SAVING, INVESTMENT AND ECONOMIC GROWTH IN INDIA WITH SPECIAL REFERENCE TO
HOUSEHOLDS' SAVINGS IN CHENNAI.

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INTRODUCTION

The Indian economy has undergone a gradual transformation from a near stagnant economy in the mid- sixties to a high growth economy during the eighties. In fact, the growth rate of the economy averaged around 3.5 per cent per annum between 1950-80. However, the impressive growth performance of the eighties was also associated with a steady deterioration in a number of macroeconomic indicators which led to the economic crisis of 1990. The economic crisis of 1991 had caste serious doubts about the sustainability of the growth experience of the eighties. Hence over the last three decades the determinants of economic growth have attracted increasing attention in both theoretical and applied research.

Savings is considered as an important economic variable for economic growth. The extent of domestic saving is the source of capital formation, which is indispensable for rapid economic growth. The role of savings in promoting investment and hence economic growth has received considerable attention in India since independence. This has made India as one of the high saving economies of the world. Indian economy has outlined a path of capital accumulation for itself in which a major part of resources needed for economic development is supplied by domestic savings.

The rate of gross domestic savings as a percentage of gross domestic product at current market prices had recorded a steady increase from an average of around 10 percent in the 1950's to over 25 percent in the 1990's. It crossed 27 percent in mid 1990's and reached its highest level of 40 percent in the year 2007-08. There after due to the global melt-down

and the fall in the economic growth in the Indian economy the savings rate fell to 31 percent in 2011-2012.

There are several sources of domestic savings. These have been classified into three main sectors, namely, the household sector, the private corporate sector and the public sector savings. The savings of this sector comes out of the surplus income after meeting consumption expenditure. Of the three sectors, the largest contributions to the total domestic savings have all along been that of the household sector. The share of household sector savings to the total domestic savings was on an average 68.62 percent for the decade 1950-1960 which increased to 77.13 percent in the period 2000-2012. The private corporate sector has all along been way behind the household sector. The share of this sector to total savings has been 9.96 percent for the decade 1950-1960 which increased to around 20 percent for the decade 2000-2012. As for the public sector, its contributions have been larger than the private corporate sector till the end of the 1980's. Thereafter, the share of this sector declined sharply, more so in the 1990's, becoming even negative. The saving profile of the Indian economy is thus marked by three features:

- Overall there has been a substantial increase in the savings.
- The household sector contributes the most, and continues to be far ahead of the other two sectors namely private corporate sector and public sector.
- Of the three sources, the share of the household and the private corporate sectors had increased, but that of the public sector has declined.

A peculiar feature of the Indian saving rate is, that in a country where the per capita income is low, there is a fairly high rate of saving. Several reasons have been put forward to reconcile these two seemingly opposite facts of the Indian situation. According to V.K.R.V.Rao (1980), these may be grouped under two sets of explanations. The first set explains that the high savings has been due to the shift in the income of the people who have a high propensity to save. The second set stresses the fact that the saving has gone up because of the efforts that have been made in this direction since early 1950's. These are the policy decisions of the government to raise savings. They are: incentives like tax

concessions, extension of banking facilities, encouraging contractual savings etc., Even though the per capita income is low in the Indian economy, the economic growth in the country had increased remarkably over the years. One of the key factors for economic growth is the domestic savings.

Review of Literature

This section is broadly categorized into two parts, viz., (i) The Theoretical background for the different objectives of the study and (ii) the empirical studies supporting the theory.

THEORIES:

There are many notable theories which trace the factors determining the savings rate in an economy. This study deals with two major theories namely Keynes absolute income theory and Modigliani's Life Cycle Hypothesis.

Absolute Income theory: Keynes in the "The General Theory"(1936) states that savings is a function of current income. An increase in current income increases savings in the economy. (S=Y-C)

Life Cycle Hypothesis: Modigliani and Ando (1963) Life Cycle Hypothesis is build around the consumption/saving behavior of an economic agent who is assumed to maximize the present value of lifetime utility, subject to a budget constraint. According to this theory the consumption in a particular period depends on expectations about lifetime income. They stress that men are forward-looking. There "need not be any close and simple relation between consumption in a given short period and income in that same period. The rate of consumption in any given period is a facet of a plan which extends over the balance of the individual's life, while the income accruing within the same period is but one element which contributes to the shaping of such a plan." The major determinants of the saving rate are the rate of growth of per capita income, the age structure of the population, the real interest rate on bank deposits, wealth, credit availability and social security fund.

