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Introduction

Saving is the process of setting aside a portion of current income for future use, or the resources accumulated in this way over a given period of time. Saving is a decision towards not to spend the entire holdings of money now, so that it can be reserved for the future. Saving money is essentially a process for achieving both small and large financial goals, since "a penny saved is a penny earned".

Saving is defined as the act of abstaining from current consumption. It is the excess of disposable income over expenditure on the final consumption of goods and services. It is also the first of the three sequential acts of capital formation, the subsequent two being *finance* and *investment.*

Saving is not merely a residual of unspent income but a regular feature of positive action. How much individuals save is affected by their preferences for future over present consumption and their expectations of future income. If individuals consume more than the value of their income, then their saving is negative and they are said to be dissaving. Individual saving may be measured by estimating disposable income and subtracting current consumption expenditures. A measure of business saving is the increase in net worth shown on a balance sheet. Total national saving is measured as the excess of national income over consumption and taxes.

1.1 Importance and Role of Savings

Savings are inevitable for a nation's growth. Savings play a crucial role in capital formation which is the engine of economic growth. An understanding of the behaviour of savings is important for the study of economic growth and development and also for the formulation of economic policies.

Saving is essential for keeping pace with the growing world. It is needed to maintain the existing capital stock and to make sure that the capital stock grows in proportion

to the growing population. Also, increased saving may be needed to reduce a country's dependency on foreign capital and foreign ownership of domestic assets.

Lewisian theory suggests that *"the central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 percent of its national income converts itself into an economy where voluntary saving is running about 12 to 15 percent of the national income or more"*. Lewis viewed saving transitions as the key to economic development. Countries with the most successful growth records in the post-war period have indeed gone through saving transitions.

Saving is an important macro-level policy variable. It is not in isolation. Saving is an interactive variable, sharing dynamic relationship with other equally important macro variables in the economic system. There is a two-way dynamic relationship between savings and macro economic variables. Saving influences a variety of macro variables and in turn gets influenced by them.

Saving has various dimensions to it. It is important for taking care of current transactions and payments, for making investments and speculative gains, and for precautionary considerations. Saving decisions are driven by several other motives too, like the need to build up assets to finance consumption after retirement, the desire to leave bequests to a subsequent generation, and saving for acquisition of tangible assets. Saving for retirement is generally considered quantitatively the most important saving motive. In addition to these, there is also a long-term development motive attached to savings. Savings are needed for long-term investments and infrastructure development which serve as the base for rapid economic growth.

1.2 Behaviour of Savings in India

- *Saving Rates*

The Indian savings has experienced an overall rising trend. The saving rate has grown out of a low of 8.2 percent in 1953-54 to as high as 28.1 percent in 2003-04.

However, the rise in the saving rate has not been very smooth. It has witnessed high fluctuations in the entire era of the planned economy.

At the commencement of planning in India in 1950-51, the Gross Domestic Savings [GDS] as a percentage of GDP at current market prices was 10.4 percent but bottomed down to 8.2 percent in 1953-54, which incidentally turned out to be the lowest ever saving rate in the post-planning period. On an average, the saving rate was around 10.0 percent in the fifties which went up marginally to 12.7 percent in the sixties. The saving rate experienced a rising trend [though in spurts] until the later half of the seventies and touched a peak of 23.2 percent in 1978-79. There were marginal declines in the saving rate until the mid-eighties with the saving rate averaging at 19.4 percent in the eighties. Coinciding with the reforms in the nineties, the saving rate increased but was accompanied with lots of fluctuations. The average saving rate during this decade had increased to over 23.0 percent. The early 2000s witnessed a sharp rise in the saving rate peaking at 28.1 percent in 2003-04. The average saving rate for the period 2000-01 to 2003-04 stood at 25.3 percent.

The Gross Domestic Saving is the sum total of savings in the Household Sector [HHS], Private Corporate Sector [PCS] and Public Sector [PS]. The household sector is the predominant source of gross domestic savings. Household sector saving has risen from a low of 6.1 percent of GDP in 1952-53 to as high as 24.3 percent of GDP in 2003-04.

Private corporate savings have been quite low moving around 0.6 percent to 2.1 percent of GDP in the gap of four decades from 1950s to the late 1980s. Then onwards, there has been an upward trend in private corporate savings with its saving rate surpassing the public sector saving rate.

During the same period, from 1950s to 1980s, the public sector saving rate has ranged between 1.2 percent and 4.5 percent. Till the late 1980s, public sector savings have been higher than the private corporate savings. The trend got reversed then after. The public sector started dissaving by 1998-99 with increasing dissavings over the subsequent years.

