

DETERMINANTS OF SAVING RATE IN SUDAN:

An Empirical Investigation (1990-2013)

Mutasim Ahmed Abdelmawla¹

Omran Abbas Yousif ²

Abstract:

Saving is considered as an important source of financing investment in any country, and a tool for achieving macroeconomic stabilization. The Sudan economy witnessed a number of difficulties over time such as supply rigidities, internal and external imbalances, higher inflation rates, which all contributed in a way or another to low saving rate in the country. This paper aimed at examining the determinants of saving rate in Sudan during the period (1990-2013) taking into consideration real disposable income, real deposit rate, and age dependency ratio as explanatory variables. The OLS technique is adopted for conducting the regression analysis. The main results obtained signify that age dependency ratio reduces the saving rate, while real deposit rate and real disposable income impact positively. Each of the explanatory variables is statistically significant at 1% level. The saving rate in Sudan during the period under study is found to be more responsive to age dependency ratio followed by real deposit rate, and lastly real disposable income. The study recommends increasing social security networks particularly for children and elderly people, besides encouraging saving awareness in both the private and public sectors, improving resource management, and curbing inflation rate to promote real deposit rates. It is highly recommended to reform the banking system to attract savings. Sudan should also focus more on policies that increase economic activity in the country - particularly in the productive sectors of agriculture and industry, in order to enhance real disposable incomes.

Keywords: Sudan, saving rate, Deposit rate, Disposable rate, Social security network.

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Dr.Mutasim Ahmed Abdelmawla Associate Professor, Department of Economics, Faculty of Economics and Rural Development, Gezira University, Box 20, Medani, Sudan. **E- mail:**
abdelmawla2004@hotmail.com

²

Dr.Omran Abbas Yousif Associate Professor, Department of Economics, Faculty of Economics and Rural Development, Gezira University, Box 20, Medani, Sudan. **E- mail. omraneconomy1970@gmail.com**

1. INTRODUCTION:

Saving is considered as an important source of financing investment in any country, and a tool for achieving macroeconomic stabilization. A country with low domestic saving rates always achieves low levels of economic growth. Furthermore, lack of domestic finance leads the country to rely on foreign finance, which might cause external shocks.

Adewuyi et al (2007) argued that a sufficiently strong saving performance is an important precondition for achieving economic growth, macroeconomic balance and financial and price stability. The relationship has become even more crucial with the studies confirming that despite the occasional importance of international flows of capital, the most important factor for a country's investment and economic growth is indeed its own saving.

Domestically generated savings are composed of household savings, corporate savings and government savings. Increases in public sector savings through higher taxes lead to decrease in household and corporate savings and consequently a decrease in productive investments. The marginal propensity for the government to spend is high due to its inability to resist political pressure to spend; hence it may not be relied upon to generate national savings directly. The households and the firms have a crucial role to play in savings generation (Mbuthia, 2011).

There are different motivations to save: life-cycle (to provide for anticipated needs), precautionary, independence, inter-temporal substitution (to enjoy interest), improvement (to enjoy increasing expenditure), enterprise, bequest, avarice and down payment (Karlan and Morduch, 2010). According to the Consultative Group to Assist the Poor (2010), numerous reasons, including low and irregular income and lack of access to financial services, have been posited to contribute to sub-Saharan Africa's (SSA) low formal savings rate. Access to financial services, including deposit or savings accounts, remains a privilege for most of the population (Cited in Chowa et al, 2012).

Historically, countries that have achieved and sustained high growth rates over long periods are those that were able to maintain high domestic saving rates, enabling strong and sustained domestic investment. In the case of African countries, domestic saving has remained low, leading to high

investment-saving gaps and increased dependence on external capital. A key reason is the inadequate performance in domestic saving mobilization in the public sector and in the private sector. But an important factor that has been overlooked is the leakage of resources through capital flight (Ndikumana, 2014). Having noted this, Ndikumana (2014) analysed the linkages between capital flight and domestic saving in the case of African countries. The analysis suggested that strategies aimed at stemming capital flight should be an important part of any plan to increase domestic saving. The paper discussed policies for raising saving and preventing capital flight which are derived from the analysis of the drivers of capital flight and domestic savings. In particular, it emphasized two sets of strategies: One is an incentives-based strategy aimed at increasing the attractiveness of domestic investment relative to foreign assets. This would address the part of capital flight that may be motivated by portfolio diversification. The second is an institutions-based approach aimed at strengthening the regulatory and legal systems to enable adequate investigation, prosecution, and prevention of financial crime. He argued that African countries should focus mostly on the latter. This will help deter illicit acquisition of wealth, embezzlement of public assets, and illegal transfer of private funds into safe havens.

