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UNIVERSITY OF THE WITWATERSRAND



FACULTY OF COMMERCE LAW AND MANAGEMENT

SCHOOL OF GOVERNANCE

INCOME INEQUALITY AND HOUSEHOLD CONSUMPTION EXPENDITURE IN SOUTH AFRICA: 2000-2014

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A research report submitted to the Faculty of Management, University of the Witwatersrand, in 50% fulfilment of the requirements for the degree of Master of Management (in the field of **Public Policy**).

17 June 2016

DECLARATION

I declare that this report is my own, unaided work. It is submitted in partial fulfilment of the requirements of the degree of Master of Management (in Public Policy) in the University of the Witwatersrand, Johannesburg. It has not been submitted before any degree or examination in any other university.

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Abstract

This paper investigates the nature of relationship between income inequality and consumption expenditure by households. The link between the distribution of income and household spending was determined by exploring the relationship between income inequality and household saving. The econometric estimates show that the propensity of the bottom earners to consume is higher than that of the high income earners. The conclusions from this paper are that; the bottom earners used credit to smooth their consumption expenditure, income inequality has not boosted saving of the top earners and wealth inequality has a minimal effect (although positive) on aggregate consumption Some of these finding are consistent with the theoretical view on income and wealth inequality (Kaldor, 1957) and Aghion et al. (1999). The absence of coping mechanism (such as access to credit and employment), suggests high inequality might result in a decline in the household demand, since the bottom and low earners has high marginal propensities to consume compared with that of the top earners. The existence of imperfect capital markets suggests distributive policies and economic growth are important channels for reducing income and wealth disparities in South Africa.

Table of Contents

1. CHAPTER ONE – Introduction and Background 6
1.1 Introduction 6
1.2 Research problem and purpose 8
1.3 Research questions 9
1.4 Research design 10
1.5 Research methodology 11
1.6 Data description 13
1.7 Field of study 16
2. CHAPTER TWO – Literature survey and theoretical framework 18
2.1 Literature survey 18
2.2 Theoretical framework 24
2.3 Inequality and public policy 26
2.4 Structure of the economy 31
3. CHAPTER THREE – Research methodology and data analysis 36
3.1 Empirical methodology 36
3.2 Model specification 37
4. CHAPTER FOUR – Data analysis 40
4.1 Data analysis 40
4.2 Cointegration analysis 44
4.3 Limitations of the study 44
5. CHAPTER FIVE – Summary and conclusion 47
5.1 Summary 47
5.2 Policy recommendations 48
5.3 Conclusion 50
References 52
Appendix 64
Glossary of terms 73

1. CHAPTER ONE – Introduction and Background

1.1 Introduction

South Africa has one of the largest income disparities in the world with a Gini Coefficient of about 0.7 (Bhorat et al., 2009) and Tregenna and Tsela (2012). Although the level of income inequality has always been high in South Africa (Netshitenzhe, 2013), the distribution patterns have worsened, with the top 5% income earners receiving 34%, 40% and 39% of total income in 2002, 2008 and 2011 (Facundo et al., 2012). Netshitenzhe (2014) has alluded to the fact that change in the share of national income has not been benefiting the 'middle class', despite an increase in the proportion of this group in South Africa.

Income inequality can have direct and indirect effect on the economy through various macroeconomic channels (Malinen, 2013). The relationship between household income and final consumption expenditure by households has been established in literature; however, there is no agreement on how income inequality affects the context of the relationship. The two mainstream theories in economics, namely Neoclassical and Keynesian economic theories have a different take on the relationship between income inequality and consumption. The former argues income inequality does not directly influence consumption (Friedman 1957), while the latter purports that income inequality reduce consumption and increase savings (Keynes, 1936) as alluded to by Sheehan (2009). Rajan (2010) and Van Treeck and Sturn (2012) found high and increasing income inequality have the potential to lower consumption by households, since low income households spend a large share of their income on consumption of goods and services. Aggregate economic data published by the South African Reserve Bank, indicates that household consumption spending is the largest contributor to gross domestic product (GDP). The share of final consumption expenditure by households in GDP declined from 63% in 2000 to 59% in 2010, before rebounding to 61% in 2012 and levelling out in 2013 and 2014. Similarly, the annual growth rate in household consumption expenditure was relatively buoyant, registering growth rates above GDP since 2000, with the exception of the period 2009-2010.

Understanding the nature of the relationship between income inequality and household spending is important for ensuring that appropriate policy measures are implemented to promote welfare and sustainable economic growth. Rajan (2010, pp 39) asserted that the “political reaction to rising income inequality in the United States of America (US), was to extend credit to lower income earners”. There is no evidence to suggest that political and policy authorities have reacted to the challenge of income inequality in a similar manner in South Africa. The promotion of financial inclusion by the policy makers in South African bear testimony to the “political reaction” Rajan (2010) alluded too. The promulgation of the National Credit Act (2005) which protects consumers from over-indebtedness, suggests it was not necessarily the case. However, James (2014) alluded that the Act achieved minimal success, by reducing high growth rate in mortgage advances. Moreover, the Act was increasingly used to reform borrowers, rather than ensuring lenders are held accountable (James, 2014). Nevertheless, evidence shows that the increase in income inequality in South Africa was accompanied by the rising household debt. Consumption expenditure by households has been the most significant contributor to GDP in South Africa, notwithstanding the fall in the share of wages to GDP from 2000 to 2008. This substantiate the evidence that the low income households have supplemented their incomes with savings, as evidenced by low savings rate or have probably responded by increasing their borrowing, as reflected by the high ratio debt to disposable income. In fact, Aron and Muellbauer (2000) found that financial liberalization had a negative effect on household saving, by encouraging households to increase borrowing. Similarly, Viegi (2014) postulated that the poor and low income earners used credit to absorb the effect of increasing inequality. The implications of high income inequality are high consumption and low saving rate in the economy.

This paper contributes to the public policy debate on income inequality in South Africa by arguing that income disparities contributed to an increase in debt low savings of households. The econometric results of this paper showed that increase in borrowing and decline in savings allowed the bottom earners to smooth consumption expenditure between 2000 and 2014. The data analysis also showed that consumption expenditure was supported by relatively high propensity to consume by the top earners in South Africa. In the main, results of this paper suggest high income inequality will lead to a

decline in household spending, in the absence of a coping mechanism such as access to credit and employment creation. Data analysis showed that household expenditure was boosted by an increase in the unsecured lending and rising wealth effects emanated from higher asset prices between 2009 and 2014. The research by James (2014) indicates most black South Africans use credit from micro lenders and other non-bank financial institutions, as a form of coping mechanism. This research provides some policy recommendations on how to reduce inequality, income and wealth inequality. The analysis of this research showed that high income inequality matters for growth in household spending and savings. Inequality also matters for social cohesion, quality of governance and democracy.

1.2 Research problem and purpose

This research describes and investigates the nature of the relationship between income inequality and household consumption expenditure in South Africa. Different measures of changes in income have been used to analyse the overall trend of income inequality; this is partly due to unavailability of data for some periods. The research aims to analyse how distribution of income and consumption patterns of different income groups have changed since 2000 and to outline the policy implications of income inequality in a demand driven economy such as South Africa. The objective of analysis is to determine if the changes in income distribution has influenced consumption spending, borrowing, and savings patterns of the low and top earners.

This research provides insight into why the ratio of consumption to GDP remained relatively high, averaging 61% despite an increase in income inequality since 2000. Leibbrandt et al. (2010) have found high inequality in South Africa to be caused by rising inequality in the labour market; which is a reflection of the high rate of unemployment. Deaton (2013, pp 191) asserted that labour market is important in the understanding of income inequality, since employment is a source of income for most households. However, he emphasised the “distribution of income cannot be reduced to supply and demand in the labour market only, nor it must be reduced into a single measurement such as the Gini coefficient”. Income inequality appears to have

constrained investment in the economy, by contributing to low saving rate and the high accumulation of debts by households. This view is related to findings of Korty (2008) that the natural response of households to rising income inequality is to borrow more. Similarly, Boushey and Weller (2008) associated an increase in income inequality with the accumulation of credit card debt by households in the United States. The research findings indicate that it is difficult to establish the level of income inequality that is consistent with sustainable consumption spending by households (without having to rely on higher borrowing or reducing their savings) since households consume out of wealth (capital income) as well. That is because the functional distribution of households depends on both the labour and capital income. This research has investigated the macroeconomic implications of high income inequality on household consumption patterns in South Africa, notwithstanding the fact that the relationship between macroeconomic variables (consumption expenditure, savings and income) is complicated as some of these indicators are interrelated, causality is both directional. It is generally accepted that redistribution in the form of taxes and transfers and increase in social spending have reduced poverty levels in South Africa (Bhorat, et al., 2013) however persistent high inequality suggests distributive measures have not been effective in reducing income inequality.

1.3 Research questions

The primary research question is the following:

- **Has income inequality in South Africa not inhibited growth in household consumption expenditure since 2000?**

Secondary research questions which support the primary question are as follows:

- Is there a linear relationship between the changes in income distribution and household consumption expenditure?
- Do high income households spend a lower share of income on consumption of goods and services than low income earners in South Africa?

- What is the income distribution pattern across different income groups in South Africa?
- What is the relationship between income and wealth inequality in South Africa?
- What has been the trend in the consumption of durable, semi-durable and non-durable goods and services by bottom and top income earners in South Africa since 2000?
- Why has high income inequality not translated to higher household savings in South Africa?

Secondary questions in this research will be analysed using correlation analysis to establish a relationship between income inequality, consumption, savings rate and household debt.

1.4 Research design

Research by Bhorat et al. (2009), Leibbrandt et al. (2010) and Tregenna and Tsela (2012) used the Income and Expenditure Surveys (IES) to analyse income and consumption inequality trends in South Africa. The disadvantage of using IES datasets is that they exclude financial and residential assets of households. This has the potential to complicate the analysis of income inequality, household expenditure and net wealth. Leibbrandt et al. (2010) explained that IES contains information on expenditure and income of household, including data on movable household assets. The data on the share of income (Facundo et al., 2012) and wealth (Credit Suisse Chart Book, 2014) used in the research were validated against economic literature and theory to ensure that all indicators are relevant for the research. Bryman (2004) explained the advantage of using official and secondary data to be the following: cost and time saving, high quality data, opportunity for longitudinal analysis, subgroup analysis, more scope for analysis and opportunities from re-analysis. However, he outlined the disadvantages as follows: there might be complexity in the data collected; there is lack of familiarity with data; the researcher does not have control over the data; key variables might

be absent in the data and the use of such data entails getting permissions from the original compiler.

1.5 Research methodology

The quantitative methodology was used in this research; this method focuses on collection and analysis of data. Quantitative analysis is based on the positivist traditions of natural sciences (David and Sutton, 2004). The advantage of the quantitative method is that it encompasses the use of the deductive form of reasoning and it uses data to assess models, hypotheses and theories; testing of hypotheses; use of statistical techniques and the data is presented by means of results gained from precise measurement. However, Brymans' (2004) criticism of quantitative research is that it does not clearly distinguish people and social institutions from the world of nature. Bryman (2004) also asserted that analysing the relationships of different variables often create a static view of social life that is independent of people's experiences.

The focus of this research is mainly explanatory research - which investigates factors that might have caused a variable or variables to behave in a certain way. Econometric and statistical methods were used to analyse the relationship between income inequality, wealth inequality, consumption expenditure and other macroeconomic variables. Data reliability is important in a quantitative study, in this research data reliability are enhanced by the fact that data are produced by official statistical agencies. This research is based on data collected from the South African Reserve Bank (SARB), Statistics South Africa (Stats SA), World Top Income Database (WTID), Credit Suisse Chart Book and from existing literature on income inequality in South Africa. Aggregated household disposable income and consumption expenditure time series data was sourced from the SARB, this data is available in nominal and real values. Statistics on distribution of income and wealth by household groups was sourced from the WTID and Credit Suisse Chart book. The Income and Expenditure Survey (IES) of Stats SA which is published every five years was also used to establish consistency between data sources. The aggregate data on real disposable income of

households were used as a basis for calculating income inequality by group. The real disposable income of household represents both permanent and transitory income, since it includes current and future spendable income. The real disposable income is used as a proxy for total income received by the bottom and top earners. The trends in share of national income distribution in South Africa appear to have been consistent with that from the share of disposable income of households by group. The trend in the income distribution published by the WTID for South Africa are consistent with the results of Leibbrandt et al. (2010) and Bhorat et al. (2012) which were based on the IES data. Atkinson and Bourguignon (2000) cautioned that the disposable income can result in a biased representation of the actual distribution income in a society. According to these authors, comparison between household income in the surveys and National Accounts statistics indicate an underestimation rate of between 10% and 20% of total disposable income on average.

Income data comprise the sum of labour income (wages, salaries, income from other remuneration for labour services), while capital income consists of rent, interest income, dividends received, capital gains and other income derived from owning capital assets. Ostry et al. (2014) found analysis of income inequality to be relevant when using net inequality (inequality after taxes and transfers) measure rather than market inequality that is income before taxes and government transfers. Facundo et al. (2012) alluded to under-reporting of income by top income earners as being one of the main challenges in accurately measuring income inequality. This raises data reliability issues since information in the WTID (Facundo et al., 2012) is based on the personal income tax records; this suggests that the share of the top income earners might be under-reported and inequality is probably under-estimated as postulated by Atkinson and Bourguignon (2000). The major drawback of using the WTID is it is not an official source. However, Milanovic (2014) pointed that WTID capture household data more comprehensively than household income and expenditure surveys, as the former use sampling method which might underestimate number of the top earners. The disadvantage of using WTID is tax avoidance and evasion, especially by the rich. The aggregated data for household disposable income and real net wealth are available on a quarterly and annual basis at the SARB. Disposable income and real net wealth were converted to logarithmic format to minimise the problem of exponential growth in variables.