As the household sector is the largest contributor to the national pool of savings, it needs further investigation. Households allocate their savings between physical assets and financial claims. Household physical saving rate has increased from 5.0 percent in 1954-55 to 13.0 percent in 2003-04. The growth in household financial saving rate has been tremendous, rising from 0.1 percent in 1951-52 to 11.9 percent in 1994-95. The rate of household physical savings has been higher than that of household financial savings up till the mid-eighties. But then onwards, for fifteen years, the trend got reversed with the household financial saving rate rising above the household physical saving rate.

Household financial saving consists of currency holdings of the public; deposit holdings of banks and non-bank companies, life insurance fund, provident and pension fund, units of the unit trust of India and other financial institutions, claims on government consisting of net purchases of bonds and small saving assets by households, and the purchases of shares and debentures by households.

A closer view at the behaviour of household financial saving instruments reveals that all the financial saving assets have shown an upward trend. The average saving rate of currency has almost doubled from 0.6 percent in the seventies to 1.1 percent in the nineties. The rate of deposits has also doubled from an average of 1.6 percent in the seventies to 3.2 percent in the reform period. Deposits were particularly high in the later part of 1970s as a fall out of bank nationalization in the economy. Shares and debentures have increased manifold from a miniscule rate of 0.1 percent to 1.3 percent, during the same period. The saving rate of shares and debentures shot up in the early nineties mainly on account of the stock market boom. Claims on government securities which were negative in the early years of 1970s started climbing upwards with its average saving rate increasing to 1.1 percent by the nineties.

Saving in life funds and provident and pension funds have also exhibited major improvement in their saving rates. Both of these financial instruments have doubled over the last three decades. Average saving rate in life funds increased from 0.5 percent to 1.2 percent whereas that in provident and pension funds rose from 1.3 percent to 2.4 percent. The rise in saving in provident and pension funds is

particularly visible in the second half of nineties, possibly in response to the financial sector reforms introduced in this period.

➢ *Composition of Savings*

Apart from the volume and rate of savings, the composition of savings is equally important. The household sector contributes a lion's share in gross domestic savings with an average share of 75.0 percent during the planning period. The second important source of gross domestic savings is the public sector with an average contribution of 13.5 percent. The proportion of private corporate sector savings in GDS is the lowest at 11.0 percent. The rise in savings in the household sector is concurrent with gradual rise in private corporate sector savings and deterioration in public sector savings.

The composition of household saving has undergone a major change over the decades. Historically, physical saving was the dominant component of household sector savings contributing over 90.0 percent towards household savings. Over the years, the composition of household saving witnessed a gradual shift from physical to financial savings. There has always been a close margin between the shares of financial assets and physical assets in household savings. Household physical savings were higher than financial savings till the eighties. The nineties witnessed subtle changes in household saving composition with each contributing nearly the half of household savings. In the nineties, the average saving in financial assets at 54.4 percent was almost 20.0 percent higher than that in physical assets. However, the trend reversed then after with physical savings contributing over 50.0 percent to total household sector savings.

The composition of household financial saving has changed in favour of non-contractual savings. The average share of contractual savings in financial savings has fallen from around 43.0 percent in the 1950s to 27.0 percent in the 1980s. Within non-contractual savings, there has been a gradual shift from currency holdings to deposits and from deposits to shares and debentures.

The share of currency in household financial savings has fallen from around 13.0 percent in the seventies to around 10.0 percent in the nineties while deposits declined from over 48.0 percent of household financial savings to 41.0 percent only. The meagre 1.5 percent contribution of shares and debentures in household financial savings has shown an impressive growth to 7.0 percent during the three decades.

The average proportion of claims on government securities and other assets in financial savings has moved up and down over the three decades. It increased from 7.5 percent in the 1970s to over 12.0 percent in the 1980s but then declined to 8.5 percent in the 1990s. The initial years of the current decade however witnessed an impressive growth in claims on government securities with its share doubling to 17.7 percent.

The main highlights of saving behaviour in India in the post-planning era are:

1. The gross domestic saving rate in India has witnessed an uneven upward trend over the decades.

2. Household sector is the largest contributor to the national pool of savings.

3. Private corporate sector has been saving very low.

4. Public sector saving has been falling with increasing dissaving over the years.

5. The rise in private savings is concurrent with increase in dissavings in the public sector.

6. The household sector saving has witnessed a shift from physical to financial saving assets.

7. There has been a marked shift from savings in contractual to non-contractual instruments in the household sector savings.

8. Non-contractual savings experienced a shift from currency holdings to deposits and from deposits to shares and debentures.

9. Deposits appear to be the most important instrument of Indian savings.

➢ *International Comparison*

The gross domestic saving rates across countries reveal tremendous difference in the cross-country saving behaviour. The developing countries have experienced higher saving rates in comparison to the developed countries. U.S.A. and U.K. have one of the lowest saving rates at 13.5 and 14.4 percent respectively. The gross domestic saving rate of Japan [26.0 percent] is still comparable to some of the East Asian countries [28.1 percent to 32.8 percent].