The saving rate in Africa has perpetually been the lowest compared to other regions. It also faces serious credit constraints; and this, coupled with low income could greatly reduce any little incentive to save (Kibet et al, 2009).

The Sudan economy experienced a number of difficulties over time such as supply rigidities, internal and external imbalances, higher inflation rates, which all contributed in a way or another to low saving rate in the country.

The general objective of this paper is to find out the major determinants of the saving rate in Sudan over the period (1990-2013). The specific objectives include:

- (a) Determining the effect of real disposable income on saving rate in Sudan.
- (b) Finding out the effect of real deposit rate on saving rate in Sudan.
- (c) Determining the effect of age dependency ratio on saving rate in Sudan.

It is hypothesized that:

1. Real disposable income impacts positively on the saving rate in Sudan.
2. The effect of real deposit rates on saving rate in Sudan is positive.
3. Age dependency ratio reduces the saving rate in Sudan.

The importance of the present paper stems from the fact that increased saving rate is of crucial importance for achieving macroeconomic stabilization, sustainable development and poverty-reducing growth in developing countries. In addition, savings that are generated within the national economy provide the means for the financing of domestic fixed capital formation, which in turn, affects economic growth potential. Savings also cushion the economy against fluctuating international capital. Understanding of the fundamental determinants of saving in Sudan represents critical importance in order to formulate policies to raise the domestic saving rate.

To achieve the objectives of this paper, an econometric model is specified taking the saving rate as a dependent variable, while the regressors include real disposable income, real deposit rate, and age dependency ratio. Ordinary Least Squares (OLS) technique is adopted for estimation purposes. Data on the variables of interest are collected from the Central Bureau of Statistics and the Central Bank of Sudan annual reports. The time series data cover the period (1990-2013).

The rest of this paper is organized as follows: Section (2) reviews the literature, while Section (3) gives a background on savings in Sudan. Section (4) is devoted to the research methodology and data, while Section (5) provides the empirical results and policy implications of the findings. Finally, Section (6) concludes the paper with some final remarks.

2. LITERATURE REVIEW:

Precious and Asrat (2014) examined the determinants of household savings in South Africa over the period 1990-2011. Based on the life cycle

hypothesis upon which the study is based as well as empirical literature, particular attention is paid to the effects of age dependency ratio, the level of household income, inflation and real interest rate on household savings. The study employed the Augmented Dickey-Fuller and Phillips Perron unit root tests to test for stationary in the time series. The Johansen cointegration and the Error Correction Mechanism are employed to identify the long-run and short-run dynamics among the variables. The results of the study reveal that contrary to a theoretical expectation, the level of income and household savings are negatively related, implying that South African households do not only save but increasingly rely on debt to finance their spending. On the other hand age dependency ratio, inflation and real interest rate have positive long run relationships with household savings rate. The study recommended that the government should embark on counter-cyclical fiscal policy to avoid the development of excessive current account deficits during periods of more rapid economic growth, rising investment and falling saving. The government should increase its savings through an improvement in the government budget balance so as to raise overall savings in periods of economic upswings. Secondly, the government should look for alternative ways such as borrowing and attracting foreign domestic investments (FDI) to fund domestic investments in periods of economic upswings as household savings will be low.

