Is the Magnitude of Household Debt in Barbados a Concern?

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Abstract

This paper provides an assessment of the size and composition of household debt in Barbados over the period 1990 to 2010. First, the study estimates the size of household indebtedness, with particular emphasis on recent trends in household debt and the main providers of credit. Second, it attempts to show how household debt varies with key macroeconomic indicators. Finally, a cursory look at the concerns resulting from rising household debt is taken. Unlike previous studies on household debt in Barbados (Craigwell & Kaidou-Jeffery, 2010; Moore & Williams, 2008), this paper does not constrain the analysis to household debt extended by commercial banks. This more holistic approach allows the authors to capture any emerging institutional trends that might be of interest to policymakers.

1 Introduction

Barbados is a small open economy with a relatively high level of economic development. In 2009, the total nominal value of goods and services produced was $5.2 billion (US$), while Gross Domestic Product (GDP) per capita (on a purchasing power parity basis, PPP) was $19,423. Indeed, GDP per capita in Barbados was almost 40 per cent higher than the average for a group of comparator countries.[2] Within the Caribbean, only Antigua and Barbuda ($20,954), The Bahamas ($31,746) and Trinidad and Tobago ($25,739) had a higher level of GDP per capita.

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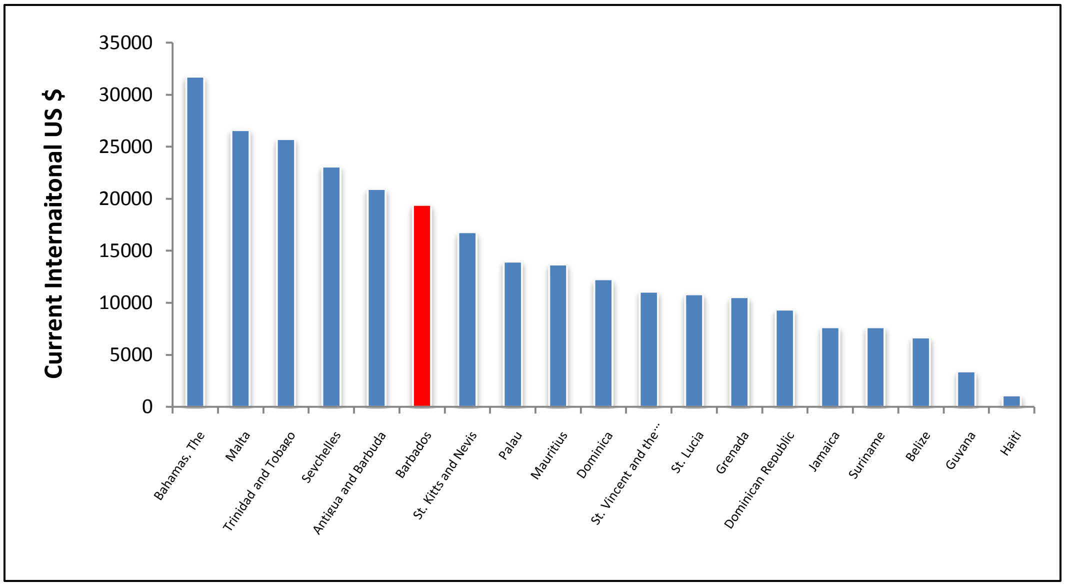
[2] By default, the first group of benchmark countries will be the 15 beneficiary countries of Compete Caribbean (one of them will be, of course, the country of interest in the report): Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominican Republic, Dominica, Grenada, Guyana, Haiti, Jamaica, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago. In addition, the paper can take into account other benchmark nations based on two characteristics: GDP per capita (current PPP US$) in the latest year of available data and population size. A benchmark country will be one such that the difference in GDP per capita (current PPP US$) and population size does not differ by more than 25% from the economy of interest on both dimensions. Using this threshold, the study also included Palau, Mauritius, Seychelles and Malta, as comparator countries.

Figure 1: GDP per Capita, 2010



Source: World Bank World Development Indicators

Like most other Caribbean countries, the global financial crisis has had a significant effect on the Barbados economy. The IMF (2010a) estimates that from 2007 to 2010, output in Barbados contracted by a cumulative 6 percent, with widespread weaknesses in all major spheres of economic activity. The reduction in economic output has also negatively affected unemployment. At the end of 2011, the unemployment rate was estimated at 12 percent - almost 5 percentage points higher than at the end of 2007. The rising rate of unemployment, coupled with relatively weak growth in wages, has placed significant stress on the ability of households to repay outstanding debts.