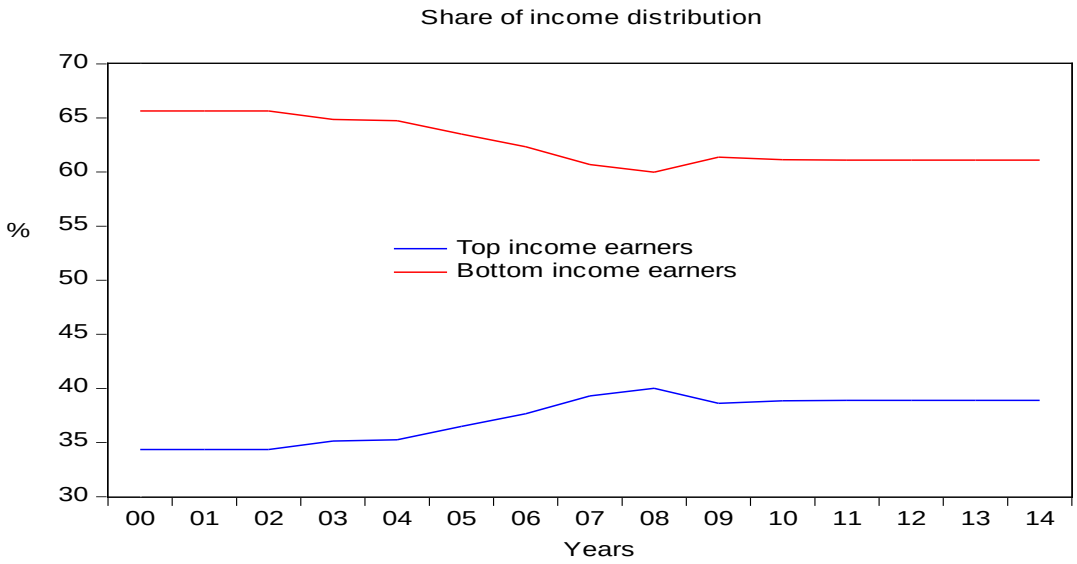
1.6 Data description

Income inequality can be measured by the Gini coefficient, the Lorenz curve and Theil index (Leibbrandt et al., 2010). The Gini coefficient is the common and popular measure of inequality given that it is easy to analyse and interpret. However, the Gini coefficient measure might not capture wealth inequality which is equally important given the high concentration of wealth in South Africa (Bhorat et al., 2009) and Deaton (2013). Furthermore, a change in the Gini coefficient does not imply anything about changes in the share of income distribution (Piketty, 2014). Perotti (1996) made a point that differences in inequality measurement might be less important in practice than in theory, as they are highly correlated. The measure of income inequality that will be used in this paper is based on the share of income distribution (WTID). Piketty and Saez (2012) alluded to income inequality being a combined function of capital ownership, capital income and labour income, all of which all have different implications for consumption spending.

The real household disposable income (2010 prices) is a measure of income received minus tax paid, while the real household final consumption expenditure by households (2010 prices) is a measure of goods and services purchased by households. The real net wealth of households is calculated as the sum of non-financial (tangible) and financial assets less total household liabilities. The headline annual Consumer Price Index (CPI) was used to convert net wealth from nominal to real values. The income distribution statistics sourced from the WTID is available for the period 2001 to 2011, thus the trend in the share of distribution for the missing years was assumed to have remained unchanged. This assumption is corroborated by the IES results, which showed income inequality in South Africa has increased since 2000 (Leibbrandt, et al., 2010). The top income earners represent the top 5 percent of the income distribution, while the bottom or low income earners are the remaining 95 percent of income distribution. The top decile refers to the top income earners, while the bottom decile are the low (bottom) income earners.

The graph below shows the change in the share of income distribution by group:

Graph 1



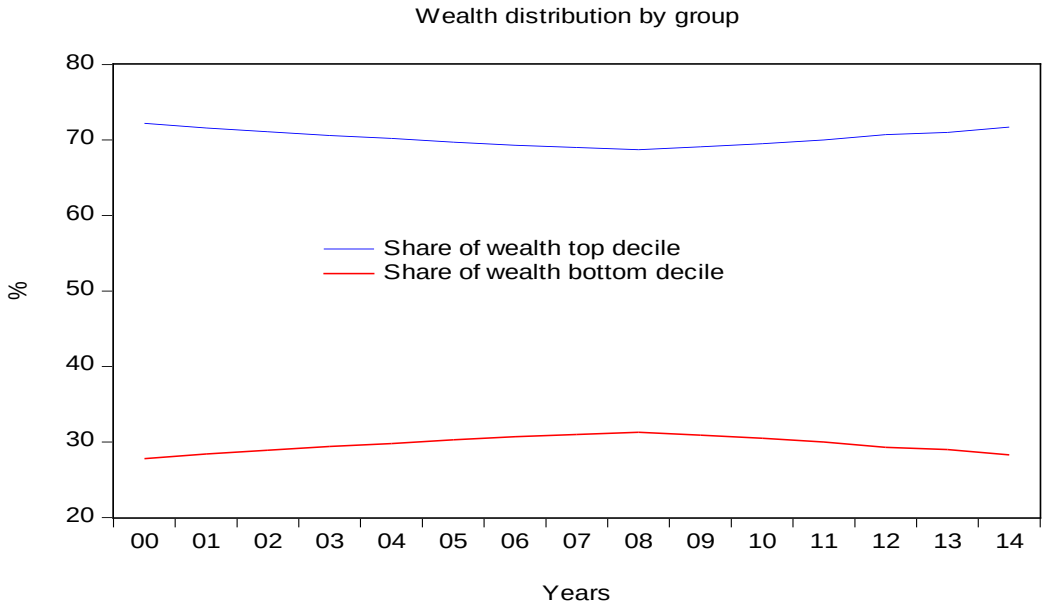
Source: The World Top Incomes Database

The real value of disposable income of households by group was estimated by multiplying the share of income distribution by the aggregate real disposable income. The estimated values showed the real value of disposable income of top earners increased from R380 billion (34 percent) in 2000 to R697 billion (39 percent) in 2014, while that of the bottom earners increased from R726 billion (66 percent) to R1,094 billion (61 percent) in the same period, see table in 1 in appendix.

The share of wealth distribution was sourced from Credit Suisse Chart book (2014) the statistics is available annually from 2000 to 2014. The value of household wealth by group was calculated by multiplying the share of wealth distribution by the aggregate real net wealth of households. Accordingly, the share of wealth held by the top decile remained unchanged at 72 percent in both 2000 and 2014, however the real value of net wealth increased from R1,128 billion to a marked R5,467 billion in the same period. Similarly, the real net wealth of the bottom decile increased from R434 billion in 2000 to R2,158 billion in 2014, see table 1 in appendix.

The graph below shows the change in the share of wealth distribution by group:

Graph 2



Source: Credit Suisse Global Wealth Databook

Econometric analysis was used to establish if there is a relationship between household spending and income inequality. The analysis in this research was done using E-Views software. Multiple linear regression modelling was used to interpret the data. The advantage of using multiple analyses is that all variables or factors that might affect consumption expenditure are included in the equation. Ordinary Least Squares (OLS) which is used for "estimating the parameters of a multiple linear regression" (Wooldridge, 2002) was used to analyse the data. However, the use of OLS in regression analysis was found by Thewissen (2013) to report negative coefficients between income distribution, consumption and economic growth. Coefficient signs calculated by the regression were used to assess whether the results of the research are in line with the economic theory. The regression is based on the model which allows household consumption expenditure to be linked to the disposable income, household wealth and savings. In this model consumption is a dependent variable, which Bryman (2004) explains to be a variable the research is predicting or explaining, while independent variable is the variable that explain the dependent variable (income share and savings etc.) The model does not directly incorporate the effects of financialisation and the possibility that households can smooth consumption through incurring debt (Stockhammer et al., 2009) due to unavailability of debt distribution data. However aggregate macroeconomic relationships and literature were used to establish the link between financialisation, debt and consumption expenditure. In line with the findings of

James (2014), credit extended to households is assumed to be both supply and demand driven in South Africa.

The research results are presented in the form of statistical tables, graphs and reports. The graphs cover the analysis period of 2000-2014 and are presented in percent and rand amount, some graphs dates back to 1994. The combination of words and numbers are used to express results. The results of the model were analysed using inferential statistics, critical p-value – a significance level of 5% was used to accept or reject results. This was applied to different statistical tests such as the independent sample t-test, correlations (R-squared) and the F-statistic. Secondary data were downloaded from websites in excel format.

1.7 Field of study

This field of study is in macroeconomic policy analysis and evaluation. This study focuses on the macroeconomic implications of income inequality on consumption expenditure by household in South Africa. The evaluation is conducted by analysing the implication of income inequality and macroeconomic related indicators, such as saving rate, current account, financialisation and debt level. This research encapsulates element of economic, social and political studies, broadly it is a public policy research. Economic and social policies are generally evaluated in terms of the Pareto principle – that is, a policy is good if it makes someone better off without making another person worse off. However, Pareto principle cannot be judged or defined solely in terms of macroeconomics variables such as consumption expenditure, policy must be evaluated in terms of its influence on social welfare. Deaton (2013, pp 214) argues that Pareto principle is not achieved if increase in the income of top earners, “does nothing to reduce the incomes of bottom earners, but hurts other aspects of their well-being, such as provision of public goods”. Atkinson (2013) asserted the social welfare in public policy should be defined in terms of equity and social justice. Accordingly, the standard of living of households is better measured and captured in terms of consumption and income patterns of households (Atkinson, 2013). The macroeconomic focus of this study is on the relationship between changes in the distribution of income,

consumption, debt and savings. Andrews (2011) asserted that the increase in the share of top earners has political implications that might reduce economic growth and aggregate demand.

2. CHAPTER TWO – Literature survey and theoretical framework

2.1 Literature survey

Despite research showing that income inequality can be bad for economic growth, not much has been written about its role in household spending patterns and the macroeconomic policy implications for South Africa. Easterly (2007) differentiate between market and structural forms of inequality. High inequality in South Africa is of structural nature, this form of inequality is bad for economic development. According to (Aghion et al., 1999) the generally accepted theory is that inequality is good for peoples' incentive and therefore growth-enhancing. The consensus in recent literature is that high income inequality can undermine social progress and cause political and economic instability (Ostry et al., 2014) and Zettelmeyer (2012). Wilkinson and Pickett (2010, pp 26 - 28) expressed similar views, that inequality tends to reduce the quality of life for both rich and poor households by weakening the pace and durability of economic growth. According to these authors, many socially undesirable outcomes in communities are related to high income inequality.

Sen and Drezer (2013, pp 157) asserted high inequality is associated with lower health achievements for both the rich and poor. Sen and Drezer (2013) argued income disparities might undermine social solidarity, while wealth inequality gives "disproportionate political power to a privileged minority, often reinforcing the elitist biases of public policy and democratic politics". Voitchovsky (2005) argued that income inequality leads to social unrest and might weaken economic growth by restricting policy choice. However, he somewhat qualified his views by asserting that inequality between low and middle income earners reduces economic growth, while inequality between the high and middle income distribution is supportive of growth. The political model of Kenworthy and Pontusson (2005) predicts a non-linear relationship between economic growth and inequality. The debate on possible implications of income inequality on economic growth and consumption spending was revived by Rajan (2010) and Stiglitz (2012), following the recent global financial crisis. These authors argued that high inequality in the United States of America was the main cause of the global

financial crisis (Van Treeck, 2014). The hypothesis by Rajan (2010) is that rising income inequality led low and middle income earners to reduce savings and borrow to fund consumption. Rajan's view complements research by Pollin (1990), which arrived at a similar conclusion. In South Africa, Aron and Muellbauer (2012) showed that an increase in access to credit market represented close to 20 percent of the decline in personal saving rate. James (2014) asserted that credit was not only used for materialistic consumption in South Africa, but to also satisfy the "desire for what was felt necessary for a good life" by the middle class. Kumhof et al. (2012) found that household credit has been used in many countries to smooth the effect of high and increasing inequality.

The view that income inequality is negative for economic growth is in contradiction to the consumption theory of the permanent income hypothesis (PIH) (Friedman, 1957), which suggests there is no link between the change in the share of income inequality and consumption expenditure. The implication of this hypothesis is that households generally strive to their smooth consumption over time, if they perceive change in the share of income to be temporary. In fact, Van Treeck (2014) argued that Friedman's hypothesis might have led many researchers and policy authorities to ignore the negative effects of rising income inequality on consumption and economic growth. The PIH suggests income distribution has no effect household saving since saving is proportional to permanent income (Furman and Stiglitz, 1998). Deaton (1999) showed why PIH fails to explain the positive correlation between growth and saving observed in OECD countries. Palley (2010) asserted that the Friedman's theory undermine the demand stimulus argument of the Keynesian theory, as it posits households have the same marginal propensity to consume. The hypothesis that consumption spending by households is not influenced by temporary and permanent changes in income inequality was put forward by Ando and Modigliani (1963) in what is known as the life cycle hypothesis. According to the life cycle theory, "individuals choose a lifetime pattern of consumption that maximizes their utility subject to their lifetime budget constraint" (Palley, 2010). Both hypotheses by Friedman and Modigliani, which are the bed-rock of modern consumption theories (Wicksen 2008), suggest that consumption spending in the economy is not related to income distribution as individuals maximize utility by balancing lifetime consumption spending with lifetime income. According to Wicksen

(2008), one of the shortcomings of the life-cycle theory is the assumption that the future can be anticipated reasonably accurately. Furthermore, the assumption that households borrow to maintain consumption even when current income and financial assets are insufficient to pay for current consumption is theoretical, since households have a budget constrain. Van Treeck and Sturn (2012) asserted that the modern consumption theories fail to explain changes in demand for credit and household savings. Palley (2010) explained that the constrained utility framework of the life-cycle theory allows for the introduction of borrowing and lending, and the effects of interest rates.

