

Trends and Determinants of Household Saving in South Africa

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Abstract

South Africa managed to have a gross saving rate of 30% to GDP before 1994 but 16% in 2009 (compared to China 52%, Russia 22%). No coincidence that China and Russia are among the economies enjoying rapid growth compared to South Africa. Could the prevalence of an 'aspirational' culture negatively impact the South African household savings in which consumption is encouraged by access to credit facilities- necessitated by the sophisticated financial sector? Econometric analysis found the following among others to be statistically significant determinants of household saving rate: level of income, uncertainty (expected inflation), public sector savings and financial development collaborating with many other studies. As both saving and consumer behaviour evolve slowly, the study estimated the correlations by means of an error correction model. This allowed me to estimate a long-run correlation between the variables and to model behaviour in the short run and 2SLS for robustness checks. The study results have diverse policy implications and the following proposals can be made: policy makers must consider fiscal tools e.g. tax incentives to encourage savings (this have been introduced in 2012 national Budget for SA), also consumer education on financial matters.

Keywords: Household savings, tax incentives, financial literacy, financial sector, VECM, South Africa

Due to the importance of savings to investment (national capital formation), the trends in the savings rate raises academic and policy interest in its determinants. Savings help smooth business cycle as corporate, individuals and government have buffer in hard times. According to Prinsloo (2000), a general definition of saving in a country would be the amount of resources or income produced in the economy in a given year that is not consumed immediately but is put to use in a way that will provide returns to the economy in years to come. It suffice to say; to have a sustainable growth, there is need for sustainable resources to support it. Resources can be mobilized domestically and externally, albeit with some limitations. Domestic resource mobilization involves the tax system, tariffs, levies, and savings, whilst international capital flows as portfolio investment, remittances and official development aid represent the international pool of resources. This study investigates the trends and determinants of one of the domestic source of resources, savings. Given the weak tax system in many developing and emerging economies, savings form a great component of resource mobilization domestically. There are two types of saving, compulsory (contractual) saving which

would include products such as life insurance policy or pension fund, and discretionary savings such as a bank account or private share portfolios.

The discussion of savings is crucial in South Africa as one assesses years of democracy and development in Africa given that the apartheid government deliberately marginalized the majority of the people from the mainstream economy through a wide-range of discriminatory legislation and practices. Segregation, marginalisation and discrimination permeated every aspect of life leaving long lasting marks- socially and economically. The segregation resulted in extreme poverty, hardships and enormous difficulties. The process of redressing these inflicted hardships has great repercussions to the economy as a whole. The role of the state transformed significantly (focus and prioritisation) in an effort to meet the demands of the new South Africa and redressing past injustices. Household behaviour and attitudes have gone a paradigm shift over the years and trends in consumption hence savings may reflect such shift.

The relationship between the saving rate and economic growth should not be underestimated. Savings are needed to finance capital spending. Arguably, if South Africans could save more, the country would rely less on borrowing funds from other countries to meet her investment needs, making investment less reliant on volatile short-term capital inflows, Gordhan (2011) which have been empirically proven to be the biggest source of destabilising forces in emerging markets (Edwards 1998; Bhinda, *et al.* 1999; Wesso 2001; Simwaka 2004; Aron, Leape and Thomas 2010; Jongwanich 2010).

Although international capital flows can supplement domestic saving, the volatile character of the global capital market curtails the availability of sustained cross-border capital inflows. Cronje and Roux (2010) argue that low levels of savings makes the country dependent on foreign investment to finance the capacity for future growth. This is undesirable as dependency on foreign capital makes an economy more exposed to international capital fluctuations. In most cases, only countries with a high saving rate can maintain a high investment rate (SAEU, 2011). The low-growth trap experienced by South Africa since the mid-1980s has been assigned to the continuous decline in national saving. Therefore an improved national performance in respect of saving is frequently regarded as a prerequisite for higher economic growth in South Africa (Aron and Muellbauer, 2000). Compared to other emerging economies, South Africa scores very low on domestic savings levels when put side by side with peer economies such China and Malaysia. Increased savings levels are essential to advancing a country's economic aspirations. For example, saving via the government's national retail bonds means the state will be able to borrow cheaper for spending on infrastructure development; this in turn creates employment opportunities. Therefore, higher household savings levels have a domino effect on the economy because it allows governments and companies to access capital for reinvestment. At 52% of the national GDP, China's domestic savings rate is among the highest in emerging markets; South Africa savings only constitutes less than 20% of GDP. It is important to note that there is a strong correlation between a nation's savings record and it's capability to attract investment.

Among the different components of gross savings (public, corporate and household saving), household saving has presented a persistent downward trend since 1983. Government dissaving has recovered and stabilized and also corporate savings have recovered over the years. This gives

us justification to analyse the determinants of household savings given that it is the one pulling the gross to unprecedented levels. This analysis is quite interesting given that the trends in the components of private savings are going different directions. Simleit, Keeton and Botha (2011) relate this to the ability of household to pierce the corporate veil and decide their savings accordingly.

After this introductory section, is section two analyzing the trends in South Africa's saving rates since 1960. The third section reviews major theories guiding the determinants of savings in an economy while section four reviews some major empirical works for South Africa and beyond. Section five presents the empirical model to be applied as well as defining the variables considered, and lastly, section six presents a discussion, policy implications and make major conclusions.