India's saving rates are quite impressive from the global perspective and compares favourably to that of other developing countries. It is however lower than the saving rates of the East Asian 'miracle' nations. Except for Indonesia, the saving rates for the miracle nations range from 22.0 percent to 44.0 percent over the decades. Although the saving rates for the five East Asian countries declined after the 1997 currency crises, they were still saving higher than India. This was a temporary setback and except Indonesia, the saving rate recovered in all other countries.

With a saving rate of over 40.0 percent, Malaysia and China are incomparable and unparallel in the history of world saving scenario. By the yardstick of these high saving nations, there seems to be considerable scope for exploiting the saving potential of Indians.

Generally, the household sector has been an important source of domestic savings among the developing nations. At least for three countries, namely China, India and Thailand, the households contribute more than half of the gross domestic savings. India is a special case for which the households are crucial saving agents with a current share of over 85.0 percent in GDS. Among the developed nations, Germany is the only country with a significant household saving share of over 50.0 percent in its gross domestic savings.

India's household saving rate is competitive to that of China's but still India falls short of China in terms of its gross domestic saving rate. It is mainly the high level of consumerism in the Indian household sector which curbs the level of gross domestic savings. Some of the developed nations such as Germany, U.K. and U.S.A.

also reveal high consumption rates by households. The latter two in fact experience low household saving rates and gross saving rates on account of their high consumption spending. Therefore, the high rate of savings in many Asian economies is primarily due to low rates of consumption spending. In these economies, economic growth has been rapid whereas consumption expenditures have not increased fast enough. As such, they tend to save the difference.

1.3 Issues

Over the span of the planning era, the Indian economy has been characterised by various features such as:

1. Low growth with wide fluctuations.
2. Structural changes - growth shifting from agriculture to industry and then to services.
3. Changing rates of inflation and interest - high inflation rates and low real interest rates.
4. Changes in demographic features - exploding population growth with falling dependency burden.
5. Mounting deficits in the budget as well as balance of payment accounts.
6. A strengthened financial sector - nationalisation of commercial banks, setting up of Regional Rural Banks [RRBs], spread of bank branches into semi-urban and rural areas and availability of diversified financial instruments.

What has been the impact of all these characteristics in the economy on the Indian savings? Does the Indian saving share a definite relationship with the macro economic variables? Are they in consistency with the existing empirical results?

Some of the most pertinent questions and issues which arise are:

1. What are the reasons for the ever changing behaviour of Indian savings?
2. Why is the Indian savings predominantly led by household sector savings?

3. What are the factors which determine the household sector saving and its components?
4. Do savings lead to growth in the case of India or is it the growth which is causing high savings?
5. To what extent do the macro economic variables influence savings?
6. How can the Indian savings be further enhanced?

These are some of the important and relevant questions from the perspective of economic growth and planning. This study makes an attempt to answer these questions in a scientific manner.

1.4 Theoretical Background and Literature Review

The theoretical as well as empirical research on savings is inconclusive about the relationship of saving with respect to the major macro economic variables. The vast literature on savings has focussed on different saving issues which have been debated and disputed theoretically and empirically. There seems to be no consensus reached on the vital saving issues raised in the literature over a period of time. The empirical findings differ from one country to another and from one period of time to another period of time.

Primarily, these studies can be classified into three broad categories. First, the studies exploring the relationship between growth and saving [Income-Saving Causality], the studies examining the influence of demographic features of a country on its savings [Life-Cycle Hypothesis] and lastly, the studies finding out the inter-relationship between saving and macro economic variables.

The present research endeavour has critically examined the literature on the dynamics of inter-relationship of saving with growth, demography and macro economic variables. A brief summary of the same is as follows.

1. Growth - Saving Causality

The close relationship between the saving rate of the economy and the growth rate of an economy is a stylised feature which has been widely discussed in a large number of theoretical reviews and empirical investigations.
The causal relationship refers to the direction of relationship between saving and growth. *Is it growth that causes saving or saving that causes growth?* A survey of causality studies focussing on the relationship between saving and growth brings out a substantial divergence of outcomes.

Saving and growth share a two-way relationship. On one hand, economic growth causes savings. Economic growth increases the propensity to save which increases the overall savings. On the other, saving appears to be causing growth. Savings give rise to capital formation or investment, known to be the engine of economic growth. Savings are invested, which through the operation of investment multiplier transforms into capital formation and higher economic growth. The interdependence of growth and saving is at the root of theories of self-generating growth and development, that is, "the virtuous circle of development."

The collective evidence from the international as well as Indian literature provides no conclusive support to any of the investigations concerning the causal links between saving and growth. The results are varied, with some supporting a link from growth to saving while others confirming the reverse causality from saving to growth. A number of researchers accept bi-directional or mutual causation between saving and growth whereas some deny any causal link between these two macro economic variables. Therefore, the debate on causality between economic growth and saving remains unresolved.