Permanent income and life cycle hypothesis are in contradiction with Duesenberry's relative income theory (1958) which explains consumption decisions to be influenced by relative consumption of other individuals "keeping up with the Joneses" or the reference group. This theory explains household' consumption patterns to be affected by habits and that consumption spending is slow to decline relative to a fall in income (Palley, 2010). According to relative income theory, consumers are generally stratified and can have a lower propensity to consume in the short run, due to the time it takes to adjust to the higher strata brought about by an increase in income over time (Fine, 2002) and Palley (2010). The relative income hypothesis is related to the rational expectations' theory postulated by Hall (1978) which allows for income variability and consumption smoothing by households – through debt. The hypothesis of Kuznets (1955) might have contributed to the toleration of high income inequality, especially in developing economies. According to Kuznets (1955, pp 18) "inequality widens in the early phases of economic growth, stabilize for a while and then narrow in the later phases". The view that income and wealth inequality are growth-enhancing (consumption supportive) was also postulated by Rebelo (1991). KaIdor (1955) has argued the absence of capital markets, wealth inequality or increase in capital accumulation by the rich can support investment and higher economic growth, especially investment projects which requires initial large capital. Assuming decreasing-returns on capital investment, wealth inequality can in turn channel lending towards the bottom earners or poor, resulting in them catching up with the rich. Perroti (1996) explored the four income inequality channels that have mostly emanated from the literature, fiscal policy, human capital investment (with borrowing constraints), socio-political instability and fertility/education decision. He concluded that there is a strong link between income distribution and political instability and fertility/education. Kumhof et al. (2014) argue that the top income

earners use their savings to acquire financial assets or accumulate financial wealth. Savings of the top earners are intermediated to the bottom income earners through credit extension, which allow them to maintain consumption. Meanwhile, Barba and Pivetti (2009) found lowering the interest rate to be an effective way of boosting weak demand in an economy with high income inequality. Keynesian theory explains household consumption to be a function of disposable income (Palley, 2010), when the distribution of income is equal. This might not be applicable in South Africa given both high income inequality and consumption levels. In line with the findings by Piketty and Saez (2012), Bhorat et al. (2009) found wage or labour income inequality to have replaced wealth inequality as a major source of inequality in South Africa.

Recent literature contradicts the standard argument that income and wealth inequality are good for growth. Research by Palley (2002), Cynamon and Fazzri (2008) and Barba and Pivetti (2009) found the relationship between economic growth and income inequality to be negative. Aghion et al. (1999) found high inequality have a negative effect on growth by reducing investment opportunities in the economy, worsening borrowers' incentive and generating macro-economic volatility. Similarly, Alesina and Rodrik (1994) found the relationship between income inequality and macro-economic volatility to be negative, as the poor and bottom earners are likely to vote for redistributive policies. Easterly (2007) finds inequality affects developmental outcomes by influencing human capital and institutions. In contrast, Andrews et al. (2011) argued the effect of income inequality on economic growth is theoretically ambiguous. Banerjee and Duflo (2003) found a non-linear relationship between income inequality and growth. Research by Perotti (1996) showed that distribution in the form of high marginal tax rate can be supportive for economic growth. Deininger and Squire (1998) used land as a proxy for wealth distribution, their study show there is a negative relationship between long-term growth and initial inequality in the asset distribution and high inequality reduces income of the poor. Stockhammer (2012) found a decline in the share of wages to have a negative effect on consumption spending of low income earners. Pressman (1997) showed that the propensity to consume by households is influenced by the distribution of income. As such the relationship between income inequality and consumption is interpreted to be a function of the lower marginal propensity to consume by high income earners, which results in higher household savings and thus an increase in the accumulation of capital. This suggests that consumption by low earners

is dependent on income and borrowing, a phenomenon which seeming to be the case in South Africa. Perroti (1996) argue when the poor and low earners cannot borrow against future income, distribution can have a positive effect on investment and growth. However, this relationship will persist only if the poor invest in education.

According to Schmidt-Hebbel and Serven (2000), the relationship between income distribution, economic growth and saving is at the core of the neoclassical (Solow, 1956) and Neo-Keynesian (Kaldor, 1957) growth models. Schmidt-Hebbel and Serven (2000) explain that the saving patterns of workers and capitalist do not differ in the neoclassical framework, while the propensity of workers to save is zero in the neo-keynesian framework. The paradox of income inequality and low household savings rate in South Africa can be explained by the argument by Atkinson and Piketty's (2010) that the top earners are "global players" and can invest abroad. However, low household savings can also be explained by corporate veil (Behringer et al., 2014). This is a phenomenon in which companies retains a significant portion of increasing profits which are not recorded as household saving. In South Africa, corporate veil appears to have recently reflected itself in the form of the holding of substantial cash balances by the non-financial corporate sector. However, the overall low rate of South Africa's saving (Viegi, 2014) suggests low personal saving is not offset by high corporate saving. It is possible that personal savings in South Africa reflects the high unemployment rate and high consumption dependency rate faced by the black middle class. To quote James (2014), the new political dispensation brought with it "Expectations and hopes, of higher education for children and of support for less-well off relatives, all which have increased exponentially and out of proportion with incomes". Another argument that explains low saving is that high inequality reduced the propensity of the rich and top earners to save due to uncertainty about property rights (Alesina and Rodrik, 1994) and (Benabou, 1996). Interestingly, Schmidt-Hebbel and Serven (2000) have found the link between savings and income inequality for advanced and developing countries to be ambiguous. Accordingly, some of the neoclassical consumption theory argues there is a positive relationship between income inequality and saving, while the political theory postulate there is a negative relationship between two variables.

Research by (Alesina and Perotti, 1996) on political economy found income inequality to have an indirect and negative effect on savings. Other studies have found the relationship between income inequality and savings to be positive (Dynan et al., 2004). According to their view, saving is generally concentrated among the top earners and rich, whose accumulation motive lead to higher investment and growth (Ostry et al., 2014). Becker's (1975) analysis showed the link between saving and income inequality must take into consideration that the poor and bottom earners may invest more in human capital (mainly education) than the rich, especially if there are decreasing returns to human capital of the rich. As such, increase in the expenditure on human capital will reduce aggregate saving of this group. Constraints in the credit market or inability of the bottom earners to borrow might lead to this group consuming out of precautionary savings, which will reduce aggregate savings in the short run. Similarly, Schmidt-Hebbel and Serven (1999, pp 153) asserted that inability to borrow force consumers to use assets to smooth consumption. This behaviour results in "accumulation of saving in good times and de-accumulation to protect consumption when income is low". The hypothesis of this research is that income inequality has led to credit led-economic growth in South Africa. Income inequality has contributed to an increase in household debt, low savings rate and a high current account deficit. Financialisation of the economy has led to an increase in the accumulation of debts by low and middle income earners, which has exacerbated income inequality. According to Epstein (2005) financialisation and neoliberalism led to a decline in the profits of non-financial firms, and subsequently in employment. The consequence of financialisation is that wages paid to workers in the manufacturing sector grew at a slow pace, leading to an increase in income inequality. Stockhammer (2012) argue financialisation has allowed many developed countries to sustain to large current account deficits over time. Kumhof and Ranciere (2010) found rising income inequality to have led to higher current account deficits in well-developed financial markets, as low and middle earners funded their consumption by borrowing from high income earners and foreign countries. The low savings rate has necessitated current account deficit in South Africa (Bhorat et al., 2014), this has led to a dependency on the short-term capital inflows. Ashman et al. (2014) argue that most of South Africa's saving has been exported abroad in the form of capital flight. According to these authors, "outflow of capital in South Africa has been

supported by an overvalued exchange rate and has been funded through short-term portfolio inflows, attracted by high interest rates". Van Treeck (2014) asserted that in countries with less developed financial markets; rising inequality appear to have led to an export-oriented growth model (current account surplus) and weak domestic demand, as the top income earners lend to other countries.

In summary, literature survey is inconclusive on the relationship between income inequality and economic growth (Serven, (2000), Banerjee and Duflo (2003) and Andrews et al., 2011). The relative income hypothesis (Duesenberry, 1958) and Rajan's (2010) hypothesis provides an important insight on how to think about the relationship between income inequality and household expenditure. The relationship between income inequality and consumption expenditure is nonlinear, if the marginal propensity of the rich to consume is lower than that of the poor as postulated by Kaldor (1957), Dynan et al. (2004) and Barba and Pivetti (2009). However, the relationship is linear if households or individuals are able to fund consumption through borrowing or drawing from savings as Rajan (2010), Stiglitz (2012), Aron and Muellbauer (2012) and James (2014) found. The use of credit to fund expenditure is significant in countries that has both the structural and market income and wealth inequalities (Easterly, 2007). According to Deininger and Squire (1998) and Yi et al. (2011) high income inequality has a significant effect on the income, consumption and savings of the poor compared with the rich. However, it is also evident that innate nature of individuals to gain social status through consumption has led to an increase in income and consumption inequality. High income and consumption inequality are associated with many social ills that undermine social cohesion (Alesina and Perroti (1993), Voitchorsky (2005), Wilkinson and Pickett (2010) and Sen and Drezer (2013).

2.2 Theoretical framework

Consumption theories have long been important for macroeconomics given that household spending accounts for about two-thirds of GDP (Palley, 2010) in most countries, including South Africa. This view is in contradiction with the permanent income hypothesis which is salient to the link between household borrowing, savings rate and the distribution of income (Van Treeck, 2014). The economic theory which a

purport there is a trade-off between productive efficiency (growth) and equality (social justice) is not supported by recent literature on income inequality (Aghion et al., 1999). According to Barba and Pivetti (2009), rising income inequality should theoretically lower the share of consumption in income, if the propensity to consume by top income earners is low. The hypothesis that the propensity of top earners to consume is lower than that of the bottom earners was made by Kaldor (1957). Dynan et al. (2004) found a strong and positive relationship between saving rates and income of the rich using Panel Study of Income, Consumer Expenditure Survey and Survey of Consumer Finances. Their results show the marginal propensity is larger for high-income earners than for low-income earners. Ostry et al. (2014) cautioned against the hypothesis that income inequality is bad for consumption growth, as savings of high income earners can support investment and ultimately aggregate demand in the economy. The theoretical contradictions on income inequality have led Van Treeck (2014) to conclude that the different school of thoughts on income inequality explains part of the crisis in the income inequality literature.

Frank (2005) argued the relative income theory of Duesenberry is important for providing insight on why and how income inequality affects household spending. According to literature by (Piketty, 1998) and (Wilkinson and Pickett, 2010), consumption by households is also driven by status competition. As such high income inequality makes it difficult for the bottom earners to maintain their standards relative to others. Wilkinson (2009, pp 166) asserted that the use of consumption to express competition status, normally translates to the need for higher income in a society; pressure for households to increase consumption is directly linked to income inequality. Piketty (1998) argued that social status between households tend to exacerbate income inequality. According to the former, the persistently high income inequality can be explained by behaviour of low income earners to compare themselves to the “reference group” or high income earners. Frank and Cook (1995) distinguish consumption by individuals according to positional and non-positional goods. Positional goods are those that are driven by status motive such as houses, quality of education and cars, while non-positional goods will include insurance policies for example. Seemingly, consumption status matters in more in rich than poor countries, as people tend to spend a large share of their incomes on positional goods (Frank and Cook, pp 58). The implications of their analysis are that high income inequality leads to expenditure

cascades in rich countries. Meanwhile, Jin et al. (2011) found that households save to enhance their social-status, when social status is associated with “pecuniary and non-pecuniary benefits”. These authors argue that increase in income inequality can lead to the incentives of status-seeking savings and thus support economic growth.

Despite its appeal and practicality, Duesenberry’s hypothesis was discarded in favour of the life-cycle theory and permanent income hypothesis (Palley, 2010). Fine (2002, pp 130) pointed that this hypothesis was fell out of favour because of its possible links with endogeneity of preferences and social process. The theoretical argument made by some scholars is that individual ability to smooth consumption over time is dependent on their current assets (wealth inequality) and the present value of expected future disposable income. Stiglitz (2012) found income inequality to have had no influence on savings when transitory income is excluded from consumption. Household consumption patterns are recognised to be the result of change in income distribution in the Keynesian theory (Brown, 2004). The Keynesian models imply that household expenditure is dependent on the disposable income and saving. This model posits that income distribution from high to low income households will increase total consumption, due to higher marginal propensity to consume of low-income earners. The theoretical framework that will be used to model and analyse the influence of income and wealth inequality on household consumption in South Africa, is based on the Keynesian (1936) and Ando and Modigliani (1963) theories. The real disposable income of households and real net wealth are the two main determinants of the real household final consumption expenditure. The income hypothesis is tested using consumption expenditure of non-durables, semi-durables, durables and services.

2.3 Inequality and public policy

The relationship between inequality and public policy has been of interest to researchers and policy makers. The debate has been along the influence of extreme income and wealth inequality on democracy, governance, politics and institutions. The effects of high inequality tend to manifest itself in the form of social conflicts and political instability in the country. Perotti (1996) asserted that socio-political instability can

discourage investment by creating political and legal uncertainty and by reducing productivity, due to labour conflicts. Institutions and politics have an important influence on inequality, as they are inherently at the centre of public policy (Piketty, 2014 and 2015) and Acemoglu and Robinsson (2014). According to Mc Lennan (2012) (Thompson,1995) explained inequality in South Africa to be a direct result of racially based economic, social and development policies undertook by the apartheid government. Acemoglu et al. (2013) showed the relationship between inequality, democracy and redistribution is highly complex, as democracy might be captured by de jure power (or interest groups) in a society. In such environment, democracy tends to transfer political power from the poor to middle and top earners. Hacker and Pierson (2010) asserted the rich and large corporations use significant amount of resources for political lobbying; they argue this behaviour has contributed to the rise in the income of top earners. Democracy can be undermined by high level of inequality, as public expenditure on health, education and social protection can be of little interest to the top earners or the rich (Deaton, 2013); the state capacity to provide public goods can in turn be compromised by extreme inequality. According to the report released by Oxfam (2014), the rich often use political influence to block policies that strengthen the rights of other citizens, especially the poor. Fukuyama (2011) observed the majority of liberal democracies, especially those in transition are threatened and undermined by high inequality and polarization between the poor and rich. Wilkinson and Pickett (2010) noted that unavailability of social trust between the rich and poor has a negative influence on the quality of democracy. Research by Jordahl (2009) showed that economic inequality is an important determinant of trust in a society. Evidence shows that income inequality reduces the level of trust; in unequal societies, the poor and low earners may distrust the reference group or those with high income. Jordahl (2009) also found that inequality increase trust among the top earners, while it reduces trust among the bottom earners.