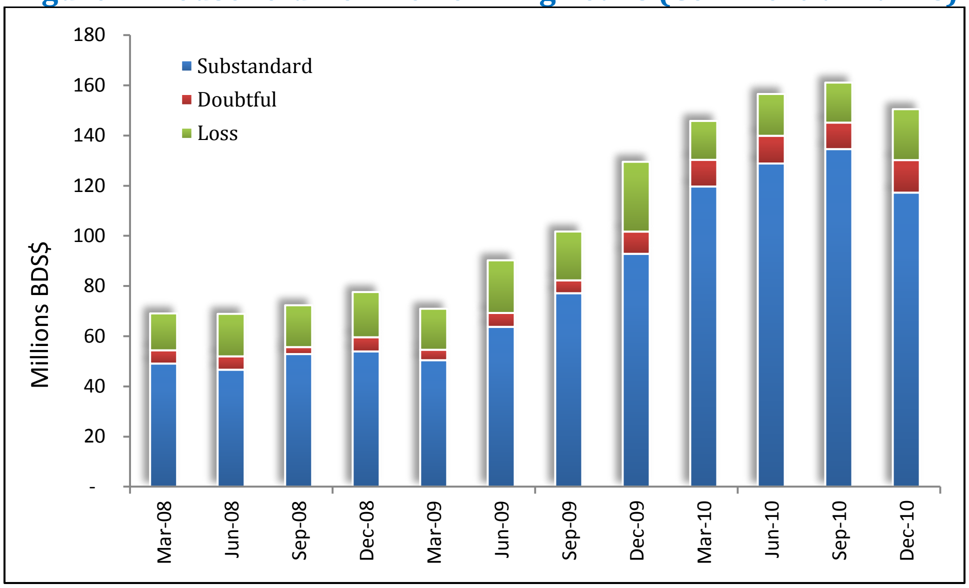
Consumers in Barbados have long used lending institutions as a tool to help smooth their consumption; the main sources of consumer credit are commercial banks, credit unions as well as trust and finance companies.[3] Mortgage debt, the largest category of household debt, occurs when households borrow to purchase a property or use their current property as collateral for a loan. These loans are usually repaid over 30 years with comparatively lower rates of interest than more short-term loans. Consumer debt, composed of instalment and non-instalment loans, includes credit card loans, revolving charge accounts, travel and single-payment personal loans. These are the second main source of household debt.

During the credit boom (2005 to 2008), household debt in Barbados rose by an average rate of 15 percent per annum. However, in the face of the global slowdown, growth in household debt dwindled to a mere 1.6 percent and 3.7 percent in 2009 and 2010, respectively. The crisis also significantly affected the ability of households to manage outstanding debt obligations. As shown in Figure 2 below, household non-performing

[3] Some insurance companies also permit borrowing against life insurance policies, but this tends to be relatively small.

loans[4] have expanded substantially since the onset of the crisis[5], moving from $69 million or (2.8 percent of personal sector loans) to reach a high of $161.1 million (the equivalent of 5.9 percent of household loans) in September 2010.

Figure 2: Household Non-Performing Loans (Commercial Banks)



Source: Central Bank of Barbados

Since the collapse of the sub-prime market in late 2007, several academics and policy makers postulate that high levels of household debt can have important implications for the health of the financial sector, and by extension, macroeconomic stability. It is against this backdrop that this paper provides an assessment of the size and composition of household debt over the period 1990 to 2010. First, the study estimates the size of household indebtedness, with particular emphasis on recent trends in household debt and the main providers of credit. Second, it attempts to show how household debt varies with key macroeconomic indicators. Finally, a cursory look is taken at the concerns that results from rising household debt. Unlike previous studies on household debt in Barbados (Craigwell & Kaidou-Jeffery, 2010; Moore & Williams, 2008), this paper does not constrain the analysis to household debt provided by commercial banks. This more holistic approach allows the authors to capture any emerging institutional trends that might be of interest to policymakers.

The remainder of the paper is structured as follows. Section 2 provides a brief overview of the financial industry in Barbados. Section 3 summarises the previous literature in the area. Section 4 identifies key trends in relation to household debt in Barbados. Section 5

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[4] These are categorised by substandard (loans that are overdue by at least 3 months); doubtful (loans that are at least 6 months overdue) and finally, losses (loans that are at least 12 months).

[5] The data on defaults is only disaggregated from 2008 and did not allow for a better analysis of how defaults change over the 20-year period in question.

discusses whether Barbados should be concerned with the rising levels of household debt and finally Section 6 concludes.

2 Background

2.1 Financial Institutions

Banking in Barbados has developed quite rapidly since independence. In the early 1950s, there were seven commercial banks, as well as a number of life and general insurance companies Haynes (1995). Three of these banks were branches/subsidiaries of foreign entities, one was a government-owned savings bank and two were agricultural banks. During this era, access to the formal financial system was severely limited. As a result, many small friendly societies emerged to provide intermediation services to those individuals that could not access commercial banking services. The liabilities of commercial banks and the government-owned savings bank dwarfed those of all other financial institutions (Table 1). The level of financial intermediation was also relatively high, estimated at 50 per cent of GDP, which Haynes (1995) attributed to the strong savings ethic of Barbadians at the time. While savings during this early period were relatively high, given the restrictions that existed, most commercial banks directed the majority funds to overseas investments rather than to domestic lending. While data limitations prohibit an analysis of the direction and type of assets held, it is reasonable to assume that most of these funds were held in either UK government paper or interest-bearing accounts abroad.