Trends in Savings rate

In the absence of efficient credit and insurance markets, household saving is a crucial determinant of welfare in developing countries (Attanasio and Szekely, 2001). South Africa has managed to have a gross saving rate of 30% to GDP before 1994 but 16% in 2009 (compared to China 52%, India 37% and Russia 22%). No coincidence that China and Russia are among the economies enjoying rapid growth compared to SA for the past decade or two. It has been argued that for South Africa to be able to contribute to job creation (reducing unemployment rate to around 15%) it has to double the rate of economic growth, to about 8%. Significant growth rate have been identified to be associated with economies with savings rate above 25% of GDP, as a fact the nine high-growth countries (with 6% or higher growth) enjoyed savings and investment rates above 25% (SAEU, 2011). At around 16% in 2010, South Africa's gross national savings as a share of gross national income is relatively low, no doubt restraining the investment rate, at a modest 19%.

While the gross saving rate reached its peak of 33.94% in 1980, the rate plummeted to 13.96% in 2006. Savings rate turned to a decreasing trend since early 90's, almost levelling to around 15 percent of GDP. Debt drives consumption levels upwards, resulting in low savings levels. Evidence shows that South Africa's domestic savings levels have showed a downward trend for the last two decades. This is disturbing. For the economy to uphold growth targets of more than 4% per year, the South African government has set a target of a national savings rate of 23% of GDP. In 2009, this figure was in the order of 17%.

The trend of gross national saving by GDP seems to be driven by the trend of private saving as these variables seem to present trends that are ideally subdued replica of each other. There is therefore great reason to hypothesize great significance of household savings on gross savings hence economic activity. To this, for empirical analysis, the study used household savings as the independent variable. Household savings to disposable ratio plummeted from an all-time high of 23% in 1980 to a negative 0.2% in the last quarter of 2010. The trend is worrisome because: inadequate savings leave households vulnerable to shocks in income and rising prices, add burden to government in providing retirement assistance, constrain individuals in accumulating wealth (Nene, 2009).

On the other hand, household consumption as a percentage of GDP is showing a smooth and persistent trend around 60%. Regardless of economic environment and circumstances South African Households maintain their consumption pattern. This resonates with life cycle hypothesis and would result in more savings if the economic fortunes abound. The poor economic performance (financial

crises; adamant unemployment rates and shooting inflation) at some points during the study period were compensated by increased household debt than reduced consumption.

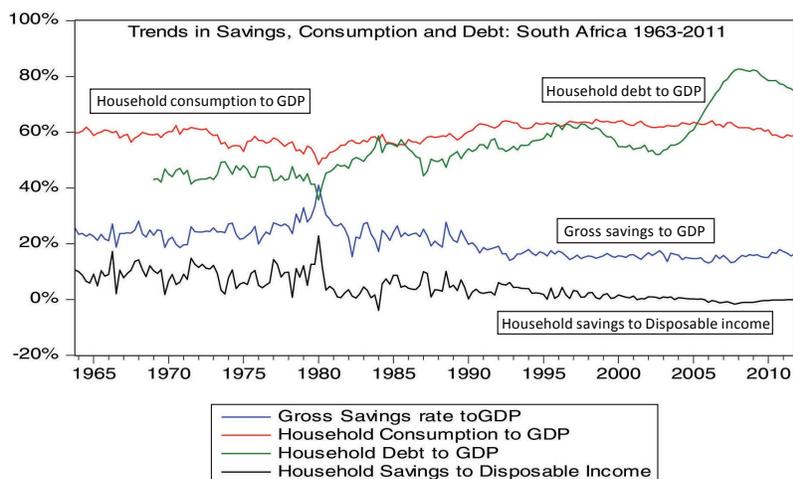


Fig. 1: Trends in South Africa Saving rates and other variables

Not surprising, the percentage of household debt to GDP reveal a shooting trend from early 2000s reaching a pick of around 83% in the first quarters of 2008. The time coincides with the peak of global financial crisis which hit hard on many consumers around the world and created economic uncertainties (high unemployment levels). However due to the sophisticated financial sector of South Africa, many consumers managed to borrow to sustain the levels of consumption. This can be reflected on the smooth trend in consumption variable over the entire period regardless of the financial crises witnessed, (also the 1997 Asian crisis). South African consumers go out of their way to maintain their spending pattern- corroborating theoretical foundations of the life cycle hypothesis – borrow in periods of low income. Classic lifestyle is admirable in South Africa. This signifies a spending society, one which would rely heavily on borrowing for investment savings. Love for better economic status has hindered improvement on the savings culture. South Africans have displayed a short-term outlook, a lack of transparent and cost-effective savings products, poor financial awareness and high unemployment, which left many without any money to save. South Africa had become an ‘avaricious’ society, one that wants to acquire things at any cost. This can be revealed with the trend in household debt which has exponentially increased between 1985 and 2008. This materialistic lifestyle leads to the striving of ‘loan sharks’ that resulted in many loosing property including houses due to the locking-in exorbitant interest repayments.

Time preference of South Africans reveals an impatient population that consumes as much as possible in the present period. This is evidenced by the growing household debt over the past decade. According to the Minister of Finance, Pravin Gordhan (2012), most South Africans spend income to be earned three months ahead due to the easy access to credit necessitated by the sophisticated financial system.