Income inequality is a reflection of hierarchy and class differentiation in a society, Wilkinson (2009) argues that large income disparities tend to restrict economic and social mobility of the poor or low income earners. Alesina and Rodrik (1994), Ostry et al. (2014) and Aghion et al. (1999) showed high inequality leads to a decline in the economic growth, which in turn influences the deepening of democracy. Fukuyama (2011) went a step further by cautioning that developing countries such as South Africa

might not be able to maintain long-term political stability if inequality and socio economic ills are not eliminated. Inequality in South Africa, especially income and wealth inequality reached elevated levels despite the presence of a “median voter”, which Benabou (1996) and Hacker and Pierson (2010), argued is an important mechanism for constraining inegalitarian public policy outcomes. Aghion et al. (1999) argues in highly unequal societies more voters tend to prefer redistribution policies than in equal societies. This view suggests that the median voter might not be decisive in South Africa and the possibility that public policy and democratic institutions are influenced by the top earners. Acemoglu et al. (2007, pp 13) asserted that high inequality in South Africa might destabilize democracy, as it can “make populist decisions attractive to the majority of the votes”. Alesina and Rodrik (1994) asserted that the relationship between economic growth and income inequality is generally stronger in democratic than non-democratic countries, but this does not appear to the case in South Africa. In contrast, Perroti (1996) found no evidence to support the assertion that equal democratic societies grow more because of lesser demands for redistribution. In attempt to tackle inequality and social imbalances created by the Apartheid regime, the South African government introduced the Black Economic Empowerment (BEE). The BEE was an attempt by the government to create economic equality, through distribution of assets and opportunities (Acemoglu et al., 2007). However, BEE failed due to narrow focus on transfer of ownership and its capture by the political elite (Bhorat et al., 2014). According to Bhorat et al. (2014) the failure of BEE in redressing historic inequalities is not surprising given the existence of monopoly business in South Africa.

Bhorat and Van der Westhuizen (2012) noted the high levels of economic inequality in South Africa can be linked to a decline in voter turnout, depressed political engagement and high crime rates, all which have a negative effect on the quality of democracy. The huge income and wealth disparities in South Africa, suggest democracy has not been the effective form of governance to address the injustices of the past. Furman and Stiglitz (1998, 254) argued that inequality in expenditure tend to translate into inequality in political power, in countries where the rich and interest groups are able to influence and undermine the political processes. Acemoglu et al. (2008) found that although income and democracy are related, there is no casual effect. Although they found no

evidence of casual effect, their study does not suggest democracy no effect on economic growth. Piketty (2014, 2015) argued that “the history of inequality globally has always been deeply political and cannot be reduced to purely economic mechanism”. The research by Acemoglu and Robinsson (2014) showed high inequality in South Africa was influenced by institutional and political factors. According to these scholars “political institutions determine the distribution of de jure political power (e.g., how power is contested and distributed) and the distribution of de facto political power” (pp 15). Distribution of income and wealth to the poor is generally assumed to lead to economic inefficiencies (Aghion and Howitt, 1998), as the incentives for the rich to accumulate capital are likely to be eroded by higher tax. However, it can be argued that the reduced incentive of the rich can be counteracted by the increased incentive of the poor, if distribution was in the form of wealth transfer for example. Indeed, Aghion and Bolton (1997) have shown that in a credit-constrained economy, redistribution may support investment by the poor more than it reduces that of the rich, resulting in high economic activity and rate of capital accumulation. The argument by Aghion and Bolton (1997) is that redistribution does not distort the incentives of the poor (through high borrowing) to invest in the economy. Aghion et al. (1999) explained that redistribution policies can be used to reduce inequality, which in support economic growth and leads to a decline in inequality.

The relationship between inequality and governance is similarly complex. Simplistically, Fukuyama (2013) defined governance as the ability of the government to enforce rules, deliver or provide goods and service irrespective of whether the government is a democracy or non-democracy. The capacity of the state to deliver effective public policy is important for ensuring economic and social cohesion are not hampered by the effects of extreme level of inequality. According to Mc Lennan (2012) policy outcomes in South Africa reflects the interests of socially powerful and articulated groups, suggesting that the poor and bottom earners are excluded from public policy. Wilkinson and Pickett (2010) found high inequality to have a negative effect on governance by influencing public policy choice. Benabou (1996) argued that inequality-led socio-political conflicts tend to threaten property rights, thereby reducing investment by the rich and economic growth. Although there is no clear evidence to suggest that extreme inequality has weakened or strengthens the security of property rights in South Africa, Acemoglu et al.

(2007) argue white-owned business used BEE to guarantee their property rights, influence government policy and to access government contracts. Sen (2013, pp 157) emphasise that extreme inequality of wealth gives unequal political power to a privileged few and reinforce the capture of public policy by the elite. The view that distribution and investment are undermined by inequality (Mc Lennan, 2012) can be said to be anecdotal in South Africa, as the large share of the government budget is spend on social expenditure and the income tax system is largely progressive. The combined expenditure on education, health and social protection averaged 43 percent of the total government expenditure from 2000 to 2013. Social protection spending increased from 11 percent of total government expenditure in 2000 to 13 percent in 2013. South African National Development Plan (NDP) recognises that social cohesion and inclusive economy cannot happen without reducing inequality and poverty and having a capable developmental state. The NDP espouses the country reduce Gini coefficient from 0.7 to 0.6 in 2030. This modest goal is surprising given that South Africa is one of the most unequal society in the world (Bhorat et al., 2009), Oxfam (2014) and OECD (2015). Furthermore, the NDP emphasised that concerted efforts must be made to increase the share of national income of the bottom 40 percent earners from currently around 6 percent to 10 percent in 2030; also ownership of assets must be broadened to include historically disadvantaged groups. Importantly, the NDP is cognisant that the state capability is critical for the country to achieve its economic and developmental goal. However, Gumede (2014) referred to the NDP as being "devoid of any ideological basis, oblivious to the repulsive political history of apartheid colonialism and replete with wild targets".

Mkandawire (2001) defined a developmental state as a "state that has a developmentalist agenda (ideology) and has the capacity to implement its developmental economic policies". According to Mkandawire (2001) equity and inclusion are important for effective governance in a developmental state. State capacity encompasses; fiscal (tax extractive) capacity, legal capacity and educating bureaucratic officials, among others things. Similarly, Gumede (2008) defined a developmental broadly the same as a state that is active in "pursuing its development agenda, maintains strategic relations with stakeholders, and has the capacity and is appropriately organized for its predetermined developmental objectives". Mc Lennan

(2013) asserted that a developmental state in South Africa must encompass an effective and strong administrative state that benefits the poor. Importantly developmental state is characterised by autonomy of the state from social forces and private interest that can hinder its developmental objective. Burger (2014) argued the current structure of the South African economy will make it difficult for the country to realise a developmental state such as those achieved in the eastern countries, for example the low saving rate in South Africa. Alesina and Rodrik (1994) argued land reform is an important factor that distinguished the high economic growth of the eastern countries compared with Latin America. According to Deininger and Squire (1998) high inequality of land has a negative effect on the economic growth. (Benabou, 1996) asserted that land distribution maybe an effective for reducing future distributional conflicts. Gumede (2013) explained that dispossession of land has reinforced racial inequalities in South African, given the high unemployment rate, especially in the rural areas. He emphasised the importance of land redistribution in supporting social cohesion and addressing historical injustices.

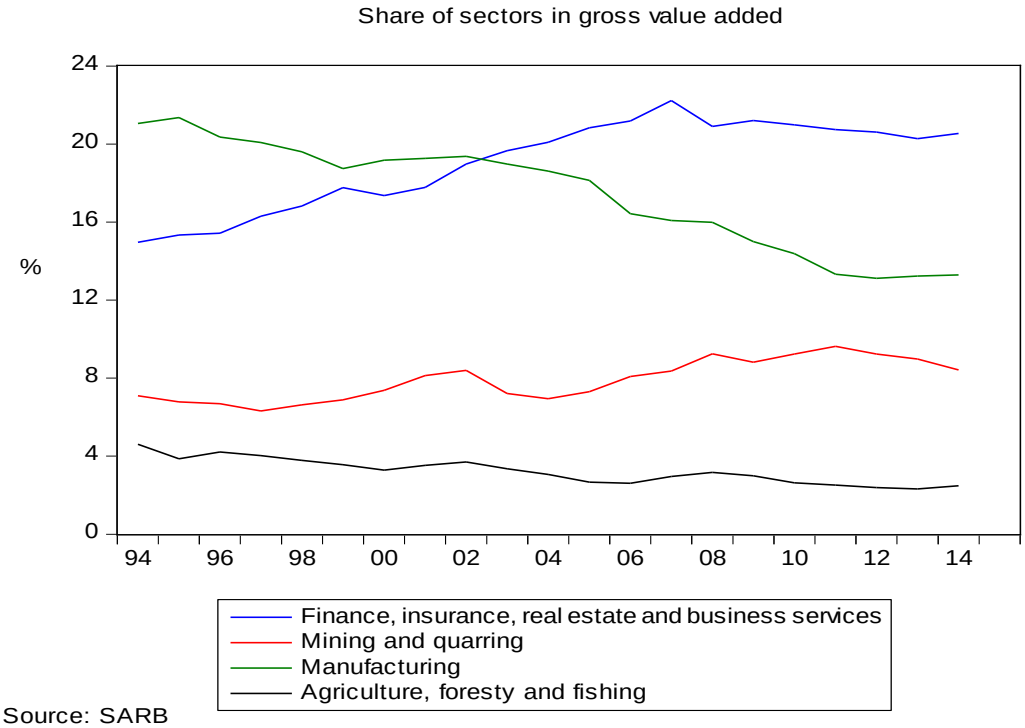
2.4 Structure of the economy

The structure of South African economy appears to have contributed to high income and wealth inequality. The production structure and trade patterns in the economy have not diversified from traditionally commodity exports and importing high value manufacturing goods (Bhorat et al., 2013) with the implication that the economy is dominated by the services based sectors. Indeed, the performance of the industry, especially manufacturing sector has been lacklustre since 1994. The decline in contribution of manufacturing sector to the gross domestic product had a negative influence on employment and labour (wage) income, which is the main contributor to income inequality in South Africa (Leibbrandt et al., 2010), (Bhorat et al., 2013) and Burger (2015). The economic structure is influenced by domestic specific policies and international developments such as globalization and trade liberalization, indeed (Piketty, 2014) argued that globalization has contributed to high inequality among countries. Income and wealth inequality in South Africa are not necessarily the results of technological progress and globalization as evidenced in other countries. Fedderke

(2014) investigated the “disproportionately” large share of the service sectors in South Africa and its contribution to the value added and employment, compared to the industrial and agricultural sectors. His findings showed manufacturing is more likely shed labour relative to other sectors due to relatively low mark-ups. Fedderke (2014) predicted the service sectors will likely be labour absorption (relative to other sectors). However, the low rate of return on the job creation in the services’ sector might constrain growth in employment going forward and contribute to increasing wage inequality. The paper by Rodrik (2015) argued that sub-Saharan countries have undergone a premature de-industrialisation; the economic structure of these countries has switched to the services based sector without having experienced and enjoyed the full benefits and advantages of industrialisation. According to Rodrik (2015) de-industrialisation has a negative influence on economic growth and has the potential to make democracy fragile. The unintended consequence of de-industrialisation is that the services’ sector cannot absorb large number of workers like the manufacturing sector. This argument is certainly true for South Africa, where a decline in contribution of the manufacturing sector was associated with increase in unemployment and labour income inequality. Furman and Stiglitz (1998) found high inequality leads to a high unemployment, which in turn leads to high inequality. They also argued that the “distributional costs inflation” is likely to be borne by the poor and bottom earners, as opposed to the rich. Rodrik (2006) asserted that low economic growth and high unemployment in South Africa are the direct results of the decline in non-mineral tradable sectors (particular manufacturing) since democracy.

The graph below shows contribution of main sectors to the economy:

Graph 3



Source: SARB

Mohamed (2009) noted growth in the services' sector, especially the financial services and wholesale and retail sectors were caused by debt-driven consumption expenditure; furthermore employment in these sectors is mainly casual. Fine (2010) found inequality to have manifested itself through financialisation of the economy in South Africa. He argued financialisation has contributed to a credit-driven consumption system; credit growth was in turn depended on speculation in the housing market. Financialisation of the South African economy is reflected by a large and increasing share of the financial sector in the GDP and it is a reflection of rising household debt (Stockhammer, 2009 and 2013). The narrative by Bond (2000) and Burger (2015) is that increase in financialisation and high investment rate of return required by investors, has contributed to the adoption of "capital-augmenting labour-saving technology" that reduced the share of labour income in South Africa, see graph 7 in appendix. High wage inequality suggests the effect of technological change might has been biased towards skilled rather than unskilled labour (Aghion and Howitt, 1998). Rodrik (2006) argues the substituting capital for labour was largely experienced in the tradable sector. The unintended consequence is that the tradable activities have larger capita per worker than non-tradable sectors. Deaton (2013, pp 191) shared the same view "If the education of workers falls behind what the market requires, the price of education will increase, the earnings of educated workers and inequality income will increase as a

result". According to Burger (2015) the decline in the share of labour in South Africa had a negative influence on real wages, labour inequality and had weakened the bargaining power of labour unions since 1994.