 Relationship between Saving, Investment and Economic-growth

Solow's Economic growth Model: According to Solow when the saving rate increases in an economy, this creates additional capital stock, which in turn increases the growth rate of output in other words the economic growth. Hence increase in savings enroute increase in net investment results in higher economic growth.

Carroll-Weil Hypothesis: Saving and economic growth are strongly positively correlated across countries. The model states that correlation holds largely because high growth leads to high savings and not as stated by Solow's model. According to the Carroll model a forward-looking consumer with standard utility should save less in a fast growing because they know they will be richer in the future than they are today. If utility depends partly on how consumption compares to a "habit shock" determined by past consumption, imply that increase in growth causes increased savings and not the other way round.

Empirical Studies:

Recognizing the importance of savings as a driver of economic growth, empirical studies have been conducted both in the developed and developing economies. A number of studies have examined the relationship between saving, investment and economic growth, and the saving behavior of an economy.

Krishnamurty, etal (1987), Laumas (1990), Muhleisen (1997) and Balasubramanyam (2000) used the Granger test to find the relationship between saving and economic growth. These studies disagreed with the Solow model. Using annual data for India Sinha (1990) studied the causality between gross domestic saving and gross domestic product. The bi-variate causality results show that there is no causality running in either direction between domestic saving and economic growth. Verma and Wilson (2005) used a multi-variate analysis to estimate the long run cointegrating equilibrium and short run Granger causing for the non stationary time series data for the period 1950-2001. The estimates do not support the commonly accepted Solow and endogenous model of economic growth, but supported the Carroll-Weil hypothesis. Sinha, Dipendra and Sinha, Tapen (2007) examined the relationship between the growth rates of household savings, private savings and public sector savings on economic growth. The results show that the causality is from economic growth to savings and not from savings to economic growth. . Birendra Bahadur Budha

(2012): The paper examines the relationship between savings, investment and economic growth for Nepal for the period 1974 to 2009 using annual time series data. The study employed Autoregressive distributed Lag approach to test the cointegration and the Error correction based on Granger model to test the causality between the variables. Empirical results show that there exists cointegration between the variables and the Granger causality shows that there exist short run bidirectional causality between investment and GDP and saving and investment, but there was no short run causality between savings and gross domestic product. Hence the study has suggested to promote investment to accelerate economic growth.

Studies have been conducted in the developed and developing countries on saving behavior. These studies have adopted strong theoretical base like the Keynesian model, the Life Cycle hypothesis etc., T.Suruga and T. Tachibanki (1991) have estimated the household saving function based on the LCH. The result of the study reveals that higher education attainment lowers saving rate, employees who live in rental house have higher savings, Savings increased until the age of 64 and thereafter starts to fall. An interesting finding of the study was that current income did not have any significant impact on savings. Gulnur Muradoglu and Fatma Taskin (1996) studied the difference in household saving behavior for industrial and developing countries. The results show that household saving behavior was different for the industrial and developing countries. When permanent income increases savings increases for industrial countries where as consumption increases for developing countries. When real interest rates increase savings fall in the industrial countries where as there is no definite relationship in the developing countries. The impact of inflation on saving rate was negative for industrial countries while no significant effect is observed for developing countries. Werner Dirschmid and Ernst Glatzer (2004) have studied personal savings for Austria an found that factors like income growth, real interest rate, inflation, social security expenditure and the government budget influences savings.

Joshi (1970) analysed the saving behavior in India over a period of 13 years. He observed that savings out of incremental income played a key role in raising the rate of savings.