The general acceptance however, is for causality running from growth to saving as majority of the studies have arrived at a uni-directional positive causal influence from growth to saving. In the Indian case too, the causal channel from growth to saving is more universally accepted. And even if saving causes growth, it is insignificant and carries a negative sign. Only one Indian study by Sethi [1999] found the causal influence running from saving to growth, bi-directional causation,

and instantaneous causality. Some of the recent international studies such as Saltz [1999], Sinha [1999], Anoruo and Ahmad [2001] and Baharumshah et. al [2003] found growth rate of saving to cause economic growth rate in some of the countries. The issue of causal chains between savings and growth is thus complex.

2. Life-Cycle Hypothesis

According to the Life-Cycle Hypothesis, age profile of earnings is generally *bell-shaped* but the age profile of consumptions is *flat*. This implies that in one's life time, savings will be negative during the early years, positive during productive years and again negative during retirement years.

The primary concern of economists in life-cycle hypothesis is with the effect of 'dependency' on savings. Dependency ratio is often defined as the proportion of non-working population covering the age bracket [0-14 years] and the older age group [65 years and above], to the total population. The life-cycle hypothesis predicts that "the higher the share of the very young and the very old [dissavers] in the population, the lower would be the saving rate."

Dependency ratio tends to have a downward impact not only on household savings but on government savings as well. An increase in dependency ratio leads to increased expenditure by households and also by government on social security aspects. These are the *direct effects* of dependency ratio on savings.

The *indirect effect* of dependency rate on saving rate is through the growth in population. Growth in population reduces the per capita income which leads to a decline in the average propensity to save. Therefore, both direct and indirect effects have a cumulative downward impact on savings.

The empirical evidence is largely inconclusive on the nature of relationship between dependency rates and savings. A large group of economists support the hypothesis of a negative influence of dependency rate on saving rate. However, some of them support a positive impact of dependency rate on saving rate. Some of the studies

have been unable to trace any significant relationship between dependency rate and saving rate.

3. Relationship between Saving and Macro Economic Variables

Saving itself is an important macro economic variable and shares a dynamic relationship with other equally important macro economic variable. It is essential to examine its relationship, direct or vis-à-vis, with other important macro economic variables. The relationship between income [a real sector variable] and saving has already been discussed under growth-saving causality. The other macro economic variables can be divided into three broad categories:

A. Monetary Sector Variables
B. Fiscal Sector Variables
C. External Sector Variables

A. Monetary Sector Variables

The impact of two most important monetary sector indicators of the economy, that is, rate of inflation and rate of interest jointly work in influencing savings.

a. Rate of Inflation and Saving

The relationship between the rate of inflation and savings is inconclusive. There is a controversy as to whether inflation promotes savings or discourages savings. There are various theories on the nature of relationship between inflation and savings.

- ***Positive Impact***

The positive impact of inflation on savings has been explained through the following effects.

Uncertainty Effect:

One of the most prominent explanations on the positive impact of inflation on savings was given by Juster and Wachtel [1972]. This study stated that high rates of inflation create uncertainty about the future income streams. This makes the

consumers pessimistic and depresses consumer confidence. In response, risk averse consumers safeguard their future by increasing precautionary savings.

Wealth Effect:

Inflation also tends to increase savings if consumers maintain a target ratio of wealth to income. As inflation erodes the real value of financial assets, people try to recoup the desired ratio of wealth to income by increasing savings.

Price-Confusion Effect:

According to Deaton [1977], inflation may encourage savings in response to unexpected changes in inflation rate. Deaton's price-confusion effect explains that an unexpected rise in absolute prices of goods takes the consumers unaware, who are unable to differentiate the absolute price rise from a rise in relative price of goods. As a result, they postpone their consumption and savings rise.

Income Redistribution Effect:

Inflation brings about a change in the income distribution between different groups of savers having different propensities to save. If redistribution of income takes place in favour of the high saving groups, savings will rise.

- ***Negative Impact***

Substitution Effect:

Inflationary expectations bring about a substitution of nominal assets by real assets, including consumer durables. It leads to a 'flight from currency' as it becomes too expensive to hold money, with the effect that the pattern of purchases starts tilting in favour of consumer durables. Therefore, during inflationary expectations, consumption expenditure increases and savings fall.

Income Effect:

Savings fall when consumers resist cuts in consumption in the face of inflation. During inflation, if consumers try to maintain their real consumption, given the real income, the real savings will fall.

Indirect Effect:

Another reason for the downward impact of inflation on savings is that the real rate of interest falls with inflation. The administered rates of interest on deposits fail to adjust appropriately in response to inflation. This leads to financial repression in the economy causing anticipated inflation to reduce savings.

