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The Impact of the National Credit Act on Household Debt Levels in South Africa

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Dissertation submitted in fulfilment of the requirements for the degree of

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in the

FACULTY OF COMMERCE, LAW AND MANAGEMENT

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at the

UNIVERSITY OF THE WITWATERSRAND

DECLARATION

I, Kabelo Paile, declare that the research work reported in this dissertation is my own, except where otherwise indicated and acknowledged. It is submitted for the degree of Master of Management in Finance and Investment at the University of the Witwatersrand, Johannesburg. This dissertation has not, either in whole or in part, been submitted for a degree or diploma to any other university.

Kabelo Paile 2013

ACKNOWLEDGEMENTS

I would like to thank “I AM” – with Him all things are possible.

To my family, friends and supervisor: my sincere apologies for my nonsense when I had lost all hope and motivation.

Thank you to all who walked this journey with me.

ABSTRACT

The high household debt level, as seen in recent years, has been a concern for many governments and financial institutions because of the decline in the well-being of households and the financial burden indebted households pose on the economy. A household that cannot afford to service its debt repayments will ultimately experience a decrease in its standard of living, and many other essential monthly expenses such as school fees may be "crowded out" by the debt repayments.

An alarming trend is the high levels of debt that households have indulged in, with little regard for the negative consequences of such accumulated debt. Households which are unable to service their debt repayments put a strain on the economy and contribute to an increase in the cost of credit, DTI (2003). Consequentially, credit intermediaries will experience high bad debts and thus, in turn, will factor this cost into the overall cost of credit.

The high household debt levels are caused by both demand and supply side factors such as the overall decrease in interest rates, greater financial inclusion post-1994, a lack of financially educated consumers, vague debt contracts and reckless credit lending by financial intermediaries, National Credit Regulator (2012).

Excessive debt could indicate that the debt level has surpassed all other indicators such as household income and net wealth, which would make debt unsustainable in the long run. The aim of this research is to analyse the South African household debt levels and to assess whether the implementation of the National Credit Act has had the desired effect on household debt levels. The research will rely on previous literature and use time series data extracted from The South African Reserve Bank to complete regression analysis.

The research begins by introducing the concept of excessive debt and highlighting the current debt levels in South Africa. The literature review covers the causes, advantages and disadvantages of debt, and the last section covers the results of the South African household debt trends.

The results indicate that household debt has indeed increased at an alarming rate, and these debt levels continue to rise. The research highlights the implications of over-indebtedness on both the microeconomic and macroeconomic level, and the dire consequences that can cripple the economy if household debt levels continue to increase unabated. It is imperative that policies set out by the National Credit Regulator succeed in curbing household over-indebtedness sooner rather than later, to assist and protect the households which are already over-indebted and prevent further over-indebtedness. The research reveals that households will continue to battle with over-indebtedness, thus the importance for policies to be in place to protect both the consumers and financial services provides, and ultimately the economy.

TABLE OF CONTENTS

DECLARATION ..... **II**

ACKNOWLEDGEMENTS ..... **III**

ABSTRACT ..... **IV**

LIST OF TABLES ..... **VIII**

LIST OF FIGURES ..... **IX**

LIST OF APPENDICES ..... **X**

1. INTRODUCTION **1**

1.1. THE NEED FOR A MONITOR 6

2. RESEARCH PROBLEM **9**

3. RESEARCH OBJECTIVES **10**

4. LITERATURE REVIEW **11**

4.1. INTRODUCTION 11

4.2. POSSIBLE EXPLANATIONS FOR CREDIT EXPANSION 12

4.2.1. Supply-side factors *12*

4.2.2. Demand -side factors *14*

4.3. EFFECTS OF DEBT 15

4.4. RISKS OF OVER-INDEBTEDNESS 18

4.5. NATIONAL CREDIT ACT 20

4.5.1. The National Credit Regulator *22*

4.5.2. Debt Counsellors *24*

4.5.3. Credit bureau *27*

4.5.4. Pre and Post the Act *28*

4.5.5. Lodging a complaint *31*

4.6. FINANCIAL LITERACY 32

4.6.1. Initiatives *40*

4.6.2. Types of training programmes *41*

4.6.3. Training *42*

4.6.4. Programmes *44*

5. RESEARCH METHODOLOGY **49**

6. RESULTS **51**

7. CONCLUSION AND RECOMMENDATIONS **56**

8. REFERENCE LIST **58**

9. APPENDICES **64**

LIST OF TABLES

Table 1: Household financial indicators ……5

Table 2: Credit extended per sector 288

Table 3: ADF Test Results……...50

Table 4: Cointegration Test Results with Linear Deterministic Trend……... 51

Table 5: One-Step Error Correction Model for Household Debt…… 51

Table 6: Diagnostic Statistics…….. 53

Table 7: Pairwise Granger Causality Test……54

LIST OF FIGURES

Figure 1: Credit standing of consumers 3

Figure 2: Number of accounts as a percentage of the total 18

Figure 3: Consumers with impaired records 24

Figure 4: Country comparisons of levels of economic literacy 35

Figure 5: Percentage of South Africans with emergency funds 37

Figure 6: Presence of household debt 38

Figure 7: Country groupings by average financial knowledge scores 39

Figure 8: Financial advice givers (percentage) 44

LIST OF APPENDICES

Appendix A: Form 29 to lodge a complaint with the National Credit Regulator ……...63

Appendix B: Sinking into debt? Act now! Brochure ……..64

Appendix C: Jump $tart December lesson plan ……..66

Appendix D: E-views results……. ……..70

1. INTRODUCTION

"If your outgo exceeds your income, your upkeep will be your downfall" Morgan and Duncan (1982: 57). Financial planning has historically been the preferred method of ensuring that individuals planned and saved for their financial needs by setting goals and building up a savings safety net. However, modern consumerism encourages instant gratification, and the financial self-control and restraint that was previously practised has become outdated and unnecessary, and has been replaced with wasteful instant gratification, Roberts, Struwig, Gordon, Viljoen and Wentzel (2012).

Lea, Webley and Walker (1995) defined households that experience involuntary non-payment at the agreed-upon time as being over-indebted. The Micro Finance Regulatory Council defines over-indebted households as households using 25% or more of their gross monthly income or 50% or more of net monthly income to service debt. Another definition of over-indebted households is: households requiring another loan in order to repay a current loan, Ardington, Lam, Leibbrandt and Levinsohn (2004). The National Credit Act defines over-indebtedness as: a consumer who, given the information at the time, the financial prospects and obligations and given the consumer's debt repayment history, will probably not be able to service or meet all debt obligations at the prearranged time, National Credit Act (2005).

Household over-indebtedness is caused by credit consumption exceeding the growth in income levels. A consequence of indebtedness is that high interest and principal repayments could infringe on the ability of a household to cover other living expenses, ultimately leading to a decrease in the standard of living and thus weakening consumer spending and, in turn, slowing down economic activity as there is a relationship between consumer debt and

economic activity, Schmitt (2000). There are many advantages to credit usage, i.e. if used correctly. Credit can ease consumption during fluctuating business cycles, but distorted and overzealous future income expectations can lead to over-indebtedness in the long run. Thus, a household must apply prudent financial management skills to avoid abusing credit as the advantages can quickly diminish. The Old Testament in the Bible speaks about the year of jubilee, where every 50 years – along with other traditions – all debt would be cancelled, Ferguson (2008). Unfortunately, this utopia does not exist for consumers anymore. Such simple solutions to debt are no longer relevant nor plausible in modern times. The importance of financial planning cannot be stressed enough as all debt, including interest, must be repaid. Given this, it is imperative that households learn to live within their means in order to avoid the crippling effect of excessive debt.

The National Credit Regulator observed an increase in unsecured debt of more than threefold, from 7.81% to 24.58% between December 2007 and December 2011, with 19.34 million active credit consumers as at end of December 2011. Alarmingly, 8.93 million of those consumers had impaired credit records,[1] National Credit Regulator (2012). The banks' share of the total outstanding consumer credit as at December 2011 was R1.14 trillion (87.86%); retailers had R42.86 billion (3.31%); non-bank vehicle financiers had R43.32 billion (3.34%) and other credit providers[2] accounted for R71.23 billion (5.49%), National Credit Regulator (2012). The figure below depicts the credit standing of consumers.

[1] Impaired records are records on which a consumer or the account, are either classified as three or more payments in arrears, or which has an adverse listing, or that reflects a judgment or administration order against the holder or account (Credit Bureau Monitor 2012).

[2] Other credit providers consist primarily of pension-backed lenders, insurers, non-bank mortgage lenders and securitised debt.

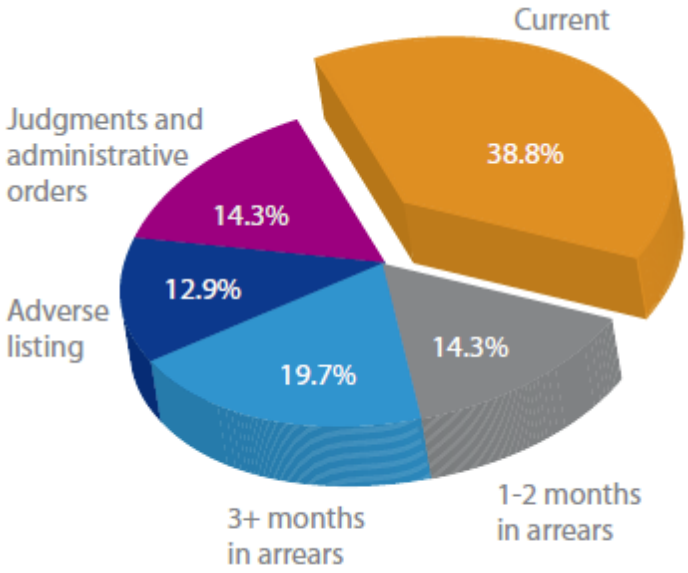


Figure 1: Credit standing of consumers

Source: Credit Bureau Monitor (2012)

There are numerous types of credit instruments available to households. First, a loan can be categorised as either secured or unsecured. A secured loan is guaranteed with collateral and is usually a cheaper loan because it carries a lower interest rate charge due to the available collateral, unlike an unsecured loan. An unsecured loan usually relies heavily on the credit rating of the individual, as there is no asset collateral. Unsecured loans are generally "easy cash" because they are easier to obtain and they come in the form of personal loans, store credit and credit cards. Credit instruments range from short-term loans and overdraft facilities to long-term loans such as mortgages. The payment method can either be revolving, such as a credit card – where the principal debt amount can vary – or an installment, such as personal loans – where further credit cannot be drawn from the outstanding principal amount; this type of payment method simply requires a set amount to be repaid.

A thriving economy will induce favourable conditions for increased optimism and increased credit market activity. These favourable conditions include declining interest rates, which will benefit the consumers by lowering their debt servicing costs; rising employment levels, which will increase disposable income and household wealth; and an overall easing of credit constraints. Thus, an increase in debt levels can be expected in a healthy, inclusive credit market. Financial services institutions were pressurised by government post the apartheid regime to cater for previously marginalised citizens. This brought new challenges and benefits to financial entities. They had the opportunity to increase their market share and revenue by targeting the untapped market, yet, the pitfall remained that the more credit extended, the more bad debts can be expected. Thus, the substantial growth in debt in recent years is not purely a cyclical phenomenon only linked to changes in interest rates or macroeconomic conditions; it also reflects a structural shift that seeks to accommodate large numbers of the population that were historically excluded from formal credit markets.

Once households realise that they will not be able to service their debt, prior savings can be used (if there are any savings), and households should accordingly decrease their standard of living. Households that use credit for day-to-day transactions to bridge the gap between current income and their desired lifestyles are an indication that debt will soon be unsustainable. Poor financial literacy and financial understanding leads to poor financial decisions that are often burdensome and irreversible for the affected households, Piprek, Dlamini and Coetzee (2004). Households lack the adequate levels of financial education to make informed economic and financial decisions with a clear understanding of their rights and responsibilities. Financial literacy ties in with risk management. Adequate risk management will assist households to mitigate the effects of vulnerability and unfavourable external shocks. Financial and economic education should be the concern and responsibility of consumers and financial entities.

The table below aptly captures the financial position of South African households in 2012. In one year, the financial assets, net wealth and total assets of households drastically decreased. Added to this is the negative savings which have plagued South African households, thus intensifying vulnerability. Total debt has increased from 7.4% to 10%. Nonetheless, there has been a decrease in mortgage debt; this ties in with the concerns raised that there has been a noticeable increase in unsecured debt. An alarming trend is the rise in insolvencies, which have increased more than double-fold within a year; this indicates that households are unable to maintain and serve their current debt levels.

Table 1: Household financial indicators

Indicator	2011			2012	
	2nd qr	3rd qr	4th qr	1st qr	2nd qr
Financial assets	15,2	3,1	5,1	5,2	8,0
Net worth[1]	11,6	2,8	3,9	3,4	4,3
Total assets	10,8	3,7	4,8	4,1	5,4
Consumer confidence index[2]	11	4	5	5	-3
Consumption expenditure to GDP (per cent)	59,0	58,6	58,8	59,3	59,8
Real consumption expenditure	5,4	4,7	4,5	3,7	3,6
Credit extension	7,5	5,5	6,8	6,8	7,7
Savings to disposable income (per cent)	-0,06	-0,04	-0,02	-0,01	0,02
Debt	7,4	7,4	8,6	7,3	10,0
Debt to disposable income (per cent)	76,3	76,2	75,4	75,6	76,3
Mortgage debt to disposable income (per cent)	46,0	45,1	43,7	43,4	42,9
Debt to GDP	45,0	44,6	44,3	44,9	45,7
Debt-service cost[3] to disposable income (per cent)	6,9	6,9	6,8	6,8	6,9
Capital gearing (per cent)[4]	19,4	20,2	19,9	20,1	20,2
Insolvencies[5]	-10,3	-26,0	-17,2	-27,8	-24,8

Source: South African Reserve Bank (2012)

Annual percentage change

[1] Household net worth is defined as total assets of households less total financial liabilities.
[2] The consumer confidence index is expressed as a net balance between optimistic and pessimistic consumers. According to the Bureau for Economic Research, Stellenbosch University, the index can vary between -100 for 'extreme pessimism' and 100 for 'extreme optimism', with 0 being 'neutral'.
[3] Interest payments on housing and personal debt.

[4] 'Capital gearing' refers to household debt as a percentage of total assets of households. Data is preliminary.
[5] Monthly indicator, value of last month of respective quarter.

1.1. The need for a monitor

Perhaps there is truth in the adage that 'Prevention is better than cure'. Consumer credit has generally been profitable to financial institutions and has contributed significantly to the overall profitability of financial institutions. As at May 2012, gross loans and advances contributed to 74% of banks' total assets, South African Reserve Bank (2012). There is an expectation that financial institutions will act socially responsible while pursuing profitability. However, the primary objective of these institutions is to make a profit and present an acceptable return on investment for shareholders – everything else is secondary. If the industry has taken an aggressive approach in order to obtain a share in risky, yet, highly profitable sectors, consumers could be disadvantaged and fall prey to unscrupulous and predatory lending practices. This highlights the need for a credit monitor.

The National Credit Act, Act 34 of 2005, aims to reduce reckless credit behavior. It requires credit providers to conduct a thorough analysis of consumers' affordability and understanding of the financial contract and complete transparency of the terms and conditions of the debt contract, Hurwitz and Luiz (2007). According to Jappelli (2010) South Africa is ranked as the lowest in economic literacy and the second lowest in financial education out of the 49 countries that were surveyed, these results are alarming and highlight how essential a credit monitor is in South Africa in order to assist consumers who lack the necessary skills and knowledge to understand the intricate South African financial market fully.

The main objectives of the Act are:

- To promote a fair and non-discriminatory credit marketplace
- To provide regulation in the credit industry and credit information

- To establish the National Credit Regulator and National Consumer Tribunal
- To improve access to credit for consumers and improve the standard of information provided
- To promote black economic empowerment and ownership within the credit industry
- To prohibit unfair practices within the credit industry and the marketing of credit products
- To promote responsible lending by credit providers in order to avoid over-indebtedness and reckless credit granting
- To seek to address consumer indebtedness by introducing debt counselling and debt restructuring
- To regulate credit providers, credit bureaus and debt counsellors.

  National Credit Act (2005).

The Act gives birth to the monitor for the financial industry in the form of the National Credit Regulator. The National Credit Regulator needs to focus on affordability measures being in place in order to avoid further household indebtedness. The Regulator allows credit providers to apply their own affordability assessment tests and models rather than enforcing their own guidelines which the Regulator deems to be fair and objective to be used by all credit providers. However, the South African credit market is too complex and well-meaning; nonetheless, it is to be borne in mind that inappropriate guidelines could do more harm than good for the industry and consumers, Arde (2012).

A comparison of a credit monitor can be made with the United States of America, where proposed legislation will protect the consumer against taking credit without being fully aware of the risks and consequences. The Bankruptcy Reform Act also ensures that a course on

personal financial management is completed, coupled with credit counselling for the over-indebted consumer; in addition, a personal money management course is being taught in secondary schools, Roestoff and Renke (2005).

The use of credit is not wrong; to the contrary, credit can be beneficial if used wisely. It is rather the abuse of credit that has dire consequences for consumers and the economy. The rest of the study will reveal the unique causes of indebtedness for the South African household, the position South African households are in and what measures are being implemented to solve this problem.

2. RESEARCH PROBLEM

Household debt is not a static figure, some growth in household debt can be expected and can be explained without cause for alarm; however, there needs to be certainty that it is sustainable. Households which are unable to service their debt repayments may experience a host of problems caused by over-indebtedness.

The consequences faced by households with high levels of debt include higher sensitivity and susceptibility to economic and personal shocks, such as illness or retrenchment, as these events can quickly change the status quo of a household's ability to service its debt. Furthermore difficulties such as a decrease in their standard of living due to being unable to keep up with all monthly expenses, as well as impaired credit records which may lead to increased cost of borrowing in the long run will affect indebted households.

The National Credit Act seeks to correct the predatory practices in the financial services industry by implementing stricter credit regulations through the National Credit Regulator by rectifying excessive household debt through stringent controls on debt contracts and debt counselling. The National Credit Regulator also aims to educate consumers about financial literacy matters in an attempt to reduce household over-indebtedness.

The issue of excessive household debt affects households and financial services providers negatively. Polices need to address the bulging household debt problem from both the household and financial services provider side. Financial services providers need to follow strict guidelines to prevent predatory behavior and encourage responsible lending and households need to practice restraint to prevent over-indebtedness.

3. RESEARCH OBJECTIVES

The aim of this research is to analyse the South African household debt level in order to assess whether household debt is growing at an unsustainable rate. The aim is also to evaluate the impact of the implementation of the National Credit Act.

Sub-problem 1:

Assess the trend in household debt as compared to relevant economic indicators.

Sub-problem 2:

Deduce whether the National Credit Regulator has had the desired effect of reducing household indebtedness since its inception.

4. LITERATURE REVIEW

4.1. Introduction

South Africa has been through a political transformation that saw the transition of the apartheid regime into a democratically elected government. Democracy brought about many freedoms and opportunities for all citizens, companies and the economy as a whole. Financial institutions began to open their doors to a larger demography, thus kick-starting economic growth. The ensuing opportunities increased competition and optimism between financial institutions, and thus increased credit extension and lowered minimum requirements in order to target more potential consumers. Previously marginalised segments of the population were targeted due to legislative changes and inter-institutional competition, contributing to the eruption of household credit and wealth, Hurwitz and Luiz (2007).

Many countries have experienced an increase in household debt in recent years. The various causes for this trend can be attributed to every country's unique composition and situation. However, the common concern among governments and financial institutions is the destabilising effect that unsustainable household debt can have on the economy. What is certain is that debt is as much a psychological issue as it is an economic concern.

The pertinent questions to be addressed are: Is the increasing rate of debt accumulation corresponding to an increasing rate of asset accumulation? Which type of debt is the instigator for the increasing levels of household debt? Is it asset financing debt such as a mortgage, or needs-based debt such as a fridge or vehicle (but not a luxury brand) or consumption debt such as food and luxuries that are responsible for increased debt appetite, Arde (2012).