Shetty (1990) reviewed the trends in domestic saving rate in India and found that changes in consumption patterns seems an obvious explanation for the absence of any buoyancy in household savings. Norman Loayza and Rashmi Shankar (2000) studied the evolution of private saving in India for the period 1960-95. The behavior of private saving rate is related to real interest rate, per capita income, dependency ratio, financial development, government saving rate and share of agricultural income in GDP. Prema-Chandra Athukorala an Kunal Sen (2001) examined the determinants of private saving in India for the period 1954-1998 using the life cycle model. The study found that saving rate increases both with level and rate of growth of disposal income. The real interest rate has a positive and significant impact on saving rate, public savings crow out private saving, but less than proportionately, and spread of banking facilities and the rate of inflation have a positive impact on savings. Upender and Reddy (2007) have examined the saving behavior in Indian economy in terms of the shift in the growth rate of domestic saving and its magnitude on income elasticity of the domestic savings at the aggregate and dis-aggregate level during post reform period. The estimate of constant income elasticity of household saving is found to be more than unity and relatively higher than private and public savings. Economic reforms initiated in 1992 could not augment the growth rate of saving and income elasticity of domestic savings. Tarujyoti Buragohain (2009) attempts to discern the trend and pattern of savings in general and household sector savings in particular for India and to assess the major determinants of household sector savings The study includes the views of Richard Stone, Milton Friedman and other economists to study factors determining savings in India. The results show that both APS, MPS and income elasticity of savings have a positive relationship on savings especially more so during the economic resurgence period (1990-2007) and the most important determining factor influencing household saving is the disposal income. As disposal income increases household savings increases which satisfied the Keynesian hypothesis.

The above studies have examined the relationship between saving, investment and economic growth at the aggregate level. Very little emphasis is given to the relationship at the dis-aggregate level especially with reference to household savings. The impact of saving on investment and economic growth has exhibited mixed results in India. These studies

did not integrate the savings behavior and its impact on investment and economic growth. Most of the studies have used macro data to study the saving behavior. Noticing these gaps the present study examines the impact of household savings on investment and economic growth both at the aggregate level and disaggregate level. The researcher also attempts to study the household sector's saving behavior both at the macro and micro level using secondary and primary data respectively.

Statement of the Problem and Need for the Study

Since the beginning of economic planning in India, the emphasis has been on savings as an important instrument in generating capital formation and economic growth. One of the major objectives of planning in India is to increase production in the economy and thus economic growth. Increase in production and capital formation are considered as the crucial pre-request. Capital formation depends on the volume of savings. Domestic savings through investments influences economic growth.

At present many of the emerging economies are experiencing a record savings at a time when most of the developed world has been witnessing a decline in their domestic savings. India being a major emerging economy, has one of the highest savings rate among these emerging economies. According to the World Development Report (2012), India ranks 3rd in terms of saving rate and tenth largest in the world by nominal GDP. The gross domestic savings as percentage of gross domestic product had increased from 9 percentage in 1950-51 to 21 percentage in the year1980-81 and further to 31 percentage in the year 2012-2013. The major source of domestic savings is in from of the household savings. The household sector contributes more than two third of the total domestic savings.

Despite a significant increase in the saving rate in India over the years, there is little evidence to show that the increased savings have resulted in consistent growth. In the mid 70's India's savings rate was high by developing countries standards but the growth in savings did not bring about a proportionate increase in the economic growth rate. On the contrary, in recent times, economic growth has accentuated without any appreciable

change in the savings rate refuting that increase in savings and economic growth go hand in hand.

Theoretical and empirical studies have been carried out to study the relationship between savings, investment and economic growth. In the Indian context though empirical studies exist on the role of saving, investment and economic growth, these studies provide only partial analysis. Some empirical studies support the classical Solow growth, while some others support the Carroll-Weil hypothesis and yet others do not support either of these. It is also apparent that there is no comprehensive study available on the analysis of the interdependence between savings, investment and economic growth of the household sector which is the major contributor of savings. Therefore, the present study investigates the impact of household savings on investment and economic growth.

Since household savings contribute major source of the domestic savings, it is important to know the saving behavior of the household sector and the factors influencing household savings. Besides, the dynamics of household savings, particularly during the post liberalization era has to be examined. The saving at the macro level is influenced both by exogenous and endogenous factors; however the savings at the individual household level is more influenced by the household behavior. Hence it becomes important to compare the saving behavior both at the macro and micro level to draw appropriate policies to enhance savings at large.