The savings rate is a victim of the well developed and sophisticated financial system. This is not to say the sophistication is bad, but there are some fundamental aspects of it which need rectification. Literature on this is inconclusive (Loayaza *et al.* 1996), it can be positive by improving the returns from saving (Callen and Thimann, (1997) or negative as credit availability reduces liquidity constraints (Simleit *et al.*, 2011). From the latter argument, financial liberalisation can therefore reduce the need for precautionary demand for money, and thus increase consumption. South Africa has a well developed financial services industry which offers a variety of products that can be used for saving purposes. Retirement products are feasible savings tools, because they are long-term and also shelter one's financial future. Money placed in a retirement annuity, for example, is invested into different asset classes such as equities or unit trusts, which gives the investor favourable returns over time. It is imperative to note that consumer finance is very limited in China and development of consumer credit lowers savings (Chamon and Prasad, 2011).

Of late, there had been a slight improvement in savings as the debt-to-disposable income ratio had dropped from a high of 81.8 % in 2008 to 78.2 % in first quarter of 2011, according to the SA Reserve Bank quarterly bulletin.

According to Gordhan (2011) household savings rate had declined by an average of 0.1 % of GDP every year since 2001. There has been no indication thus far that household savings is returning to its peak in 1980 of about 23% to GDP. A similar plunge in savings rate, that the household component experienced, was exactly mirrored in gross savings rate over the same period. Household savings out of their income has been on a declining trend showing a stable low rate from early 1990s with the advent of new government. The household savings rate mirrors the gross savings rate in South Africa and thus justifiable to say household savings drive total savings in an economy. In the 1980s South Africa's average national savings rate was third after China's and Malaysia's but it fell sharply in the 1990s when many comparators saw theirs increase.

Despite the low household savings rate, South Africans have significantly participated in informal savings schemes (stokvels) which have been now legalized. Stokvels are common with the previously financially excluded populace and thus so significant of the South African economy and policy formulation. It is formed when a group of people, who know each other well, agree to contribute a regular fixed amount into a central pool and then draw funds on rotating basis. According to Africa Response (2011) there are 11.4 million stokvels members and 811 830 stokvels with a staggering R44 billion in value. The market is a sector on its own.

A consideration of the determinants of South African household savings provides an opportunity to identify and examine the factors which contribute to South Africa's low household savings, and to propose actions which can be taken to improve savings ratio. The prevalence of an 'aspirational' culture negatively impacts the South African household savings in which consumption is encouraged by access to credit facilities- necessitated by the sophisticated financial sector.

Government policies with regard to wealth distribution and welfare payments (social grant system) contribute to the creation of a culture of dependence (Dirschmid and Glatzer, 2004) and a reduction in household savings. If individuals know that the government will provide grants for unemployed and retirees then household will have little incentive to save for their own retirement or worse still

for eventualities like unemployment (precautionary savings). Government's provision of this social safety net becomes a stumbling block to improving household saving. South African Institute of Race Relations (2012) found an increasing number of South Africans were relying on grants, with the number of beneficiaries increasing by more than 300 percent in the past nine years. Indeed the government is in a dilemma as it is caught in a situation of fending for the poor and at the same time trying to encourage those who are able to accumulate savings to do so.

Particularly important to an economy is also the extent to which fiscal policy (budget deficit) affects national saving. If the government is borrowing now, the private sector will have an expectation of higher taxes in the future; therefore government deficit is expected to be positively related to private savings rate. Haque, Pesaran and Sharma (1999) suggested that households react strongly to the state of public finances in making savings decisions. South Africa's public dissaving has been declining for the past years and is expected to be around 4.2% of GDP, the 2010 level, by 2013 (AEO, 2012).

Theoretic Determinants of Savings

Conventional economic theory postulates that savings play a crucial role due to its direct link with investment and therefore economic growth. The debate on the correlation between savings and investment is no longer contentious at best. Many factors come into play with regard to how much to spend and how much to 'keep' for future spending. The theory of intertemporal choice presents an analytical tool on what may be the possible factors to encouraging savings (keeping more for future spending). Again, the same theory reveals the presence of patient (net savers) and impatient consumers (net borrowers). The aspirational culture reveals the impatience of consumers to save for durable spending. Impatient consumers have a negative Marginal Rate of Time Preference under the intertemporal choice model. The reasons for such behaviour- the degree of patience of South African households- forms the crux of inquiry in this paper. Spending culture/ attitude is cultivated and promoted by several factors which the paper is set to investigate.

The permanent income hypothesis (PIH) and life cycle hypotheses (LCH) present an important application of the intertemporal choice model on the decisions about how much to save. Through these hypotheses it can be demonstrated that it is the present value of lifetime wealth, not current income alone that governs current consumption (and hence current savings). Athukorala and Tsai (2003) argue that the LCH as it has been the standard framework for the explanation of changes in national savings over time and across nations (Modigliani 1986; Deaton 1989). More so, the LCH is excellent in explaining the impact of income growth and demographic changes on savings. It suffices to say, the consumption decisions of individuals are subject to an intertemporal decision-making process aimed at maximising utility. From this angle, income growth and age structure of the population plays a pivotal role in explaining national saving rate.