Conduit Effect of Money:

Mckinnon [1973] explained that in developing economies, money and physical capital are complementary. The return on money goes down with inflation, and so do savings and investment. Hence, the demand for money and savings in developing countries are complementary.

Despite the different theories on the relationship between inflation and savings, the studies are undecided on this issue. There is no common consensus on the nature of relationship between savings and inflation rate.

b. Rate of Interest and Saving

The rate of interest and savings relationship is examined through direct and indirect effects of interest rate on savings.

➢ ***Direct Effects***

The direct impact of a change in the real rate of return on savings is felt via the *income effect* and the *substitution effect.* For a net lender, higher interest rates encourage present consumption and reduce the need for savings in order to finance future consumption. Therefore, the income effect of a change in the real interest rate on saving is negative. On the other hand, an increase in the real rate of interest induces people to postpone their consumption and increase savings. Therefore, a substitution of current consumption in favour of current savings takes place. The substitution effect of interest rate on savings is thus positive.

➢ *Indirect Effect*

The indirect impact of *interest* rate on savings has been explained in terms of the *revaluation or wealth effect.* A higher real interest rate results in a fall in the real value of human wealth [labour income] and non-human wealth [financial assets and equities]. To maintain the real value of assets, people reduce current consumption and start saving more. The revaluation effect is also positive.

The total effect of a change in the real interest rate on savings is however ambiguous as it depends on each of the three effects [income effect, substitution effect and revaluation effect] on savings.

The existing literature on rate of interest-savings relationship is inconclusive on the sign of relationship between the two. The experiences of some countries suggest that a higher real interest rate has increased savings whereas others have faced a negative influence of a rise in interest rate on savings.

Among the available literature, there is evidence of only a negligible effect of interest rate on savings. In low income countries, the response of savings to changes in interest rate was found to be very poor. Despite disagreements among researchers, the centre of the debate has moved towards "higher and positive estimates of interest elasticity of saving."

B. Fiscal Sector Variables

Government spending and taxation are two powerful fiscal instruments through which government influences private savings. The relationship between these two fiscal sector variables and saving attracts much attention from the policy makers.

a. Budget Deficit and Saving

When government expenditures are more than government receipts, there is a budget deficit or government dissaving. A positive government saving implies a budget surplus. There are different effects of government spending on private savings

depending upon whether government spending is financed by way of taxes or by incurring debt.

According to the *conventional view*, a fall in government saving is the result of tax cut or a bond-financed increase in government spending. As government spending increases, short-sighted households who care only about the present resort to higher consumption, thereby deplete their savings. They tend to shift their burden to future generations. In this way, a decline in government savings leads to a decline in private savings which cumulatively have a downward impact on national savings.
If government spending is financed by incurring debt, it simply implies higher future taxes for people with the present value equal to the value of debt. People expect higher taxes in the future in order to repay the principal as well as the interest. Therefore, rational individuals realise that a rise in government spending today must be paid for either now or later. The timing of the tax makes no difference. Hence, they start saving more which raises the overall private savings alongside a fall in government savings.

The *Keynesian view* suggests that higher temporary government dissavings encourage private sector consumption. In the presence of underutilized production capital in the economy, an increase in aggregate demand stokes higher income through the operation of the multiplier effect. Hence, private sector income and savings will increase.

To what extent the rise in private savings will offset the initial decline in government savings is however ambiguous.

b. Taxation and Saving

The tax policy seems to have a dual impact on savings, more importantly, private savings. A rise in tax rate reduces the disposable income and hence the savings, if consumption is maintained. Another impact of tax on savings is felt because of the social security aspects of the government. If taxes are used to finance social security benefits for masses, people feel secured about their future income and start saving less.

Tax also influences savings positively. There are various tax incentives and tax shelters offered by the government from time to time. These tend to enhance private savings.

Studies on tax-savings relationship have arrived at diverse results with some supporting the negative impact of taxation on savings, others confirming the positive reaction of private savings to tax policies, and few others who find tax increases to be an inefficient means of raising savings.

C. External Sector Variables

A review of literature on savings suggests that across the nations, the relationship of domestic savings with the external sector of the economy is either in contradiction to each other or inconclusive. The external sector variables that play an important role in influencing savings are export orientation, changing terms of trade and foreign capital inflows.

a. Export Orientation and Saving

The relationship between exports and savings has been explained by the *Maizels [1968] and Lee [1971] hypothesis.* Their hypothesis states that increased export orientation augments the saving rate in a developing economy. Exports have a two-way impact towards enhancing savings. On one hand, export orientation augments government revenue from export taxes and hence government savings increase. On the other, an increase in exports may increase private savings, as exporters have a relatively higher propensity to save. These are the *direct effects* of exports on savings. The former is referred to as the 'tax effect' of exports on saving.

