.3	25.7	20.4	21.6	23.2
Peru	33.3	17.6	25.8	17.1	18.2	25.7
Colombia	18.9	19.4	20.3	20.1	13.9	19.3
Chile	17.4	16.8	19.0	26.7	23.4	29.3
Dominican Rep.	10.7	15.8	14.9	13.8	14.6	9.4
Argentina	22.5	27.2	22.4	17.1	18.1	26.7
Ecuador	8.4	15.3	17.5	21.1	21.1	22.4
Jamaica	26.4	18.2	16.3	21.6	13.6	4.6
Honduras	14.7	16.9	14.1	24.1	18.3	6.3
El Salvador	11.9	16.6	6.9	2.9	2.9	-3.4
Panama	_	_	28.6	28.2	25.4	29.8
Uruguay	18.6	17.9	16.8	16.1	12.9	19.1
Bolivia	_	17.5	14.0	9.6	9.8	20.6
Guatemala	9.8	14.7	9.9	9.1	8.2	3.9
Nicaragua	15.1	15.7	5.2	-0.9	11.8	6.5

Note: The - means data not available

Source: Compiled from World Bank's World Development Indicators Database.

capital from one country to another. Even though most of the legal barriers to capital mobility across these countries no longer exist, capital markets in these countries remain essentially segmented along national lines. Capital may be free to move internationally, but its owners and managers prefer to keep almost all of each nation's savings at home (Feldstein, 1983).

The Fieldstein-Horioka proposition is based on the experiences of the OECD countries. Presumably, it is even

more relevant for developing countries where capital markets remained relatively underdeveloped and far less integrated with OECD capital markets. Moreover, there are significant differences among developing countries with regard to the restrictiveness of the policy regimes relating to capital account transactions.

Behind this overall similarity between savings and investment patterns, significant differences can be observed across countries in terms of the degree of reliance on the net foreign capital inflows (foreign savings) domestic

Table 6. Gross Domestic Investment Rate for India and Selected Developing Countries, 1960-2011

Countries	1960s	1970s	1980s	1990-96	1997-02	2003-11
South Asia						
India	15.4	17.9	22.1	23.5	25.0	34.6
Pakistan	17.5	16.0	18.7	19.4	17.0	18.4
Sri Lanka	15.4	17.5	26.2	24.6	24.8	26.5
Bangladesh	10.6	9.1	16.5	18.1	22.3	24.4
East Asia						
China	20.9	30.5	36.0	39.8	36.8	44.5
Hong Kong , China	26.1	25.1	27.8	29.6	27.4	22.2
Singapore	19.7	39.6	40.9	34.2	30.4	22.0
Korea, Rep.	18.9	28.3	30.4	37.7	29.8	29.4
Thailand	20.5	25.8	29.4	41.2	24.2	26.8
Indonesia	9.7	21.6	28.6	30.8	21.0	27.7
Malaysia	17.3	22.9	27.8	38.7	28.0	22.3
Latin America						
Paraguay	14.9	21.4	25.4	24.7	21.0	18.4
Venezuela, RB	24.2	34.4	21.5	17.2	26.3	23.9
Costa Rica	18.7	23.6	19.6	18.8	19.2	22.6
Brazil	19.7	22.9	21.0	19.2	17.2	18.1
Mexico	18.9	22.6	22.3	22.3	23.2	24.8
Peru	35.2	20.2	25.7	20.0	21.1	21.8
Colombia	19.2	18.7	19.4	20.8	17.0	21.7
Chile	17.9	17.9	18.5	25.3	23.6	22.6
Dominican Rep.	14.2	22.0	22.6	19.0	21.7	16.6
Argentina	22.3	26.0	19.9	17.2	16.6	21.3
Ecuador	12.2	19.2	20.2	20.2	22.1	24.4
Jamaica	29.0	23.7	21.5	27.6	28.2	24.6
Honduras	16.0	21.4	18.0	29.6	29.4	27.8
El Salvador	14.4	19.3	12.9	17.3	16.5	15.4
Panama	_	_	18.1	24.0	22.7	23.1
Uruguay	17.5	19.6	14.9	15.0	15.2	18.9
Bolivia	_	19.5	15.3	15.3	18.5	15.4
Guatemala	11.5	17.0	13.3	15.3	17.7	17.7
Nicaragua	18.6	17.6	21.4	21.2	32.6	27.6