Ricardian equivalence theory has an explanation to offer on the behaviour of household on savings. The theorem asserts that individuals recognise spending by government through borrowings that may need to be financed through higher taxes in the future. As households would like to allocate resources to smoothen consumption as under the LCH and PIH they realize in this case they have to save more in order to accommodate higher taxes in the future and maintain the level of consumption.

Theoretical underpinnings demonstrate that individuals take various factors into consideration and make their decisions accordingly. These factors include the economic environment, that is, the uncertainty or certainty of their future economic status determines how much they also put aside from their current income. As well as their present economic status, the levels of government borrowing make individuals act accordingly.

Uncertainty can be captured by inflation and unemployment rate. Inflation represents general macroeconomic uncertainty which is expected to fuel higher net saving (Deaton, 1977). On the other hand unemployment is an indicator for individual income uncertainty which is expected to drive precautionary savings. Unemployment can be able to reflect this well in the absence of social security support from government in the event of being unemployed.

Empirical Literature on determinants of saving

Metin-Ozcan, Gunay and Ertac (2003) did a similar study and examined the empirical determinants of private savings behaviour in Turkey for the period 1968-1994 using the ordinary least squares (OLS) estimation method. The independent variables were grouped into six groups, namely: government policies (public government savings); demographic factors (urbanization ratio, youth dependency ratio, old dependency ratio and life expectancy ratio); income and growth variables; financial variables (ratio of money and quasi- money to gross national product (GNP), credit to private sector and real interest rate on saving deposits); uncertainty variables (inflation) and external variables (terms of trade and current account deficit). Findings of the study indicated that government savings to GDP ratio and the Turkish economic crisis had significant negative effects on saving behavior. The growth rate of income was found not to be statistically significant. It was also found out that a deeper financial system, inflation and terms of trade shocks all had a positive impact on private savings. The effect of the current account deficit was found to be insignificant in Turkey. Overall, empirical findings showed that financial market development, macroeconomic stability, life expectancy, external factors and economic crisis may be the core policy instruments in Turkey for the saving behavior.

Bulir and Swiston (2006) examined the factors influencing Mexico's private saving rate using annual data for the period 1980–2004. The independent variables which include public savings, external savings, real growth, the level of development, private credit and dependency ratio were regressed using non-linear ordinary least squares (OLS) method. Results obtained indicated that saving in Mexico is not significantly out of line with fundamentals such as the level of financial development, incomes, GDP growth, and demographics. The analysis suggested that the country's high reliance on external saving, a relatively high dependency ratio, and its less-developed financial system are the main factors holding back private saving. The paper found out that movements in private saving have not been associated with similar shifts in investment, as changes in public saving and external saving have tended to offset movements in private saving.

Nwachukwu and Egwaikhide (2007) did an error-correction model of the determinants of private saving in Nigeria. The model allowed separation of long and short-run effects of various factors on saving rate. Annual data for the period 1970-2005 was used in the study and the independent variables employed include real per capita gross national disposable income (GNDI); growth rate of real per capita GNDI; real interest rate; rate of inflation; public saving rate; external debt service ratio; terms of

trade and the degree of financial depth. These variables were regressed over the variable private saving rate. Results obtained indicated that real interest rate shows that the real rate of return on bank deposits has a statistically significant negative effect on saving behavior in Nigeria. Whilst results for the variables terms of trade changes, external-debt-service ratio and the inflation rate point to a strong positive relationship between the two variables and the private saving rate, the income growth variable indicated that the variable have a significant negative impact on the private savings rate. The coefficient for public saving rate was both positive and significant, thus rejecting any substitutability between public and private saving. Results indicated that the coefficient for real per capita GNDI is positive and statistically significant which provides support for the argument that, for countries in the initial stages of development, the level of income is an important determinant of the capacity to save.

Literature from South Africa

Manyama (2007) did a research on the qualitative and quantitative savings culture in South Africa. The study also focused on the initiatives that the South African Saving Institute (SASI), Corporate and Government put in place to instil a culture of saving in South Africa. The research was a two step approach whereby the first step was an unstructured interview with an expert followed by an interview with a focus group then a survey. Results from this study indicate that the poor savings culture in South Africa is historical and that there are couple of factors that contributed to the current savings culture. The study concluded that the savings culture can be instilled if there is radical paradigm shift in the South African society, aggressive awareness campaigns through the media and education to ensure that the young people grow up recognising the importance of saving.

Du Plessis (2008) did a qualitative study on the exploration of determinants of private savings in South Africa. The qualitative study was conducted with reference to primary data in the form of opinions of senior South African economists, which data was gathered during in-depth exploratory interviews. Results of the study indicated that the declining household savings cannot simply be attributed to low income levels and the country's large population, but also on a large number of variables as well. Findings showed that household savings in South Africa appeared to be negatively impacted by expectation of future income. In addition, most interviewees afforded most weight to the negative impact of generally consumptive behaviour and conspicuous consumption as determinants of private savings in South Africa. The conspicuous consumption result in declining savings rate as individuals would want to spend more on clothing, cars and jewellery as there is competition to wear better than what most wear. The focus on this positional good is closely tied to negative impact of an aspirational culture rooted in materialism; the negative impact of HIV/AIDS on life expectancy of individuals and the continuing impact of South Africa's history of inequality with regard to income and race that Du Plessis (2008) found.