It is unclear if income inequality patterns in South Africa has reflected or followed the famous Kuznets curve hypothesis (1955), which purports that income inequality increase at the initial stage of economic growth and decline as the country became more developed due to the 'trickle down' effect. Furman and Stiglitz (1998) explained that Kuznets' findings were based on the small sample data. They asserted that most of the comprehensive studies found no evidence to support Kuznets hypothesis. In fact, evidence suggests high inequality might have undermined growth and welfare of citizens in South Africa, Donaldson (2015) made a point that extreme unequal society maybe be caught in a developmental trap, which achieves neither high growth nor reduction in inequality. Piketty (2014) dismissed Kuznets hypothesis on the basis that concentration of income is mostly shaped by political and institutions factors which are endogenous to inequality; according to him capitalist forces are unlikely to reduce inequality without policy interventions. This analogy is related to the argument by Dreze and Sen (2013), which emphasis redistribution, as higher economic growth does not necessarily translate into high and effective redistribution. Dreze and Sen (2013) argued that high economic growth on its own does not raise the standard of living, nor does it automatically lead to improved health and education outcomes. Sen (2006, pp 35) made a point that development must be seen as a form of enhancing of human conditions and "the freedom to live the kind of life that we have reason to value, then there is a strong case for focusing on functioning and the capability to function". Higher incomes (low income inequality) have the potential to improve the capability of human beings to function. In contrast, Bhagwati and Panagariya (2013) argued that economic growth is a catalyst for higher government revenue, which is needed for government to reduce poverty and inequality level. According to this scholars high economic growth led to increase spending on education, healthcare and social transfers, growth also has the "pull-up effect" in the form of high employment and higher purchasing power.

Expenditure side of the South African economy is dominated by household consumption expenditure, followed by investment, see graph 3 in appendix. The

aggregate real final consumption expenditure by households increased from R1,103 billion in 2000 to R1,834 billion in 2014. The data from the South African Reserve Bank showed the final consumption expenditure by households is dominated by expenditure on services and non-durable goods which respectively averaged for 43 percent and 41 percent of total expenditure from 2000 to 2014. The expenditure on services comprises spending on water, electricity, while non-durable expenditure includes spending on food, among others. Decline in the demand for goods and services by the low earners can lead to a decline in company profits, which can result in a secular stagnation; low investment cause low economic growth rate and high unemployment. This secular feedback give rise to a phenomenon, Summers (2015) referred to as inverse Say's Law, "Lack of demand creates lack of supply potential or investment". This is particularly important for South Africa, given that income inequality is not accompanied by increase in the household savings.

At a micro level, the study by Finmark Trust (2014) showed that of the 44 percent of adults who received credit in South Africa in 2013, 39 percent borrowed to buy food, while 13 percent and 10 percent of adults borrowed to pay bills and buy clothes. The study found that 56 percent of adults did not borrow, as majority could not afford debt due to low incomes and unemployment.

3. CHAPTER THREE – Research methodology and data analysis

3.1 Empirical methodology

As part of the initial data diagnosis, the data used in this research were tested for stationarity to establish if the regression results will be spurious. In a spurious regression, the measure of a relationship among variables in the model is influenced by the trend rather than a true relationship of variables (Wooldridge, 2002). Data is stationary if pattern of its trend are not spurious or do not move in a straight line. The unit root test was used to establish if variables to be used in the regression model are stationary or non-stationary, the Augmented Dickey-Fuller (ADF) technique was used for the diagnosis. The unit root test is used establish how many times a variable must be differenced to make it stationary (Gujarati, 1995). The results of ADF test suggests that the actual level of variables used in the regression are stationary, since the calculated t-Statistic is less than the Test critical values at 1%, 5% and 10% level. The ADF test showed the disposable income of the bottom earners and final consumption expenditure of households must be differenced or lagged by 2 and 3 period respectively. The p-value that is greater than 5% confirm the data are stationary, see reports 1 to 4 in appendix.

Statistical diagnosis tests such as normality, multicollinearity, autocorrelation and heteroscedasticity were performed to establish if regression results are consistent with the assumptions of the linear classical regression model. According to Gujarati (1995) the assumptions of linear regression model are that: there is no perfect multicollinearity among regressors included in the regression model, meaning no perfect or exact linear relationship among some or all explanatory variables; the estimators in the model must be unbiased and have minimum variance between actual and predicted variables; the error term (stochastic disturbance) in the model must have equal variance or it must be homoscedasticity; there is no autocorrelation or serial auto-correlation between the disturbances; the error-term must be normally distributed and the regression model must be correctly specified. Normality test was performed to establish if the residuals in the model are normally distributed. The result of Jarque Bera test (JB) showed variables in the model are normally distributed with the p-value greater than 5%, see

graph 1 in appendix. Multicollinearity is generally detected through high R-squared and few significant t ratios in the regression (Wooldridge, 2002). However, the presence of high multicollinearity does not necessarily render regression results inappropriate, if coefficients of the regression are individually statistically significant. Wooldridge (2002) explained the correlation among the independent variables does not necessarily violate any assumptions of regression model. In this research, high R-squared is a consequence of the inherent linear relationship between the real disposable income of households and real net wealth of households, given that the top earners own majority of the wealth in South Africa.

Heteroscedasticity test was done to determine if the residuals in the variables are consistent with the assumption of equal variance (homoscedasticity). The White-Heteroscedasticity test was used to determine the existence of heteroscedasticity in the regression. The results of the White test indicates that the null hypothesis of no heteroscedasticity is not rejected, suggesting that the variance are homoscedasticity since the p-value of Chi-Square is greater than 5% for Obs*R-squared, see report 5 in appendix. According to Gujarati (1995, pp 400) autocorrelation in the model is a "correlation between members of time series of observation ordered in time or space". The Durbin-Watson d (DW) test was used for detecting serial correlation in the regression. The results of DW test showed there is a serial correlation when the data is lagged by a difference of 2, as the p-value of Obs* R-squared is less than 5%. This was caused by the linear positive relationship between income and wealth inequality. The presence of serial correlation suggests that the result might not be efficient (minimum variance) even if they are unbiased (Gujarati, 1995). The results of autocorrelation test are included in report 6 in appendix.

3.2 Model specification

The model used for regression for the research is the Ordinary Least Squared method (OLS). This model is a statistical technique that uses sample in the data to estimate the true population between variables or it models the relationship between depended variable and independent variables (Gujarati, 1995, Wooldridge, 2002). Linear

regression model is a statistical technique that explains movements in one variable (dependent variable) as a function of movements of other variables (explanatory variables). The least squares method yields an estimator that minimises the squared differences between the observed and the unobserved or predicted variable from the estimated model (Gujarati, 1995).

The regression model used in this research incorporates both the short and long-run equilibrium that is based on the economic theory and historical relationships. According to the model, the real final consumption expenditure by household is explained by the real disposable income of households and real net wealth of households. However, in practice the relationship between these variables can be directional, for example, consumption influence aggregate demand in the economy, which in turn affect economic and income growth.

The variables used for regression have passed the normality test as well as other tests. The use of logs in the model allows for the interpretation of estimated coefficients as elasticities rather than levels. The econometric representation of the model in this research takes the following form:

$$LogCons_t = \alpha + \beta_1 \log income_t + \beta_2 \log netwealth_t + \varepsilon_t$$

$$LogCons_t = \alpha + \beta_1 \log topi_t + \beta_2 \log bottomi_t + \beta_3 \log netwealth_t + \varepsilon$$

LogCons (final consumption expenditure by households) is the depended variable, while log topi, log bottomi and log netwealth are independent variables in the model. Log topi is the disposable income of top income earners, while log bottomi is the disposable income of bottom earners. Meanwhile, β 's are the coefficients in the regression model and ε is the stochastic disturbance (error) term and it is unobservable in the model. Coefficient in the model is interpreted as a change in the dependent variable associated with a one unit change in the independent variable. The report below shows the results of the regression model:

Report 1:

Dependent Variable: LogCons
Method: Least Squares
Date: 08/15/15 Time: 08:58

Sample: 2000 2014
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Logbottomi	0.630372	0.132534	4.756314	0.0006
Logtopi	0.378535	0.041483	9.125033	0.0000
Lognetwealth	0.011181	0.026037	0.429417	0.6759
C	0.522679	0.538120	0.971304	0.3523

R-squared	0.999224	Mean dependent var	7.287855
Adjusted R-squared	0.999012	S.D. dependent var	0.174629
S.E. of regression	0.005488	Akaike info criterion	-7.349360
Sum squared resid	0.000331	Schwarz criterion	-7.160546
Log likelihood	59.12020	Hannan-Quinn criter.	-7.351371
F-statistic	4721.586	Durbin-Watson stat	1.033259
Prob(F-statistic)	0.000000		

The econometric results suggest that the OLS estimators β's are unbiased, since they have minimum variance and are normally distributed with a mean and variance. The Analysis of Variance Approach (ANOVA) was used to test the overall significance of observations in the regression model. The p-value of the F test is less than 5%, suggesting that the observations in the model are significant. The modelled R-squared of 0.99 percent indicates the estimated linear variables are good determinants of the real final consumption expenditure by households. The signs of estimated coefficients are in line with the economic theory and literature (Kaldor, 1957), that is the propensity of low income earners to consume is higher than the top income earners.

4. CHAPTER FOUR – Data analysis

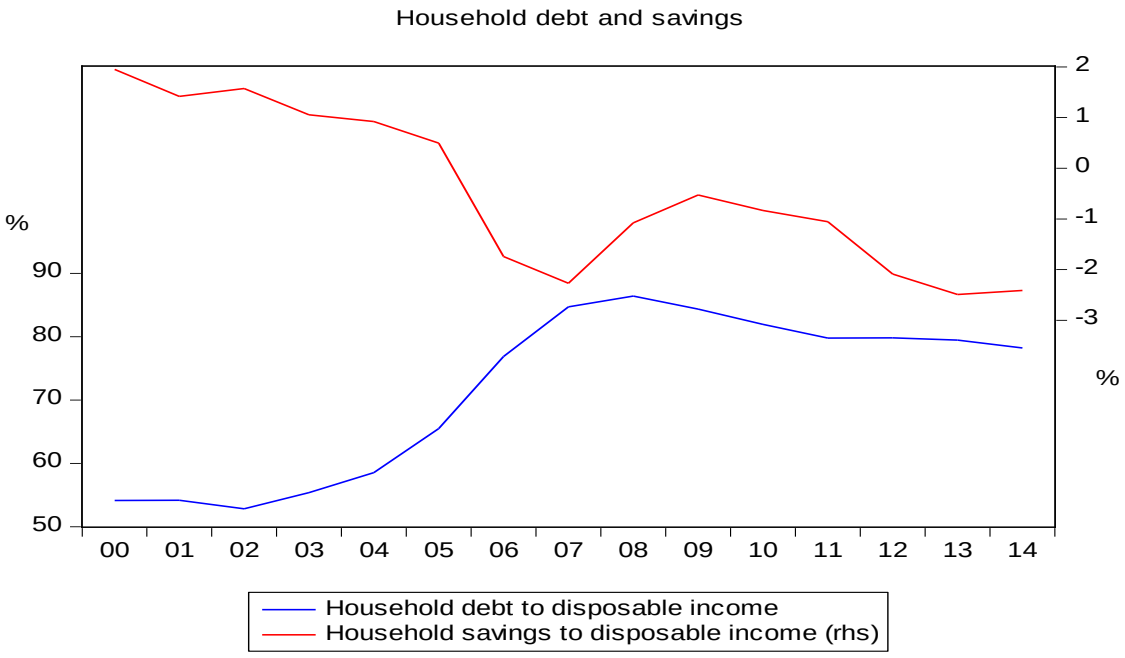
4.1 Data analysis

The real final consumption expenditure by households (2010 prices) increased by 66 percent from 2000 to R1,8 trillion in 2014. Regression results confirmed the household consumption expenditure is positively related to changes in the household disposable income and wealth in South Africa. Although, the real disposable income of households has increased (62 percent) broadly in line with the real growth in consumption expenditure by households from 2000 to 2014, the income distribution showed that the large share of disposable income accrued to the top earners.

The phenomenon of rising income share of top earners, coupled with high wealth inequality and the high propensity to consume by the bottom earners, suggests that household consumption expenditure was influenced by behaviour of both the top and bottom earners, albeit at different magnitudes as shown in the regression model. The regression results indicate the elasticity of the bottom earners to real consumption expenditure of 0.63 percent is higher than that of top earners of 0.38 percent. The regression results are consistent with the hypothesis that propensity of the bottom earners to consume is higher than for that of top earners (Kaldor, 1957). Elasticity of real net wealth of households to real consumption expenditure by household is low at 0.01 percent, suggesting that the propensity to consume out of wealth is low in South Africa. The regression estimates are consistent with the results of the core forecasting model of the South African Reserve Bank (2007) which found the real final consumption expenditure by household to be more responsive to changes in household disposable income than in wealth. According to this model, the long run response of a 1% increase in the household disposable income leads to 0.799 percent increase in final consumption expenditure by households, while 1% increases in wealth translate to 0.199 percent increase for the sample period 1985 to 2005. The research by Statistics SA on poverty trends in South Africa (2014) showed that food and non-alcoholic beverages accounted 34 percent of poor households' expenditure in 2011, compared with 11 percent for non-poor households. Furthermore, the research showed the richest quartile accounted for about 61 percent of the share of annual household consumption expenditure in 2011 while the poorest quartile accounted for 4 percent.

The paradox presented by regression results is how to reconcile the linear relationship between final consumption expenditure by households and disposable income, with the rising income inequality. Put differently, what is driving household consumption of the bottom earners if the large share of income accrued to the top earners? Plausible explanation is the bottom earners financed their consumption with borrowing; indeed this view is consistent with a decline in the aggregate savings observed from 2000 to 2014. The estimated ratio of wealth to disposable income by group showed the ratio of top earners increased from 297 percent in 2000 to 785 percent in 2014, while that of the bottom earners increased from 60 percent to 197 percent in the same period, see graph 4 in appendix. Unavailability of statistics on the distribution of household debt and saving make it impossible to establish the extent to which the bottom earners used credit to fund consumption. However, the possibility that the top earners borrowed to acquire assets cannot be ruled out. The graph below shows the relationship between aggregate household savings to disposable income and household debt to disposable income from 2000 to 2014.