4.2. Possible explanations for credit expansion

"Household debt is on the rise in terms of the number of households that have outstanding liabilities, the number of credit instruments available and used, and in terms of the total debt owed both in levels, and relative to income" Bertola and Hochguertel (2007: 1). Household debt has increased in South Africa. As at the end of the first quarter in 2012, there were 19.49 million active credit accounts – a steady increase from 17.79 million in June 2009, indicating the growing dependence that South African households have on credit. Forty-six per cent of the active accounts were impaired records[3], Credit Bureau Monitor (2012). The possible cause for the growth in debt could be the result of a normal healthy growing financial market; it can be expected that as the population grows and the financial intermediaries compete for market share, there will be more credit extended to households. The growth can also be explained by either demand-side or supply-side factors.

4.2.1. Supply-side factors

The supply-side factors are as a result of institutional changes such as the deregulation of the financial industry and the declining government control and interference in the financial industry, leading to freer markets. Financial intermediation is "an entity that acts as the middleman between two parties in a financial transaction; this intermediation offers safety liquidity and economies of scale" (www.investopedia.com/terms/f/financialintermediary.asp). This process performed by financial intermediaries allows them to borrow funds at relatively high interest rates and yet accept deposits at much lower interest rates.

[3] Impaired records are accounts on which a consumer and or any of the accounts are either classified as three or more payments or months in arrears, or which has an adverse listing, or that reflects a judgment or administration order.

Van der Walt and Prinsloo (1995), Ardington et al. (2004) and Hurwitz and Luiz (2007) explain that financial intermediation increased the importance of bank-intermediated credit to households. It also provides households with greater flexibility to take out advances on their mortgage loans, as well as the added perk of less capital being required for mortgage loan deposits. Roestoff and Renke (2005) further noted that an increase in debt is as a result of deregulation of financial institutions; consumers have easier access to credit and financial institutions and thus more opportunities to abuse credit.

Hurwitz and Luiz (2007) expanded on the supply-side factors by including wealth redistribution due to a fully inclusive economy as opposed to the exclusionary economy under the apartheid regime; this redistribution has caused an emerging middle class, as is the case in South Africa post-1994. Declining real interest rates are also a factor, Godwin (1997, 1998); Debelle (2004); Hurwitz and Luiz (2007); Bertola and Hochguertel (2007). The interest rate in South Africa has been on a steady decline from an average of 9.0% in 1994, to a low rate of 5.0% as at July 2012, South African Reserve Bank (2012).

A further contributing factor to the increase in debt at a household level is the increased competition between financial institutions and a deliberate attempt to penetrate new markets. The increase in micro credit products and an increase in the number of financial products available are evidence of this. There is a total of 4 971 credit providers registered with the National Credit Regulator, while, on the other hand, there are 38 736 branches available to reach the maximum number of consumers, National Credit Regulator (2007).

A further supply-side assumption is that increase in house prices will lead to an increase in debt growth for an extended period, Hurwitz and Luiz (2007). Supporting the findings is an earlier study conducted in Norway by Jacobsen and Naug (2004). Mokoena (2008) added a rise in household income, higher employment levels and greater access to credit as reasons

for supply-side induced debt. Debelle's (2004) findings regarding an easing of liquidity constraints, as well as a decrease in credit rationing, is later supported by Bertola and Hochguertel (2007) and Mokoena (2008). Van der Walt and Prinsloo (1995) found that greater access to credit, as well as a lower inflation rate, contributed to supply-side factors.

4.2.2. Demand -side factors

The demand-side contribution can be attributed to the increased appetite for credit by consumers, increased optimism and a degree of conspicuous consumption, Dutt (2006). Speaking of conspicuous consumption, Veblen (1899: 85) noted, "Conspicuous consumption of valuable goods is a means of reputability ... No class of society, not even the most abjectly poor, forgoes all customary conspicuous consumption."

Schmitt (2000) expanded on the conspicuous consumption factor, finding that the negative connotation that has previously been associated with debt no longer stands. Instead, consumers are less apprehensive to incur debt and are comfortable to use credit for day-to-day transactions.

Van der Walt and Prinsloo (1995) found that the spending behaviour of a household is influenced by tradition, material and social needs as well as the age distribution of the population. Deaton and Modigliani (2005) argued that the more young people there are in the economy, the more likelihood that they will save, taking into consideration that the older generation is dissaving during retirement, thus, the overall or net savings rate will be positive if the population comprises of more young people than elderly people. However, Jacobsen and Naug (2004) argued that the number of students demanding student loans and young professionals entering the working environment have a high appetite for debt including housing, thus conflicting with the above findings. South Africa has a population total of 50.59 million, of which 31.3% of the population is younger than 15 years of age, and 7.7% is

over 60 years of age, Statistics South Africa (2011). In the case of South Africa, the population is fairly young, yet, South African households are in debt. One of the reasons for South African households' high debt levels could be the income disparity and the many low or no income earners who constitute the bulk of citizens relying heavily on debt to make ends meet. Iacoviello (2008) affirmed the relationship between inequality and debt with findings that showed that in the United States of America (USA), the rise in debt corresponded with a rise in income inequality.

Another demand-side factor is the increase in household wealth over the years, which has also led to debt because an increase in wealth leads to an increased ability to borrow. Hurwitz and Luiz (2007) and Chen Chen and Chivakul (2008) also noted wealth as a contributing factor but added the level of education as a factor driving credit market participation. Godwin (1997, 1998) found that the households' present resources, the expected future resources, the price of goods and service and preference influence their views on their ability to borrow.

Dynan and Kohn (2007) added a households' lack of patience and a decrease in risk aversion as further demand-side factors. The authors found that young households are no longer prepared to save patiently, but are willing to accumulate debt at an alarming rate. Van der Walt and Prinsloo's (1995) earlier study had a similar finding that Dynan and Kohn (2007) had by noting that consumers are eager to satisfy current consumption needs and are unwilling to defer consumption.

4.3. Effects of Debt

Debt fuels growth in the economy, whereas savings can hamper growth; thus, debt can be seen as a necessary evil, Bertola and Hochguertel (2007). Empirical evidence supporting the stabilising or destabilising effect of debt in the long run is inconclusive. Dutt (2006) summarises aptly finding that, in the short run, stagnation can be avoided by consumers'

desire for credit, but the long run effect is inconclusive because the wealthier consumers are more prone to save; thus, the redistribution of income from the poor, who rely on debt, to the wealthy, who save, could lead to depressed aggregate growth despite the debt-induced expansion. Lunt and Livingstone (1991) and Dutt (2006) share the same findings, that income redistribution to the more affluent who have a greater savings culture is a by-product of debt-induced growth. Prinsloo (2002) had similar findings as Dutt's (2006) statement that households' consumption expenditure contributes to the country's gross domestic product (GDP), increased consumption by households stimulates the economy, whereas a decrease in consumption will slow down the growth of the economy.

Lunt and Livingstone (1991) acknowledge that psychological factors have as much of an influence in debt management as do economic factors; the psychological factors often associated with a strong savings mentality are: (i) self-control, (ii) fear of economic uncertainty, and (iii) pessimism about the economy. This ability to resist temptation and delay consumption is often more prevalent in older, well-educated, mid- to upper-class individuals. Lunt and Livingstone (1991) found that those who earned more saved more, and those who had higher levels of education saved more than the less educated, based on a study conducted with Swedish households. The number of children in a household also puts a strain on the household's resources and savings.

Lea, Webley and Walker (1995) revealed that a household's ability to cope with financial strain was dependent on its behaviour and psychological factors rather than its income. Lea et al. (1995: 682) found some of the following psychological factors in determining indebtedness:

1. "Social support for debt – how peers feel about debt, is debt discussed openly
2. "Economic socialization – do people have similar views/situation as parents

3. “Social comparison – comparison and desire to be on par with peers
4. “Money management styles – ability to adhere to a budget
5. “Consumer behavior – luxury goods being classified as necessities
6. “Time horizon – ability to defer gratification
7. “Attitude
8. “Focus of control – focusing on either internal or external factors”

According to a feasibility study for the National Credit Regulator, the main reasons consumers require credit is for:

- Mortgage
- Motor finance
- Overdraft facilities
- Credit card facilities
- Personal loans
- Store card facilities
- Furniture loans
- Small business loans
- Unsecured home loans

Hawkins (2008).

Mortgage loans account for the largest share of loans followed by credit cards and personal loans. The figure below depicts the number of accounts as a percentage of the total loan book.

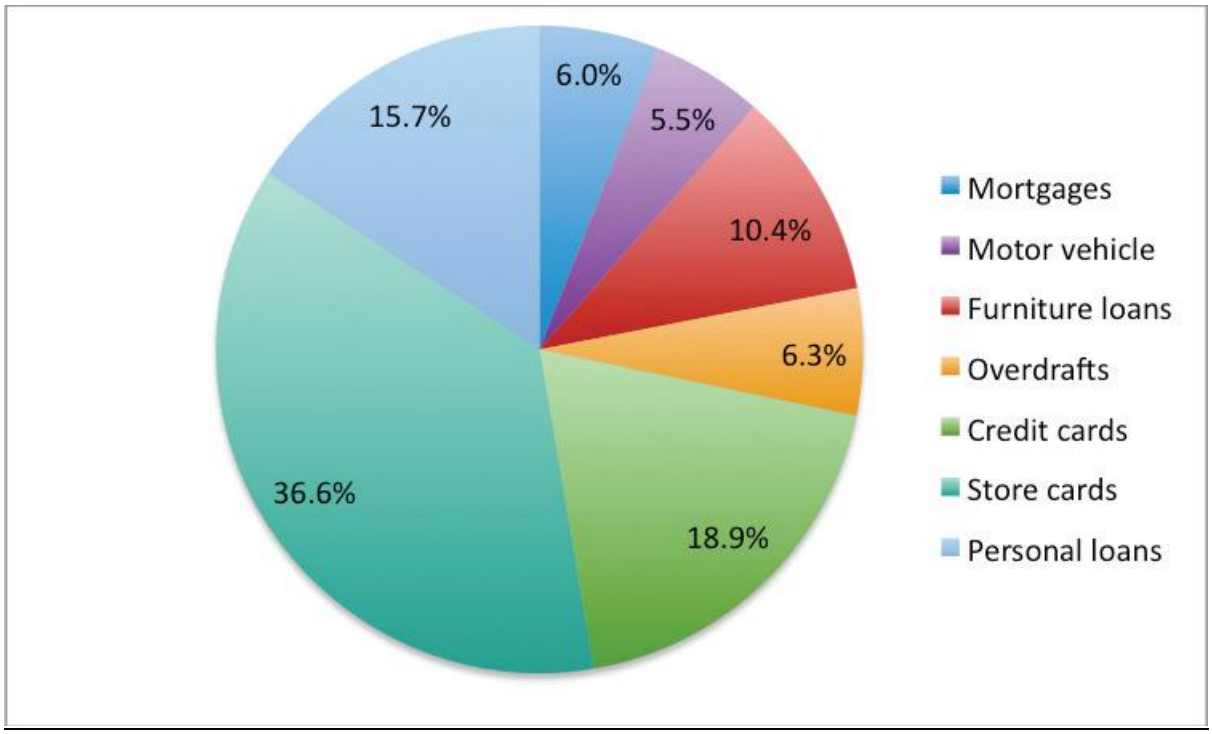


Figure 2: Number of accounts as a percentage of the total

Source: Feasibility Survey, Hawkins (2008)

The study found that access to credit is still skewed. Low income individuals – those earning less than R1 825 per month – are granted around 1.4% of the total credit granted to households; their credit is mainly unsecured and expensive. On the other hand, those earning between R6 150 and R16 900 per month accounted for 44% of the total credit extended to households. High income earners earning more than R16 900 per month, who are the minority, had almost 36% of total credit at lower rates, Feasibility Survey (2008).

4.4. Risks of over-indebtedness

One of the risks of over-indebtedness is vulnerability to adverse shocks in the future. Jappelli (2010) found that a recession may last longer with severe consequences because of household

debt; collectively, household debt affects financial institutions and ultimately the country's balance sheet.

Households which are over-indebted face interest rate risk, which is fuelled by inflationary pressures which increase the nominal interest rate; an increase in the nominal interest rate will increase the amount required for debt repayments. Households with mortgage debt also face investment risk if the price of their asset/house decreases. This will translate into the household owning an asset that is worth less than the total debt owed for that asset. Essentially, consumers should consider the risk of unemployment before overindulging in debt, Debelle (2004), Waldron and Young (2007).

Griffiths (2007) acknowledged that the lack of knowledge of consumers contributes to their risk of debt. Banks have information asymmetries, and many consumers lack an adequate level of financial literacy in handling their financial affairs. This finding ties in with the results of a financial literacy study conducted in South Africa, which found that 44% of households experienced financial difficulties and could not make ends meet with their income, Roberts et al. (2012). The struggling households' coping mechanisms varied from borrowing from either friends, family or a financial institution; or cutting down on certain expenses, depleting their savings, or worse: selling off valuable assets, Roberts et al. (2012).

As a general rule of thumb of what constitutes "good" and "bad" debt, researchers suggest that an acceptable debt becomes unsustainable and destructive when total household debt exceeds 85% of GDP, Cecchetti, Mohanty and Zampolli (2011).

4.5. National Credit Act

The National Credit Act, Act 34 of 2005, was implemented in 2006 and became fully effective in June 2007. Current credit legislation must be highlighted as this affects the credit market and ultimately consumers involved in any credit transactions.

The Department of Trade and Industry (DTI) embarked on an industry-wide investigation prior to the Act. Their findings are what compelled the change in industry regulation and ultimately to the birth of the National Credit Act. Some of the pertinent issues that plagued the credit market as highlighted by the DTI's findings are listed below:

- The three Acts that were governing the South African credit market, namely: the Credit Agreement Act, Usury Act and Usury Act Exemption Notice were archaic, vague, led to misinterpretation and did not cater to the sophisticated, advanced South African credit market.
- The three Acts led to much confusion over which Act to follow regarding which transaction, and thus, also contributed to non-compliance by many smaller credit providers.
- There was insufficient consumer protection, especially for the vulnerable low income groups.
- There was lack of adequate disclosure and understanding of the full terms and conditions of the credit extended to consumers, and thus, leading to information asymmetry for the credit providers and leaving the consumers feeling cheated and disadvantaged.
- Credit providers generally enforced one-sided contracts that specifically focused on the credit providers' rights and very little or none on the consumers' rights.
- The DTI found an active credit market and high levels of consumer indebtedness.

- Complaints of wide-spread unscrupulous behaviour by some credit providers, especially in the micro-loan space was reported, but there was little or no corrective action against such credit providers.
- Credit providers complained that there was a lack of investigation or enforcement of any legislative infringements, thus giving the whole credit providers industry a bad reputation and prohibiting fair market practices in certain niche markets such as the micro-lending markets that seemed to be monopolised by unprincipled practices and credit providers.
- Credit providers also expressed how the lack of credible consumer information was making pricing difficult and thus contributing to the high cost of credit.
- The DTI also found that South African consumers did not know their rights concerning credit transactions, nor did they completely comprehend credit contracts. Consumers did not fully grasp the total cost of credit and were disadvantaged by the lack of information furnished to them, DTI (2003).

Given these numerous problems that inhibited efficient credit market functions, the Act was implemented. The Act seeks to correct the problems caused by the past legislation and aims to have one encompassing legislation that all credit transactions will adhere to. The main objectives of the Act are:

- The promotion of a fair and non-discriminatory credit marketplace.
- The provision of regulation in the credit industry and credit information.
- The establishment of the National Credit Regulator and National Consumer Tribunal.
- The improvement of access to credit for consumers and the standard of information provided.

- The promotion of black economic empowerment and ownership within the credit industry.
- The prohibition of unfair practices within the credit industry and the marketing of credit products.
- The promotion of responsible lending by credit providers in order to avoid over-indebtedness and reckless credit granting.
- Seeking to address consumer indebtedness by introducing debt counselling and debt restructuring.
- The regulation of credit providers, credit bureaus and debt counsellors.

  National Credit Act (2005).

The Act governs all credit agreements in South Africa. A credit agreement encompasses a credit facility[4], credit transaction[5] or credit guarantee[6], National Credit Act (2005).

There is a distinct difference in the credit industry due to the implementation of the Act, such as the introduction of the National Credit Regulator, the National Consumer Tribunal and debt counselling.

4.5.1. The National Credit Regulator

The National Credit Regulator is tasked with enforcing the Act. It is a single statutory body that has the mandate within South Africa, and all credit providers, debt counsellors and credit bureaus must register with the Regulator. The National Credit Regulator and National Consumer Tribunal are tasked with enforcing and arbitrating the Act and have jurisdiction

[4] A credit facility can be defined as a credit provider's assurance to supply goods, or services or payments for the consumer.
[5] A credit transaction can be either a mortgage contract or lease or instalment credit.
[6] Promise to meet the demand of an obligation.

throughout South Africa. Since inception, the National Credit Regulator has received 457 570 calls at its call centre, indicating the acceptance, use and effectiveness of the National Credit Regulator, National Credit Regulator (2012).

The National Credit Regulator is responsible for:

- Regulation of the credit industry and credit information in order to ensure compliance with the Act.
- Registration and regulation of credit providers, credit bureaus and debt counsellors.
- Investigation of all complaints regarding contravention of the Act.
- Enforcement of the Act and taking necessary action against those contravening the law.
- Educating South Africans regarding the Act and good debt management practices.
- Providing research and advice to government pertaining to credit legislation and the credit market.

  National Credit Regulator (2007).

The National Credit Regulator is tasked with improving the credit market without hampering competition and innovation with stringent regulations, as some might argue that a free market works best. The Act endeavours to encourage credit providers to grant credit to previously disadvantaged people and low income earners in order to encourage wealth creation and improved living standards. The National Credit Regulator is responsible for ensuring this through improved, fair and accessible credit markets.

The National Credit Regulator has registered a total of 4 971 credit providers, with 38 736 branches as at the end of 2012, National Credit Regulator (2012). These statistics highlight just how many credit providers are operating, although this number only includes those credit providers that must register with the National Credit Regulator and not those who have been

exempted from registering with the Regulator. The many avenues for consumers to access credit highlight the necessity for some homogeneity and regulation within the industry.

4.5.2. Debt Counsellors

As at the 31st of December, South Africans owed R1.30 trillion in household debt, with a noticeable increase in unsecured credit. In fact, a staggering 61.98% of the 38.3 million active credit accounts were unsecured credit, National Credit Regulator (2012).

Insolvencies place a heavy burden not only on consumers but also on credit providers, thus, leading to an increase in the cost of credit. The Act makes provision for debt counsellors in order to assist and rectify consumer over-indebtedness.

The Regulator has 2 033 debt counsellors registered, up to the end of March 2012, and over 309 429 consumers had applied for debt review in this period, National Credit Regulator (2012). Consumer over-indebtedness seems to be rising, stressing the clear need for debt review as can be seen in the figure that follows.