Note: The - means data not available

Source: Compiled from World Bank's World Development Indicators Database.

capital formation. In India, for instance, the difference has varied in the narrow range of 1% to 3% over the study period. Interestingly, there has not been any noticeable increase in the share of net foreign capital inflow in the domestic investment rate. By contrast, for most countries in Latin America as well as for Pakistan and Bangladesh, the magnitude of the difference between the two ratios are much larger, ranging from 5% to 10% points of GDP.

In sum, in all the countries considered here, domestic investment is predominantly determined by domestic savings (Athukorala & Sen, 2002 ; Narayana, 2005). The relationship between two ratios is particularly strong for India, reflecting the restrictive capital account regime (which has changed only marginally even after the 1991 policy reforms).

Policy Implications

The present study comes out with certain useful policy implications. At lower savings rate, economic growth is low and at higher savings rate, economic growth is also high in India. The procyclicalityof savings is also confirmed in the Indian context. Furthermore, the famous Feldstein-Horioka proposition also validates for all countries taken for analysis. This study brings evidence against the popular perception about globalization of capital and agrees with the Feldstein-Horioka proposition that domestic investments have been continuously financed by domestic savings. Hence, policies should be framed in such a way so as to encourage domestic savings, which, in turn, will be useful in achieving the national objective of sustained economic growth. Furthermore, as among the consistent contributors to domestic savings such as household savings, financial savings, private corporate savings, household savings' share is more, and the deficit public and private sectors draw on household savings to meet their investment requirements and finance the resource gaps. Hence, a two pronged approach with incentive-based measures to induce the motivation to save and the productivity-based measures to increase income and strengthen the capacity to save would be useful to generate higher savings and reinforce the acceleration of income and growth.

Conclusions

There has been an overall increase in savings and investment rates in India during the post-independence period, though with considerable fluctuations from year to year from less than 10% to over 30%. Domestic investment has been mostly financed through domestic savings. The contribution of foreign savings has remained less than 5% throughout the period. The consistent upward trend in India's gross domestic savings since independence is because of the consistent rise in household savings, household financial savings, and private corporate savings. Household savings contribution in gross domestic savings is the highest among all its constituents. Public savings persistently declined since 1970s and became negative during 1996-97 to 2002-03, but increased slightly during the period from 2003-04 to 2010-11.

The relative contributions of the private corporate and public sector to gross domestic capital formation have changed considerably over the years. From 1960s to 1980s, the public sector accounted for much of an increase in the gross domestic investments. From then, private investments have dominated the overall investment trends in the economy. The increase in the gross domestic investments during 2003-04 to 2010-11 came mostly from a rapid rise in private corporate investments.

In an international comparison, in 1960s, India had high savings investment rates as compared to many other developing countries, including the present-day high-performing East Asian economies. From 1970s, India has continuously lagged behind the latter countries. India's savings and investment performance has continued to remain impressive among developing countries in South Asia and to a lesser extent, among those in Latin America. Overall, savings and investment patterns across countries are consistent with the famous Feldstein-Horioka proposition that, as against the popular perception about rapid globalization of capital, domestic

investments have continued to be determined overwhelmingly by domestic savings. Among the countries covered in the comparison, India has one of the lowest degrees of reliance on net foreign capital inflows for financing domestic capital formation.

Limitations of the Study and Scope for Further Research

The present study mainly discusses the trends in savings, investments, and growth in India and compares the saving-investment performance of India with East Asia, South Asia, and Latin American countries. The other issues relating to the direction of causality, determinants of savings and growth were also in our mind. Hence, as a preliminary study, we limited our objective to analyzing the trends and patterns of savings, investments, and economic growth in the Indian context. The other issues discussed above can be studied by researchers in future studies.

Notes

[1] Samantaraya (2007) highlighted about the procyclicality behavior of bank credit and economic growth in the Indian context in which he observed that during the periods of boom, the growth of bank credit accelerated and decelerated during an economic slowdown.

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