Graph 4



Source: SARB

Credit extended to households increased at the period (2002-2007) when the share of income to bottom earners and the aggregate household savings were declining. To paraphrase, the low income group have experienced a decline in the share of income

and increase in debt, this hypothesis is substantiated by aggregate dis saving by households. Increase in household debt in this period is a reflection the financialisation of the economy (Mohamed, 2009), credit liberalization (Aron and Muellbauer, 2012) and a rise of the black middle class Netshitenzhe (2013).

The top earners share of wealth declined from 72 percent in 2000 to 69 percent in 2007, as the effects of the financial crisis led to a decline in the property prices and a fall in the prices of financial assets. The real net wealth of households recovered from 2009 following a rebound in the equity market prices. The share of wealth accrued to the bottom earners appears to have followed the movement in the aggregate house prices, see graph 2 in appendix. The observed positive relationship between wealth of the bottom earners and house prices is consistent with the fact that majority of the bottom and middle earners' wealth is largely in the form of residential property. Cooper and Dynan (2004) noted that large number of studies found propensity to consume out of wealth to be larger for household facing credit constraints. Since the bottom earners are more likely to be credit constraints, it is plausible to associate changes in their consumption expenditure with those in residential property market, through mortgage equity withdrawals. The narrative by Baker and Felman (2014) indicate it is unlikely the bottom earners were solely responsible for a decline in the aggregate savings in South Africa. The low share of income to bottom earners suggest they did not have surplus or extra funds to save in the first place, therefore it is unlikely this group has contributed to a decline in the overall household saving rate between 2000 and 2014. Although the elasticity of disposable income of top earners to consumption expenditure by household is relatively high, as shown in the regression results, it must be borne in mind that the other channel at which the top earners consume, from is the wealth channel. Against this background, the scenario in which decline in the savings rate was largely influenced by the behaviour of the bottom earners is one whereby savings of the top earners was small or declining between 2000 and 2014. However, this scenario violates the generally accepted theory that the top income earners save a large proportion of their income (Kaldor, 1957). Internationally, Slacalek (2009) found the propensity to consume out of financial wealth to be higher than out of housing wealth.

The results of regression model showed the real consumption expenditure by households are largely influenced by real disposable income of households than real net wealth. The influence of income and wealth on household consumption

expenditure is directly and indirectly influenced by factors such as employment growth, interest rate and inflation rate, which were not explicitly incorporated in the model. The inclusion of interest rate in the model is likely to be ambiguous, for an example, an increase in interest rate makes some household richer, therefore support consumption and reduce saving. A similar increase in interest rate can boost the return on saving; therefore reduce consumption expenditure and encourage more saving.

The overall results of the model is consistent with the view that an increase in the share of income towards the top earners has created excess saving as this group had a slightly lower propensity to consume than the bottom earners. However, consumption expenditure of the top earners was also influenced by an increase in the net wealth. Analysis of household saving shows that hypothesis of Barker and Felman (2014) might be true for South Africa as high income inequality observed between 2000 and 2014 was not accompanied by an increase in household saving rate, as Kumhof et al. (2012) have found to be the case in China. It is not within the scope of this research to investigate what happened to savings of the top earners. The presence of corporate veil allows household savings to be transferred from households to the corporate sector - which in turn can invest these savings abroad. According to Mohamed (2009), (Mohamed and Finnoff, 2005) estimated the annual average capital flight from South Africa to be 9.2 percent of GDP between 1994 and 2000.
Piketty (2014) and Bourguignon (2013) advocated for the use of global capital tax to reduce global wealth inequality and increase transparency. Milanovic (2014) argued the global tax can lead to capital outflows if not implemented by all countries, especially those that benefiting from capital flows.

Analysis also showed that the increase in the consumption expenditure of bottom and middle household earners contributed to high aggregate demand and current (trade) account deficit. The positive relationship between the current account deficit and the share of the bottom income earners in South Africa is depicted in graph 6 of appendix. High income inequality suggests that demand stimulative policies such as a reduction in interest rate might not increase in household demand as the share of income accruing to the bottom earners is shrinking.

The results of the data analysis showed the following:

- The linear relationship between the changes in income distribution and household consumption expenditure is positive.
- High income households spent a lower share of income on consumption of goods and services than low income earners in South Africa.
- There is a positive relationship between high income and wealth inequality in South Africa.
- Consumption by households is driven by expenditure on non-durable goods and services.
- Income inequality reduced savings of the bottom earners.

4.2 Cointegration analysis

The long-run relationship between variables used in the regression model was examined using the cointegration analysis. This technique was used to establish if there is a long-run equilibrium relationship between the real final consumption by households, real net wealth and real disposable income of top and bottom earners estimated in the model. Johansen cointegration which test the assumption of linear deterministic trend in the data was used (Gujarati, 1995). The Trace Statistics and Maximum Eigenvalue tests are used to determine if the variables in the model are cointegrated. The result of this test showed there is a long-run relationship between variables or there is one co-integrating vector that is close to the long-run coefficients, for At most 3. The critical value (0.05) for At most 3 is greater than trace statistics. A lagged length of 2 was tested as the acceptable, see report 7 in appendix.

4.3 Limitations of the study

Literature and theory are both inconclusive on the effects of high income inequality on household consumption (Ostry et al., 2014). The view that income equality might result in sustainable consumption growth, lower borrowing and higher savings is not a foregone conclusion, as household consumption is influenced by other factors. The use of regression models and correlation analysis between different variables does not indicate or suggest casualty between variables, which is important for public policy. The modern theories on which the relationship between income inequality and consumption spending are based might not be relevant in South Africa due to high unemployment rate and high dependency rate within families in this country. The limitation of this study is that there is not much literature on changes in income inequality and consumption or economic growth. This combined with unavailability of data, have compromised results of the research. Secondary data collected by Stats SA and SARB are reliable given they are the official agencies for collecting economic, social and financial data in South Africa. The data on income inequality from the WTID is based on the use of income tax statistics, with the implication that it might underestimate the level of income due to tax avoidance and evasion by households (Atkinson et al., 2011). However, this might not be the case in South Africa since inequality is driven by high wages (Leibbrandt et al., 2010). Aggregate data from the SARB is compiled using a combination of surveys and administration source data. The data collected by the SARB is converted to be in line with the standards of the global System of National Accounts (SNA). All national accounts data are estimates and subjected to significant revision as better data sources becomes available. The shortcoming of national accounts data is that they are subjected to large revisions and benchmarking which is done every 5 years. National accounts data are adjusted for seasonal factors, which might influence trends in the original data. The distribution statistics published by the Credit Suisse Chart book were based on the balance sheet of households compiled by the SARB.

The use of small sample size was due to missing information; the WTID does not have distribution statistics of South Africa for the period 1994 to 2000. Moreover, some data from WTID are only available on a yearly format. Lastly, although literature showed income inequality and consumptions are influenced by political, social and institutional factors (Acemoglu and Robinson, 2014) and Piketty (2014); these variables could not be incorporated into the regression model. The study does not directly address

inequality of health, opportunities and education, which have direct influence on income and wealth inequality (Wilkinson and Pickett, 2010). An important limitation of this study is that the link between income inequality and growth was not modelled for South Africa. The study is similarly silent on gender inequality which is important given the history of discrimination in South Africa.

5. CHAPTER FIVE – Summary and conclusion

5.1 Summary

The findings in my research confirmed that high income and wealth inequality have significant effects on the household consumption expenditure in South Africa. The theoretical framework I used in this study is based on the Keynesian (1936) and Ando and Modigliani (1963) models. The dataset used for estimating the share of income accruing to the top and bottom quartile were sourced from the World Top Income database and Credit Suisse Chart book, while the savings and consumption data were sourced from the South African Reserve Bank. Quantitative research methodology was used to analyse the relationship between income inequality and consumption in South Africa. I estimated the real disposable income and net wealth by group using the distribution published in the World Top Income database and Credit Suisse Chart Book. I used this data to examine the effect of income inequality on aggregate consumption and saving. The literature I surveyed is largely inconclusive on the relationship between income inequality and growth, however most recent surveys indicate there is a negative relationship between the two variables. The relationship is nonlinear if the marginal propensity of the rich to consume is lower than that of the poor (Dynan et al. (2004) and Barba and Pivetti (2009). My findings were consistent with the literature which suggests the bottom earners use credit facilities to smooth their consumption; hence the relationship between income inequality and household spending is positive between 2000 and 2014. The important role played by economic and political institutions in unequal societies was also emphasised.

I conduct time-series analysis to determine the implications of income and wealth inequality for savings in South Africa. The data were tested for robustness using the econometric tools; results of these tests showed the data met most of the assumptions of linear classical regression model. The Ordinary Least Squared method was used to model the relationship between variables. The advantage of using this method is that it yields an estimator that minimise the squared of difference between the observed and unobserved variables. Using OLS method allowed for estimating of the elasticity between aggregate consumption and changes in household disposable income and net wealth of household. OLS estimates show strong correlation between the income

inequality and consumption expenditure, both under 5% significance level and a slightly weaker relationship between consumption and wealth inequality. The econometric and data analysis showed that income inequality does have a negative influence on aggregate final consumption expenditure of households, as the bottom earners supplemented income with borrowing, while the top earners used some of their wealth to consumption. Analysis in this research showed income inequality has led to an increase in household debt and decline in savings, as the bottom earners were pressured to keep up with social “consumption” norms. However, the low household saving in South Africa suggests the propensity of the rich to save is low. This was surprising given that wealth inequality exceed income inequality. In the data analysis, I used the results of regression model, literature and macroeconomic relationships to explain two important paradoxes in the study, namely, why has high income inequality not inhibited growth in household expenditure and why has high income inequality not translated to higher saving by the top earners in South Africa. Literature survey indicates high inequality may reduce the propensity of the rich to save, due to uncertainty about future property rights. Lastly, I explained the limitation of this study, especially the unavailability of a comprehensive historic data.

5.2 Policy recommendations

Findings of this research showed high income inequality had a negative effect on consumption expenditure by households in South Africa from 2000 to 2014. To quote Netshitenzhe (2013) “dealing with inequality is responsibility of the political leadership through public policy, but it is also a task that requires the involvement of all sectors of society”. The unintended consequences of some of the policies recommended are such that they might distort the economy and widen income inequality further in the short run. Benabou (1996) asserted that the complex and multidimensional nature of inequality suggests that distribution should be limited to a single policy instrument, but must be comprehensive. Indeed, the results of Aghion and Bolton (1997) showed that redistributive policies if sustained over time have a positive and significant effect on economic growth. Imperfect credit market in South Africa (Acemoglu et al., 2007, James 2014) suggests that distributive policies are likely to encourage investment opportunities and improve the incentives of the borrowers, by among other things, providing them

with a collateral to borrow (Aghion et al., 1999). The implication for policy is that distributive can be growth-enhancing in the economy with imperfect capital markets.

Public policy response to high income inequality and debt funded consumption should include the following:

- Introducing a national minimum wage policy will reduce inequality and poverty, while supporting consumption expenditure of the bottom earners. Bhorat and Mayet (2013) evidence showed minimum wage policy will not necessarily lead to job losses in South Africa. Minimum wages might not have a negative influence on employment as orthodox economics predicts, however employment in the economy is determined by output and investment rather than wages (Isaacs and Fine, 2015). Increase in the income of bottom earners, will boost purchasing power of households and demand for goods and services in the economy. Furthermore, the introduction of minimum wages policy will also make it possible for bottom earners to increase savings.

- Sustainable and inclusive economic growth is will be effective way to reduce income inequality, while concurrently increasing consumption expenditure. Inclusive growth that is accompanied by an increase in employment and high labour absorption, will lead to a decline income inequality while promoting economic development.

- Promoting financial inclusion with the understanding that it will increase access to credit, especially to the bottom earners. Access to credit market is one mechanism for accumulating assets (Viegi, 2014).

- Investment in education and improving the quality of education are important for reducing skills constraint and boosting labour market income, which is the main cause of income inequality. Improved education outcomes will raise the income share of the bottom earners.

- Land reform is important for reducing inequality, especially wealth inequality. Effective enforcement of property rights and land reform will support investment and

consumption by reducing borrowing constraints faced by the bottom earners. However, land distribution might not be adequate as financial wealth account for most of the wealth. Study by Alesina and Rodrik (1994) has shown that land inequality is negatively related with growth and consumption.

- Macroeconomic stability such price stability policy is important for reducing the cost of living for the poor, as the distributional costs of high inflation are borne largely by the bottom earners.

- Changing social norms of society on fairness regarding the distribution of income and wealth. Fairness is one the important values in society, obligation of the rich towards the bottom earners.

- Increase marginal tax rate for the top earners. The use of taxation will reduce wealth and income distribution.

It is important to recognise that although the proposed redistributive policies might increase the share of the bottom earners' income and support consumption, they might have unintended consequences on the economic growth in the long run, if it reduces the incentive of the top earners and rich to invest in the economy.

5.3 Conclusion

This research has investigated the relationship between income inequality and changes in household consumption in South Africa since. Household consumption expenditure is one of the most important determinants of human well-being. The analysis on the effect of inequality on borrowing by the bottom earners are inconclusive due to unavailability of debt distribution, however other evidence suggests the bottom earners are living beyond their means. This hypothesis proved true in the post financial crisis, where unsecured lending to households increased exorbitantly. The data analysis showed increased access to credit markets and financialisation of the economy, allowed the bottom income earners to smooth consumption. The literature survey showed the economic channel through which income inequality influences growth is the credit market mechanism. The political channel suggests unequal societies has the potential to undermine social cohesion, reduce investment and weaken democracy, especially if

public policy is perceived by the bottom earners to represent the interest of the top earners or elite. Moreover, high inequality appears to contribute to low social trusts and polarisation in the country.