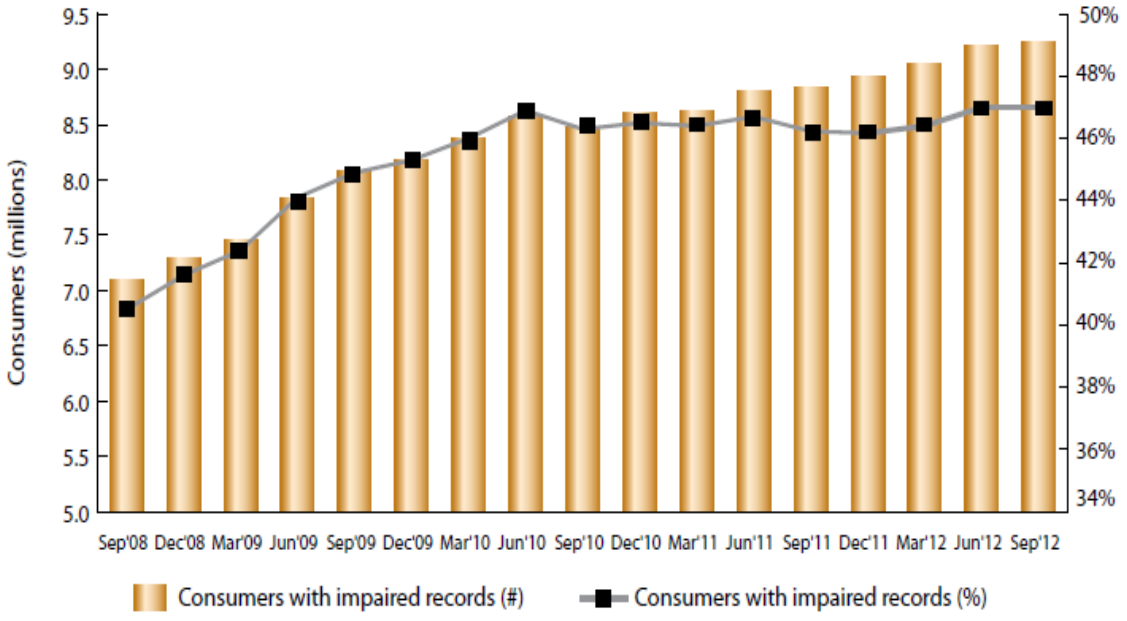


Figure 3: Consumers with impaired records

Source: Credit Bureau Monitor (2012)

Debt counselling can be voluntary when the consumer feels over-indebted and approaches a debt counsellor for assistance and debt restructuring, or the credit provider may refer defaulting consumers to debt counselling, or the court may refer an over-indebted consumer to a debt counsellor. The Act stipulates that if a consumer has defaulted on his account, the credit provider must issue a notice to the consumer to make him aware of his defaulted account. In this letter, the credit provider must provide the consumer with his rights and the option to see a debt counsellor within 10 days before the credit provider may take any legal actions against the consumer.

Debt counsellors must first examine consumers' finances in order to determine if the consumer is indeed over-indebted or just has poor financial management skills. The debt counselling service is only available to over-indebted consumers, so the counsellor must decline an application for debt counselling and debt restructuring if the consumer is deemed to have mismanaged their funds and are not over-indebted. A quick method of determining if the applicant's financial position allows them to have sufficient funds to meet debt demands is by dividing the amount available in order to service debts by the total current instalments due; if this per cent exceeds 100%, then the consumer is not over-indebted.

The debt counsellor must also ascertain if any of the credit granted to the consumer is as a result of reckless credit extension by the credit provider. According to the Act, reckless credit occurs when the credit provider does not take reasonable steps to assess the consumers' financial position. In addition, if the credit provider duly conducts the necessary credit checks but still enters into an agreement with the consumer, given that the consumer's understanding of the credit agreement, its costs, risks and his rights are not established nor understood, and

if such agreement would make the consumer over-indebted, then these actions by the credit provider constitutes reckless credit, National Credit Act (2005).

If the debt counsellor perceives that the consumer's debt problems are as a result of reckless credit, the debt counsellor may then apply to the magistrates' court to declare such credit agreements null and void due to reckless credit extension. If the court concurs with the debt counsellor and rules that a credit provider is guilty of reckless credit lending, it may either discard all or part of the consumer's obligations or postpone the effect of the credit agreement, and restructure the terms of repayment. Either way, the credit provider will be negatively affected; it may either not receive any payment at all if the credit agreement was set aside by the courts or it may receive less than originally contracted with the consumer if the terms of credit are restructured and/or reduced.

Unfortunately debt counselling comes at a price to the already over-indebted consumer. A debt counsellor may charge an upfront application fee and monthly fees and any legal costs should the matter have to be referred to a magistrate's court. However, the consumer will have the benefit of debt restructuring[7] if the proposal put forward by the debt counsellor is accepted and approved by the credit providers involved. There is also the benefit of financial education; the debt counsellor will counsel the consumer about sound financial practices such as maintaining a budget. Lastly, the consumer will also benefit from the fact that credit providers may not take legal action against a consumer under debt review, National Credit Regulator (2007).

Debt counsellors have the mandate and ability to rehabilitate consumers into responsible and educated consumers. The benefits of this tie in with the long-term goals of the Act of encouraging accessible credit that has the potential to create wealth, reduce poverty and

[7] Debt restructuring is a process where the consumers' monthly debt obligations, and or interest rate may be decreased, but this will increase the term of the loan.

increase standards of living for the previously disadvantaged. Credit has the ability to do this when used wisely and cautiously. Unfortunately in this case, the adage "prevention is better than cure" does not apply because debt counselling is only available to the over-indebted consumer. A recommendation is that debt counselling and financial education should be made available to all consumers who voluntarily chose to go to a debt counsellor, with only the over-indebted consumer having the added benefit of debt restructuring.

4.5.3. Credit bureau

A concern that credit providers had was that credit bureau information was not always reliable and accurate. Credit providers had to review and correctly price consumers based on this unreliable information, and consumers were not always forthcoming with material aspects about their financial situation, especially if a consumer is desperate for credit, then he may be a little economical and creative with his true financial history. Thus, the Act sought to rectify this by insisting that credit bureaus register with the National Credit Regulator and adhere to certain regulations. Such new regulations also prohibit credit bureaus from registering as a credit bureau if they have a controlling interest in a credit provider or debt collectors in order to prevent conflict of interest issues, National Credit Regulator (2007). To date, 11 credit bureaus have registered with the Regulator, National Credit Regulator (2012).

There is also recourse for consumers who do not agree with the information provided by the bureau; they may challenge the information and request the bureau to provide proof of accuracy of the information, whilst in the interim, the bureau will have to hide the information in question from public view, National Credit Regulator (2007).

The table that follows shows the split per sector of credit distribution. It highlights how households have the biggest share of credit compared to other industries. The fact that the biggest distribution of credit is allocated to households shows just how large the household

credit market is and thus the necessity for regulation in order to prevent abuse and unnecessary strain on households.

Table 2: Credit extended per sector

Per cent

Sector	2011	2012	
	Dec	Mar	Jun
Agriculture, hunting, forestry and fishing	1,73	1,75	1,72
Mining and quarrying	3,68	3,67	3,73
Manufacturing	4,27	4,46	4,41
Electricity, gas and water supply	0,85	0,70	0,72
Construction	1,18	1,25	1,16
Wholesale and retail trade, hotels and restaurants	3,96	4,14	4,26
Transport, storage and communication	3,44	3,32	3,42
Financial intermediation and insurance	25,17	24,19	24,68
Real estate	6,34	5,19	5,12
Business services	3,71	3,78	3,68
Community, social and personal services	5,37	6,53	6,35
Private households	34,28	36,56	35,85
Other	6,02	4,45	4,91
Total[2]	100,00	100,00	100,00

Source: South African Reserve Bank (2012)

4.5.4. Pre and Post the Act

There have been significant changes in the credit market due to the implementation of the Act. Some of the noticeable changes include:

- Before the Act was passed, it was up to consumers to prove wrongdoing, negligence and non-compliance of the credit provider; however, that responsibility now lies with the credit providers to prove compliance when there is a complaint, National Credit Regulator (2007).

- The Act requires all credit providers to treat and report on the different credit products in a similar manner; the intention of this is to allow the consumer to compare products and prices amongst providers.
- The Act ensures sufficient consumer rights, and it also states the maximum interest rates chargeable by the credit provider.
- As a result of the Act, credit providers are compelled to provide the credit contract in a simple language that the consumer can easily understand in order to allow for comprehension and comparison.
- To comply with the Act, credit bureaus must standardise the information-keeping process and ensure accurate consumer information is on their database.
- The Act ensures that credit providers will thoroughly assess the consumers in order to avoid reckless credit. Before the Act was enacted, the general rule of thumb was that a consumer's debt should not exceed 30% of their gross income; however, this rule did not take other debt into consideration.
- The Act makes it an offense for a credit provider to grant credit to an over-indebted consumer and/or to grant credit recklessly. This will curb consumer over-indebtedness through responsible credit practices.
- The Act now compels credit providers to give consumers a pre-agreement quote which will clearly list all the fees, interest payments, total cost of credit and any other charges that pertain to that credit contract. This quote will be binding to the provider and valid for 5 days in order to allow the consumer the ability to read and understand the costs involved and be able to compare with other quotes. The cost of credit normally has a number of additional charges that are not always visible or known to the average consumer. Charges comprise of interest charges, as well as non-interest charges such as credit life insurance, loan application fees, transaction fees and state

levies, such as stamp duties, Hawkins (2003). The inclusion of all extra information will not only be beneficial to consumers but will also help increase competitiveness within the credit industry.

- Irresponsible marketing has now been outlawed by the Act. This means that credit providers need to be responsible with their advertising campaigns; they may no longer use phrases such as "free credit" or "blacklisted are welcome" and no extra small print is allowed for the terms and conditions, DTI (2003).
- Negative option marketing is no longer acceptable. Negative option marketing takes place when a credit provider sends a potential consumer an invitation to accept credit such as a loan which the consumer did not apply for within a predetermined time, such as 30 or 60 days; and if the consumer does not decline the offer, the credit offer will automatically be enforced, DTI (2003).
- The Act has taken a stricter stance regarding door-to door selling at the workplace or residence of potential consumers. If a credit provider does embark on door-to-door sales, they must either be invited to do so by the consumer or employer, unless if they are selling developmental credit[8], DTI (2003).
- The outcomes of the implementation of the Act should tie in with government's initiatives such as economic growth, tackling unemployment, stimulating demand, improving competitiveness of the financial services sector, supporting small and medium enterprises and broad-based black economic empowerment, DTI (2003).
- South Africa has a skewed distribution of income, and the majority of South Africans are in the low income group; these new measures conceived by the Act will assist low income earners access to fair and competitively priced credit and avoid falling prey to

[8] Developmental credit is credit used for economical upliftment, such as small business loans or educational loans, or loans to build or expand low cost housing.

reckless lending and over-indebtedness, which would only tie them into a debt trap and spiralling poverty.

4.5.5. Lodging a complaint

Once consumers and credit providers are well acquainted with the pre- and post-Act regulations, they are encouraged to guard their rights and report any misconduct to the National Credit Regulator. Anyone may lodge a complaint with the regulator by following a few procedures.

The consumer must first communicate with the credit institution and try to resolve the matter with that institution, and only once this step has been exhausted and proved to be unsuccessful may the consumer approach the National Credit Regulator. A consumer may lodge a complaint directly with the National Credit Regulator by either completing a complaint form, called form 29[9] or by lodging the complaint telephonically. The National Credit Regulator is tasked with adjudicating all matters concerning the National Credit Act or any credit matters and must ascertain if the complaint falls within its mandate, else the National Credit Regulator may refer the matter to another regulatory body with jurisdiction. However, the consumer may also go directly to the adjudicators that follow, National Credit Regulator (2012).

Ombudsman with Jurisdiction

This can be any one of the ombudsman governing an industry such as the insurance industry ombudsman, i.e. if it is an insurance-related complaint or the banking services ombudsman for banking-related complaints.

Alternate dispute resolution agent

[9] Included in annexure.

The alternate dispute resolution agent resolves complaints through conciliation, mediation and arbitration.

National consumer tribunal

A consumer may only lodge a complaint using this platform if the grievance was not resolved by an ombudsman or alternative dispute resolution agent, or if the National Credit Regulator rejected the consumer's complaint.

The Act has made provision for the consumer's rights to be adequately protected and the consumer has sufficient avenues for recourse. It is clear that the implementation of the Act has introduced a new era for the credit industry; given time, these measures will lead to an enhanced, competitive and efficient credit market within South Africa.

4.6. Financial literacy

The lack of financial literacy has been blamed for the poor financial decisions that often lead to household over-indebtedness. Given the household debt levels prevalent in South Africa, it would be prudent to explore the financial literacy levels in South Africa. Financial literacy can be defined as the ability to make informed choices pertaining to financial matters and the ability to take appropriate actions on matters affecting financial wealth and well-being. It requires the consumer to have both an understanding of the breadth and depth of financial knowledge, Piprek et al. (2004). Another more descriptive definition as set out in a study by the Fannie Mae foundation is: "Personal financial literacy is the ability to read, analyse, manage and communicate about the personal financial conditions that affect material well-being. It includes the ability to discern financial choices, discuss money and financial issues without (or despite of) discomfort, plan for the future and respond competently to life events that affect every day financial decisions, including events in the general economy" Piprek et al. (2004: 6). Financial literacy, like any learning is not static but rather on-going and

evolving throughout a lifetime based on the current requirements and level of education Piprek et al. (2004).

Financial literacy should lead to asset and wealth creation, and the advancement of social and economic welfare. Financial literacy or the lack of it affects the economy, financial institutions and households. Households that are financially literate are able to make informed decisions that lead to poverty alleviation and wealth creation; this has the possibility of diminishing the debt trap and generational poverty, ultimately creating generational wealth that will permanently lift a household out of poverty and uplift its standard of living. Households that do not have sufficient levels of financial literacy are vulnerable and are more susceptible to over-indebtedness; they have insufficient savings, and are vulnerable to unscrupulous and aggressive financial products and lenders, Piprek et al. (2004). Financially literate households will have a rippling effect for generations of that household and the economy. The benefits of financially literate households for financial institutions is that these households will be able to articulate their financial needs clearly – leading to better product offering, increased financial market competition and less debt delinquencies. A financially educated population will prove beneficial for the government and economy by contributing to a smooth and well-functioning financial market that will grow the economy and be able to withstand adverse shocks much better, Piprek et al. (2004). Jappelli (2010) reiterates that a recession may be amplified because of household debt; collectively, household debt affects financial institutions and ultimately the country's balance sheet.

Lusardi and Tufano (2009) found that the lack of financial literacy resulted in an array of financial ills such as the likelihood for little or no retirement savings nor for any short- or medium-term savings, the failure to accumulate wealth, the inability to understand or participate in stock market activities, and the unfortunate error of costly financial transactions

and unsuitable financial products. The authors found that the lack of financial knowledge translated into costly errors and habits. Consumers who did not fully grasp the finer details of their credit card contract inevitably incurred up to 50% higher fees than that of their knowledgeable counterparts. These consumers often incurred late payment charges; they often exceeded their credit limits, and they paid only the minimum monthly repayment due, Lusardi and Tufano (2009).

There are low levels of financial knowledge within the general South African population as highlighted by the graph that follows. This lack of knowledge affects the rich and poor alike, but is generally worse in the lower income groups. The figure that follows depicts the economic literacy compared between countries.

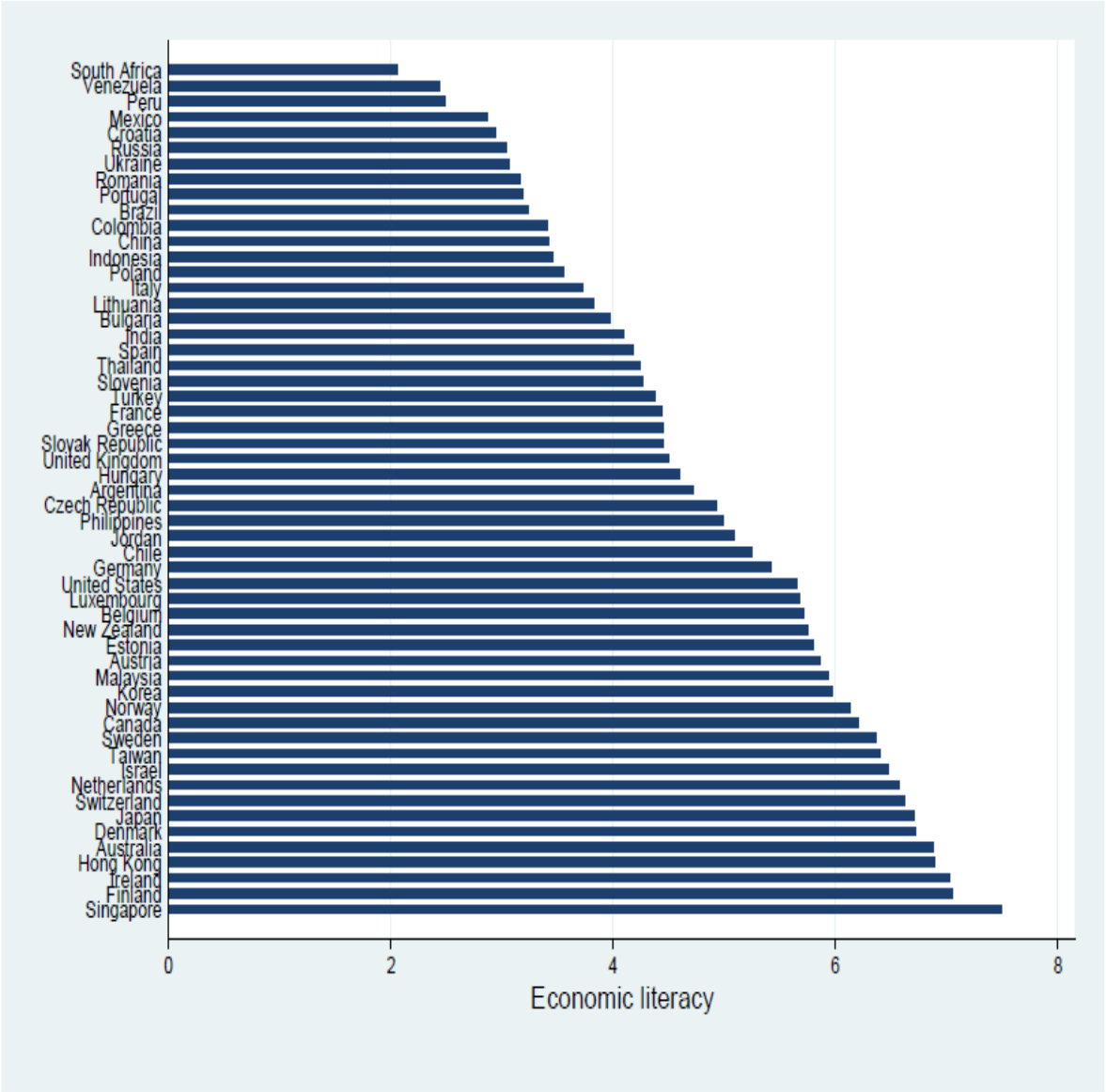


Figure 4: Country comparisons of levels of economic literacy

Source: Jappelli (2010)

Poor households that lack the ability to make good financial decisions are often unable to recover from a financial setback and do not have the necessary insurance or savings to buffer against the setback. Thus, the benefits of financial literacy include:

• "Poverty alleviation;

• "Consumer protection;

• "Improved functioning of financial markets;

• “Reduction of risk for individual institutions, and;

• “Increased market penetration.”

Piprek et al. (2004: 18).

Roberts et al. (2012) undertook a financial literacy study based in South Africa. Their chilling findings explain the current situation of many households. The study revealed that 44% of households experience some difficulty in making ends meet with their income, and their choice of coping mechanisms varied from either borrowing from friends and family or a financial institution, cutting down on certain expenses, depleting their savings or worse: they sold off valuable assets. The authors also found that households lacked the ability to understand how inflation and compounding interest affected them. Lusardi and Tufano (2009) also found that many households did not understanding debt contracts, compound interest or how a credit card works; a large number of households battle to grasp basic economic concepts; the lack of understanding about the benefits of risk diversification, the impact of inflation and how compounding interest works to their detriment. Jappelli and Padula (2011) established that financial literacy and savings are positively correlated, which is evidence in the South African case where savings as well as financial literacy are low. The figure that follows shows the percentage of South Africans who have emergency funds to cover 3 months’ living expenses.