Maizels [1968] argued that exports may also have *indirect effects* on savings by bringing about changes in income. Increases in exports may significantly influence domestic savings, resulting from a more efficient resource allocation induced by increased trade opportunities; or from the foreign trade multiplier effect; or from the educative effects of trade.

The empirical findings on the exports-savings relationship are however contradictory. A few studies find export orientation to be an insignificant explanatory variable of savings while some support a negative impact of exports on savings. However, at large the studies confirm a systematic positive influence of exports on savings.

b. Terms of Trade and Saving

When trade takes place between two open economies, certain goods are offered for sale by both countries. The physical exchange ratio at which goods are exchanged for one another between these countries is termed as 'terms-of-trade'. It is also expressed as the relationship between prices of exports and prices of imports.

The conventional hypothesis on the terms-of-trade and savings relationship was proposed by Harberger [1950] and Laursen and Metzler [1950]. The *Harberger-Laursen-Metzler [HLM] effect* implies an increase in savings with an improvement in terms-of-trade and a fall in savings with deterioration in terms-of-trade. According to Sachs [1981], the positive relationship between terms-of-trade and savings is true only when the shocks to terms-of-trade are temporary. The effect of permanent shocks to terms-of-trade on savings is however ambiguous.

Another explanation on the terms-of-trade and savings relationship suggests a negative influence of terms-of-trade on savings. When an economy suffers a terms-of-trade deterioration, the real wealth is lowered. In order to converge to the target level of wealth, it must increase savings.

Economic theory as well as empirical evidence on the nature of relationship between terms-of-trade and savings is ambiguous. Majority of the empirical studies suggest a significant and positive effect of terms-of-trade changes on savings. The studies by Obstfeld [1982], Macklem [1990] and Athukorala and Sen [2001] found a negative relationship between terms-of-trade and savings.

c. Foreign Capital Inflows and Saving

In the economic literature, the relationship between foreign capital inflows and domestic savings has received considerable attention. There is a debate on the effect of foreign capital inflows on domestic savings. The main focus of these researches has been to find out whether foreign capital inflows and domestic savings are complements or substitutes.

Most of the earlier economists adopted the *complementary hypothesis*. They suggest that foreign capital inflows are exactly additive to domestic savings in the national economy. Foreign capital inflows tend to boost domestic savings. This line of thought was however opposed by others who supported the *substitution hypothesis.* According to the substitution hypothesis, foreign capital inflows would slacken domestic savings as foreign capital receipts are used partly to finance consumption and only partly for increasing investment.

Some economists also hold the extreme view that there is no increase in savings and hence in economic growth from the inflow of foreign resources.

The literature is varied and opposed on the views regarding the relationship between foreign capital inflows and domestic savings. Although there is a strong conflict between the economists, one supporting the substitution relationship and the other the complementary link between foreign capital inflow and savings, the more commonly accepted proposition is that of a 'substitute relationship' between foreign capital inflow and domestic savings.

1.5 Objectives of the Study

The main objective of this research endeavour is to empirically analyse the behaviour of Indian savings for the time period 1950-51 to 2003-04 using econometric techniques and models, identify the important factors influencing Indian savings and find out the policy options to enhance the Indian savings further.

The present study makes a sincere attempt to explore the answers to the issues raised above. The specific objectives of the present study are:

1. To carry out a systematic analysis of the behaviour of Indian savings and its changing composition in the planned economy.

2. To explore the causes responsible for the uneven growth in savings in India.

3. To identify the determinants of household sector savings and test the empirical relationship between the household sector saving and its determinants using econometric techniques and analysis.

4. To test for Growth-Saving Causality and explore the answers on the unsettled issues therein.

5. To examine the Life-Cycle Hypothesis in the case of India.

6. To find out the nature and degree of inter-relationship of saving with important macro economic variables:

    i. Monetary Sector Variables
    ii. Fiscal Sector Variables
    iii. External Sector Variables
    iv. Real Sector Variables

7. To derive relevant policy inferences and options.

1.6 Methodology

a. *Study Approach*

The present study is based on time series analysis. There are four major issues to be dealt with. These issues are empirical in nature. First is the growth and behaviour of savings in the country. Second is the causal relationship between saving and growth. The third issue is the nature of interaction between saving and macro economic variables and the last being the determinants of household savings.

At the outset, this study begins with an examination of the trend and composition of savings in India for a period of over five decades. This was necessary to understand the nature, magnitude and composition of gross domestic saving and its components in the country.

The next step was to analyse the relationship between economic growth and gross domestic saving in the country. The growth and saving relationship has been empirically tested from the point of view of the long-run causal relationship between the two. The aim was to arrive at the direction of causality between saving and growth. It also throws light on the impact of real sector of the economy on savings.