Income and wealth inequality has been stubbornly highly despite an increase in expenditure on social programs. This is not surprising as distribution in the form social public expenditures, for example health and education, does not necessarily translate to high incomes. The implementation of distributive policies such as the Black Economic Empowerment had minimal effect on wealth inequality. Public policy in South Africa appears to have responded to the symptoms of high inequality rather than addressing the root cause. Possible explanation is income and wealth inequality in South Africa are driven by political and institutional factors. Although, the bottom earners will benefit from increase in employment and inclusive economic growth, this might not be sufficient to reduce inequality. The reduction in income inequality in South Africa could contribute to macroeconomic stability by leading to sustainable consumption growth, reduced debt levels and increased savings. Furthermore, a substantial move towards income equality will reduce the existing social ills in the country, strengthen governance and democracy and contribute to long-term political stability. The ineffectiveness of public policy to reduce high income and wealth inequality in South Africa represent a form of policy choice and reflects lack of state capacity and autonomy. It is not clear from the study whether inequality had a negative effect on both conspicuous and subsistence consumption. Exploring the nature of relationship between social consumption norms and income inequality in South Africa, can provide some valuable insight on some of the consumption drivers. Nevertheless, it is clear from the research that consumption inequality cannot be sustained without arresting the high inequality at the top. To end with a quote by David Ricardo, “to determine the laws which regulate distribution of income and wealth is the principal problem in Political Economy”. Indeed, economic growth in South Africa is unlikely to “enjoy democratic support” if its fruits benefit the few rich (top earners).

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Appendix

Table 1: Disposable income and net wealth distribution of households

Period	Top earners disposable income R (millions)	Bottom earners disposable income R (millions)	Top earners net wealth R (millions)	Bottom earners net wealth R (millions)
2000	380	726	1,128	434
2001	391	747	1,287	510
2002	405	774	1,293	525
2003	425	785	1,508	628
2004	452	830	1,879	798
2005	495	861	2,188	951
2006	550	911	2,629	1,165
2007	609	940	2,852	1,281
2008	634	950	2,577	1,174
2009	599	952	3,090	1,382
2010	625	983	3,583	1,572
2011	654	1028	3,705	1,588
2012	670	1052	4,253	1,763
2013	687	1078	4,920	2,010
2014	697	1094	5,467	2,158

Report 1: Unit root test: Real final household consumption expenditure

Null Hypothesis: Real final household consumption expenditure has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.990453	0.7200
Test critical values:	1% level	-4.121990	
	5% level	-3.144920	
	10% level	-2.713751	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 12

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FHH_CONS)
Method: Least Squares
Date: 08/13/15 Time: 13:26
Sample (adjusted): 2003 2014

Included observations: 12 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FHH_CONS(-1)	-0.052955	0.053465	-0.990453	0.3510
D(FHH_CONS(-1))	0.520703	0.283941	1.833843	0.1040
D(FHH_CONS(-2))	-0.511326	0.286015	-1.787763	0.1116
C	133.7731	81.48951	1.641599	0.1393

R-squared	0.448597	Mean dependent var	54.66701
Adjusted R-squared	0.241821	S.D. dependent var	42.21049
S.E. of regression	36.75414	Akaike info criterion	10.30758
Sum squared resid	10806.93	Schwarz criterion	10.46922
Log likelihood	-57.84548	Hannan-Quinn criter.	10.24774
F-statistic	2.169484	Durbin-Watson stat	2.299612
Prob(F-statistic)	0.169554		

Report 2: Unit root test: Real disposable income of top earners

Null Hypothesis: Real disposable income top earners has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.840752	0.7753
Test critical values:	1% level	-4.004425	
	5% level	-3.098896	
	10% level	-2.690439	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 14

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(DISC_TOP_5)
Method: Least Squares
Date: 08/13/15 Time: 14:39
Sample (adjusted): 2001 2014
Included observations: 14 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DISC_TOP_5(-1)	-0.047126	0.056052	-0.840752	0.4169
C	48.10824	30.93657	1.555061	0.1459

R-squared	0.055629	Mean dependent var	22.60568
Adjusted R-squared	-0.023069	S.D. dependent var	22.49508
S.E. of regression	22.75307	Akaike info criterion	9.218840
Sum squared resid	6212.424	Schwarz criterion	9.310134
Log likelihood	-62.53188	Hannan-Quinn criter.	9.210390
F-statistic	0.706864	Durbin-Watson stat	1.400050
Prob(F-statistic)	0.416925		

Report 3: Unit root test: Real disposable income of bottom earners

Null Hypothesis: **Real disposable income bottom earners has a unit root**
Exogenous: Constant
Lag Length: 3 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.487356	0.5021
Test critical values:	1% level	-4.200056	
	5% level	-3.175352	
	10% level	-2.728985	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 11

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(DISC_BOTTOM_95)
Method: Least Squares
Date: 08/13/15 Time: 14:40
Sample (adjusted): 2004 2014
Included observations: 11 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DISC_BOTTOM_95(-1)	-0.062348	0.041919	-1.487356	0.1875
D(DISC_BOTTOM_95(-1))	0.002897	0.256839	0.011281	0.9914
D(DISC_BOTTOM_95(-2))	-0.174838	0.252052	-0.693661	0.5138
D(DISC_BOTTOM_95(-3))	-0.557285	0.256969	-2.168684	0.0732
C	106.9720	39.96842	2.676412	0.0367

R-squared	0.605783	Mean dependent var	28.12855
Adjusted R-squared	0.342972	S.D. dependent var	14.88500
S.E. of regression	12.06538	Akaike info criterion	8.121513
Sum squared resid	873.4405	Schwarz criterion	8.302374
Log likelihood	-39.66832	Hannan-Quinn criter.	8.007505
F-statistic	2.305010	Durbin-Watson stat	2.187292
Prob(F-statistic)	0.172602		

Report 4: Unit root test: Real net wealth households

Null Hypothesis: Real net wealth households has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.453275	0.9979
Test critical values:	1% level	-4.004425	
	5% level	-3.098896	
	10% level	-2.690439	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 14

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REAL_NET_WEALTH)
Method: Least Squares
Date: 08/13/15 Time: 14:59
Sample (adjusted): 2001 2014
Included observations: 14 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
REAL_NET_WEALTH(-1)	0.080050	0.055083	1.453275	0.1718
C	131.7966	225.6244	0.584142	0.5699

R-squared	0.149660	Mean dependent var	432.9705
Adjusted R-squared	0.078799	S.D. dependent var	347.7832
S.E. of regression	333.7996	Akaike info criterion	14.59052
Sum squared resid	1337066.	Schwarz criterion	14.68182
Log likelihood	-100.1337	Hannan-Quinn criter.	14.58207
F-statistic	2.112008	Durbin-Watson stat	2.242819
Prob(F-statistic)	0.171794		

Report 5: Heteroscedasticity test

Heteroskedasticity Test: White

F-statistic	10.20170	Prob. F(7,7)	0.0033
Obs*R-squared	13.66092	Prob. Chi-Square(7)	0.0576
Scaled explained SS	5.139197	Prob. Chi-Square(7)	0.6430

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/13/15 Time: 15:11
Sample: 2000 2014
Included observations: 15
Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.071138	0.032940	-2.159592	0.0676
LOGDI95^2	0.000889	0.001201	0.739646	0.4836
LOGDI95*LOGDI5	-0.002738	0.002793	-0.980489	0.3595
LOGDI95*LOGREALW	-0.002243	0.000490	-4.577442	0.0026
LOGDI95	0.021750	0.009669	2.249375	0.0593
LOGDI5^2	-0.000967	0.001623	-0.596012	0.5699
LOGDI5*LOGREALW	0.003834	0.000718	5.341869	0.0011
LOGREALW^2	-0.000522	0.000148	-3.539236	0.0095

R-squared	0.910728	Mean dependent var	2.21E-05
Adjusted R-squared	0.821456	S.D. dependent var	2.70E-05
S.E. of regression	1.14E-05	Akaike info criterion	-19.61685
Sum squared resid	9.14E-10	Schwarz criterion	-19.23922

Log likelihood	155.1264	Hannan-Quinn criter.	-19.62087
F-statistic	10.20170	Durbin-Watson stat	3.487669
Prob(F-statistic)	0.003309		

Report 6: Autocorrelation test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	18.57880	Prob. F(2,9)	0.0006
Obs*R-squared	12.07524	Prob. Chi-Square(2)	0.0024

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 08/13/15 Time: 15:32
Sample: 2000 2014
Included observations: 15
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGDI95	-0.213695	0.076111	-2.807675	0.0205
LOGDI5	0.026932	0.022414	1.201594	0.2602
LOGREALW	0.044023	0.014663	3.002288	0.0149
C	0.925043	0.311206	2.972447	0.0156
RESID(-1)	1.034201	0.186459	5.546518	0.0004
RESID(-2)	-1.054450	0.211755	-4.979570	0.0008

R-squared	0.805016	Mean dependent var	-7.03E-16
Adjusted R-squared	0.696691	S.D. dependent var	0.004865
S.E. of regression	0.002679	Akaike info criterion	-8.717530
Sum squared resid	6.46E-05	Schwarz criterion	-8.434310
Log likelihood	71.38148	Hannan-Quinn criter.	-8.720547
F-statistic	7.431519	Durbin-Watson stat	2.761254
Prob(F-statistic)	0.005091		

Report 7: Cointegration test

Date: 08/13/15 Time: 15:38
Sample (adjusted): 2002 2014
Included observations: 13 after adjustments
Trend assumption: Linear deterministic trend
Series: LOGFHH LOGDI95 LOGDI5 LOGREALW
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.994685	131.7005	47.85613	0.0000
At most 1 *	0.971222	63.61614	29.79707	0.0000
At most 2 *	0.739420	17.49014	15.49471	0.0247
At most 3	0.000550	0.007151	3.841466	0.9321

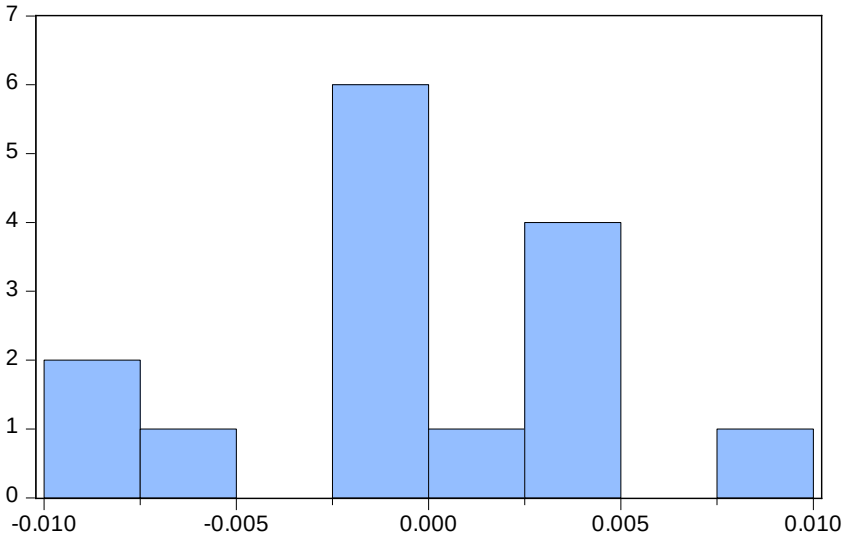
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.994685	68.08437	27.58434	0.0000
At most 1 *	0.971222	46.12600	21.13162	0.0000
At most 2 *	0.739420	17.48299	14.26460	0.0150
At most 3	0.000550	0.007151	3.841466	0.9321

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Graph 1: Normality test



Series: Residuals
Sample 2000 2014
Observations 15

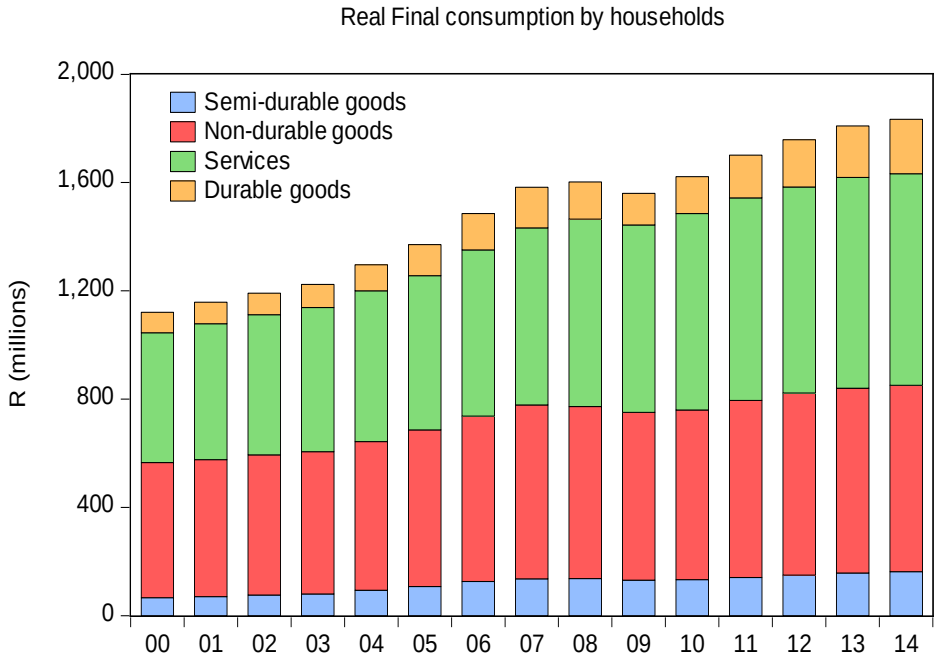
Mean	-7.03e-16
Median	-0.000316
Maximum	0.009060
Minimum	-0.008256
Std. Dev.	0.004865
Skewness	-0.097586
Kurtosis	2.399080
Jarque-Bera	0.249498
Probability	0.882718