OBJECTIVES

The objectives of the study are:

- To study the trends and composition of savings in the Indian economy for the period 1950-2013
- To examine the impact of household savings on private sectors and public sector's saving and investment
- To study the relationship between savings, investment and economic growth in India for the period 1950-2013.

- To examine the factors affecting the household savings in the Indian economy for the period 1980-2013 and to analysis the saving behavior of the household sector in Chennai city.

- To compare the saving behavior of the household sector at the aggregate level vis-à-vis at the disaggregate level.

- To examine the impact of liberalization on gross domestic savings in the Indian economy

HYPOTHESES

1. The household sector's savings does not influence private sectors and public sectors savings and investment.

2. There is no cause and effect relationship between savings, investment and economic growth

3. The economic and demographic factors (such as personable disposable income, growth of income, wealth, credit availability, young and aged dependency, remittance, interest rates, inflation, social security and liberalization) do not influence savings.

4. There is no significant difference between the saving behavior of the household sector at the aggregate level vis-à-vis at the disaggregate level.

5. There is no significant impact of liberalization on gross domestic savings in India.

Research Methodology:

The main objective of the study is to examine the impact of household savings on investment and economic growth and also to examine the savings behavior of the households, hence the study uses both secondary and primary data.

As part of the secondary data, the study traces the trends and composition of savings in the Indian economy for the period 1950-2013. The variables used for this are the gross domestic savings, savings by sectors (household, private and public sector), savings by

classification of asset (Physical and financial assets). Data pertaining to investment and the composition of capital formation has been collected to examine the relationship between savings and investment. The variables used are gross capital formation, capital formation by sectors (households, private and public sectors). The variables are calculated at market prices. The gross domestic product at factor cost is used to measure economic growth. All variables are calculated based on the 2004-2005 base year. Secondary data has also been used to study the saving behaviour of the household sector at the aggregate level. The variables used are personable disposable income, rate of interest, consumer price index, M3/GDP, ratio of young dependent to working population, ratio of aged dependent to working population, credit availability to the private sector, remittance from abroad, government expenditure on pension fund.

Secondary Data Sources

Handbook of Statistics on Indian Economy published by Reserve bank of India.

National Statistics Accounts published by Central Statistical Organisation.

Economic Survey published by Ministry of Finance, Government of India.

World Development Indicator published by World Bank

Annual Budget Documents (Volume I) published by Planning Commission, Government of India

Primary data was collected to study the saving behavior of the household in Chennai city. Personal interview method using a questionnaire was adopted. A convenient sampling technique was adopted to collect the sample.   The total sample size was 550 households. The respondents consists of College teachers of Art and Science Colleges of city, Bank employees of the public and private sector banks, Government Employees of central and state government, IT professional of major software companies and Retired personals of all the above categories were taken. Since the population of each category was large a convenient random sampling was conducted. The Population for each of the category was stratified. The College teachers consists of Art and Science (General Education) colleges of Government, Aided and Self Financed Colleges account for 28853 teachers, The Government employees account for approximately 7 lakhs.   The IT professionals were chosen from Elnet and Tidel Park complexes where 63 IT companies are situated with

around 10,850 employees. The bank employees were chosen from nationalized commercial banks who account for approximately 76850. Out of this total population, in each category 110 samples were randomly selected to have uniform size of the sample. The questionnaire was designed to study the saving pattern of the household. The questionnaire was divided into 4 parts dealing with the base line information about the family, the type and extent of savings of the household, the factors influencing savings and the pattern of savings behavior of the household in the liberalization period.

Analysis of Secondary data

For the purpose of analysis E-views-7, SPSS software Version 16.0, MS Office Excel-Data were used. The variables were converted into natural log form. Descriptive statistics to test the trend, composition and pattern of saving behavior at the aggregate and disaggregate level using the secondary and primary data was used.