Kalebe (2013) investigated from an empirical point of view the broad set of possible determinants of private savings in Lesotho using annual time series data for the period 1980-2010. The paper estimated the saving rate function and Error-Correction Modelling is used to avoid spurious results. The results indicate that public savings are important in explaining changes in private savings, both in the short-run and long-run and that the terms of trade negatively influence private savings in Lesotho in the long-run. Based on these results, the government should avoid excessive saving as that would compromise on the private savings and hence private investment and production capacity of the economy. Therefore, the fiscal policy should be designed and implemented in a prudent way such that it cannot lead to crowding out of private saving which could exacerbate the already bad unemployment situation in Lesotho.

Ayalew (2013) investigated determinants of domestic saving in Ethiopia using the autoregressive distributed lag (ARDL) bounds testing approach. The analysis was based on time series annual data covering the period 1970/71-2010/11. The Estimated results revealed that growth rate of income, budget deficit ratio and inflation rate were statistically significant short run and long run determinants of domestic saving in Ethiopia. But, depositing interest rate, current account deficit ratio and financial depth were found to be statistically insignificant determinants in the long run. However, in the short run, financial depth and interest rates were found to have statistically significant meaning in explaining domestic savings in Ethiopia. The overall findings of the study underlined the importance of raising the level of income in a sustainable manner, minimizing the adverse impacts of budget deficit and inflation rate and creating competitive environment in the financial sector.

Nurudeen Abu et al (2013) employed Panel Corrected Standard Errors (PCSE), OLS and Two Stage Least Squares (TSLS) methods with random effects to investigate the impact of the political instability-income interaction on savings in ECOWAS countries during the period 1996-2012. The empirical evidence illustrates that higher political stability is associated with higher savings and income levels moderate the adverse effect of political instability on savings, indicating that the impact of political instability on savings is higher in low income ECOWAS countries, but lesser at higher levels of income. The paper recommended the promotion of political stability via increases in incomes to raise savings in the ECOWAS region.

Chowa et al (2012) argued that although research has shown that poor people in sub-Saharan Africa (SSA), including those living in rural areas save, little is known about the factors that influence saving and asset accumulation among this population. Using three theoretical perspectives on saving and asset accumulation, they examined the broader determinants of saving and asset accumulation among low-income individuals in rural Uganda. Compared with the individual-oriented and sociological perspectives, institutional theory explains a large part of the variance in saving outcome among rural, low-income households. Wealth, proximity to financial institutions, financial education, and financial incentives are

positively associated with higher saving performance. Findings suggest that poor people can and do save, particularly when institutional barriers to saving are removed. Institutional structures, which encourage low-income individuals to save, may contribute to a poverty reduction policy that shifts from just income supplementation to a more inclusive wealth promotion policy that assists people in creating their own pathways out of poverty.

Kiptoo (2011) empirically investigated a set of determinants of domestic savings in Kenya for the period (1970- 2011), with special focus on the impacts of remittance inflows on domestic savings. Secondary data sourced from the World Bank database and Kenya National Bureau of Statistics was used. The Error Correction Model (ECM) was adopted for estimation purposes. The empirical results showed that the impact of remittance on domestic savings in Kenya is positive and significant. Furthermore, GDP per capita, exports and investment affect domestic savings positively and significantly. Real interest rate does not have a significant effect on domestic savings. The study recommended, among others, that government's effort should be geared towards improving the inward flow of remittances by considering a favorable tax treatment for migrant investment in securities and offer the same tax treatment offered to foreign investors for certain classes of investment.

Mualley (2011) examined from an empirical point of view the response of domestic savings in a set of African countries (35 countries) to per capita income, commercial banks' interest rate, and the age dependency ratio. For this purpose, the OLS technique is applied to a cross-section data on domestic savings, income, commercial banks' interest rate, and age dependency ratio taken from African countries for the period (1990-1999). The results suggest that African savings are elastic to income only. These results strongly support the theoretical argument which identified income as an important determinant of savings. Based on this, it may be argued that in their mobilization of domestic savings for the acceleration of economic growth and development, African countries should focus more on policies that increase incomes and reduce unnecessary spending.

Munir et al (2011) examined the effect of workers' remittances on the private savings behavior in Pakistan by using the ARDL bounded testing approach. They concluded that the workers' remittances have positive

impacts on the private savings in the long run and the short run, thus workers' remittances are both consumed and saved. Furthermore, the foreign direct investment has negative influence on savings because it does not reach poor households directly.