Old Mutual (2011) revealed that young people most commonly get into debt through the use of store cards, credit cards car finance, and personal loans. The borrowing facilities attract 61, 29, 16 and 14 percent of the young population respectively. The research further argues that unfortunately store card have the highest interest rates. As of 2011 in South Africa store cards offered 22.1%, credit cards between 13 and 22.1%, vehicle finance 17% and personal loans between 13 and 32.1%, rates that are all very exorbitant.

This paper is important as it bridges the econometric gap left in studying the determinants of household savings in South Africa. Econometrically establishing the determinants of savings in the South African economy will help to identify the determinants as well as the speed of adjustment of the regressions which is important for policy formulation.

From the reviewed literature variables such as demographics, GDP, income, public saving, interest rate, inflation, financial liberalisation, wealth tend to be central to the analysis of factors that determines household savings. These variables will be considered, based on their relevance to South Africa and availability of data. The next section outlines the methodology employed for determining these factors and their respective impact on private savings, household savings being the main focus.

Data and Empirical Estimations

This section presents the theoretical framework of the econometric model for savings rate guiding the empirical analysis in this study. The life cycle model of consumption helps identify the possible set of explanatory variables. Furthermore literature on savings was interrogated for the purpose of identifying other determinants of savings to augment the ones identified thorough the life cycle.

Given the numerous potential factors influencing savings rate in South Africa, a relatively simple empirical method is used to identify the main determinants of the household saving rate.

The data

It can be argued that levels of income and the fiscal policy feature prominently in the theoretical determination of savings rate, therefore the framework devised here as in Dirschmid and Glatzer (2004) estimates the direct effect of these variables on household saving rate. At the same time, the model also estimates the effects of other determinants of saving rate as informed by literature.

The study employs the Augmented Dickey-Fuller (ADF) methodology to test for the presence of unit root. Graphical displays also gave a quick assessment of stationarity status of the series, see Fig 2 below.

Data description and sources

Secondary data used was obtained from the SARB and World Bank databank mainly. A weakness of using secondary data to study saving patterns is that specific questions on households' attitudes on reasons for saving as well as actual savings are not available.

Dependent Variable – Household Saving rate

The variable of interest in the econometric model of saving rate is the aggregate household saving rate from 1963 to 2011. The data source for the aggregate regional household saving rate is the SARB. The ratio of savings to household disposable income is considered. This is due to the unavailability of ratio of savings to GDP data which is the most suitable time series. However ratio to disposable income is a good measure given that individuals save out of disposable income.

Determinants household saving

In the construction of an econometric model for the saving rate, defined above, the following variables are identified through literature as possible determinants.

Age Structure/Demographics

The average saving rate can be thought of as the sum of the savings rate of the different age groups in a population weighted by their income shares. This decomposition suggests that the age structure of the population matters. In absence of a bequest motive, theory asserts that the dissaving of the old should offset the saving of the young so that in a stable population there will be no aggregate saving. However, as argued by Bloom, Canning and Graham (2002), if the age structure of the population is unbalanced, which happens during a demographic transition, the saving behavior of the various cohorts does not cancel out and aggregate saving (or dissaving) is expected. Could South Africa be experiencing such scenario? South Africa has undergone political and demographic transition over the past five decades, and fertility began to decline among all major population groups prior to the end of apartheid, especially among Whites and Asians. One thing for sure is that South Africa maybe missing out on the savings dividend that should result from having a large workforce relative to the retired population. This phenomenon is clear in the statistics- about 64% of the population is working age while around 5% is in retirement with the remainder under children category. The high rate of youth unemployment, at 51% (South African Institute of Race Relations, 2012), means that the dependency ratio is not as low as it should be.

Growth Tilting

Economic growth increases the relative income of the young and does not only increase the average savings but also increases the effect of having a large young cohort. This leads to a phenomenon known as “growth tilting”, making the impact of a large young cohort on saving larger in a fast-growing economy (Bersales and Mapa, 2006). To capture the effect of this determinant, annual average growth rate of per capita Gross Domestic Product will be used.

Inflation (uncertainty variable)

Periods of high inflation tend to be associated with highly negative real rate of interest and may deter opportunities for saving. Therefore, annual expected inflation rate (in percent) will be added in the econometric model as determinant of aggregate saving. The *a priori* expectation is ambiguous as high inflation may deter savings from the returns perspective but may also encourage savings with regard to the need to cater for expected loss in purchasing power in the future. South Africa’s year ahead expected inflation rate was very high prior to 1994 maybe owing to the isolation of the economy from international community and other related factors.

Unemployment (uncertainty measure)

At the heart of it is the issue of the country’s exceptionally high unemployment rates that prevent more robust increases in household incomes, thus keeping household savings low in general, while also preventing almost any saving among the multitudes without a job.

Initial Level of Income/ Initial Level of Income Growth

The magnitude of life-cycle savings may depend on the region's income level (or initial income growth level) to capture the relationship of life-cycle saving with the level of regional development. The natural logarithm of the initial regional per capita GDP (measured in 1985 prices) shall be used to capture this relationship.

Remittance (Income transfer from abroad)

The model is also interested in looking at the contribution of remittances to the saving of the households. The data source for income transfer is SARB. Percentage of income from abroad defined as aggregated household income (assistance) from abroad over total household income would be included in the model.