Regression Analysis: To test the factors influencing household savings both at the aggregate and disaggregate level, the following regression equation was used:

$$HSR = a + b_1\,DY_, + b_2\,GDY + b_3WL + b_4YD + b_5AD + b_6CA + b_7\,IR + b_8IF + b_9\,RE + b_{10}SS + b_{11}\,LB$$

where:

HSR = the household saving rate (household saving in relation to personal disposal income)

DY = personal disposal income

GDY = the rate of growth of real personal disposal income

WL = Real Wealth, proxy by the ratio of money stock (M_3 / GDP)

YD = Young dependency ratio measured as the ratio of the population aged 14 and under to the working age population (15-64)

AD = aged dependency ratio measured as the ratio of the population aged 65 and above to the working age population (15-64)

CA = Total lending to household sector by domestic financial institutions as a ratio of GDP

IR = real interest rate

IF = The rate of inflation (measured by consumer price index)

RE = Remittance by Indian expatriates relative to GDP

SS = Social Security (Government Expenditure on Pension Fund/GDP)

LB = an intercept dummy variable to capture the impact of financial liberalization on the level of saving rate (1 for years 1991 to 2012 and zero otherwise)

t = a time subscript.

Time Series Analysis: To test the stationary properties of the variables the Unit root test would be used:

I) UNIT ROOT TEST

This test is used to find the stationary properties of the variables. The variables are said to be stationary if its mean, variance and auto covariance remain the same no matter at what point we measure them. A number of tests are available in the literature to check the existence of the unit root problem both in the level of the variable as well as in their first difference. The Dickey Fuller (DF) test is applicable if error terms (U_t) are uncorrelated. In case the error terms (U_t) are correlated, DF test cannot be applied. Augmented Dickey Fuller (ADF) test takes care of this problem by "augmenting" the equations of the DF test by adding the lagged values of the dependent variables. To test the unit root property of the variables, the study employed ADF test and the equation for the ADF test is as follows:

$$\Delta Y_t = B_1 + B_2 t + B_3 Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-1} + u_i$$

The null hypothesis is that B_3 the coefficient of Y_{t-1} in the equation is zero. This is called the unit root hypothesis. u_i is a pure white noise error term and where m is the maximum length of the lagged dependent variable.

ii) **Vector Autoregression (VAR) Model:** To test the cointegration and the long run equilibrium between variables the Johansen Juselius (1991) model is used. To test the long run relationship between savings rate, investment and economic growth the VAR model is used.

In case of non stationary data it is quite possible that there is a linear combination of integrated variables that is stationary; such variables are said to be cointegrated. To understand the cointegrating relationship across these variables the study uses Johansen (1991) Cointegration Test. The concept of co-integration was introduced by Granger (1981) to protect the loss of

long run information in the data due to differencing the series. If the linear combinations of variables of I(I) are I(0), then the variables are said to be co-integrated. Co-integration is the statistical implication of the existence of a long run relationship between economic variables.

To ascertain the long run relationship between savings and investment, the study uses the vector autoregressive (VAR) model developed by Johanson and Juselius (1991). The period of study is divided into three periods to study the impact of liberalization. Sub period 1950-1990, sub period 1991-2013 and the whole period 1950-2013. The study is based on the following models.

GDP = $\alpha_0 + \alpha_1 HHS + \alpha_2 PRVS + \alpha_3 PUBS + \gamma_i$

GDP = $\alpha_0 + \alpha_1 HHI + \alpha_2 PRVI + \alpha_3 PUBI + \gamma_i$

GDP = $\alpha_0 + \alpha_1 GDS + \alpha_2 GCF + \gamma_i$

GDS = $\alpha_0 + \alpha_1 GDP + \alpha_2 GCF + \gamma_i$

GCF = $\alpha_0 + \alpha_1 GDP + \alpha_2 GDS + \gamma_i$ HHS = $\alpha_0 + +\alpha_1 PRVS + \alpha_2 PUBS + \gamma_i$

HHS = $\alpha_0 + \alpha_1 HHI + \alpha_2 PRVI + \alpha_3 PUBI + \gamma_i$

HHS = $\alpha_0 + \alpha_1 GDP + \alpha_2 GDS + \alpha_3 GCF + \gamma_i$

Where

GDP: Gross Domestic Product at factor cost

GDS: Gross Domestic Savings at market price

GCF: Gross Capital Formation at market price

HHS: Household Sector Savings at market price

PRVS: Private Sector Savings at market price.