Mbuthia (2011) examined the underlying factors determining a household's choice of saving in formal, semi-formal and informal financial institutions in Kenya using a separate bivariate logistic model for each of the institutions. In addition, the study examined the determinants of households' level of financial savings using weighted ordinary least squares method. Correlation between decision to save in formal, semi-formal and informal financial institutions was identified through pair wise correlations. Major hindrances to ownership of bank accounts were also identified. The study utilized secondary data collected from a sample of 6598 Kenyan households. In each of the three forms of financial institutions, the level of financial information held about the financial institution, credit availability in the financial institution and the level of a household income were the most significant variables in a household's decision to save in a particular financial institution. The level of household income, perceptions of high interest rates on savings held in financial institutions and the main financial service provider being a formal financial institution significantly increased the level of household financial savings. Positive correlations were found between savings in all the financial institutions although they were stronger between savings in formal and semi-formal financial institutions. Resource constraints in a household were the major hindrance to ownership of a bank account. The ministry of finance should collaborate with the banking sector to introduce financial education programmes to enlighten the public on the benefits of saving in formal and semi-formal financial institutions to enhance long-term finance. In addition, the government, through the relevant ministries, need to introduce measures to enhance incomes especially among households who derive most of their income from the informal sector.

Jongwanich (2010) investigated the determinants of household and private savings in Thailand for the period of 1960 to 2004. The extended version of life cycle model was used to estimate the savings function by using ARDL modeling technique. The independent variables used in the extended life

cycle model were growth rate of real per capita income, youth dependency, elderly dependency, inflation, terms of trade, real interest rate and credit constrained. The results proved positive association of economic growth and inflation with domestic and private savings, whereas the availability of credit tends to be negatively associated with the savings rate. The elderly and youth dependency has a negative influence on the household and private savings, the magnitude of the association is far greater for the former than for the latter. Furthermore it was concluded that the fiscal policy is playing an important role in increasing the level of national savings in the economy.

Using Granger-Causality test, Emmanuel and Ahmad (2001) examined the causality between economic growth and the growth rate of domestic savings for Congo, Côte d'Ivoire, Ghana, Nigeria, Kenya, South Africa, and Zambia. The empirical results indicate that for Ghana, Kenya, Nigeria and Zambia, economic growth Granger causes growth of domestic saving. For the case of Congo, the result indicated that growth of domestic savings Granger causes economic growth. For the case of South Africa and Côte d'Ivoire, the results revealed the existence of two way causality.

3. SAVINGS IN SUDAN: A REVIEW

This section gives a background on the trends in savings in Sudan and highlights findings of some of the empirical studies conducted on the determinants of savings in Sudan. In addition, the section provides some information about the Central bank of Sudan three year program (2012-2014).

The average saving rate in Sudan as a developing country is below ambitions. Lack of adequate domestic finance is a major obstacle to development in the country. Based on data collected from the Central Bureau of Statistics, Sudan, the average Saving-Gross National Income ratios during the periods (1990-1994) and (1995-1999) were estimated at 4% and 5.5%, respectively. The situation improved after oil exploration in the country in 1999, where the saving rate reached 23% during the period (2000-2004), while it dropped since then to reach 20.6% and 17.6% during the sub-periods (2005-2009) and (2009-2013), respectively.

Arabi (2014) assessed economic development path of Sudan during the period 1977 -2009 via genuine saving rate (GSR) and investigated the

factors that affect genuine saving, using vector autoregression. Genuine saving estimates were obtained from World Bank over the period 1977 to the referendum on South Sudan secession in 2009. Results show that the past values of manufacturing share to GDP, GSR lagged once, and growth rate have positive effects on GSR, contrary to GSR lagged twice, and import duty rate values. Almost half the period under consideration, Sudan suffered from dis-saving, affecting adversely well-being and sustainability. Dutch disease is apparent since the export of oil in the last quarter of the 1999.