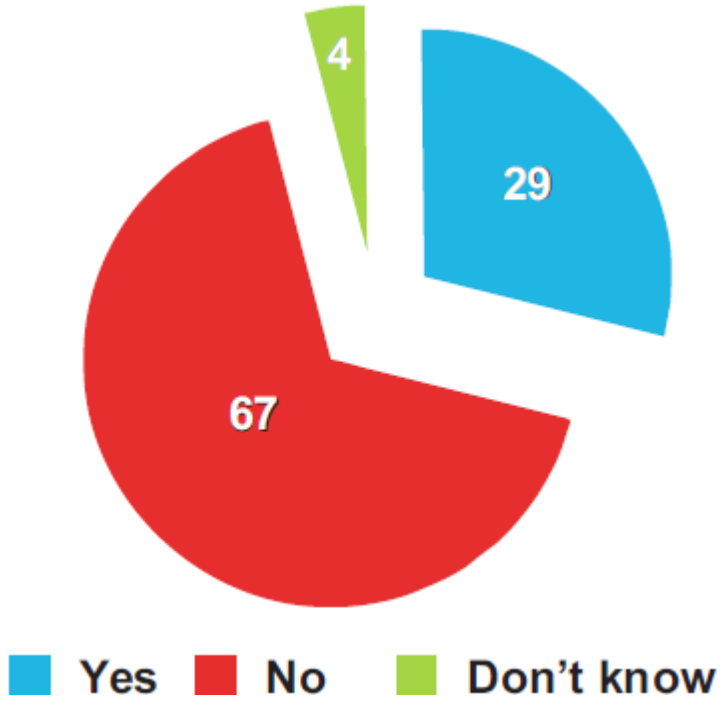


Figure 5: Percentage of South Africans with emergency funds

Source: Roberts et al. (2012)

There are four components to financial literacy, namely:

- **Day-to-day money management**

  This concerns budgeting, saving, financial control, record-keeping and any day-to-day financial management.

- **Financial planning**

  This is the ability to plan and budget for future events, such as saving for education and retirement. However, unforeseen expenses must also be considered by having sufficient savings and insurance.

- **Choosing appropriate products**

Each household has remarkably different needs, which vary depending on the life cycle of the household. Given this, it is imperative that the households have the knowledge to choose appropriate financial products at the right price.

- **Financial knowledge and understanding**

Financial knowledge and understanding speak to the effort required by consumers to educate themselves about the array of financial products, economic literature and its impact on their finances.

Roberts et al. (2012).

The figure that follows shows that the higher income earners are more likely to have a household budget, indicating a certain level of financial knowledge whilst the poorest households fare poorly with budgeting, emphasising how poor households are disadvantaged further in not being able to plan for the future due to a lack of budgeting skills.

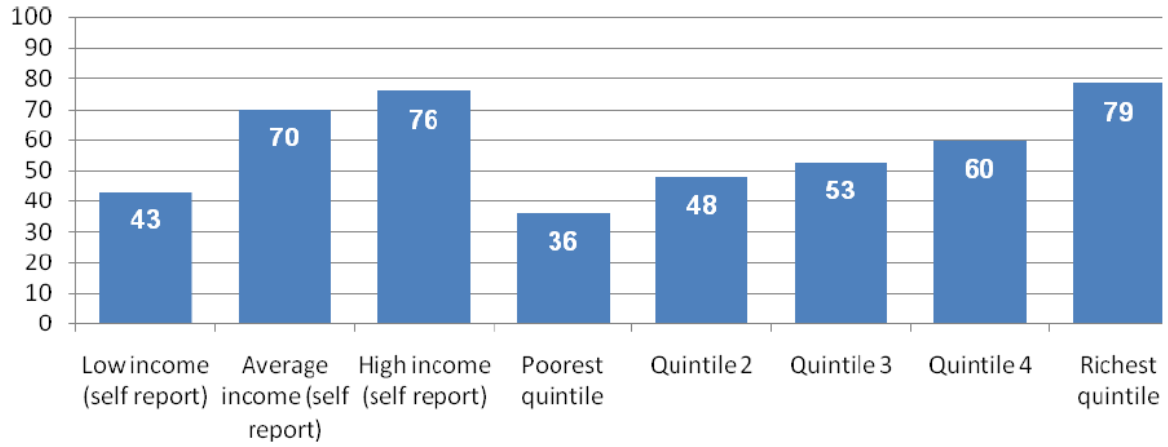


Figure 6: Presence of household debt

Source: Roberts and Struwig (2011)

The educated are more likely to use a broad range of savings products such as bank accounts, stocks and shares and bonds, unlike the less educated, who generally use informal saving methods such as stokvels and keeping money at home. Roberts and Struwig (2011) observed that vulnerable and poor households need further education in order to encourage the use of more sophisticated financial products. Hawkins (2003) found that lower income consumers go to where they know they have access to credit regardless of the costs involved, indicating the lack of knowledge about options available.

For Messy and Monticone (2012), it came to light that South Africans rank low to moderate in their levels of financial literacy. Knowledge about the different products available and their use is low. This paints a bleak picture of the current status of the majority of households in South Africa and reiterates the necessity to prioritise financial education. The figure that follows shows how countries fair by their average financial knowledge scores.

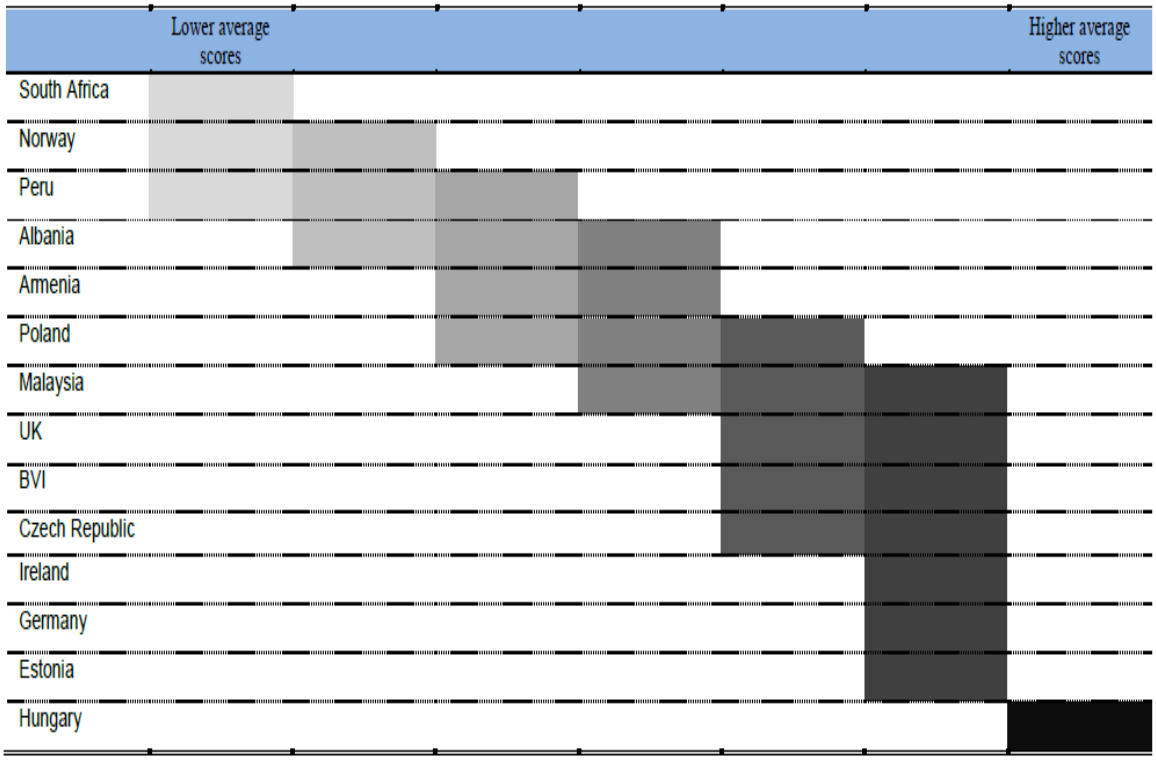


Figure 7: Country groupings by average financial knowledge scores

Source: Atkinson and Messy (2012)

4.6.1. Initiatives

There have been many programmes and initiatives by government, NGOs and financial institutions to address financial literacy both in South Africa and other countries. The dire lack of financial education has been a concern for governments and financial institutions. In this section, the various initiatives will be discussed. This is not an exhaustive list of financial literacy training programmes as there is a plethora of formal and informal training programmes on offer. Only a few of these programmes will be mentioned in this section.

The government, through the DTI and National Credit Regulator, has invested in financial literacy. The National Credit Regulator sponsored a television programme called *Soul City* and advertised in 13 episodes about how to make wise financial decisions, National Credit Regulator (2012). The National Credit Regulator also posts educational messages on the public sectors' payslips. These messages advise how to stay out of debt and where to get help if already indebted, National Credit Regulator (2012). However, the National Credit Regulator has been criticised for lacking the capacity to provide the necessary training. Reasonably, the National Credit Regulator cannot possibly meet the vast financial training needs of all South Africans without the assistance of all industry stakeholders. The impact of appalling household financial choices affects the entire financial services industry as well as the economy. Thus, the responsibility of equipping households with the necessary financial skills and training should be borne by both government and the financial services industry. An example of this collaboration is the commitment of the financial institutions charter members, who committed to investing a minimum of 0.2% of their post-tax profits annually toward consumer education; this education is intended to assist consumers by empowering them to be in a position to be able to make informed decisions about their finances and lifestyle, Financial Services Charter (2008).

Before any institution can embark on a financial education programme, an analysis of the intention and anticipated outcome of such a programme must be clear and communicated. Programmes will differ based on the purpose, the target audience, the impact, the reach and possible accreditation, Piprek et al. (2004). An effective financial literacy programme should take cognisance of the fact that financial needs change over a lifetime to suit the evolving lifestyles of households. A student would require a different financial literacy programme as compared to a young family or a mature household which is near retirement. The financial literacy programme aimed at learners through school-based programmes will differ to those designed for adults. Another essential factor concerning financial literacy programmes is that they should be continuous rather than a once-off session or a sporadic approach. It is imperative that all programme designers focus on creating long-term permanent effects for those who have gained financial knowledge as a result of the training programme. A financial literacy programme should not only lead to an increase in awareness but also an understanding of financial topics and, most importantly, also to a change of behaviour, Piprek et al. (2004).

4.6.2. Types of training programmes

A financial literacy programme can either be discrete or broad-based. An explanation of these programmes follow.

- **Discrete programmes**

  A discrete programme will focus on a limited, or a specific topic with a predetermined outcome in mind; such programmes would tackle issues such as a specific product class, for example, opening of accounts, managing and avoiding debt or saving for retirement, Piprek et al. (2004).

- **General or broad-based programmes**

  A broad-based programme will target the general welfare, general knowledge and upliftment of the consumer. With this programme, topics such as fundamentals of financial literacy, financial planning and budgeting, and financial management are taught. Advice about different types of financial products could also be disseminated, Piprek et al. (2004).

4.6.3. Training

Training can take place using school-based programmes in order to target learners, which can promote a health concept of money and its usage at an early and impressionable stage before debt occurs. Perhaps another approach is workplace programmes, which are provided to assist employees with money management. Financial institutions also offer a range of classroom-based training; there are community outreach programmes and programmes offered at faith-based institutions – these options are all possible ways to reach a designated target group in order to disseminate the appropriate financial literacy training, Piprek et al. (2004). Specific training programmes can only reach a limited population. The workplace programmes can only service those who are employed only if the company is willing to offer such employee assistance, which is not always the case for small and medium enterprises. The programmes offered by financial institutions are generally offered to existing or potential clients and, unfortunately, these modes of training cannot reach all sectors of society and the vulnerable and poverty-stricken households in rural areas will inevitably fall through the gaps. Those who have low levels of literacy and have little or no prior knowledge of financial literacy are also at a disadvantage, given that certain accredited courses require prior knowledge, Piprek et al. (2004). Another channel to disseminate financial literacy information is through the media. Although media messages can potentially reach masses,

these messages will have to be generic and are time constrained. Financial institutions that offer financial literacy programmes may often be seen as advertising their products more than educating the public. Thus, there needs to be a clear objective in mind to differentiate between marketing and education, Piprek et al. (2004). A financial literacy educational programme would have different characteristics and content that would differentiate it from a marketing campaign. These characteristics can be summarised as follows:

- Does the programme provide the consumer with a range of product options?
- Is the programme aimed at improving the well-being of the consumer and has their best interests at heart?
- Would the content and message still be relevant if the brand accompanying the message is replaced with a different brand – including that of a different sector or other financial institution? Piprek et al. (2004).

Another point to consider is the size of the group being trained. Approaches and resources differ between large, medium and small groups. A study revealed that South Africans prefer to ask a family member for financial advice more than approaching a broker, Roberts et al. (2012). However, with the prevalent low levels of financial literacy, this is a case of "the blind leading the blind". This approach needs to change; households need to seek advice from qualified, knowledgeable sources; this information can be discussed as part of a financial literacy message. The figure that follows highlights to whom individuals turn to for financial advice.

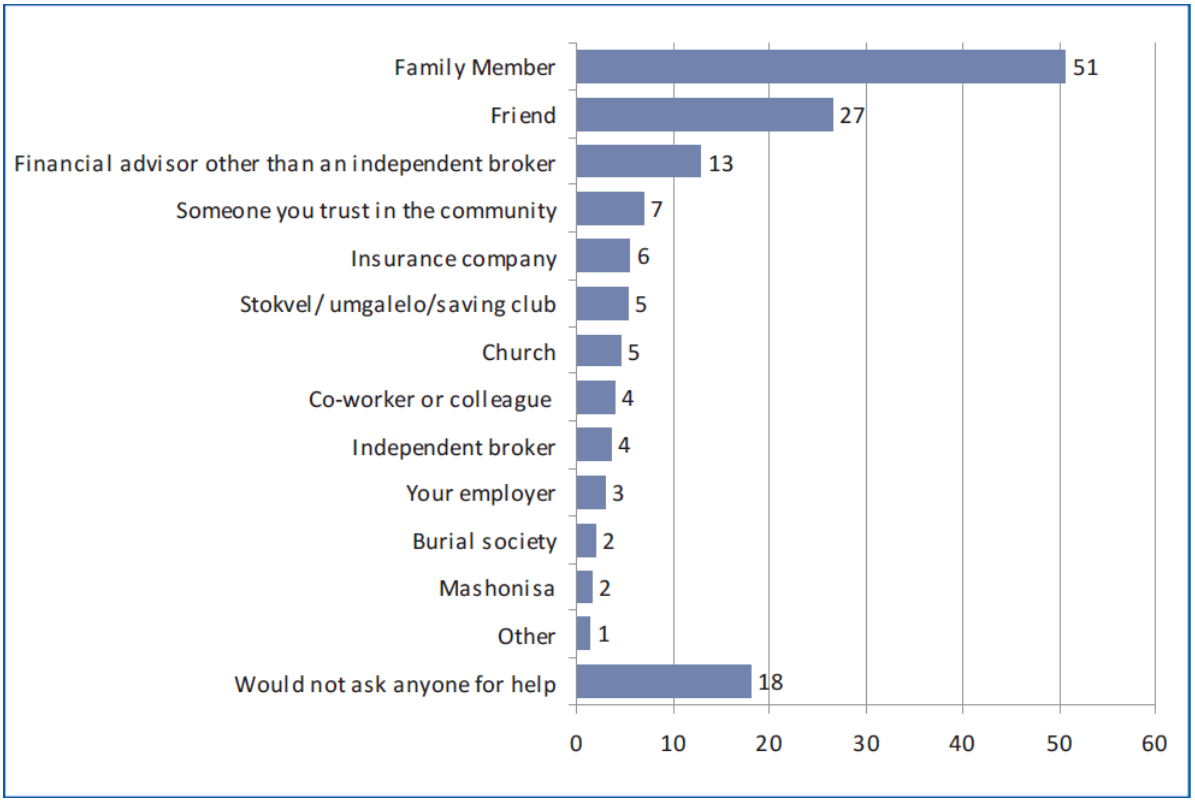


Figure 8: Financial advice givers (percentage)

Source: Roberts et al. (2012)

4.6.4. Programmes

A programme should aim to achieve the following key results:

- Ensure improvement of financial knowledge depth and breadth and skills of the target populations. This will tie in to the need for economic empowerment through knowledge.
- The target group should have a better sense of financial issues and their rights and responsibilities.
- To improve financial inclusion by allowing for easier access to the formal credit market. Messy and Monticone (2012).

The programmes below are a summary of the financial literacy initiatives that successfully targeted an array of target groups using different modes of communication and training. Not all programmes are still active but have nonetheless been included to highlight the initiative, its target living standards measure (LSM) group, method of training and its success.

- **Teach Children to Save South Africa (TCTS SA)**

This programme was launched by the Banking Association of South Africa (BASA), and the

South African Savings Institute (SASI). The objectives of the programme are to encourage a culture of savings, volunteerism and to highlight and teach the value of money. This programme is a school-based programme targeting grade 4-7 learners, incorporated in the Economic and Management Sciences (EMS) subject. Jump $tart is a similar programme ran in the United States; however, Jump $tart targets all grades,[10] Messy and Monticone (2012).

- **Operation HOPE/Banking on our future programme**

The international outreach arm, HOPE Global Initiatives (HGI), is also a programme aimed at teaching financial literacy to the youth in South Africa. This volunteer-based programme teaches money management, budgeting and entrepreneurship, Messy and Monticone (2012).

- **The NakekelaImali! (Take care of your money!)**

This programme targets mine workers in South Africa; it provides training workshops at the mining houses. The programme consists of on-site training workshops, and the miners also receive training material to keep for future reference, Messy and Monticone (2012).

[10] A Jump $tart lesson plan has been included in the appendix.

- **Postbank Wizzit financial literacy programme**

The programme targeted low income Postbank clients. Training workshops were conducted, which covered financial material such as savings, budgeting, managing risks and insurance Messy and Monticone (2012).

- **Old Mutual**

Old Mutual targets burial societies and women's groups; its "on the money" programme introduced financial planning, good debt management and savings and investments, Messy and Monticone (2012).

- **Safe and Smart Savings Products for Vulnerable Adolescent Girls in Kenya and Uganda**

The programme targets young females in Kenya and Uganda. The ladies meet for weekly group meetings between the "savings group" facilitated by a female mentor who also provides financial literacy training, Messy and Monticone (2012).

- **An opportunity for all, Financial Education in Africa**

The project runs in Ghana, Malawi, Mozambique and Uganda and aims to increase financial literacy through the awareness of financial services, and encourages good debt management by using media, Messy and Monticone (2012).

Another successful saving initiative that is worth mentioning was the FNB "million a month" account, which saw high levels of uptake of that savings product, showing that a little incentive for the consumer can achieve much, Messy and Monticone (2012).

All private, non-governmental organisations and public stakeholders should invest in financial education in order to have a significant impact on financial literacy for the population. Better coordination and collaboration will address financial literacy shortfalls and identify gaps in the market that have been overlooked. Currently, training programmes are being conducted sporadically and in silos. Monitoring and impact assessments should be done during and after a programme in order to allow for tracking and improvement. An assessment of those programmes that have yielded positive results within other countries, especially African countries that face similar financial literacy shortfalls as those experienced in South Africa, should be shared and where possible imitated. Financial literacy should be emphasised and increased at schools; this will ensure financially responsible adults in the future.

Financial literacy on its own is not the silver bullet to South Africa's household debt problem. Lack of resources, unforeseen death, disability or loss of income and sudden negative external shocks have the ability to cause even the most vigilant and financially savvy household to plunge into a debt spiral, thus, taking away a means of survival. Consumers must also take responsibility for their financial well-being. An investment of time and effort to acquire adequate levels of financial knowledge continuously is imperative as the cost of ignorance has proved to be exceptionally high and often irreversible. Jappelli and Padula (2011) aptly note that financial literacy is a choice, and consumers must trade off the costs associated with time and effort to learn with the benefits of financial knowledge.

Even though there seems to be a wide variety of financial literacy programmes available, however, the problem of a lack of coordination between all stakeholders persists. The shortcoming that not all sectors will be serviced remains an issue and that some vulnerable and often rural consumers will still fall through the educational gap left by the sporadic literacy programmes. If there were a mass financial education centre whereby all interested

stakeholders could combine their resources, knowledge and efforts and leverage off past successes, it could increase the efficiency and reach of these programmes. One mass educational programme would not work given the intricacies of the target markets, complications of the vast financial market and products and the desired outcomes of the programmes. Enhanced coordination within the industry will undeniably produce positive results in financial literacy education in South Africa.

Household debt can be expected to increase over time, but so should household disposable income, preferably at a faster rate than debt. Ferk (2007) points out that most households will be in debt at various stages of their life cycle, especially at the early life cycle phase. It is clear from the literature that there remain differences regarding the effects of debt; however, there is consensus that the demand and supply of credit has risen in recent years, and this has the potential to pose a grave threat to households and the economy.