PUBS: Public sector Savings at market price.

HHI: Household Sector Investment at market price.

PRVI: Private Sector Investment at market price.

PUBI: Public Sector Investment at market price.

iii) **The Granger Causality Test**:   In order to conduct the causality test, the study employed the Granger causality test. According to Granger (1969), variable X is said to "Granger Cause" Y if and only if Y is better predicted by using the past values of X than by not doing so with the past values of Y being used in either case.   In other words an economic time series Y_t is said to be "Granger Caused" by another series X_t if the information in the past and present values of X_t helps to improve the forecasts of the Y_t variable, i.e. if, $MSE(Y_t|\Omega_t) < MSE(Y_t|\Omega_t')$ where MSE is the conditional mean square error of the forecast of Y_t, Ω_t denotes the set of all (relevant) information up to time t, while Ω_t' excludes the information in the past and present X_t .   The conventional Granger causality test involves specifying a bivariate of pth order VAR as follows:

$$Y_t = \mu + \sum_{i-1}^{p} a_i\ Y_{t-1} + \sum_{j-1}^{p} b_i\ X_{t-1} + U_t$$

$$X_t = \mu^1 + \sum_{i-1}^{p-1} c_i\ Y_{t-1} + \sum_{j-1}^{p-1} d_i\ X_{t-1} + U_t$$

where µ and µ1 are constant drifts, Ut and Ut' are error terms, and more generally, the equation may include any number of additional relevant variables. Then, the null hypothesis that X_t does not Granger cause Y_t amounts to testing,

b1 = b2 = … = bn = 0

This can be tested by standard methods, such as an F-test. Similarly, the null hypothesis that Y_t does not Granger cause X_t amounts to testing,

c1 = c2 = ….= cn = 0

The objective is to see whether current values of the dependent variable can be explained by past values of the explanatory variable (unidirectional relationship) or if the

relationship is two way (bi-directional), that is both dependent and explanatory variable explain each other.

Limitations of the Study

The measurement to savings both at the aggregate level and disaggregate level is taken as a residual. Savings is a surplus of income over expenditure.

The scope of the study is limited to the salaried and retired employees of the organized sector. Hence the saving behavior of the sample cannot be generalized for all categories of the population.

The household savings is calculated at a given point of time, but the saving pattern and saving behavior of the household is studied over a period of time.

Conclusion : The Gross Domestic savings as percent age of GDP was an average around 10.5 percent in the decade 1950-60, and reached 20 percent in the mid 1970's and touched 40 percent during 2007-08 and thereafter declined to 31 percent in 2013. The major source of savings is contributed by the household sector, accounting to nearly three fourth of the total savings. Over the years the share of public sector savings has declined and that of corporate sector had increased. There is a long run relationship between gross domestic product, gross domestic savings and gross capital formation in India. Gross domestic savings causes gross domestic product and gross capital formation, but neither gross domestic product nor gross capital formation causes gross domestic savings. Household sector savings causes gross domestic product and gross capital formation. The disposal income, wealth, dependency ratio, credit availability, remittance from abroad, social security and liberalization of the financial sector influence household sector savings both at the macro and micro level.

Chapter Scheme

Chapter 1 deals with the introduction of the topic, need, importance, scope, objectives, hypotheses, definitions of the concepts methodology and limitations.

Chapter 2 provides the theoretical developments and empirical studies related to the relationship between saving, investment and economic growth and to study the factors influencing savings.

Chapter 3 brings out a comparative study of the saving and economic growth of India, China and Japan for the period 1990-2013.

Chapter 4 examines the trend, composition and the factors influencing savings at the aggregate level with the help of secondary data.

Chapter 5 throws light on the relationship between savings investment and economic growth.

Chapter 6 deals with the empirical analysis of the saving behavior of the household sector at the micro level and the comparison between the aggregate level and micro level household saving behavior.

Chapter 7 provides a summary of findings, conclusion and suggestions.

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