Mohamed et al (2012) examined impacts of foreign exchange rates against the Sudanese currency on savings. The increasing rates of foreign currencies in the domestic Sudanese Black markets have simultaneously resulted in the continuous depreciated Sudanese currency values over the years (2011-2012) and the subsequent increases in commodities' prices and accelerated inflation rates. With the economic slowdown that started with the global financial crisis, the problem has evolved into rife stagflation. The black market became the de facto source of foreign currencies in the country with the diminishing ability of the government to provide considering her dwindling reserves. The Sudanese people's general response was to minimize their savings in national currency with heavy withdrawals from the financial institutions and buying, investing in real states, gold or foreign currencies. The latter, added to the demand for foreign currencies in the domestic market. Medium-term solutions are depicted in enticing FDI in the country and enhancing the productivity of the economic real sectors. However, instantaneous feasible solutions are to raise official foreign currencies exchanges or reducing them. The expected effects are to enhance savings and accelerate the already slowed economic activities in Sudan. The conducted econometric analysis confirmed that the devaluation of the exchange rate for the national currency reduces savings. The required total savings to enhance the financial institutions to finance domestic economic activities are estimated at 1.21 Billion dollars according to the econometric results. The coefficient of determination (R^2) was estimated at 75%, which proves the model significance. The overall conclusion is that there is a negative correlation between foreign currencies rates and savings rates in Sudan.

According to the Central Bank of Sudan (CBOS, 2012), the CBOS policies for the year 2012 are based on the guidelines and goals of the three year program (2012-2014), which has been designed and adopted to cope with the negative consequences owing to exit of resources of the oil produced in South Sudan after secession on the progress of the Sudanese economy.

The three year program (2012-2014) has identified four pillars for the economic, financial, monetary and social policies which would achieve, at the end of the period, restoration of the internal and external equilibrium of the economy and hence resumption of sustainable economic growth under stability. The pillars are:

- The financial policies pillar
- The monetary policies pillar
- The real sector policies pillar
- The social stability policies pillar

According to the policies cited in the four pillars mentioned above and in full coordination with the Ministry of Finance and National Economy and the rest of the economic and social sector ministries, the Central Bank of Sudan issues the following policies for the year 2012

First: Mobilization of National Saving Pillar

This pillar aims at expanding the attraction of national savings in local currency for the purpose of providing the financial resources required for economic activity in general and by concentrating on financing, producing manufacturing and exporting processes of the commodities mentioned in the program so as to achieve the objective of import replacement and exports boosting. That would be realized by encouraging the banks and the non-bank tax bases to attract the National Savings through the following measures:

- (a) Abolishing the restrictions on the banks to open new branches so as to allow them to open their branches without making resource of the Central Bank for approval.
- (b) Simplifying procedures for opening current accounts and savings and investment accounts with the banks.
- (c) Taking the necessary measures to stop using the cheque as a guarantee instrument and activate the Bills of Exchange Act to become a substitute for the use of cheques for deferred payment.

- (d) Dropping the savings and investment deposit accounts from the process of calculating the legal cash reserve ratio.
- (e) Spreading the electronic banking services in all of the cities and rural areas.
- (f) Encouraging the establishment of bank and non-bank financial institutions specialized in mobilizing resources, boosting savings rates and developing savings products.
- (g) Encouraging the banks to pay the holders of bank deposits remunerative profits.

Second: Allocation of resources Pillar

Third: Achievement of economic stability

Fourth: Banking, supervisory, development of payment, and financial and banking technology systems.

Fifth: Developing currency management pillar.

Sixth: Micro and Mini finance policies.

Mohamed (2007) estimated the saving function for Sudan over the period (1990-2004) using OLS technique. The explanatory variables taken into consideration are disposable income, inflation rate, the degree of financial depth, and GDP. The study also assumed that the factors affecting savings in Sudan are not only economic factors, but there are other social, political and natural factors. The results reveal that disposable income, the degree of financial depth, and GDP impact positively on savings, while the inflation rate impacts negatively. The study pointed out the need to disseminate banking services and saving facilities, besides developing saving awareness among people and expansion of contractual saving forms by encouraging life and social insurance to cover the greatest possible number of people.