5. RESEARCH METHODOLOGY

The research relied on quantitative methods, by using regression techniques.

The time series data was obtained from the South African Reserve Bank. The quarterly time series was extracted from 1995 quarter 1 to 2012 quarter 3. The research identifies democracy as instrumental in opening up the markets and thus the data set is aligned to reflect the macroeconomic policies that were implemented after the first democratic elections of 1994.

The time series data extracted from the Reserve Bank are:

KBP6525L: Household debt to disposable income of households

KBP6289L: Ratio of debt-service cost to disposable income

KBP6288L: Ratio of household net wealth to disposable income

KBP6287L: Ratio of saving by households to disposable income of households

KBP6246L: Disposable income of households

KBP6200L: Savings by households

E-views statistical software package was utilized. Unit root tests were conducted to test for non-stationary data at both intercept and trend and intercept at level (i0). The Augmented Dickey-Fuller test (ADF) test statistic was then compared to the critical value at a 5% confidence interval. If the absolute value of the ADF test statistic is less than the critical value then the data is non-stationary and must be differentiated until stationary. The unit root tests were conducted to investigate the order of integration of the variables prior to estimation of the household debt function.

The ordinary least squares (OLS) estimation settings method was used. Diagnostic testing, cointergration and granger causality tests were run. The E-views equation used was "LOGHH_DEBT LOGHH_YD LOGDSERV_COST LOGHH_S LOGHH_NW C DLOGHH_YD(-1) DLOGDSERV_COST(-1) DLOGHH_NW".

6. RESULTS

ADF Unit Root Tests

The ADF tests were conducted for the series at level, as well as at first differences, both for intercept and trend and without trend. The ADF technique was used because the sample size is relatively small, Hamilton (1994).

Table 3: ADF Test Results

Variable	With Intercept		With Intercept and Trend	
	Level	First Diff	Level	First Diff
Household Debt (HH_Debt)	-0.564	-3.312**[11]	-1.223	-2.388**
Household Income (HH_Yd)	5.107***[12]	-2.669*[13]	0.669	-4.387***
Debt Service Cost (DServ_Cost)	-2.274	-4.629***	-2.204	-4.114***
Household Savings (HH_S)	-1.807	12.838***	-2.534	-7.554***
Household Net Wealth (HH_NW)	-1.723	-6.526***	-2.386	-4.331***

The unit root test results confirm that the all variables are stationary after the first difference. Debt service cost, household savings and household net wealth are stationary at 1 percent level without trend. Household debt at 5 percent and household income is stationary at 10 percent level. All variables are stationary at 1 percent level except household debt which is stationary at 5 percent with intercept and trend.

The next step in the analysis was to test for the presence of cointegrating relationships between variables, this is examined using Johansen eigenvalues and L.R. statistics; with results shown below.

[11] ** 5% level of significance
[12] *** 1% level of significance
[13] * 10% level of significance

Table 4: Cointegration Test Results with Linear Deterministic Trend - Lag Interval: 1 to 1

Eigenvalue and L.R. Test Statistics				
H_0 H_1	r = 0 r = 1	r ≤ 1 r = 2	r ≤ 2 r = 3	r ≤ r = 4
Eigenvalue L.R. statistic	0.499997 162.4516**	0.436209 114.6249**	0.365638 75.08294**	0.279759 43.67862*
* rejection of the null hypothesis at 5% significance level ** rejection of the null hypothesis at 1% significance level				
Critical Values				
1% Sig. level 5% Sig. level	124.75 114.90	96.58 87.31	70.05 62.99	48.45 42.44

The eigenvalue and the likelihood ratio (LR) test statistics results prove that there are four cointegrating relationships at the 5 percent level of significance. As a result of the cointegrating relationships, the final estimates of the household debt model, together with the associated diagnostic tests will be estimated using the one-step error-correction mechanism.

Table 5: One-Step Error Correction Model for Household Debt

Dependent Variable: log(HH_Debt)	Coefficient	Std. Error	T-Statistic	Prob.
Long-Run Parameters:				
log Household Income (HH_Yd)	1.40	9.64	14.50	0.0000
log Debt Service Cost (DServ_Cost)	2.10	0.14	15.03	0.0000
log Household Savings (HH_S)	-0.00	5.02	-2.09	0.0413
log Household Net Wealth (HH_NW)	0.16	0.02	9.78	0.0000
Constant	-12.24	4.80	-2.55	0.0133
Dynamic Terms:				
Δlog(HH_Yd)	-4.98 -1.46	2.76 0.41	-1.80 -3.61	0.0761 0.0006

Δlog(DServ_Cost(-1)) Δlog(HH_NW(-1))	-0.03	0.02	-1.21	0.2314
R-squared	0.967382	Mean dependent var		66.1289
Adjusted R-squared	0.963639	S.D. dependent var		10.5117
S.E. of regression	2.004438	Akaike info criterion		4.33725
Sum squared resid	245.0841	Schwarz criterion		4.59628
Log likelihood	-141.6353	F-statistic		258.447
Durbin-Watson stat	0.736311	Prob(F-statistic)		0.00000

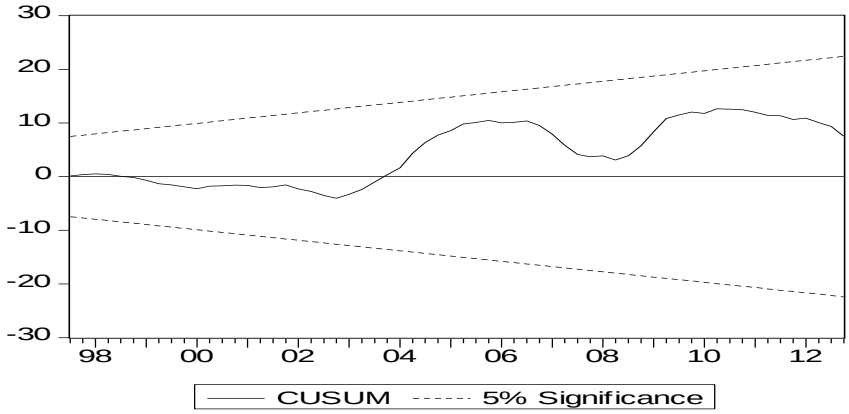
- In the long-run, a 1 percent increase in household disposable income leads to a 1.40 percent increase in household debt.
- The increase in debt service cost by 1 percent increases the debt burden in respect of interest payment; hence household debt rises by 2.10 percent.
- The 0.16 of household net wealth indicates that an increase in net wealth of the household provides consumers with high leverage to secure more debt; hence the level of household debt will increase by 0.16 percent in response to a rise in household net wealth by 1 percent.
- There is a negative relationship between household debt and household savings; the more savings a household has, the less inclined they are to consume debt, thus the level of household debt will reduce; but the coefficient is zero even though the t-statistic is significant.
- In the short-run, only debt service cost has a significant negative influence on household debt.
- Overall, approximately 96.4 percent variation in household debt is explained by household disposable income, debt service cost, household savings and household net wealth.

Table 6: Diagnostic Statistics

Diagnostic Test	Statistic		Prob.
Normality:			
Jacque-Bera	JB – statistic	1.06	0.59
	Skewness	-0.25	-
	Kurtosis	2.67	-
Serial Correlation:			
Breusch-Godfrey Serial Correlation LM Test	F – Statistic	76.67	0.00
	Obs*R^2	38.98	0.00
Specification Error:			
Ramsey RESET Test	F - Statistic	9.97	0.00
	LR- Statistic	36.63	0.00
Autoregressive Conditional Heteroscedasticity:			
ARCH LM Test	F – Statistic	2.37	0.13
	Obs*R^2	2.36	0.12
Heteroscedasticity:			
White Heteroscedasticity Test	F - Statistic	1.04	0.43
	Obs*R^2	14.61	0.40

The principal diagnostic tests include stability tests, specification of the functional form, normality; serial correlation and heteroskedasticity tests. The CUSUM and CUSUM of squares tests, Ramsey RESET, Jacque-Bera normality test, and Breusch-Godfrey serial correlation LM test approaches examined properties of model residuals. The results indicated that the model is normally distributed; no autoregressive conditional heteroscedasticity is detected. However, there is presence of serial correlation of residuals and specification error.

Figure 9: CUSUM Stability Test



The CUSUM test indicates that the estimated household debt model is stable as shown above.

Table 7: Pairwise Granger Causality Test

Null Hypothesis	Obs	F-stat	Prob	Decision	Direction
DServ_Cost does not granger cause HH_Yd	70	3.044	0.054	Reject	Causality
HH_Yd does not granger cause DServ_Cost		3.251	0.045	Reject	Causality
HH_S does not granger cause HH_Yd	70	1.113	0.335	Accept	No Causality
HH_Yd does not granger cause HH_S		1.770	0.178	Accept	No Causality
HH_NW does not granger cause HH_Yd	70	5.344	0.007	Reject	Causality
HH_Yd does not granger cause HH_NW		1.014	0.368	Accept	No Causality
HH_NW does not granger cause DServ_Cost	70	5.060	0.009	Reject	Causality
DServ_Cost does not granger cause HH_NW		1.204	0.307	Accept	No Causality
HH_NW does not granger cause HH_S	70	7.372	0.001	Reject	Causality
HH_S does not granger cause HH_NW		0.834	0.437	Accept	No Causality
HH_Yd does not granger cause HH_S	69	4.904	0.010	Reject	Causality
HH_S does not granger cause HH_Yd		4.793	0.011	Reject	Causality

The results above show that household savings and household disposable income; household disposable income and household net wealth; debt service cost and household net wealth; household savings and household net wealth have weak causality with respect to each other. On the other hand; debt service cost and household disposable income; household savings and household disposable are strongly exogenous with respect to each other; indicating that the respective variables granger cause each other.

7. CONCLUSION AND RECOMMENDATIONS

The National Credit Act was definitely required and promulgated at the right time. Household debt levels where increasing steadily and seemingly unrestrained and the financial industry had a few "grey areas" where manipulation of the then archaic credit laws was rife. The research explores the debt problem experienced by households and how the mismanagement of debt has dire consequences for the household.

The National Credit Act was passed into law to help prevent and rectify households' over-indebtedness and monitor the financial industry. The National Credit Regulator has implemented measures such as debt counselling to combat the debt problem; however, the Credit Act is still relatively new, and only 5 years of post-Act data is available. The possible explanations for the increase in debt were explored in the demand and supply side causes, but the effects of the global recession that started in 2008 can also be viewed as a reason for the tough economic conditions affecting household finances. Ferguson (2008) noted that the financial conditions caused by the global credit recession were almost similar to conditions experienced during previous wars. The National Credit Regulator has made significant strides in order to implement its mandate; however, a follow-up study can be conducted in a few years' time to ascertain the true effects in the long run.

The literature ratifies that financial education is imperative to ensure that sound financial decisions become the norm for households. However, this is easier said than done. Attempts to educate a country sufficiently, especially once bad financial habits have set in, have proved to be a challenge that requires a greater collaborative approach. Financial literacy programmes still have a long way before they have penetrated and changed the mindsets and behaviours of the many poverty stricken South Africans. A much-needed strategy for financial literacy programmes would be the centralisation of all efforts to ensure greater reach

and impact. The programmes targeting learners at schools will also hopefully bear fruit later in the form of financially savvy adults. The importance of financial literacy cannot be overlooked and certainly plays a pivotal role in debt management.

The results show that growth in debt levels has various consequences. Households have indeed over-extended themselves, as income and wealth increase so does debt, however, at the expense of household savings and at the cost of a burdensome debt service costs. Mortgage debt and unsecured credit in the form of credit card debt are the main instigators for the increase in the debt burden for households.

Unfortunately, the debt problem cannot be solved overnight; South African consumers need to invest in their financial literacy as the lack thereof can be attributed to the situation that over-indebted households are in. The National Credit Regulator's muscle will also combat the problem in the long run.

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9. APPENDICES

Appendix A

NCR Form 29

National Credit Regulator

Please send completed application form to: 127 - 15th Road, Randjespark, Midrand | PO Box 209, Halfway House, 1685

COMPLAINT INITIATION FORM
(Initiating a complaint to the National Credit Regulator in terms of Section 136 of the Act)

General information

1. A complainant that wishes to submit a complaint must complete this form in full. For help in filing in this form, please phone the National Credit Regulator (0860 627 627)
2. If you are a third party, completing this form on behalf of an individual, kindly refer to the regulations for details on the documentation that should accompany this form. (Regulation 50)
3. The complaint form and the documentation must be submitted to the National Credit Regulator

Complaint Initiation Form

1. Name of Complainant
2. ID/CIPRO reg. No.
3. Date
4. Physical Address

Postal Code

Postal Address

Postal Code

5. Telephone number Fax number

5.1 Institution to which the complaint relates

5.2 Branch (if relevant)

5.3 Person representing institution

6. Short description of complaint. Add pages if required
7. I confirm that I want the National Credit Regulator to consider my complaint.
8. I understand that:
   - The National Credit Regulator will handle my complaint according to the requirements of the National Credit Act, 2005.
   - Confidential information may be considered by the National Credit Regualtor in the process of handling my complaint.
   - The National Credit Regulator my need to communicate with other organisations in respect of the complaint question and may need to exchange information in this regard.
9. Should the National Credit Regulator require me to issue a statement under oath in respect of information contained in this form, I will do so.

Date Place

Complainant's signature

(Complainant or person duly authorised to act on the complainant's behalf - power of attorney complying with Regulation 50 must be enclosed)

Signature of call centre operator in the event of the complaint being intitiated by a telephone call.

Name of call centre operator Signature

Page 1


Sinking
into debt?
Act now!
FINAL WARNING
SUMMONS
SUMMONS
PRIVATE AND CONFIDENTIAL
FINAL NOTICE
SUMMONS
PAYMENT DUE

1 Only just managing your debt repayments?

Now's the time to bank on your bank. The sooner you turn to them for helpful advice, the better off you'll be. They will explore solutions to assist you, so that you can afford to keep all your payments up to date. Talking to your bank is an important step to keeping your credit record clean.

2 Already behind on your payments?

If you are already missing payments, act immediately to restore your credit record and avoid legal action. Your bank will consider your situation and will recommend solutions to bring your repayments up to date in accordance with the National Credit Act.

Call 086 111 6362 or SMS your bank's name to 32422 for your bank's contact details. Alternatively visit www.ncr.org. za/finhelp or finhelp.mobi

Calls are charged at normal rates and SMSs charged at R1-00.

3 In debt counselling and making payments through a payment distribution agent?

It's time for a check-up. Make sure that you have a debt repayment plan that will enable you to settle your debts within a reasonable period so that you can recover your credit worthiness. Remember, you should continue to make your monthly debt review payments through your payment distribution agent or you will run the risk of facing termination of the debt counselling process and of legal action being taken against you.

Contact your Debt Counsellor or visit www.ncr.org.za/finhelp or finhelp.mobi for your Debt Counsellor's details.



In debt counselling and you are NOT paying?

Not paying will cost you for life and will result in termination of your debt counselling arrangement. You will lose the protection of the National Credit Regulator and the National Credit Act. You will face legal action. You will lose your house, your car and every asset you value.

Contact your Debt Counsellor immediately or visit www.ncr.org.za/finhelp or finhelp.mobi

DECEMBER

DON'T BORROW WHAT YOU CAN'T REPAY

Grade Level: 3-5

Lesson Description: Children borrow money from one another every day and learn at a very early age to trust some people and not others. In this lesson, students decide what behaviours make a person creditworthy and whom they would trust to repay loans.

Student Objectives: *Explain that borrowing and lending are based on trust between the lender and the borrower.

*Identify the personal qualities that build trust and creditworthiness.

Concepts: Credit, creditworthy, trust

Procedure: Write the word "trust" on the board. Ask students to define trust by listing words that describe a trustworthy person. (Reliable, Sincere, Honest)

Ask students if they have ever lent a friend or family member something. Explain that lenders allow people to use money or goods for some period of time. Lenders expect to be repaid.

Write the word “credit” on the board. Guide students to develop a definition, such as “credit is money lent, usually for a fee that must be repaid at a future time.” Compare statements such as “I will make a decision to lend you money because I trust you to repay the loan,” to “you did not repay the last loan, so I have decided not to lend you money this time.” This helps students to make the connection between “trust” and “credit.”

Divide students into groups of three or four. Distribute a handout consisting of two columns, one labelled “Purchase,” and the other labelled “Lender.” Explain that the students should list, in the column labelled “Purchase,” some of the things they have borrowed money or used credit to buy. This list should represent the collective experiences of the group. Then instruct each group to complete the second column labelled “Lender” by listing the person who loaned the money or item in each situation. (Parent, friend, relative or store owner). Tell each group to select one of the situations from its list and develop a brief skit to present to the class. The skit should illustrate what was loaned and who made the loan as well as clues to why the person decided to make the loan.

After each skit, the students should determine why the lender gave credit to the borrower. List on the board the characteristics of the borrower that created trust as identified by the student audience.

Closure: People borrow money or use credit to purchase something in the present that will be paid for with future income. Borrowing increases the ability to purchase the things people want now. A person who is considered "creditworthy" is one who is trusted to borrow only what he or she can repay.

Unit Root ADF and PP Tests

Intercept @ Level – I(0)

ADF Test Statistic	-0.563728	1%	Critical Value*	-3.5253
		5%	Critical Value	-2.9029
		10%	Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_DEBT)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_DEBT(-1)	-0.008058	0.014294	-0.563728	0.5748
D(LOGHH_DEBT(-1))	0.317991	0.115308	2.757765	0.0075
C	0.675640	0.953439	0.708635	0.4810

R-squared	0.103329	Mean dependent var	0.227143
Adjusted R-squared	0.076563	S.D. dependent var	1.288738
S.E. of regression	1.238422	Akaike info criterion	3.307464
Sum squared resid	102.7571	Schwarz criterion	3.403828
Log likelihood	-112.7612	F-statistic	3.860407
Durbin-Watson stat	2.116644	Prob(F-statistic)	0.025895

PP Test Statistic	-0.523100	1%	Critical Value*	-3.5239
		5%	Critical Value	-2.9023
		10%	Critical Value	-2.5882

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
1

Residual variance with no correction	1.643886
Residual variance with correction	2.159800

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_DEBT)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_DEBT(-1)	-0.006494	0.014894	-0.436010	0.6642
C	0.677350	0.993811	0.681568	0.4978

R-squared	0.002748	Mean dependent var	0.249296

Adjusted R-squared	-0.011705	S.D. dependent var	1.293044
S.E. of regression	1.300590	Akaike info criterion	3.391278
Sum squared resid	116.7159	Schwarz criterion	3.455015
Log likelihood	-118.3904	F-statistic	0.190105
Durbin-Watson stat	1.346432	Prob(F-statistic)	0.664190

ADF Test Statistic	5.107118	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_YD)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD(-1)	0.019066	0.003733	5.107118	0.0000
D(LOGHH_YD(-1))	0.115219	0.130890	0.880274	0.3819
C	2670.830	2904.987	0.919395	0.3612

R-squared	0.484927	Mean dependent var	23425.89
Adjusted R-squared	0.469552	S.D. dependent var	14382.19
S.E. of regression	10474.82	Akaike info criterion	21.39325
Sum squared resid	7.35E+09	Schwarz criterion	21.48961
Log likelihood	-745.7636	F-statistic	31.53936
Durbin-Watson stat	1.834330	Prob(F-statistic)	0.000000

PP Test Statistic	7.711660	1% Critical Value*	-3.5239
		5% Critical Value	-2.9023
		10% Critical Value	-2.5882

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	1.05E+08
Residual variance with correction	1.15E+08

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_YD)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD(-1)	0.021451	0.002647	8.102651	0.0000
C	2952.497	2786.271	1.059659	0.2930

R-squared	0.487572	Mean dependent var	23198.77
Adjusted R-squared	0.480145	S.D. dependent var	14406.75
S.E. of regression	10387.41	Akaike info criterion	21.36234
Sum squared resid	7.44E+09	Schwarz criterion	21.42608
Log likelihood	-756.3631	F-statistic	65.65296
Durbin-Watson stat	1.698676	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.274084	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGDSERV_COST)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGDSERV_COST(-1)	-0.071291	0.031349	-2.274084	0.0262
D(LOGDSERV_COST(-1))	0.545248	0.101780	5.357129	0.0000
C	0.649076	0.303827	2.136338	0.0363

R-squared	0.313647	Mean dependent var	-0.040000
Adjusted R-squared	0.293159	S.D. dependent var	0.652398
S.E. of regression	0.548496	Akaike info criterion	1.678639
Sum squared resid	20.15682	Schwarz criterion	1.775003
Log likelihood	-55.75237	F-statistic	15.30868
Durbin-Watson stat	1.911890	Prob(F-statistic)	0.000003

PP Test Statistic	-1.471901	1% Critical Value*	-3.5239
		5% Critical Value	-2.9023
		10% Critical Value	-2.5882

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
1

Residual variance with no correction	0.413331
Residual variance with correction	0.626683

Phillips-Perron Test Equation
Dependent Variable: D(LOGDSERV_COST)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGDSERV_COST(-1)	-0.042199	0.036730	-1.148895	0.2546
C	0.369232	0.355648	1.038195	0.3028

R-squared	0.018771	Mean dependent var	-0.029577
Adjusted R-squared	0.004550	S.D. dependent var	0.653648
S.E. of regression	0.652159	Akaike info criterion	2.010708
Sum squared resid	29.34649	Schwarz criterion	2.074446
Log likelihood	-69.38014	F-statistic	1.319960
Durbin-Watson stat	0.948273	Prob(F-statistic)	0.254566

ADF Test Statistic	-1.807170	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_S)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.