Graph 2: Share of wealth and house prices



Source: Credit Suisse and Absa

Graph 3: Real final consumption expenditure by households



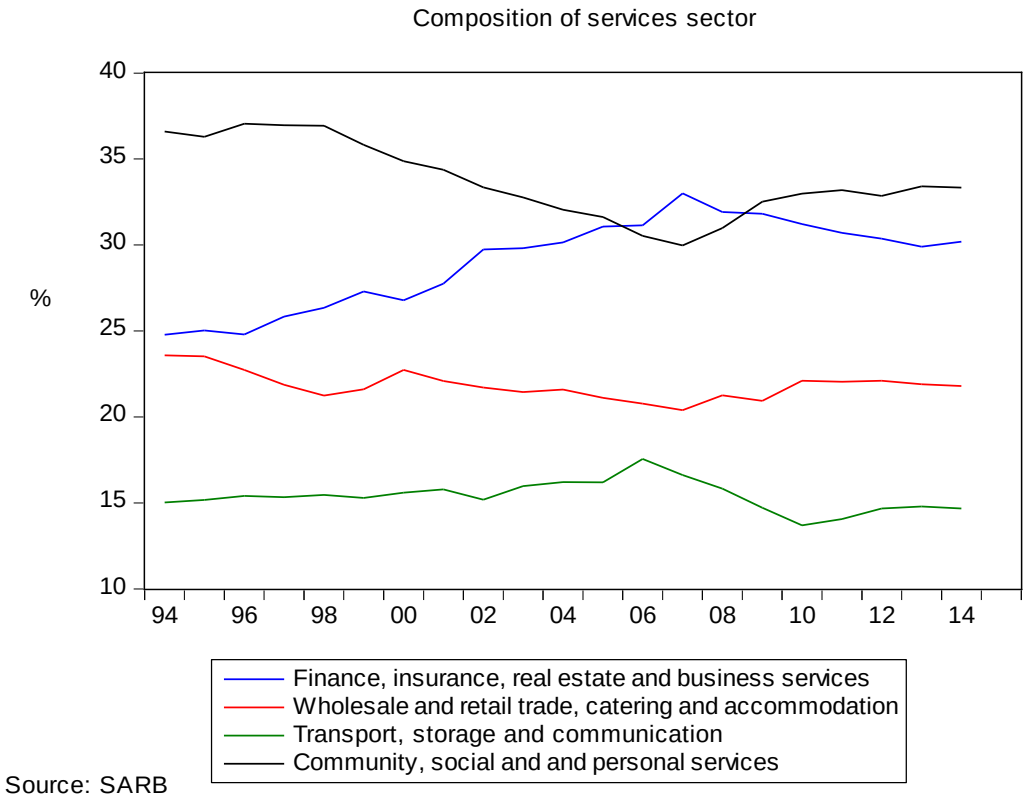
Source: SARB

Graph 4: Household wealth to disposable income



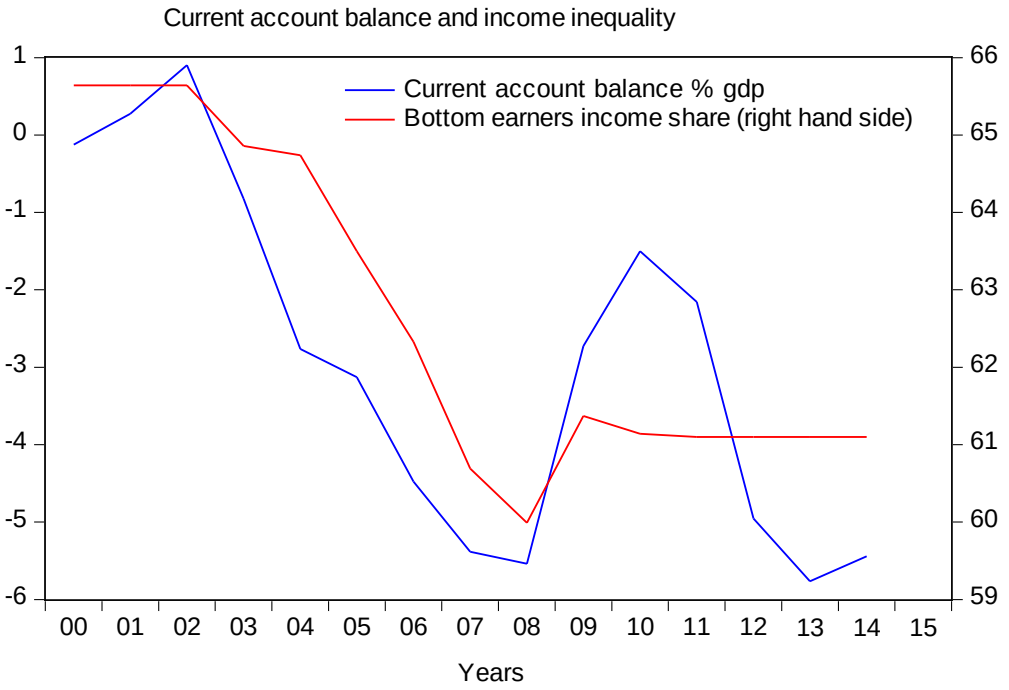
Source: SARB and own calculations

Graph 5: Composition of the services sector



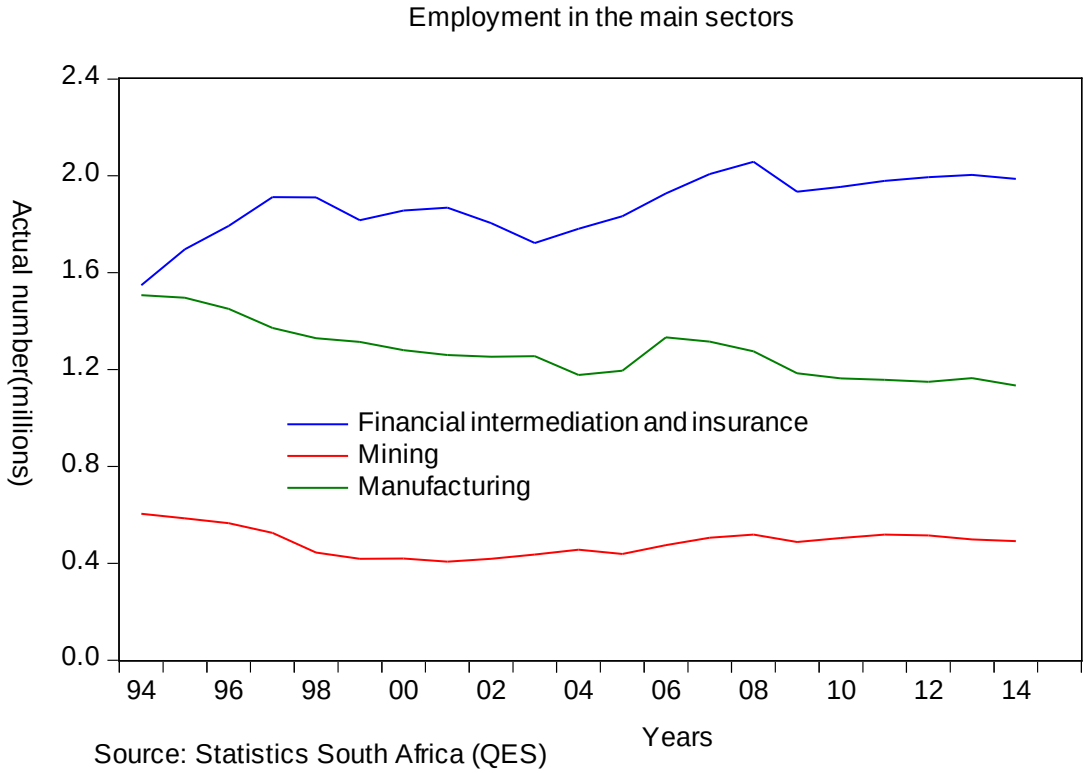
Source: SARB

Graph 6: Current account balance and income inequality



Source: The World Top Incomes Database and SARB

Graph 7: Employment trends in the main sectors of economy



Source: Statistics South Africa (QES)

Glossary of terms

Chi-test of significance: procedure used to test the significance of the variance (R-squared).

Cointegration: The notion that a linear combination of two series, each of which is integrated of order one is integrated of order zero.

Constant prices: Data is said to be “at constant prices of a given year” when it reflects values of flows or stocks of goods and services from which has been factored out changes in the prices of the goods and services concerned since the given year.

Consumer price index (CPI): An index that measures the price of a fixed basket of consumer goods and services.

Dependent Variable: Variable to be explained in a multiple regression model.

Durable goods: Household items that last for a long time, such as kitchen appliances, computers, radios and televisions, cars and furniture, usually acquired once in several years.

Econometric model: Equation relating the dependent variable to a set of explanatory variables and unobserved disturbances, where unknown population parameters determine the ceteris paribus effect of each explanatory variable.

Elasticity: Percent change in one variable given a 1% ceteris paribus increase in another variable.

Error-term: The variable in a simple or multiple regression equation that contains unobserved factors that affect the dependent variable. The error term may also include measurement errors in the observed dependent or independent variables.

F Distribution: Probability distribution obtained by forming the ratio of two independent chi-square random variables, where each has been divided by its degrees of freedom.

F Statistic: A statistic used to test multiple hypotheses about the parameters in a multiple regression model.

F Value: provides a test of a null hypothesis that the true slope coefficients are simultaneously zero. Reject null hypothesis if F-value is significant. The F-test which is a measure of the overall significance of the estimated regression is also a test of significance for R-squared.

Financialisation: Increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies (Epstein, 2005).

First difference: A transformation on a time series constructed by taking the difference of adjacent time periods, where the earlier time period is subtracted from the later time period.

Gini coefficient: Ratio of the area between the Lorenz curve and the line of equality over the total area under the line of equality, Gini of 0 indicates perfect equality; while a coefficient of 1 indicates perfect inequality (Atkinson et al., 2011).

Granger Causality: Limited notion of causality where past values of one series (*xt*) are useful for predicting future values of another series (yt), after past values of *yt* have been controlled for.

Heteroskedasticity: Variance of the error term, given the explanatory variables, is not constant.

Homoskedasticity: Errors in a regression model have constant variance, conditional on the explanatory variables.

Household debt service cost to disposable income: Ratio of interest and principal debt payment relative to household disposable income (Boushey and Weller, 2008).

Household final consumption expenditure: Consists of the expenditure, including imputed expenditure, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant.

Household saving: Calculated as the disposable income minus final consumption expenditure.

Households consumption: share of GDP is calculated as the nominal households' consumption expenditure as a percentage of nominal GDP (Boushey and Weller, 2008).

Hypothesis Test: Statistical test of the null, or maintained, hypothesis against an alternative hypothesis.

Hypothesis: Statement that expresses the proposed relationship between two variables, independent and dependent variable (David and Sutton, 2004).

Log model: Regression model where the dependent variable and (at least some of) the explanatory variables are in logarithmic form.

Multicollinearity: Correlation among the independent variables in a multiple regression model; it is usually invoked when some correlations are "large," but an actual magnitude is not well-defined.

Multiple Regression Analysis: Analysis that is used to describe estimation of and inference in the multiple linear regression model.

National income: comprises the sum of labour income (wages, salaries, earnings from and other remuneration for labour services) and capital income (rent, dividends, interest, capital gains, royalties, and other income derived from owning capital assets), while information on consumption is made of spending on durable and non-durable goods and services (Bhorat et al., 2009) and (Atkinson et al., 2011)

Net disposable income: the amount left at the disposal of households for either consumption or saving.

Non-durable goods: Household items that do not last long, for example food and personal care items.

Ordinary Least Squares (OLS): Method of estimating the parameters of a multiple linear regression model, the estimates for OLS are obtained by minimising the sum of squared residuals (Wooldridge, 2002).

Policy Analysis: An empirical analysis that uses econometric methods to evaluate the effects of a certain policy.

Probability value (p-value): Represents the smallest significance level at which the null hypothesis can be rejected (Wooldridge, 2002).

Propensity to consume: Shows the relationship between aggregate income and aggregate consumption both measured in wage units (Sheehan, 2009).

P-value: The lowest significance level at which a null hypothesis can be rejected. Probability value (p value) the observed or exact level of significance – the lowest significance level at which a null hypothesis can be rejected. In statistics, when we reject the null hypothesis we say our finding is statistically significant.

Real gross domestic product (GDP): Measures the monetary value of final goods and services produced in a given period (Wicksen, 2008).

Regression analysis: The dependence of one variable on other variables, it does not necessary imply causation, as statistical relationships can generally not never establish casual connection. The objective of regression is to measure the strength or degree of linear association between variables in the model.

R-Squared: Measure of well does the regression line fit the data points in the model or it is a measure of the goodness-of-fit of the estimated model to the data (Gujarati, 1995).

Sample: Part of the population on which information can be obtained to infer about the whole population of units of interest.

Social status: Ranking of individual or group of individuals in a given society according to measurement such as education, wealth and occupation (Li, et al., 2011).

Semi-durable goods: Items that last longer than non-durable goods but still need replacing more often than durable goods.

Serial Correlation: In a time series or panel data model, correlation between the errors in different time periods.

Share of income of top 5%: The share of total income received by 5% of households (Boushey and Weller, 2008).

Spurious Regression Problem: Problem that arises when regression analysis indicates a relationship between two or more unrelated time series processes simply because each has a trend, is an integrated time series (such as a random walk), or both (Gujarati, 1995).

Test-of-significance (t-test): Procedure by which sample results are used to verify the truth or falsity of a null hypothesis. In t-test, a statistic is said to be statistically significant if the value of the test statistic lies in the critical region of a normal distribution (Gujarari, 1995).