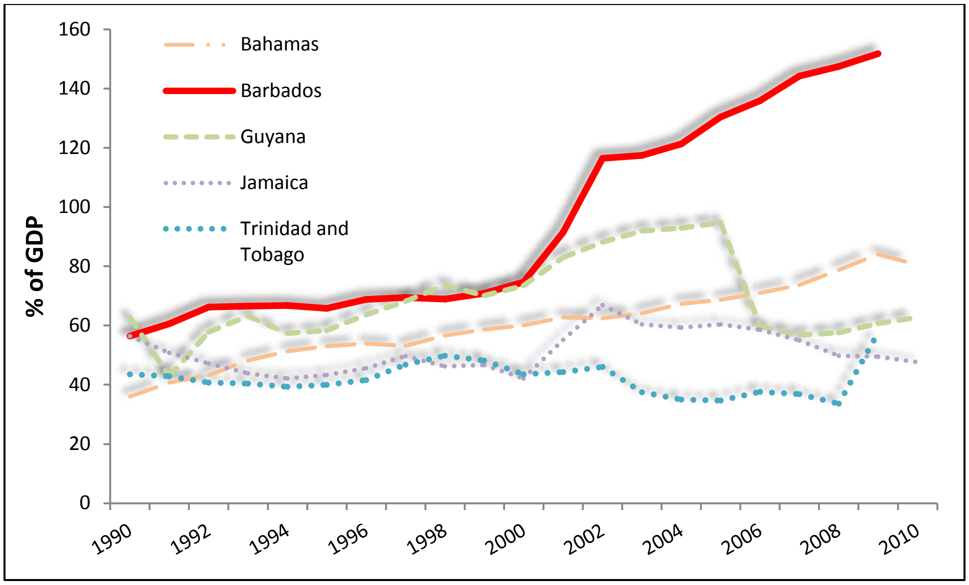
Table 1: Monetary Liabilities, 1950-2010 (US$ Million)

	Commercial Banks	Friendly Societies/Credit Unions	Savings Bank	Trust & Mortgage Finance Companies	Finance Companies
1950	11.3	0.1	5.2	0.0	0.0
1960	20.5	0.1	9.8	0.0	0.0
1970	90.2	0.3	8.9	1.0	0.0
1980	369.1	2.4	0.0	34.6	6.3
1990	869.3	71.5	0.0	160.2	20.3
2000	2257.0	212.9	0.0	216.6	106.9
2010	5492.3	674.3	0.0	360.2	338.4

Source: Central Bank of Barbados and Haynes (1995)

The level of financial development on the island accelerated significantly in the immediate post-independence era and has not slowed since. Figure 3 plots the ratio of money and quasi-money (M2) to GDP for Barbados and other selected Caribbean countries between 1990 and 2010. While the ratio was quite close for the majority for most of the 1990s, since the early 2000s, it has accelerated quite significantly for Barbados and is now almost double that for Guyana, Jamaica and Trinidad and Tobago.

Figure 3: Money and Quasi-Money (M2) as a Ratio of GDP for Selected Caribbean Countries



Source: World Development Indicators

The increase in financial development largely reflects the expansion of both the bank and non-bank segments of financial intermediation. Table 1 indicates that commercial banks' liabilities more than quadrupled in the 1970s and 1980s, and have more than doubled every decade since. This tremendous growth in commercial banks liabilities has allowed these entities to remain the largest segment of the financial system.

There are currently seven licensed commercial banks most of which are branches or subsidiaries of Canadian banks (Table 2). Three banks accounted for almost 64 percent of total assets of the banking system at the end of 2010. The concentration of assets in these banks has fallen over the last five years, as other banks have actively sought to increase their share of the domestic loan market. Most of the banks are centred on retail and corporate banking; investment banking is a very small portion of the portfolio of most banks in Barbados.