LOGHH_S(-1)	-0.122310	0.067680	-1.807170	0.0752
D(LOGHH_S(-1))	-0.261481	0.116657	-2.241439	0.0283
C	-69.96304	576.0585	-0.121451	0.9037

R-squared	0.146614	Mean dependent var	4.457143
Adjusted R-squared	0.121140	S.D. dependent var	5134.737
S.E. of regression	4813.689	Akaike info criterion	19.83823
Sum squared resid	1.55E+09	Schwarz criterion	19.93459
Log likelihood	-691.3379	F-statistic	5.755412
Durbin-Watson stat	2.093504	Prob(F-statistic)	0.004936

PP Test Statistic	-2.337808	1% Critical Value*	-3.5239
		5% Critical Value	-2.9023
		10% Critical Value	-2.5882

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
1

Residual variance with no correction	23799356
Residual variance with correction	18729130

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_S)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_S(-1)	-0.170767	0.066462	-2.569403	0.0124
C	-135.3898	587.7514	-0.230352	0.8185

R-squared	0.087324	Mean dependent var	-76.04225
Adjusted R-squared	0.074097	S.D. dependent var	5142.856
S.E. of regression	4948.656	Akaike info criterion	19.87938
Sum squared resid	1.69E+09	Schwarz criterion	19.94312
Log likelihood	-703.7181	F-statistic	6.601832
Durbin-Watson stat	2.413949	Prob(F-statistic)	0.012352

ADF Test Statistic	-2.732502	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_SR)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_SR(-1)	-0.282781	0.103488	-2.732502	0.0080
D(LOGHH_SR(-1))	-0.269025	0.115333	-2.332595	0.0227
C	0.091435	0.119483	0.765256	0.4468

R-squared	0.254677	Mean dependent var	-0.001429
Adjusted R-squared	0.232429	S.D. dependent var	1.082066
S.E. of regression	0.948011	Akaike info criterion	2.773010
Sum squared resid	60.21452	Schwarz criterion	2.869374
Log likelihood	-94.05534	F-statistic	11.44697
Durbin-Watson stat	2.017578	Prob(F-statistic)	0.000053

PP Test Statistic	-4.058152	1% Critical Value*	-3.5239
		5% Critical Value	-2.9023
		10% Critical Value	-2.5882

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	0.934542
Residual variance with correction	0.796253

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_SR)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_SR(-1)	-0.403894	0.095274	-4.239273	0.0001
C	0.125397	0.121691	1.030457	0.3064

R-squared	0.206636	Mean dependent var	-0.025352
Adjusted R-squared	0.195138	S.D. dependent var	1.093058
S.E. of regression	0.980627	Akaike info criterion	2.826516
Sum squared resid	66.35249	Schwarz criterion	2.890254
Log likelihood	-98.34134	F-statistic	17.97144
Durbin-Watson stat	2.277532	Prob(F-statistic)	0.000068

ADF Test Statistic	-1.722919	1%	Critical Value*	-3.5253
		5%	Critical Value	-2.9029
		10%	Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_NW)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_NW(-1)	-0.082162	0.047688	-1.722919	0.0895
D(LOGHH_NW(-1))	0.073271	0.121883	0.601158	0.5498
C	24.59312	13.98895	1.758039	0.0833

R-squared	0.043449	Mean dependent var	0.614286
Adjusted R-squared	0.014895	S.D. dependent var	10.99137
S.E. of regression	10.90920	Akaike info criterion	7.659002
Sum squared resid	7973.719	Schwarz criterion	7.755366
Log likelihood	-265.0651	F-statistic	1.521657
Durbin-Watson stat	1.981952	Prob(F-statistic)	0.225799

PP Test Statistic	-1.694049	1%	Critical Value*	-3.5239
		5%	Critical Value	-2.9023
		10%	Critical Value	-2.5882

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	113.0050
Residual variance with correction	120.5361

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_NW)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3

Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_NW(-1)	-0.075655	0.046071	-1.642136	0.1051
C	22.69440	13.51539	1.679152	0.0976

R-squared	0.037611	Mean dependent var	0.600000
Adjusted R-squared	0.023664	S.D. dependent var	10.91324
S.E. of regression	10.78335	Akaike info criterion	7.621647
Sum squared resid	8023.357	Schwarz criterion	7.685385
Log likelihood	-268.5685	F-statistic	2.696611
Durbin-Watson stat	1.862487	Prob(F-statistic)	0.105112

ADF and PP Unit Root Tests

@ Level; Intercept and Trend

ADF Test Statistic	-1.223190	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_DEBT)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_DEBT(-1)	-0.026247	0.021458	-1.223190	0.2256
D(LOGHH_DEBT(-1))	0.322454	0.115128	2.800823	0.0067
C	1.419822	1.155579	1.228667	0.2236
@TREND(1995:1)	0.012487	0.011006	1.134603	0.2606

R-squared	0.120484	Mean dependent var	0.227143
Adjusted R-squared	0.080506	S.D. dependent var	1.288738
S.E. of regression	1.235775	Akaike info criterion	3.316718
Sum squared resid	100.7912	Schwarz criterion	3.445204
Log likelihood	-112.0851	F-statistic	3.013750
Durbin-Watson stat	2.134290	Prob(F-statistic)	0.036134

PP Test Statistic	-0.941648	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	1.631097
Residual variance with correction	2.141077

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_DEBT)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_DEBT(-1)	-0.018775	0.022499	-0.834468	0.4069
C	1.187779	1.217800	0.975348	0.3328
@TREND(1995:1)	0.008308	0.011377	0.730191	0.4678

R-squared	0.010506	Mean dependent var	0.249296
Adjusted R-squared	-0.018597	S.D. dependent var	1.293044
S.E. of regression	1.305012	Akaike info criterion	3.411637
Sum squared resid	115.8079	Schwarz criterion	3.507243
Log likelihood	-118.1131	F-statistic	0.360999
Durbin-Watson stat	1.340597	Prob(F-statistic)	0.698307

PP Test Statistic	0.669587	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	1.04E+08
Residual variance with correction	1.14E+08

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_YD)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD(-1)	0.010276	0.013781	0.745681	0.4584

C	4184.773	3165.923	1.321818	0.1907
@TREND(1995:1)	258.7434	313.1266	0.826322	0.4115

R-squared	0.492666	Mean dependent var	23198.77
Adjusted R-squared	0.477744	S.D. dependent var	14406.75
S.E. of regression	10411.36	Akaike info criterion	21.38052
Sum squared resid	7.37E+09	Schwarz criterion	21.47612
Log likelihood	-756.0084	F-statistic	33.01698
Durbin-Watson stat	1.699392	Prob(F-statistic)	0.000000

PP Test Statistic	-1.736233	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
1

Residual variance with no correction	0.407545
Residual variance with correction	0.619229

Phillips-Perron Test Equation
Dependent Variable: D(LOGDSERV_COST)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGDSERV_COST(-1)	-0.056355	0.039463	-1.428029	0.1579
C	0.646535	0.454100	1.423773	0.1591
@TREND(1995:1)	-0.003987	0.004058	-0.982521	0.3293

R-squared	0.032506	Mean dependent var	-0.029577
Adjusted R-squared	0.004050	S.D. dependent var	0.653648
S.E. of regression	0.652323	Akaike info criterion	2.024781
Sum squared resid	28.93571	Schwarz criterion	2.120387
Log likelihood	-68.87972	F-statistic	1.142322
Durbin-Watson stat	0.948534	Prob(F-statistic)	0.325123

ADF Test Statistic	-2.533805	1%	Critical Value*	-4.0928
		5%	Critical Value	-3.4739
		10%	Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_S)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_S(-1)	-0.254340	0.100379	-2.533805	0.0137
D(LOGHH_S(-1))	-0.186090	0.122611	-1.517721	0.1339
C	2591.001	1615.644	1.603696	0.1136
@TREND(1995:1)	-74.33753	42.26165	-1.758983	0.0832

R-squared	0.184829	Mean dependent var	4.457143
Adjusted R-squared	0.147776	S.D. dependent var	5134.737
S.E. of regression	4740.184	Akaike info criterion	19.82098
Sum squared resid	1.48E+09	Schwarz criterion	19.94947
Log likelihood	-689.7345	F-statistic	4.988202
Durbin-Watson stat	1.999915	Prob(F-statistic)	0.003524

PP Test Statistic	-3.194968	1%	Critical Value*	-4.0909
		5%	Critical Value	-3.4730
		10%	Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
1

Residual variance with no correction	22266673
Residual variance with correction	19351097

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_S)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_S(-1)	-0.310650	0.091509	-3.394741	0.0012
C	2889.133	1510.739	1.912397	0.0600

@TREND(1995:1)	-85.36491	39.45721	-2.163480	0.0340

R-squared	0.146100	Mean dependent var	-76.04225
Adjusted R-squared	0.120986	S.D. dependent var	5142.856
S.E. of regression	4821.724	Akaike info criterion	19.84099
Sum squared resid	1.58E+09	Schwarz criterion	19.93659
Log likelihood	-701.3550	F-statistic	5.817320
Durbin-Watson stat	2.226798	Prob(F-statistic)	0.004654

ADF Test Statistic	-5.546428	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_SR)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_SR(-1)	-0.886729	0.159874	-5.546428	0.0000
D(LOGHH_SR(-1))	0.043790	0.121993	0.358954	0.7208
C	1.764238	0.379267	4.651709	0.0000
@TREND(1995:1)	-0.039771	0.008666	-4.589369	0.0000

R-squared	0.434987	Mean dependent var	-0.001429
Adjusted R-squared	0.409305	S.D. dependent var	1.082066
S.E. of regression	0.831640	Akaike info criterion	2.524612
Sum squared resid	45.64729	Schwarz criterion	2.653097
Log likelihood	-84.36141	F-statistic	16.93718
Durbin-Watson stat	1.594566	Prob(F-statistic)	0.000000

PP Test Statistic	-6.953102	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
1

Residual variance with no correction	0.688286
Residual variance with correction	0.690749

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_SR)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_SR(-1)	-0.844490	0.121502	-6.950425	0.0000
C	1.575795	0.312303	5.045727	0.0000
@TREND(1995:1)	-0.035721	0.007242	-4.932464	0.0000

R-squared	0.415691	Mean dependent var	-0.025352
Adjusted R-squared	0.398506	S.D. dependent var	1.093058
S.E. of regression	0.847733	Akaike info criterion	2.548833
Sum squared resid	48.86828	Schwarz criterion	2.644439
Log likelihood	-87.48356	F-statistic	24.18843
Durbin-Watson stat	1.913430	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.386118	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_NW)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_NW(-1)	-0.153552	0.064352	-2.386118	0.0199
D(LOGHH_NW(-1))	0.110188	0.122523	0.899322	0.3718
C	40.26639	16.84081	2.391000	0.0197
@TREND(1995:1)	0.141817	0.087086	1.628476	0.1082

R-squared	0.080399	Mean dependent var	0.614286
Adjusted R-squared	0.038599	S.D. dependent var	10.99137
S.E. of regression	10.77715	Akaike info criterion	7.648179
Sum squared resid	7665.705	Schwarz criterion	7.776665
Log likelihood	-263.6863	F-statistic	1.923427
Durbin-Watson stat	1.984659	Prob(F-statistic)	0.134326

PP Test Statistic	-2.341584	1%	Critical Value*	-4.0909
		5%	Critical Value	-3.4730
		10%	Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	109.2962
Residual variance with correction	119.6201

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_NW)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_NW(-1)	-0.137980	0.061371	-2.248280	0.0278
C	36.34676	16.12584	2.253945	0.0274
@TREND(1995:1)	0.126359	0.083183	1.519050	0.1334

R-squared	0.069197	Mean dependent var	0.600000
Adjusted R-squared	0.041821	S.D. dependent var	10.91324
S.E. of regression	10.68261	Akaike info criterion	7.616445
Sum squared resid	7760.028	Schwarz criterion	7.712052
Log likelihood	-267.3838	F-statistic	2.527612
Durbin-Watson stat	1.810564	Prob(F-statistic)	0.087329

ADF and PP STATIONARITY TESTS

Intercept @ First Difference – I(1)

ADF Test Statistic	-3.311711	1%	Critical Value*	-3.5267
		5%	Critical Value	-2.9035
		10%	Critical Value	-2.5889

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_DEBT,2)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_DEBT(-1))	-0.440856	0.133120	-3.311711	0.0015
D(LOGHH_DEBT(-1),2)	-0.324160	0.113316	-2.860670	0.0057
C	0.106730	0.143352	0.744532	0.4592

R-squared	0.406776	Mean dependent var	0.007246
Adjusted R-squared	0.388800	S.D. dependent var	1.481188
S.E. of regression	1.157982	Akaike info criterion	3.173740
Sum squared resid	88.50090	Schwarz criterion	3.270875
Log likelihood	-106.4940	F-statistic	22.62825
Durbin-Watson stat	1.957701	Prob(F-statistic)	0.000000

PP Test Statistic	-5.940971	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 1	
Residual variance with no correction	1.474921
Residual variance with correction	1.362332

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_DEBT,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_DEBT(-1))	-0.687311	0.114345	-6.010823	0.0000
C	0.144950	0.150311	0.964335	0.3383

R-squared	0.346970	Mean dependent var	-0.035714
Adjusted R-squared	0.337367	S.D. dependent var	1.513709
S.E. of regression	1.232194	Akaike info criterion	3.283625
Sum squared resid	103.2445	Schwarz criterion	3.347867
Log likelihood	-112.9269	F-statistic	36.12999
Durbin-Watson stat	2.108305	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.668592	1% Critical Value*	-3.5267
		5% Critical Value	-2.9035
		10% Critical Value	-2.5889

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_YD,2)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_YD(-1))	-0.337393	0.126431	-2.668592	0.0096
D(LOGHH_YD(-1),2)	-0.180144	0.133586	-1.348531	0.1821
C	8466.289	3213.661	2.634468	0.0105
R-squared	0.191932	Mean dependent var		737.0000
Adjusted R-squared	0.167445	S.D. dependent var		13429.40
S.E. of regression	12253.58	Akaike info criterion		21.70753
Sum squared resid	9.91E+09	Schwarz criterion		21.80466
Log likelihood	-745.9098	F-statistic		7.838152
Durbin-Watson stat	1.841105	Prob(F-statistic)		0.000883

PP Test Statistic	-3.665500	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	1.46E+08
Residual variance with correction	1.34E+08

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_YD,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_YD(-1))	-0.423636	0.110866	-3.821154	0.0003
C	10447.83	2894.404	3.609667	0.0006
R-squared	0.176768	Mean dependent var		908.7571

Adjusted R-squared	0.164661	S.D. dependent var	13408.96
S.E. of regression	12255.37	Akaike info criterion	21.69347
Sum squared resid	1.02E+10	Schwarz criterion	21.75771
Log likelihood	-757.2715	F-statistic	14.60122
Durbin-Watson stat	1.971136	Prob(F-statistic)	0.000290

ADF Test Statistic	-4.629533	1% Critical Value*	-3.5267
		5% Critical Value	-2.9035
		10% Critical Value	-2.5889

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGDSERV_COST,2)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGDSERV_COST(-1))	-0.555175	0.119920	-4.629533	0.0000
D(LOGDSERV_COST(-1),2)	0.137971	0.120649	1.143577	0.2569
C	-0.023023	0.068419	-0.336503	0.7376

R-squared	0.258958	Mean dependent var	-0.002899
Adjusted R-squared	0.236503	S.D. dependent var	0.649201
S.E. of regression	0.567261	Akaike info criterion	1.746511
Sum squared resid	21.23782	Schwarz criterion	1.843646
Log likelihood	-57.25462	F-statistic	11.53191
Durbin-Watson stat	1.946312	Prob(F-statistic)	0.000051

PP Test Statistic	-4.871080	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
1	
Residual variance with no correction	0.310181
Residual variance with correction	0.334013

Phillips-Perron Test Equation

Dependent Variable: D(LOGDSERV_COST,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGDSERV_COST(-1))	-0.494028	0.103335	-4.780862	0.0000
C	-0.025544	0.067603	-0.377847	0.7067

R-squared	0.251568	Mean dependent var	-0.011429
Adjusted R-squared	0.240562	S.D. dependent var	0.648419
S.E. of regression	0.565070	Akaike info criterion	1.724420
Sum squared resid	21.71265	Schwarz criterion	1.788662
Log likelihood	-58.35469	F-statistic	22.85664
Durbin-Watson stat	1.843898	Prob(F-statistic)	0.000010

ADF Test Statistic	-12.83845	1% Critical Value*	-3.5267
		5% Critical Value	-2.9035
		10% Critical Value	-2.5889

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_S,2)
Method: Least Squares
Date:
Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_S(-1))	-1.995158	0.155405	-12.83845	0.0000
D(LOGHH_S(-1),2)	0.537443	0.095079	5.652587	0.0000
C	-244.8222	465.9830	-0.525389	0.6011

R-squared	0.778201	Mean dependent var	-206.1449
Adjusted R-squared	0.771480	S.D. dependent var	8096.078
S.E. of regression	3870.228	Akaike info criterion	19.40252
Sum squared resid	9.89E+08	Schwarz criterion	19.49965
Log likelihood	-666.3869	F-statistic	115.7836
Durbin-Watson stat	1.844541	Prob(F-statistic)	0.000000

PP Test Statistic	-11.92631	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)

1

Residual variance with no correction	23259607
Residual variance with correction	20085722

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_S,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_S(-1))	-1.321234	0.113722	-11.61809	0.0000
C	-20.67254	584.9207	-0.035342	0.9719

R-squared	0.664992	Mean dependent var	82.68571
Adjusted R-squared	0.660065	S.D. dependent var	8392.624
S.E. of regression	4893.231	Akaike info criterion	19.85725
Sum squared resid	1.63E+09	Schwarz criterion	19.92149
Log likelihood	-693.0037	F-statistic	134.9800
Durbin-Watson stat	2.177129	Prob(F-statistic)	0.000000

ADF Test Statistic	-17.88299	1% Critical Value*	-3.5267
		5% Critical Value	-2.9035
		10% Critical Value	-2.5889

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_SR,2)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_SR(-1))	-2.269204	0.126892	-17.88299	0.0000
D(LOGHH_SR(-1),2)	0.655532	0.074795	8.764347	0.0000
C	-0.077410	0.074974	-1.032504	0.3056

R-squared	0.872003	Mean dependent var	-0.057971
Adjusted R-squared	0.868124	S.D. dependent var	1.714335
S.E. of regression	0.622555	Akaike info criterion	1.932537
Sum squared resid	25.57997	Schwarz criterion	2.029672
Log likelihood	-63.67251	F-statistic	224.8185
Durbin-Watson stat	1.926703	Prob(F-statistic)	0.000000