Adam (2004) estimated the causal relationships between domestic saving measured by growth rate of domestic saving and economic growth measured by growth rate of real gross domestic product in Sudan for the period (1982-1999). As opposed to the previous studies which have mainly utilized panel-estimation method, the test of causality here carried-out in time-series settings. Unlike past studies this study tested an alternative hypothesis: that higher growth rates of real gross domestic product cause growth rate of domestic saving. The direction of causality is investigated

using the OLS estimator and Hisao's (1971, 1981) testing procedure, which is a combination of Granger's (1969) causality test and Akaike's (1969) Final Prediction Error (FPE) criterion. The empirical results lend for greater support to the hypothesis that there is two-way causation (feedback effect) between saving and economic growth. That means the two variables are both cause and effect of each other. Policymakers should give equal importance to policies, which regard higher saving and investment as a consequence of higher economic growth.

Arabi (2002) analyzed the Sudanese economy via Investment – Saving gap and Import – Export gap. He also identified the essential factors that affect economic growth. The most important results are the dominance of Investment – Saving gap over Import – Export gap, low level of labor productivity, low level of total factor productivity which reflects the decrease in technological level of the Sudanese economy, the growth rate of capital productivity is three time the growth of labor productivity. Factors that cause Investment – Saving gap are excess capacity, capital productivity, reliance on primary production as a main source of economic activity, while those which cause Import – Export gap are real exchange rate, terms of trade, and investment. The influence of Investment – Saving gap on growth is obvious compared to the other gap.

Abdallah (2002) investigated from an empirical point of view, the causality between domestic savings and economic growth in Sudan during the period (1971-1994). The study adopted the well-known Granger (1969) causality test. The results of the study reveal that economic growth Granger causes growth of domestic saving, asserting that there is a one way relationship running from economic growth to the growth of domestic saving.

4. RESEARCH METHODOLOGY AND DATA:

This section outlines the research methodology that will be adopted in the analysis and outlines the sources of data employed in the empirical model. As mentioned earlier, the ultimate objective of this paper is to specify an empirical model to investigate the determinants of saving rate in Sudan over the period (1990-2013). The model to be estimated takes the following general functional form:

$$SR = F(Y^d, R, D) \quad (1)$$

Where:

SR : Saving rate (Savings as a percentage of Gross National Product).

Y^d: Real disposable income (real after tax income).

R: Real deposit rate (deposit rate adjusted by the inflation rate).

D: Age dependency ratio.

Based on economic theory, disposable income is a main determinant of savings. In fact, households tend to increase their savings as their after tax incomes increase. According to the Keynesian approach, the increase in savings is always proportional to the increase in disposable income, suggesting that the marginal propensity to save is positive but less than one. The coefficient of real disposable income is expected to be positive.

The saving rate is affected by the deposit rate. Households are encouraged to increase their savings as the deposit rate they get from commercial banks increases. For the purpose of this paper, deposit rate is adjusted by the inflation rate to obtain the real terms. We expect the real deposit rate to impact positively on the saving rate.

The population structure has been identified as a factor affecting saving behavior in less developed countries. Recent literature indicates that the saving rate is negatively related to the age dependency ratio. High expenditure rates of the households in Sudan on wellbeing of their children and the elderly people in the family - particularly after liberalization policy, put pressures on the family budgets, thereby lowering the savings. Data on age dependency ratio (D) is calculated as the ratio of dependents (population under age 15 and above age 65) to total population. The coefficient of the age dependency ratio is expected to be negative.

The time series data on the variables of interest are compiled from official sources namely, Central Bureau of Statistics and the Central Bank of Sudan.

5. THE EMPIRICAL RESULTS:

It is useful to start the analysis by providing some descriptive statistics for the study variables as given in table (1).

Table (1)
Descriptive Statistics for the Study Variables (1990-2013)

Indicator	Average	Standard Deviation (SD)	Coefficient of Variation (C.V)
SR	14.1	8.9	0.632
Y ^d	632.9	294.5	0465
R	1.1	0.8	0.807
D	46.6	1.1	0.024

Source: Own Calculations.