Following which, the impact of the other sectors of the economy on savings was analysed in the third step. The relationship between saving and macro economic variables such as monetary sector variables, fiscal sector variables, external sector variables, real sector variable and demographic variable have been tested for the existence of a stable long-run relationship. The degree of sensitivity of savings to important macro economic variables has also been assessed. This serves as a base for establishing multivariate regressions between savings and macro variables. They help to understand not only the dynamics of inter-relationship between savings and macro economic variables but also to arrive at the right combination of policy prescription for enhancing savings in India.

As the household sector is the predominant source of savings in India, there is a need to undertake an in-depth analysis of each one of the components of household saving. The study identifies the determinants of household saving instruments and examines the long-run relationship between them. Also, the degree of relationship between household saving components and the determinants have been assessed to understand the nature of relationship and to draw policy inferences.

b. *Model Specifications*

The present study has undertaken empirical analysis on three major issues:

i. Growth-Saving Causality
ii. Relationship between Saving and Macro Economic Variables
iii. Determinants of Household Savings

i. Growth-Saving Causality

The causal relationship refers to the direction of relationship between growth and saving. *Is it growth that causes saving or saving which leads to growth?* The causal relationship between saving and growth has been stated as the following functions:

$$S = f\ [Y]$$
$$Y = f\ [S]$$

Saving [S] has been defined as Gross Domestic Saving [GDS] at current prices.

Income [Y] has been defined alternatively as:

Y	:	Nominal National Income
Y_{fc}	:	Nominal National Income at factor cost
YNA_{fc}	:	Nominal Non-agricultural Income at factor cost

Granger causality tests are performed for determining the long-run causal relationship between growth and saving using the cointegration approach and vector error correction models. The short-run relationship between growth and saving is examined using the error correction mechanism.

ii. Relationship between Saving and Macro Economic Variables

The following empirical model has been estimated for studying the macro variable interactions of saving:

$$S = f\ [\Pi, INT, BD, TR, EXP, TOT, FCI, DEP]$$

Where,

S	=	Gross Domestic Saving
Π	=	Inflation
INT	=	Rate of Interest
BD	=	Budget Deficit
TR	=	Tax Revenue
EXP	=	Exports
TOT	=	Terms of Trade

FCI = Foreign Capital Inflow

Y = National Income

DEP = Dependency Ratio

The cointegration approach has been used to empirically find out the long-run relationship and elasticity between saving and macro economic variables.

iii. Determinants of Household Savings

The determinants of household saving and its components have been identified as given in the following functions.

$$\mathbf{HHS} = f\left(\mathbf{Y, INT, PCNB_{-1}, \Pi^{e}_{-1}, HHS_{-1}}\right)$$

$$\mathbf{FA} = f\left(\mathbf{Y, INT, PCNB_{-1}, \Pi^{e}_{-1}, FA_{-1}}\right)$$

$$\mathbf{CUR} = f\left(\mathbf{Y, INT, PCNB_{-1}, \Pi^{e}_{-1}, CUR_{-1}}\right)$$

$$\mathbf{DD} = f\left(\mathbf{Y, INT, PCNB_{-1}, \Pi^{e}_{-1}, DD_{-1}}\right)$$

$$\mathbf{TD} = f\left(\mathbf{Y, INT, PCNB_{-1}, \Pi^{e}_{-1}, TD_{-1}}\right)$$

$$\mathbf{LF} = f\left(\mathbf{PDI, \Pi^{e}_{-1}, LF_{-1}}\right)$$

$$\mathbf{HH_{sh}} = f\left(\mathbf{PCIND_{-1}, INT, \Pi^{e}_{-1}, HH_{sh\text{-}1}}\right)$$

Where,

HHS = Household Saving

FA = Household Saving in Financial Assets

CUR = Currency

DD = Demand Deposits

TD = Time Deposits

LF = Life Funds

HH_{sh} = Household Investment in Shares and Debentures

Y = Income [income has been alternatively defined as national income, percentage share of non-agricultural income in national income, personal disposable income]

INT	=	1 to 3 years time deposit rate of interest
PCNB	=	Rate of Change in Number of Commercial Bank Branches
Π^e	=	Expected Rate of Inflation
PCIND	=	Rate of Change in Index of Industrial Securities [Ordinary Share Prices]

The subscript '$_{-1}$' denotes a Lag of one year.

The cointegration test has been employed for identifying the determinants of household saving and its components and for examining the long-run relationship between them.

c. *Time Period of the Study*

The study uses time series annual data for all the variables used. The analysis on trend and composition of Indian savings as well as the growth-saving relationship covers a time period from 1950-51 to 2003-04.