PP Test Statistic	-13.69453	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 1	
Residual variance with no correction	0.956070
Residual variance with correction	0.758644

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_SR,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_SR(-1))	-1.407163	0.108480	-12.97167	0.0000
C	-0.011898	0.118607	-0.100319	0.9204

R-squared	0.712187	Mean dependent var	0.024286
Adjusted R-squared	0.707954	S.D. dependent var	1.835751
S.E. of regression	0.992063	Akaike info criterion	2.850096
Sum squared resid	66.92490	Schwarz criterion	2.914339
Log likelihood	-97.75335	F-statistic	168.2641
Durbin-Watson stat	2.248323	Prob(F-statistic)	0.000000

ADF Test Statistic	-6.526100	1% Critical Value*	-3.5267
		5% Critical Value	-2.9035
		10% Critical Value	-2.5889

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_NW,2)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_NW(-1))	-1.110823	0.170212	-6.526100	0.0000
D(LOGHH_NW(-1),2)	0.147692	0.122403	1.206602	0.2319
C	0.665925	1.340144	0.496906	0.6209

R-squared	0.494388	Mean dependent var	0.066667
Adjusted R-squared	0.479066	S.D. dependent var	15.39326
S.E. of regression	11.11020	Akaike info criterion	7.696109
Sum squared resid	8146.813	Schwarz criterion	7.793244

Log likelihood	-262.5158	F-statistic	32.26743
Durbin-Watson stat	1.917484	Prob(F-statistic)	0.000000

PP Test Statistic	-7.974702	1% Critical Value*	-3.5253
		5% Critical Value	-2.9029
		10% Critical Value	-2.5886

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
1

Residual variance with no correction	118.9571
Residual variance with correction	119.5160

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_NW,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_NW(-1))	-0.967279	0.121308	-7.973752	0.0000
C	0.596476	1.324284	0.450414	0.6538

R-squared	0.483207	Mean dependent var	0.070000
Adjusted R-squared	0.475607	S.D. dependent var	15.28134
S.E. of regression	11.06598	Akaike info criterion	7.673783
Sum squared resid	8326.996	Schwarz criterion	7.738025
Log likelihood	-266.5824	F-statistic	63.58073
Durbin-Watson stat	1.988988	Prob(F-statistic)	0.000000

Intercept and Trend

ADF and PP Test @ Level

ADF Test Statistic	-1.509395	1%	Critical Value*	-4.0948
		5%	Critical Value	-3.4749
		10%	Critical Value	-3.1645

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_DEBT)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_DEBT(-1)	-0.030713	0.020348	-1.509395	0.1361
D(LOGHH_DEBT(-1))	0.238708	0.114493	2.084920	0.0411
D(LOGHH_DEBT(-2))	0.345939	0.113999	3.034572	0.0035
C	1.699319	1.087672	1.562346	0.1231
@TREND(1995:1)	0.011671	0.010594	1.101690	0.2747

R-squared	0.240609	Mean dependent var	0.247826
Adjusted R-squared	0.193147	S.D. dependent var	1.286423
S.E. of regression	1.155530	Akaike info criterion	3.196699
Sum squared resid	85.45592	Schwarz criterion	3.358591
Log likelihood	-105.2861	F-statistic	5.069515
Durbin-Watson stat	1.993576	Prob(F-statistic)	0.001301

PP Test Statistic	-1.164998	1%	Critical Value*	-4.0909
		5%	Critical Value	-3.4730
		10%	Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	1.631097
Residual variance with correction	3.399298

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_DEBT)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_DEBT(-1)	-0.018775	0.022499	-0.834468	0.4069
C	1.187779	1.217800	0.975348	0.3328
@TREND(1995:1)	0.008308	0.011377	0.730191	0.4678

R-squared	0.010506	Mean dependent var	0.249296
Adjusted R-squared	-0.018597	S.D. dependent var	1.293044
S.E. of regression	1.305012	Akaike info criterion	3.411637
Sum squared resid	115.8079	Schwarz criterion	3.507243
Log likelihood	-118.1131	F-statistic	0.360999
Durbin-Watson stat	1.340597	Prob(F-statistic)	0.698307

ADF Test Statistic	0.534674	1% Critical Value*	-4.0948
		5% Critical Value	-3.4749
		10% Critical Value	-3.1645

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_YD)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD(-1)	0.007924	0.014819	0.534674	0.5947
D(LOGHH_YD(-1))	0.138317	0.131880	1.048814	0.2982
D(LOGHH_YD(-2))	-0.184453	0.133570	-1.380945	0.1721
C	3924.402	3249.023	1.207872	0.2315
@TREND(1995:1)	349.2693	338.2216	1.032664	0.3056

R-squared	0.514059	Mean dependent var	23474.65
Adjusted R-squared	0.483688	S.D. dependent var	14481.72
S.E. of regression	10405.82	Akaike info criterion	21.40782
Sum squared resid	6.93E+09	Schwarz criterion	21.56971
Log likelihood	-733.5699	F-statistic	16.92583
Durbin-Watson stat	1.790089	Prob(F-statistic)	0.000000

PP Test Statistic	0.747218	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)

3

Residual variance with no correction	1.04E+08
Residual variance with correction	1.04E+08

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_YD)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD(-1)	0.010276	0.013781	0.745681	0.4584
C	4184.773	3165.923	1.321818	0.1907
@TREND(1995:1)	258.7434	313.1266	0.826322	0.4115

R-squared	0.492666	Mean dependent var	23198.77
Adjusted R-squared	0.477744	S.D. dependent var	14406.75
S.E. of regression	10411.36	Akaike info criterion	21.38052
Sum squared resid	7.37E+09	Schwarz criterion	21.47612
Log likelihood	-756.0084	F-statistic	33.01698
Durbin-Watson stat	1.699392	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.203860	1% Critical Value*	-4.0948
		5% Critical Value	-3.4749
		10% Critical Value	-3.1645

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGDSERV_COST)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGDSERV_COST(-1)	-0.078544	0.035639	-2.203860	0.0311
D(LOGDSERV_COST(-1))	0.581902	0.119163	4.883258	0.0000
D(LOGDSERV_COST(-2))	-0.060828	0.123421	-0.492850	0.6238
C	0.850477	0.411583	2.066354	0.0428
@TREND(1995:1)	-0.003527	0.003618	-0.974778	0.3333

R-squared	0.327683	Mean dependent var	-0.042029
Adjusted R-squared	0.285663	S.D. dependent var	0.656955

S.E. of regression	0.555248	Akaike info criterion	1.730902
Sum squared resid	19.73125	Schwarz criterion	1.892793
Log likelihood	-54.71611	F-statistic	7.798285
Durbin-Watson stat	1.936758	Prob(F-statistic)	0.000035

PP Test Statistic	-1.965667	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.407545
Residual variance with correction	0.803483

Phillips-Perron Test Equation
Dependent Variable: D(LOGDSERV_COST)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGDSERV_COST(-1)	-0.056355	0.039463	-1.428029	0.1579
C	0.646535	0.454100	1.423773	0.1591
@TREND(1995:1)	-0.003987	0.004058	-0.982521	0.3293

R-squared	0.032506	Mean dependent var	-0.029577
Adjusted R-squared	0.004050	S.D. dependent var	0.653648
S.E. of regression	0.652323	Akaike info criterion	2.024781
Sum squared resid	28.93571	Schwarz criterion	2.120387
Log likelihood	-68.87972	F-statistic	1.142322
Durbin-Watson stat	0.948534	Prob(F-statistic)	0.325123

ADF Test Statistic	-0.553557	1% Critical Value*	-4.0948
		5% Critical Value	-3.4749
		10% Critical Value	-3.1645

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_S)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3

Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_S(-1)	-0.049501	0.089423	-0.553557	0.5818
D(LOGHH_S(-1))	-0.428134	0.112461	-3.806943	0.0003
D(LOGHH_S(-2))	-0.521279	0.102633	-5.079071	0.0000
C	-684.8244	1438.958	-0.475917	0.6358
@TREND(1995:1)	11.31619	37.57127	0.301193	0.7642

R-squared	0.402409	Mean dependent var	-202.7391
Adjusted R-squared	0.365060	S.D. dependent var	4868.670
S.E. of regression	3879.509	Akaike info criterion	19.43451
Sum squared resid	9.63E+08	Schwarz criterion	19.59640
Log likelihood	-665.4906	F-statistic	10.77417
Durbin-Watson stat	1.851438	Prob(F-statistic)	0.000001

PP Test Statistic	-3.035563	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	22266673
Residual variance with correction	17147973

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_S)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_S(-1)	-0.310650	0.091509	-3.394741	0.0012
C	2889.133	1510.739	1.912397	0.0600
@TREND(1995:1)	-85.36491	39.45721	-2.163480	0.0340

R-squared	0.146100	Mean dependent var	-76.04225
Adjusted R-squared	0.120986	S.D. dependent var	5142.856
S.E. of regression	4821.724	Akaike info criterion	19.84099
Sum squared resid	1.58E+09	Schwarz criterion	19.93659
Log likelihood	-701.3550	F-statistic	5.817320
Durbin-Watson stat	2.226798	Prob(F-statistic)	0.004654

ADF Test Statistic	-1.612031	1% Critical Value*	-4.0948
		5% Critical Value	-3.4749
		10% Critical Value	-3.1645

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_SR)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_SR(-1)	-0.239504	0.148573	-1.612031	0.1119
D(LOGHH_SR(-1))	-0.459674	0.121136	-3.794681	0.0003
D(LOGHH_SR(-2))	-0.570563	0.091191	-6.256804	0.0000
C	0.244245	0.345508	0.706915	0.4822
@TREND(1995:1)	-0.006320	0.007799	-0.810324	0.4208

R-squared	0.628333	Mean dependent var	-0.059420
Adjusted R-squared	0.605103	S.D. dependent var	0.974275
S.E. of regression	0.612242	Akaike info criterion	1.926326
Sum squared resid	23.98979	Schwarz criterion	2.088218
Log likelihood	-61.45826	F-statistic	27.04923
Durbin-Watson stat	1.833511	Prob(F-statistic)	0.000000

PP Test Statistic	-7.045327	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.688286
Residual variance with correction	0.770187

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_SR)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_SR(-1)	-0.844490	0.121502	-6.950425	0.0000
C	1.575795	0.312303	5.045727	0.0000
@TREND(1995:1)	-0.035721	0.007242	-4.932464	0.0000

R-squared	0.415691	Mean dependent var	-0.025352

Adjusted R-squared	0.398506	S.D. dependent var	1.093058
S.E. of regression	0.847733	Akaike info criterion	2.548833
Sum squared resid	48.86828	Schwarz criterion	2.644439
Log likelihood	-87.48356	F-statistic	24.18843
Durbin-Watson stat	1.913430	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.088229	1% Critical Value*	-4.0948
		5% Critical Value	-3.4749
		10% Critical Value	-3.1645

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_NW)
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_NW(-1)	-0.142723	0.068347	-2.088229	0.0408
D(LOGHH_NW(-1))	0.106857	0.124337	0.859413	0.3933
D(LOGHH_NW(-2))	-0.070712	0.125852	-0.561868	0.5762
C	37.47787	17.79740	2.105805	0.0391
@TREND(1995:1)	0.131979	0.092305	1.429814	0.1576

R-squared	0.084993	Mean dependent var	0.624638
Adjusted R-squared	0.027805	S.D. dependent var	11.07155
S.E. of regression	10.91654	Akaike info criterion	7.688140
Sum squared resid	7626.937	Schwarz criterion	7.850032
Log likelihood	-260.2408	F-statistic	1.486208
Durbin-Watson stat	1.927612	Prob(F-statistic)	0.216819

PP Test Statistic	-2.389353	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	109.2962
Residual variance with correction	125.0664

Phillips-Perron Test Equation

Dependent Variable: D(LOGHH_NW)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_NW(-1)	-0.137980	0.061371	-2.248280	0.0278
C	36.34676	16.12584	2.253945	0.0274
@TREND(1995:1)	0.126359	0.083183	1.519050	0.1334

R-squared	0.069197	Mean dependent var	0.600000
Adjusted R-squared	0.041821	S.D. dependent var	10.91324
S.E. of regression	10.68261	Akaike info criterion	7.616445
Sum squared resid	7760.028	Schwarz criterion	7.712052
Log likelihood	-267.3838	F-statistic	2.527612
Durbin-Watson stat	1.810564	Prob(F-statistic)	0.087329

Trend and Intercept

Unit Root Tests @ I(1) – First Difference

ADF and PP Tests

ADF Test Statistic	-2.387995	1% Critical Value*	-4.0969
		5% Critical Value	-3.4759
		10% Critical Value	-3.1651

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_DEBT,2)
Method: Least Squares

Sample(adjusted): 1996:1 2012:3
Included observations: 68 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_DEBT(-1))	-0.312169	0.130724	-2.387995	0.0200
D(LOGHH_DEBT(-1),2)	-0.495573	0.136634	-3.627002	0.0006
D(LOGHH_DEBT(-2),2)	-0.298982	0.109339	-2.734448	0.0081
C	-0.117904	0.275525	-0.427926	0.6702
@TREND(1995:1)	0.003858	0.006509	0.592730	0.5555

R-squared	0.451553	Mean dependent var	-0.061765
Adjusted R-squared	0.416731	S.D. dependent var	1.375915
S.E. of regression	1.050815	Akaike info criterion	3.007695

Sum squared resid	69.56539	Schwarz criterion	3.170894
Log likelihood	-97.26164	F-statistic	12.96743
Durbin-Watson stat	2.102629	Prob(F-statistic)	0.000000

PP Test Statistic	-6.166631	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	1.472515
Residual variance with correction	1.749628

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_DEBT,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_DEBT(-1))	-0.688771	0.115186	-5.979627	0.0000
C	0.056661	0.306755	0.184710	0.8540
@TREND(1995:1)	0.002429	0.007343	0.330865	0.7418

R-squared	0.348035	Mean dependent var	-0.035714
Adjusted R-squared	0.328574	S.D. dependent var	1.513709
S.E. of regression	1.240342	Akaike info criterion	3.310563
Sum squared resid	103.0761	Schwarz criterion	3.406928
Log likelihood	-112.8697	F-statistic	17.88315
Durbin-Watson stat	2.107915	Prob(F-statistic)	0.000001

ADF Test Statistic	-4.387392	1% Critical Value*	-4.0969
		5% Critical Value	-3.4759
		10% Critical Value	-3.1651

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_YD,2)
Method: Least Squares

Sample(adjusted): 1996:1 2012:3

Included observations: 68 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_YD(-1))	-0.946589	0.215752	-4.387392	0.0000
D(LOGHH_YD(-1),2)	0.126058	0.171394	0.735485	0.4648
D(LOGHH_YD(-2),2)	-0.062701	0.133768	-0.468729	0.6409
C	5119.220	2930.007	1.747170	0.0855
@TREND(1995:1)	467.8244	119.1447	3.926522	0.0002

R-squared	0.417557	Mean dependent var	1094.941
Adjusted R-squared	0.380577	S.D. dependent var	13193.49
S.E. of regression	10383.73	Akaike info criterion	21.40455
Sum squared resid	6.79E+09	Schwarz criterion	21.56775
Log likelihood	-722.7549	F-statistic	11.29128
Durbin-Watson stat	1.838956	Prob(F-statistic)	0.000001

PP Test Statistic	0.747218	1% Critical Value*	-4.0909
		5% Critical Value	-3.4730
		10% Critical Value	-3.1635

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	1.04E+08
Residual variance with correction	1.04E+08

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_YD)
Method: Least Squares

Sample(adjusted): 1995:2 2012:3
Included observations: 71 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD(-1)	0.010276	0.013781	0.745681	0.4584
C	4184.773	3165.923	1.321818	0.1907
@TREND(1995:1)	258.7434	313.1266	0.826322	0.4115

R-squared	0.492666	Mean dependent var	23198.77
Adjusted R-squared	0.477744	S.D. dependent var	14406.75
S.E. of regression	10411.36	Akaike info criterion	21.38052
Sum squared resid	7.37E+09	Schwarz criterion	21.47612
Log likelihood	-756.0084	F-statistic	33.01698
Durbin-Watson stat	1.699392	Prob(F-statistic)	0.000000

ADF Test Statistic	-4.113533	1% Critical Value*	-4.0969
		5% Critical Value	-3.4759
		10% Critical Value	-3.1651

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGDSERV_COST,2)
Method: Least Squares

Sample(adjusted): 1996:1 2012:3
Included observations: 68 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGDSERV_COST(-1))	-0.571258	0.138873	-4.113533	0.0001
D(LOGDSERV_COST(-1),2)	0.163802	0.132538	1.235886	0.2211
D(LOGDSERV_COST(-2),2)	-0.000750	0.122589	-0.006116	0.9951
C	-0.055592	0.149145	-0.372737	0.7106
@TREND(1995:1)	0.000515	0.003528	0.145945	0.8844

R-squared	0.273302	Mean dependent var	-0.013235
Adjusted R-squared	0.227162	S.D. dependent var	0.648282
S.E. of regression	0.569913	Akaike info criterion	1.784019
Sum squared resid	20.46243	Schwarz criterion	1.947218
Log likelihood	-55.65663	F-statistic	5.923376
Durbin-Watson stat	1.990144	Prob(F-statistic)	0.000412

PP Test Statistic	-4.695372	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.310176
Residual variance with correction	0.298785

Phillips-Perron Test Equation
Dependent Variable: D(LOGDSERV_COST,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGDSERV_COST(-1))	-0.494212	0.104276	-4.739476	0.0000
C	-0.021792	0.140549	-0.155049	0.8772
@TREND(1995:1)	-0.000103	0.003373	-0.030515	0.9757

R-squared	0.251579	Mean dependent var	-0.011429
Adjusted R-squared	0.229238	S.D. dependent var	0.648419
S.E. of regression	0.569267	Akaike info criterion	1.752977
Sum squared resid	21.71235	Schwarz criterion	1.849341
Log likelihood	-58.35420	F-statistic	11.26088
Durbin-Watson stat	1.843612	Prob(F-statistic)	0.000061

ADF Test Statistic	-7.553889	1% Critical Value*	-4.0969
		5% Critical Value	-3.4759
		10% Critical Value	-3.1651

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_S,2)
Method: Least Squares

Sample(adjusted): 1996:1 2012:3
Included observations: 68 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_S(-1))	-2.129166	0.281864	-7.553889	0.0000
D(LOGHH_S(-1),2)	0.690305	0.191363	3.607306	0.0006
D(LOGHH_S(-2),2)	0.096130	0.111984	0.858423	0.3939
C	-735.3094	983.7756	-0.747436	0.4576
@TREND(1995:1)	16.65549	23.18248	0.718451	0.4751

R-squared	0.765094	Mean dependent var	196.2206
Adjusted R-squared	0.750179	S.D. dependent var	7428.801
S.E. of regression	3713.070	Akaike info criterion	19.34779
Sum squared resid	8.69E+08	Schwarz criterion	19.51099
Log likelihood	-652.8249	F-statistic	51.29804

Durbin-Watson stat	1.765293	Prob(F-statistic)	0.000000

PP Test Statistic	-14.50523	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	23246194
Residual variance with correction	9317938.