It is clear from table (1) that real deposit rate exhibited the highest degree of volatility (81%) followed by the saving rate and real disposable income. The average real deposit rate during the period under consideration is estimated at only 1.1%, while the average saving rate is estimated at 14%. It is also clear that nearly have of the population in Sudan are dependent on others, with an average age dependency ratio of 47%.

Before conducting the regression analysis, it is important to test for the stationary of the variables included in the empirical model. For this purpose, the Augmented Dickey-Fuller (ADF) unit root test will be used. The results are given in table (2), where the figures inside the parentheses are the P - values.

Table (2)
Results of the Unit Root Tests for the Study Variables
(With Trend and Intercept:(1990 - 2013))

Variable	ADF t-Statistic	Stationary Test Order
Ln SR	- 5.97 (0.000)	First Difference
Ln Y ^d	- 4.94 (0.000)	Second Difference
Ln R	- 5.46 (0.000)	First Difference
Ln D	- 7.02 (0.000)	First Difference

Source: Own Calculations.

The results in table (2) indicate that the ADF test statistics for the coefficients of all variables are significant at 1%, indicating that the real disposable income is stationary after differencing two, while the other variables are stationary after differencing once.

By applying the Ordinary Least Squares (OLS) technique, we estimated the log linear form of equation (1). The estimation results are shown in table (3) after solving the autocorrelation problem, where the figures inside the parentheses are the t-ratios of the estimated parameters and those inside the square brackets are the P - values.

Table (3)
Estimated Saving Rate Function for Sudan (1990-2013)

Estimated Coefficient (elasticity) of			F-Ratio	R ²	D.W.
Y ^d	R	D			
0.51 (8.5) [0.000]	0.63 (6.3) [0.000]	- 0.77 (-4.3) [0.000]	26.5 [0.000]	0.96	1.86

Source: Own Calculations.

The estimation results of table (3) reveal that the explanatory power of the estimated model is 96% as indicated by R². This indicates the goodness of fit. All the expected signs are confirmed by the empirical results. The coefficients (elasticities) of Y^d, R, and D are found to be statistically significant at the 1% level as indicated by the t-ratios. Based on the F-ratio, it is clear that the estimated model is significant at the 1% level. The Durbin – Watson statistic (D.W) indicates the absence of autocorrelation problem at the 1% level. The results also signify that the saving rate in Sudan is more responsive to age dependency ratio followed by real deposit rate, and lastly real disposable income. For example, an increase by 1% in age dependency ratio will deter the saving rate by 0.77%. On the other hand, an increase by 1% in real deposit rate and real disposable income will enhance the saving rate by 0.63% and 0.51%, respectively.

These results illustrate that the explanatory variables taken into consideration are quite important for the attraction of savings needed for the development of Sudan. The study recommends increasing social security networks for the wellbeing of children and elderly people, besides developing saving awareness among households and also in the government institutions. In this regard, improving resource management is quite important. It is highly recommended to reform the banking system to encourage depositors. Policies should also focus on stabilization of general price level by curbing inflation, so that people benefit more from the deposit rates they get. In addition to that, diversification of the resources is required to reduce the inflationary effects and provide stable funding in the country. Sudan should also focus more on policies that increase economic activity in the country - particularly in the productive sectors of agriculture and industry, in order to enhance real disposable incomes. Reducing the tax rates matters for promoting disposable incomes of the households.

6. CONCLUDING REMARKS:

This paper aimed at examining the determinants of the saving rate in Sudan during the period (1990-2013). An econometric model is used for analytical purposes by adopting the OLS technique. In addition, some descriptive statistics are provided. The main results obtained illustrate that age dependency ratio reduces the saving rate, while real deposit rate and real disposable income impact positively. Each of the explanatory variables is statistically significant at 1% level. The saving rate in Sudan during the period under study is found to be more responsive to age dependency ratio followed by real deposit rate, and lastly real disposable income. The study recommends increasing social security networks particularly for children and elderly people, besides encouraging saving awareness in both the private and public sectors and improving resource management. It is highly recommended to reform the banking system to attract savings. Policies should also focus on lowering the inflation rate to promote real deposit rates. Policies that aim at increasing real disposable incomes in the economy are highly required.

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