Financial Infrastructure

The variable measures the access to financial services (banks branches, ATMs, point of sale swipe machines, cell phone banking, internet banking). All these determine the usage of banking services of which the most prominent one will be keeping money by the banks. Households consider the transaction cost of keeping money in the bank before they could decide to open an account. Transaction costs include among other things: transport cost to the nearest branch/ ATM, monthly banking fees and paper work required for opening any account. However, problems encountered by these financial institutions such as closed banks can create a negative perception among the households and may be a disincentive for saving. In the econometric models, the researchers use appropriate proxies to measure the presence of financial infrastructure in the regions. The presence of financial infrastructure in the regions is measured using the average number of branches of banks in the region and the number of closed banks during the same three years was also included as a determinant of saving rate. Data on this variable, though for some years is available on the World Bank databank, it is very scant and therefore was excluded from the final estimations.

Financial deepening

Financial depth, measured by M2/GDP, remained virtually unchanged between the two periods, thus having only a marginal impact on the savings rate. According to Dirschmid and Glatzer (2004), financial trends have a positive impact on saving behaviour as the deeper and broader the financial markets, the more people save. For this study, velocity of money will be used to proxy financial deepening. Velocity of money is a ratio of nominal income to broad money M3. It is possible to use velocity as an instrumental variable for financial deepening based on its features (Pattanaik, 2011).

Critics are in agreement that financial liberalisation has played a major part in the low savings in South Africa. The process gained momentum with the deregulation of financial institutions during the 1980s together with, inter alia, interest rate liberalisation, elimination of credit ceilings, the increased extension of credit to individuals, and ease of entry for foreign financial institutions. Financial liberalisation often results in higher interest rates, which theoretically should encourage private saving. However, the negative impact of higher interest rates on disposable income tends to neutralise the attractiveness of higher returns on savings (Simleit *et al.*, 2011) The freer access to credit has afforded households the opportunity to maintain higher levels of consumption than would otherwise have been possible, which has naturally discouraged savings.

Government spending (saving rate)

There is a correlation between household saving behaviour and fiscal policy. This variable has been applied by Jager and Neusser (1988) for Austria. The government debt to GDP as obtained was used to measure public saving.

Interest rate

According to Simleit *et al.*, (2011) empirical findings on the relationship between savings and interest rates are inconclusive in the same way as the theoretical ambiguity attest. This variable will help the study identify the prevalence of income effect versus substitution effect in South Africa. Real interest rate form the SARB statistics has been considered.

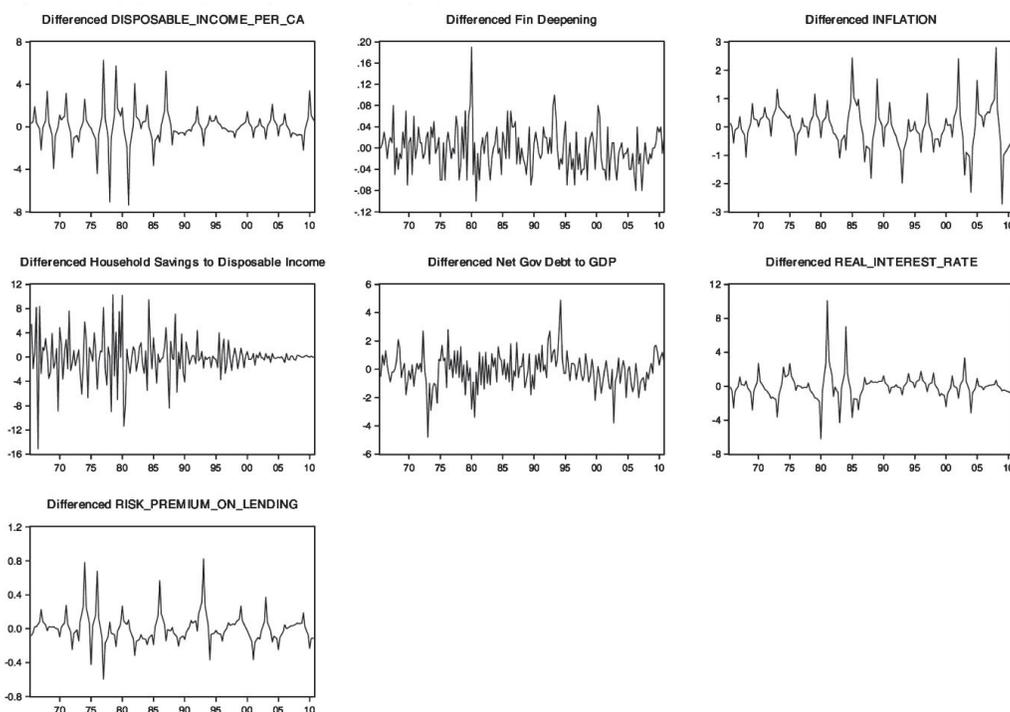


Fig. 2: Stationarity results

Estimation and results analysis

An error correction model is suitable for this analysis given that saving and consumer behaviour evolve slowly and there is need to identify separate long-run and short-run behaviour of the variables. However, before estimating an error correction model the existence of co integration relationship among the variables needs to be checked. As with many economic time series the data is expected to be integrated of a higher order, 1(1) or more. It follows then that the residuals from the regression of the results must be stationary.