Since major changes in the economy and the financial sector started taking place in the early seventies only, for the study on dynamics of inter-relationship between savings and macro economic variables and for the study of determinants of household savings and its components, the present study takes a time period of over thirty years from 1970-71 to 2003-04. The time period of savings data has been matched with other participating variables in the study. In some cases, however, the length of the data fluctuates by one or two years depending upon the availability of data.

d. *Sources of Data*

The data used in the study have been obtained from various sources and issues of the following publications:

i. National Accounts Statistics of India by EPWRF
ii. Central Statistical Organisation

iii. Indian Economic Survey [Annual]

iv. Handbook of Statistics on Indian Economy by RBI [Annual]

v. Report on Currency and Finance [Annual]

vi. Centre for Monitoring Indian Economy [CMIE] Reports

vii. World Development Indicators [World Bank]

viii. Various Internet Sources

e. *Methods and Techniques of Analysis*

Various statistical and mathematical techniques have been used for the analysis of data.

1. The trend and composition of savings in India has been examined using the standard analytical techniques such as:

   i. Trend Analysis

   ii. Ratio Analysis

   iii. Regression Analysis

2. The present study mainly focuses on long time series data for saving analysis. Time series data need to be stationary. In case of non-stationary time series data, there would be spurious results rendering the analysis meaningless. Therefore, the study employs the cointegration technique for all the major analysis. For the empirical analysis of the inter-relationship between saving and macro economic variables and for identifying the determinants of household savings, the study involves the following steps:

   i. Unit Root Test
      - Augmented Dickey-Fuller [ADF] Test

   ii. Cointegration Test
      - Augmented Engle-Granger [AEG] Test
      - Cointegrating Regression Durbin-Watson [CRDW] Test

   iii. Estimation of Elasticity

3. For the causal relationship between growth and saving, in addition to the above techniques, the following analytical techniques have been used:

   i. Error Correction Mechanism [ECM]

   ii. Causality Tests
   - Granger Causality Test Using Vector Error Correction Models
   - Granger Causality Test Based on Wald's F Test

The important test statistics used in the study for the validity of statistical results are R^2, $\bar{R}^2$, t-test, D-W test, Durbin's h-statistic, F- test, Wald's F-statistic, ADF test statistic and S.E. of the estimated regression along with any other test statistics as relevant to the particular analysis.

1.7 Thesis Outline

The entire thesis has been divided into six chapters.

Chapter 1: *Introduction*

This is the present introductory chapter. It explains the meaning and definition of savings, discusses the importance and role of savings in the economy, analyses the domestic as well as the global saving scenario, and finally raises certain pertinent issues related to Indian savings based on the literature review and the theoretical background. On the basis of this, the chapter outlines the objectives of the study and methodology of the study. It also covers a brief summary on each chapter of the thesis.

Chapter 2: *Definitional Aspects, Behaviour and Composition of Savings*

A study of savings requires an understanding of the past and present behaviour of saving and its components. In the first step, this chapter highlights the structure of savings in the economy. It widely discusses the definitional and conceptual aspects of saving and its components,

and critically examines the issues concerning the data collection and estimation of savings.

The second step has been to trace the trend behaviour of Indian savings over the planned economic era. For this task, the study has used three important indicators - Trend Growth of Saving, Trend Growth of Saving Rate and Average Saving Rate. In addition, this chapter carries out an extensive analysis of the changing composition and profile of savings in India using appropriate statistical techniques. An attempt has also been made to explore the possible causes for the uneven growth in Indian savings.

Chapter 3: *Growth - Saving Causality in India*

'Causality implies predictability'. This chapter deals with the saving-growth causal relationship. A major debate has been going on the nature and direction of causal relationship between saving and economic growth around the world. In view of this, advanced causality tests using cointegration analysis and error correction mechanism have been employed for several variable specifications. The motive is to investigate whether there exists a long-run causal relationship between saving and economic growth in India, and if yes, then what is the nature of the causal relationship? Is it uni-directional or bi-directional? This chapter further investigates the sensitivity of alternative variable definitions used, on the results of growth-saving causality.

Chapter 4: *The Dynamics of Inter-relationship between Saving and Macro Economic Variables*

This chapter is basically divided between the theoretical framework weaving the saving-macro variable relationships and the empirical analysis on the dynamics of inter-relationship between saving and macro economic variables. Based on the empirical analysis and

findings, suitable policy options have been suggested for enhancing savings in India.

Chapter 5: *Determinants of Household Savings*

Household saving is the most crucial component of the national pool of savings. The country's progress is largely dependent upon the household sector as its source of finance. This chapter makes an attempt to identify the determinants of household saving and its components by building various econometric models so as to study their impact on the household saving instruments.

Chapter 6: *Conclusions and Policy Options*

This chapter summarizes and concludes the findings of the present research endeavour and draws relevant suggestions, policy measures and options with an aim to further enhance savings in India.

Appendices

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