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_S,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_S(-1))	-1.322074	0.114614	-11.53498	0.0000
C	-230.1033	1217.194	-0.189044	0.8506
@TREND(1995:1)	5.736029	29.17276	0.196623	0.8447

R-squared	0.665185	Mean dependent var	82.68571
Adjusted R-squared	0.655190	S.D. dependent var	8392.624
S.E. of regression	4928.191	Akaike info criterion	19.88524
Sum squared resid	1.63E+09	Schwarz criterion	19.98161
Log likelihood	-692.9835	F-statistic	66.55518
Durbin-Watson stat	2.177811	Prob(F-statistic)	0.000000

ADF Test Statistic	-10.89281	1% Critical Value*	-4.0969
		5% Critical Value	-3.4759
		10% Critical Value	-3.1651

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_SR,2)
Method: Least Squares

Sample(adjusted): 1996:1 2012:3
Included observations: 68 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_SR(-1))	-2.795493	0.256637	-10.89281	0.0000
D(LOGHH_SR(-1),2)	1.104166	0.167933	6.575048	0.0000
D(LOGHH_SR(-2),2)	0.263878	0.091817	2.873965	0.0055
C	-0.148803	0.137417	-1.082859	0.2830
@TREND(1995:1)	0.002470	0.003222	0.766629	0.4462

R-squared	0.881030	Mean dependent var	0.054412
Adjusted R-squared	0.873476	S.D. dependent var	1.448564
S.E. of regression	0.515257	Akaike info criterion	1.582382
Sum squared resid	16.72583	Schwarz criterion	1.745581
Log likelihood	-48.80099	F-statistic	116.6364
Durbin-Watson stat	1.561929	Prob(F-statistic)	0.000000

PP Test Statistic	-21.11575	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.956052
Residual variance with correction	0.212763

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_SR,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_SR(-1))	-1.407070	0.109317	-12.87143	0.0000
C	-0.004328	0.246779	-0.017537	0.9861
@TREND(1995:1)	-0.000207	0.005914	-0.035062	0.9721

R-squared	0.712192	Mean dependent var	0.024286
Adjusted R-squared	0.703600	S.D. dependent var	1.835751
S.E. of regression	0.999430	Akaike info criterion	2.878649
Sum squared resid	66.92367	Schwarz criterion	2.975013
Log likelihood	-97.75271	F-statistic	82.89695
Durbin-Watson stat	2.248381	Prob(F-statistic)	0.000000

ADF Test Statistic	-4.331350	1% Critical Value*	-4.0969
		5% Critical Value	-3.4759
		10% Critical Value	-3.1651

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGHH_NW,2)
Method: Least Squares

Sample(adjusted): 1996:1 2012:3
Included observations: 68 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_NW(-1))	-0.942141	0.217517	-4.331350	0.0001
D(LOGHH_NW(-1),2)	0.002241	0.170038	0.013178	0.9895
D(LOGHH_NW(-2),2)	-0.147673	0.122929	-1.201284	0.2341
C	-0.473089	2.892287	-0.163569	0.8706
@TREND(1995:1)	0.021693	0.068221	0.317974	0.7516

R-squared	0.514451	Mean dependent var	-0.194118
Adjusted R-squared	0.483622	S.D. dependent var	15.35339
S.E. of regression	11.03286	Akaike info criterion	7.710319
Sum squared resid	7668.608	Schwarz criterion	7.873518
Log likelihood	-257.1508	F-statistic	16.68749
Durbin-Watson stat	1.964941	Prob(F-statistic)	0.000000

PP Test Statistic	-7.903313	1% Critical Value*	-4.0928
		5% Critical Value	-3.4739
		10% Critical Value	-3.1640

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	118.9571
Residual variance with correction	110.4840

Phillips-Perron Test Equation
Dependent Variable: D(LOGHH_NW,2)
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 70 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHH_NW(-1))	-0.967276	0.122212	-7.914718	0.0000
C	0.586983	2.752480	0.213256	0.8318
@TREND(1995:1)	0.000260	0.065948	0.003943	0.9969

R-squared	0.483207	Mean dependent var	0.070000

Adjusted R-squared	0.467780	S.D. dependent var	15.28134
S.E. of regression	11.14825	Akaike info criterion	7.702354
Sum squared resid	8326.994	Schwarz criterion	7.798718
Log likelihood	-266.5824	F-statistic	31.32287
Durbin-Watson stat	1.988994	Prob(F-statistic)	0.000000

Ordinary Least Squares

Dependent Variable: LOGHH_DEBT
Method: Least Squares

Sample(adjusted): 1995:3 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD	1.40E-05	9.64E-07	14.50139	0.0000
LOGDSERV_COST	2.099296	0.139641	15.03355	0.0000
LOGHH_S	-0.000105	5.02E-05	-2.085100	0.0413
LOGHH_NW	0.157772	0.016128	9.782726	0.0000
C	-12.24453	4.801829	-2.549973	0.0133
DLOGHH_YD(-1)	-4.98E-05	2.76E-05	-1.804629	0.0761
DLOGDSERV_COST (-1)	-1.465453	0.405462	-3.614275	0.0006
DLOGHH_NW	-0.030204	0.024984	-1.208942	0.2314

R-squared	0.967382	Mean dependent var	66.12899
Adjusted R-squared	0.963639	S.D. dependent var	10.51173
S.E. of regression	2.004438	Akaike info criterion	4.337256
Sum squared resid	245.0841	Schwarz criterion	4.596283
Log likelihood	-141.6353	F-statistic	258.4473
Durbin-Watson stat	0.736311	Prob(F-statistic)	0.000000

Dependent Variable: LOGHH_DEBT
Method: Least Squares

Sample: 1995:1 2012:3
Included observations: 71

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.457529	5.016048	-0.888654	0.3774
LOGHH_YD	1.33E-05	9.15E-07	14.57620	0.0000
LOGDSERV_COST	2.011808	0.143630	14.00685	0.0000
LOGHH_S	-0.000136	5.50E-05	-2.473596	0.0160
LOGHH_NW	0.132606	0.016116	8.228442	0.0000

R-squared	0.955508	Mean dependent var	65.91690
Adjusted R-squared	0.952811	S.D. dependent var	10.43727
S.E. of regression	2.267287	Akaike info criterion	4.542865
Sum squared resid	339.2791	Schwarz criterion	4.702209
Log likelihood	-156.2717	F-statistic	354.3503
Durbin-Watson stat	0.556105	Prob(F-statistic)	0.000000

LOGHH_DEBT LOGHH_YD LOGDSERV_COST LOGHH_S LOGHH_NW C DLOGHH_YD(-1) DLOGDSERV_COST(-1) DLOGHH_NW

Generalised Method of Moments (GMM)

Dependent Variable: LOGHH_DEBT
Method: Generalized Method of Moments

Sample(adjusted): 1995:3 2012:3
Included observations: 69 after adjusting endpoints
No prewhitening
Bandwidth: Fixed (3)
Kernel: Bartlett
Convergence achieved after: 1 weight matrix, 2 total coef iterations
Instrument list: LOGHH_YD LOGDSERV_COST LOGHH_S LOGHH_NW C DLOGHH_YD(-1) DLOGDSERV_COST(-1) DLOGHH_NW

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD	1.40E-05	1.10E-06	12.73643	0.0000
LOGDSERV_COST	2.099296	0.186841	11.23572	0.0000
LOGHH_S	-0.000105	5.13E-05	-2.044069	0.0453
LOGHH_NW	0.157772	0.023645	6.672559	0.0000
C	-12.24453	7.163213	-1.709363	0.0925
DLOGHH_YD(-1)	-4.98E-05	3.20E-05	-1.557661	0.1245
DLOGDSERV_COST (-1)	-1.465453	0.522927	-2.802402	0.0068
DLOGHH_NW	-0.030204	0.020936	-1.442700	0.1542

R-squared	0.967382	Mean dependent var	66.12899
Adjusted R-squared	0.963639	S.D. dependent var	10.51173
S.E. of regression	2.004438	Sum squared resid	245.0841
Durbin-Watson stat	0.736311	J-statistic	2.07E-26

UNRESTRICTED VAR

Sample(adjusted): 1995:3 2012:3
Included observations: 69 after adjusting endpoints
Standard errors & t-statistics in parentheses

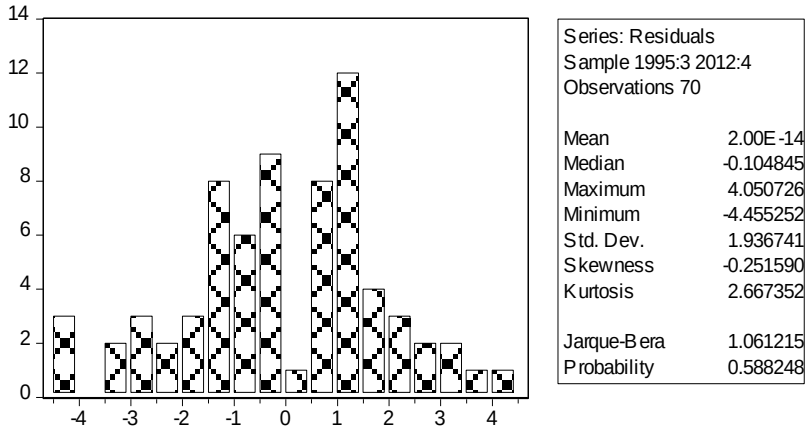
	LOGHH_DEBT
LOGHH_DEBT(-1)	0.850067
	(0.06988)
	(12.1653)
C	-0.114171
	(2.78506)
	(-0.04099)
LOGHH_YD	4.33E-07
	(1.2E-06)
	(0.35166)
LOGDSERV_COST	0.145104
	(0.17755)
	(0.81727)
LOGHH_S	-8.12E-05
	(2.7E-05)
	(-2.97731)
LOGHH_NW	0.027431
	(0.01382)
	(1.98441)
DLOGHH_YD(-1)	1.71E-05
	(1.6E-05)
	(1.07479)
DLOGDSERV_COST(-1)	0.077956
	(0.25360)
	(0.30740)

DLOGHH_NW	0.005875
	(0.01385)
	(0.42414)
R-squared	0.990591
Adj. R-squared	0.989336
Sum sq. resids	70.69959
S.E. equation	1.085508
F-statistic	789.5798
Log likelihood	-98.74626
Akaike AIC	3.123080
Schwarz SC	3.414485
Mean dependent	66.12899
S.D. dependent	10.51173

DIAGNOSTIC TESTS

OLS

1. Normality Test



2. Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	76.67152	Probability	0.000000
Obs*R-squared	38.98414	Probability	0.000000

Test Equation:
Dependent Variable: RESID
Method: Least Squares

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD	-5.52E-07	6.15E-07	-0.896773	0.3734
LOGDSERV_COST	-0.141230	0.096820	-1.458678	0.1498
LOGHH_S	-3.29E-05	3.34E-05	-0.985527	0.3283
LOGHH_NW	-0.018237	0.011193	-1.629223	0.1084
C	6.673291	3.345367	1.994786	0.0505
DLOGHH_YD(-1)	2.36E-05	1.88E-05	1.257443	0.2134
DLOGDSERV_COST (-1)	0.327277	0.279352	1.171559	0.2459
DLOGHH_NW	-0.072200	0.018975	-3.805100	0.0003
RESID(-1)	0.919199	0.104977	8.756227	0.0000

R-squared	0.556916	Mean dependent var	2.00E-14
Adjusted R-squared	0.498807	S.D. dependent var	1.936741
S.E. of regression	1.371115	Akaike info criterion	3.588647
Sum squared resid	114.6774	Schwarz criterion	3.877740
Log likelihood	-116.6027	F-statistic	9.583940
Durbin-Watson stat	2.060754	Prob(F-statistic)	0.000000

3. ARCH Effect

ARCH Test:

F-statistic	2.373796	Probability	0.128097
Obs*R-squared	2.361005	Probability	0.124402

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares

Sample(adjusted): 1995:4 2012:3
Included observations: 69 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.896160	0.700755	4.132911	0.0001
RESID^2(-1)	0.182109	0.118198	1.540713	0.1281

R-squared	0.034217	Mean dependent var	3.549475
Adjusted R-squared	0.019803	S.D. dependent var	4.680846
S.E. of regression	4.634267	Akaike info criterion	5.933390
Sum squared resid	1438.921	Schwarz criterion	5.998147
Log likelihood	-202.7020	F-statistic	2.373796
Durbin-Watson stat	1.895602	Prob(F-statistic)	0.128097

4. White Heteroscadasticity

White Heteroskedasticity Test:

F-statistic	1.036639	Probability	0.432956
Obs*R-squared	14.61464	Probability	0.404994

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares

Sample: 1995:3 2012:3
Included observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.666187	85.29851	-0.054704	0.9566
LOGHH_YD	1.57E-05	1.41E-05	1.116251	0.2692
LOGHH_YD^2	-6.18E-12	5.66E-12	-1.091567	0.2798
LOGDSERV_COST	4.402638	3.715159	1.185047	0.2411
LOGDSERV_COST^2	-0.231620	0.182641	-1.268172	0.2101
LOGHH_S	3.81E-05	0.000167	0.228674	0.8200
LOGHH_S^2	7.72E-09	9.20E-09	0.838644	0.4053
LOGHH_NW	-0.102622	0.503132	-0.203967	0.8391
LOGHH_NW^2	0.000143	0.000826	0.173125	0.8632
DLOGHH_YD(-1)	-6.85E-05	0.000141	-0.487777	0.6276
DLOGHH_YD(-1)^2	-2.85E-10	2.41E-09	-0.118071	0.9064
DLOGDSERV_COST(-1)	1.294971	1.087847	1.190398	0.2390
DLOGDSERV_COST(-1)^2	0.112140	0.773993	0.144885	0.8853
DLOGHH_NW	-0.082474	0.068380	-1.206112	0.2329
DLOGHH_NW^2	-0.005946	0.003400	-1.748799	0.0859

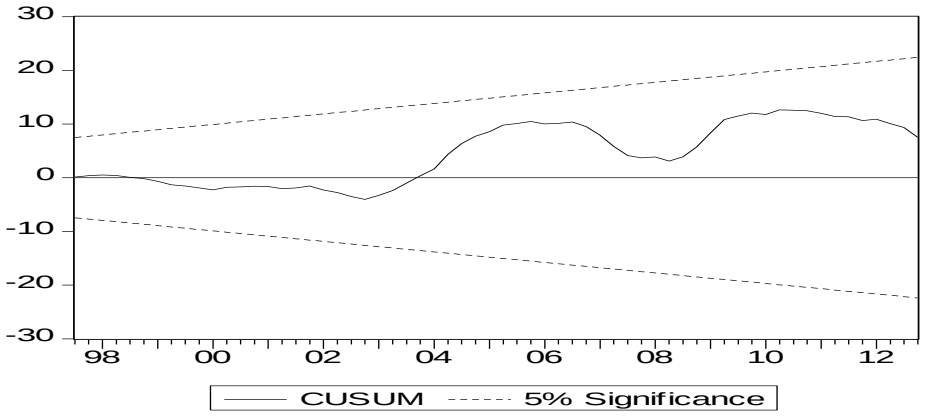
R-squared	0.208781	Mean dependent var	3.697379
Adjusted R-squared	0.007379	S.D. dependent var	4.808749
S.E. of regression	4.790974	Akaike info criterion	6.158754
Sum squared resid	1262.439	Schwarz criterion	6.640574
Log likelihood	-200.5564	F-statistic	1.036639
Durbin-Watson stat	1.650770	Prob(F-statistic)	0.432956

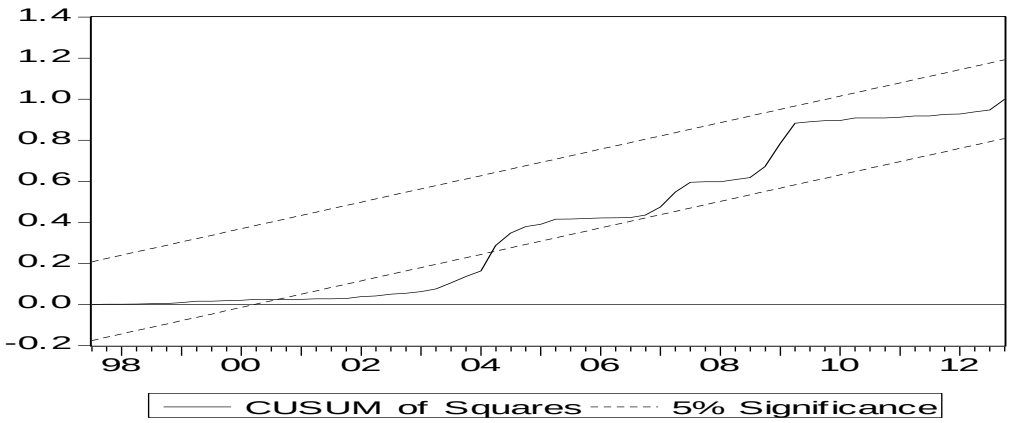
STABILITY TESTS

Sample: 1995:3 2012:3
Included observations: 70

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. |***** |	. |***** |	1	0.606	0.606	26.813	0.000
. |**** |	. |** |	2	0.492	0.198	44.774	0.000
. |** |	.*| . |	3	0.286	-0.121	50.919	0.000
. |*. |	. | . |	4	0.167	-0.053	53.049	0.000
. |*. |	. | . |	5	0.078	-0.009	53.515	0.000
.*| . |	.*| . |	6	-0.081	-0.182	54.026	0.000
**| . |	.*| . |	7	-0.210	-0.177	57.566	0.000
**| . |	. | . |	8	-0.264	-0.027	63.226	0.000
.*| . |	. |*. |	9	-0.176	0.174	65.796	0.000
**| . |	.*| . |	10	-0.218	-0.126	69.775	0.000

.*| .	|	. |*.	|	11	-0.100	0.098	70.637	0.000
**| .	|	.*| .	|	12	-0.196	-0.180	73.988	0.000
.*| .	|	.*| .	|	13	-0.183	-0.118	76.947	0.000
.*| .	|	. |*.	|	14	-0.104	0.081	77.918	0.000
.*| .	|	.*| .	|	15	-0.142	-0.131	79.778	0.000
. | .	|	. |*.	|	16	-0.024	0.134	79.833	0.000
. | .	|	. |*.	|	17	0.021	0.134	79.875	0.000
. |*.	|	. |*.	|	18	0.131	0.117	81.528	0.000
. |*.	|	. | .	|	19	0.151	-0.036	83.791	0.000
. |*.	|	.*| .	|	20	0.154	-0.156	86.177	0.000
. |*.	|	.*| .	|	21	0.088	-0.079	86.966	0.000
. | .	|	.*| .	|	22	0.060	-0.095	87.350	0.000
. | .	|	.*| .	|	23	-0.046	-0.147	87.574	0.000
.*| .	|	. |*.	|	24	-0.106	0.090	88.795	0.000
**| .	|	.*| .	|	25	-0.193	-0.110	92.961	0.000
**| .	|	.*| .	|	26	-0.308	-0.088	103.83	0.000
***| .	|	.*| .	|	27	-0.332	-0.140	116.72	0.000
**| .	|	.*| .	|	28	-0.316	-0.072	128.68	0.000
**| .	|	. | .	|	29	-0.254	0.012	136.61	0.000
.*| .	|	. | .	|	30	-0.158	0.056	139.77	0.000
.*| .	|	. |*.	|	31	-0.075	0.139	140.49	0.000
. | .	|	. | .	|	32	-0.030	-0.013	140.61	0.000





Ramsey RESET Test:			
F-statistic	9.968390	Probability	0.000003
Log likelihood ratio	36.62634	Probability	0.000000

Test Equation:
Dependent Variable: LOGHH_DEBT
Method: Least Squares

Sample: 1995:3 2012:3
Included observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGHH_YD	-0.016020	0.006865	-2.333460	0.0231
LOGDSERV_COST	-2514.495	1077.739	-2.333119	0.0231
LOGHH_S	0.155567	0.066700	2.332352	0.0232
LOGHH_NW	-186.9445	80.12497	-2.333162	0.0231
C	30162.71	12739.39	2.367673	0.0213
DLOGHH_YD(-1)	0.048989	0.021000	2.332786	0.0232
DLOGDSERV_COST (-1)	1817.252	778.8852	2.333145	0.0231
DLOGHH_NW	36.74425	15.75636	2.332027	0.0232
FITTED^2	34.23225	15.04714	2.275000	0.0266
FITTED^3	-0.483542	0.218156	-2.216493	0.0306
FITTED^4	0.003395	0.001571	2.161122	0.0348
FITTED^5	-9.49E-06	4.50E-06	-2.110196	0.0392

R-squared	0.979815	Mean dependent var	66.26143
Adjusted R-squared	0.975987	S.D. dependent var	10.49395
S.E. of regression	1.626160	Akaike info criterion	3.965125
Sum squared resid	153.3750	Schwarz criterion	4.350581
Log likelihood	-126.7794	F-statistic	255.9481
Durbin-Watson stat	1.017878	Prob(F-statistic)	0.000000