The residuals from a long run relationship between key variables were rested for stationarity and co integration was confirmed. All insignificant variables were eliminated and the resulting model which was finally estimated and analysed has this specification:

$$\Delta S_t = \beta \Delta G_t + \beta \Delta R_t + \beta \Delta P_t + \rho (S_{t-1} - (\alpha_0 + \alpha_1 G_{t-1} + \alpha_2 R_{t-1} + \alpha_3 \gamma_{t-1} + \alpha_4 \varphi_{t-1})) + \varepsilon_t \dots \dots 1$$

Where S = Household savings rate

G = growth rate of real disposable household income per capita

R = real interest rate

P = financial deepening

\tilde{a} = budget balance

\ddot{o} = inflation rate

Results, Discussion Policy Implications and Conclusion

Empirical Results

The series proved to be integrated of order one and therefore allows the use of co integration techniques. Given the multivariate system, the study employed the Johansen techniques (Johansen, 1991). One co integrating vector was found and using Pantula Principle test. Based on the outcome the Johansen co- integration test was therefore conducted under the assumption of unrestricted intercepts and no trends. To explain what drives household saving rate, an econometric model was built with time series data. The results of the two specifications using the VECM and 2SLS for robustness are provided below.

The final VECM estimated presented the following results, see also table 1 below. The results show that all the variables except financial development have a positive effect on household saving. Since two estimation techniques have been considered, Table 2 also presented below show the results of 2SLS and full discussion of the results follows.

Table 1: VECM results

Vector Error Correction Estimates

Date: 05/23/12 Time: 15:31

Sample (adjusted): 1966Q1 2010Q4

Included observations: 180 after adjustments

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1					
HS_S_YD(-1)	1.000000					
G_D_GDP(-1)	-2.703346 (1.19853) [-2.25555]					
FIN_DV(-1)	79.34476 (40.7983) [1.94481]					
INF(-1)	-11.34245 (2.46765) [-4.59646]					
R_I_RATE(-1)	-3.527648 (1.20844) [-2.91918]					
YD_P_C(-1)	-22.27495 (2.16694) [-10.2794]					
C	95.75074					
Error Correction:	D(HS_S_YD)	D(G_D_GDP)	D(FIN_DV)	D(INF)	D(R_I_RATE)	D(YD_P_C)
CointEq1	-0.003160 (0.00501) [-0.63066]	0.002682 (0.00192) [1.39798]	0.000160 (6.5E-05) [2.46308]	7.97E-05 (0.00098) [0.08159]	-0.000698 (0.00211) [-0.33079]	0.017119 (0.00194) [8.82854]

Table 2: 2SLS Regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
YD_P_C	0.272849	0.128587	2.121908	0.0352
G_D_GDP	0.461309	0.071281	6.471661	0.0000
FIN_DV	-8.936616	2.172757	-4.113031	0.0001
INF	s0.545995	0.150988	3.616144	0.0004
R_I_RATE	-0.509078	0.064032	-7.950432	0.0000
R-squared	0.404611	Mean dependent var	4.414286	
Adjusted R-squared	0.391156	S.D. dependent var	4.564857	
S.E. of regression	3.561887	Sum squared resid	2245.605	
Durbin-Watson stat	0.973238	Second-Stage SSR	2306.001	
J-statistic	46.00069	Instrument rank	7	
Prob(J-statistic)	0.000000			

From 2SLS results presented in Table 2, among the variables that were significant under this model, income variable (disposable income per capita- YD_P_C), government debt to GDP (G_D_GDP), and inflation (INF) significantly impact savings positively. On the other hand financial development measure (FIN_DV) and real interest rate (R_I_RATE) have a significant negative impact on the same variable. The effect of the interest rate is the only one not consistent given the two estimations, reflecting the inconclusive results in literature discussed. With an adjusted R-squared and Durbin-Watson stat of 0.39 and 0.97 respectively, presence of autocorrelations and multicollinearity is ruled out. The variables exert long run effects on the household saving rate in South Africa which diffuses over 4-6 quarters (see Figure 3 below).

The marginal propensity to save out of disposable income is 0.27 in South Africa at 5 percent significant. This relates to the diminishing marginal utility concept as one's income increase you derive less and less utility from spending it, and therefore set aside more for future consumption. The result implies that the high unemployment rate which results in low disposable income is a strong impediment in raising South Africa's household saving rate.

As next period expected inflation has a positive effect on household savings. Households make precautionary savings based on the macroeconomic uncertainty. For South Africa, inflation has been pinned down more persistently after inflation targeting monetary regime implementation. The

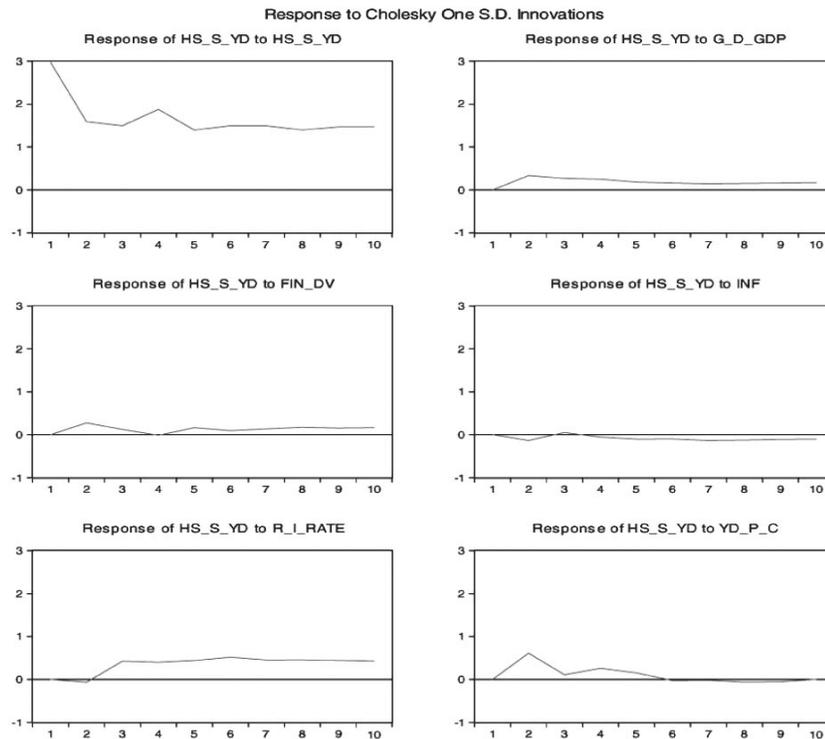


Fig. 3: Household savings rate Response

population is able to predict the future trend of price changes thereby reducing the need for precautionary savings. Low inflation is good for the general welfare, therefore some measures need to be taken to encourage savings, and real rewards from savings must increase from the current levels in order to be appealing to savers. Prudential macroeconomic policy alone therefore may not promote savings. There is need for policies that create conducive environment for more investment, job creation and economic growth which will make the private sector save more. The results from inflation variables opens a can of worms- should SARB drop inflation targeting as has been called by many stakeholders like the labour unions.

Real interest rate has a negative influence on household savings, under 2SLS, conforms to the results of Edwards (1995), Loayez *et al.*, (2000), De Serres and Pregrin (2003), Simleit, *et al.*, (2011) and fails to agree with Dirschmid and Glatzer (2004). This implies the prevalence of income effect of substitution effect in South Africa. For South Africa this is in line with the works of Simleit *et al.* (2011) and disagrees with Aron and Muellbauer (2000), Prinsloo (2000). The significance of this variable can be attributed to the suggestions of Prinsloo (2000): financial liberalisation and accompanying easing of credit should reduce borrowing constraints and hence increase interest rate sensitivity of savings. The trend in real interest rate has been persistently positive over from the early 1980s; given the result of this variable this gives a plausible account of the downward trend in household saving rate.

Policy Implications

It is imperative to note that while government needs to be at forefront of instilling a savings culture among the populace, the financial services industry also has a big role to play, especially from an educational point of view. Financial illiteracy can be a big stumbling block to instilling a savings culture in South Africa.

The financial sector needs to understand the demographic dynamics in order to bank the massive proportion of the population that is unbanked. Services available must be appealing to different groups of individuals. Most banks have moved with the top economic class at the expense of majority grassroots masses.

A macro-economic perspective reveals that South Africa has an opportunity to create a policy framework that can promote savings and thereby impel economic growth and stability. Previously, the income tax environment in South Africa did not offer any incentive to low income earners; the proposed tax amends (2011 and 2012 National Budget Speech) are likely to yield some recourse to those in the lower income brackets and encourage saving. The policy needs to be explained in simple layman's terms in order to catch the majority and make them understand how the new tax system will benefit them.

Policies like the new National Health and Insurance System has questionable impact on individuals' savings behaviour. The government is still in a dilemma of what role it should play in an economy. This has been proved by conflicting interest- need to have higher savings rate but the policies on ground hinders private savings, especially household savings. South Africa has a potential to leverage on demographic dividend for her economic growth and savings. It is unfortunate that majority of the youths are without jobs, if this is addressed then the savings by individuals can improve significantly given the trend in saving out of disposable income.

An enabling environment entails affordable access to savings (Mzansi and Stokvel account being good examples) and financial literacy among the population especially the previously unbanked. Accessibility refers to low transaction costs and non-discriminatory practices in the financial sector. This enabling environment should be complemented by job creation efforts and sustainable growth initiatives.

Gold savings bonds of India are a good example of how the government can tap into unaccounted savings in order to utilise efficiently these resources and incentivise the savers. This is a case of policy meets culture in India, what aspects of the South African culture or demographic dynamics that the policy makers can ride on.

Conclusions and Issues for discussion

The study revealed a disappointing trend in household savings in South Africa over the past five decades and this has been attributed to various developments encompassing demographic dynamics and the spending culture within the economy. The Ricardian equivalence theorem has been proved for South Africa and also income effect prevails over substitution effect. It has been disturbing to note that the sophistication of the financial sector had only worked against savings in South Africa. A number of policy considerations have been outlined.

As area for future research this study proposes looking into the measurement of savings in South Africa. The SARB measures savings as the difference between income and expenditure, however if the expenditure is not well disaggregated the measure will be distorted. Some spending is actually saving, for example insurance and funeral policies. The lack of complete data on demographic variables was an obstacle in assessing the effect of demographic transition in South Africa, an economy with great differences under this category- culturally and income inequalities.

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