Table 2: Commercial Banking in Barbados

Bank	Majority Shareholder	Number of Branches in Barbados	Country of Origin	Legal Status
Bank of Nova Scotia	Bank of Nova Scotia	7	Canada	Branch
Barbados National Bank Inc.	Republic Bank	9	Trinidad and Tobago	Subsidiary
Butterfield Bank (Barbados) Limited	Bank of Butterfield[6]	6	Trinidad and Tobago	Subsidiary
First Caribbean International Bank	CIBC	8	Canada	Subsidiary
RBC Royal Bank of Canada	Royal Bank of Canada	11	Canada	Subsidiary
Citi Corp	Citigroup Inc.	1	United States	Subsidiary

Source: Central Bank of Barbados

Relative to household credit, each bank has a specific criterion to determine an individual's eligibility for a loan and the amount. Financing is given mainly on an individual's source of income, which includes salary, pensions, and any other income that can be proven. Background also plays a major role, as banks look at an individual's job security and how well they have paid off previous debt. The amount that one is allotted is based on the debt service ratio. The debt service ratio can be defined as the percentage of gross annual income required to cover payments associated with housing and all other debts and obligations, such as car loans, credit cards, among others.

The non-bank financial sector includes 35 credit unions. The members are the depositors and also the recipients of all loans. Credit unions offer essentially the same services as commercial banks. As noted by Griffith et al (2009), these services include share or savings accounts, credit cards, share term certificates and online banking. The authors also highlighted that only members of a credit union can deposit or be issued loans, and that these institutions provide a broader range of loans and savings products at a cheaper cost than most financial institutions. In terms of market share, as of September 2011, the assets of the credit unions were BDS$3 billion, which is about 16 percent of the estimated assets of the financial sector. This shows that these entities have a significant amount of assets in relation to the size of the Barbadian financial sector.

The 13 trust and finance companies in Barbados specialise in providing funds to consumers for mortgages and vehicles. These institutions are usually privately owned, with commercial banks owning five (38%) of these entities. The commercial banks' interest in trust and finance companies increased as a result of the Central Bank of Barbados' credit controls, which saw the size of their loanable funds being regulated. The transfer of

[6] *Butterfield Bank is now First Citizens Bank (Barbados)Limited.*

lending to separate entities allowed the commercial banks to avoid credit limit Haynes (1997).

The criterion these non-banks use to lend money is similar to the commercial banks. What may vary, however, is that the characteristics of the loan may include a different repayment schedule, change in interest rate and the size of the loan. Non-banks specialize in issuing loans to consumers rather than businesses and therefore this is the area in which they compete with the commercial banks.

Insurance companies represent another element of the financial sector; these however, are not big in terms of consumer lending. Two insurance firms give personal loans based on the cash value of individuals' life insurance policies and one insurance corporation has a trust and mortgage finance subsidiary. Therefore, insurance companies facilitate only a small portion of consumer lending in Barbados.

2.2 Regulation of the Financial System

The financial system in Barbados is regulated by three main entities: The Central Bank of Barbados (CBB), the Financial Services Commission and the Barbados Deposit Insurance Corporation. Together, these agencies have the authority to regulate the magnitude, type and patterns of the loan portfolios of financial institutions, either directly or indirectly through their ability to issue, suspend or even revoke the licence of a financial institution.

The CBB is responsible for maintaining a sound financial structure. Under the Financial Institutions Act (FIA) (1996) banks, trust companies, finance companies and merchant banks are licensed, with regulatory oversight provided by the CBB's Bank Supervision Department. In addition, the CBB has also used a variety of monetary policy tools to influence commercial bank behaviour – particularly their lending patterns. These included stipulated interest rates (both ceilings and floors) and various credit controls. Of particular interest, were the specific policies targeted at household borrowing. Among these were controls which governed the amount banks lend to households, and regulations on the mortgage rates. These policies often fluctuated, suggesting that the CBB greatly influenced household behaviour. However, between 1992 and 1993, the financial sector underwent substantial reforms, and the Rate of Interest Order was revoked in June 1992, the residential mortgage rate was deregulated by September and all ceilings on credit and credit controls were discontinued by May 1993 (Boamah et al, 2011a). Currently, the main monetary policy tool used to impact credit is the minimum deposit rate. Therefore, the CBB still has the ability to influence a bank's lending power, which by extension can have an effect on the consumer.

Both the CBB and the FSC work in tandem to tackle the financial stability of the Barbadian economy. Together, they are responsible for identifying any areas that may cause instability and implement policies to ensure that the financial system is strong enough to withstand the possibility of any detrimental events.

Another institution of note is the Barbados Deposit Insurance Corporation (BDIC). In 2007 the Barbados financial system saw the addition of this entity. The BDIC under the Deposit Insurance Act (2006) manages the Deposit Insurance Fund that insures depositor accounts up to $25,000. This ceiling on deposits seems fair as the 2011 Central Bank of Barbados Financial Stability Report stated that 90% of all deposits were under this amount and therefore most individuals were covered. The BDIC's operational framework states that this corporation aims to manage the Deposit Insurance Fund, levy premiums on participating entities, acts as liquidator or manager of member institutions and, facilitates the re-organisation or takeover of a participating organisation. The entity does not however, have the power to take over its members operations and needs voluntary compliance to perform any of these instruments.

3 Brief Review of Literature

3.1 Why Do Households Borrow?

Household debt is intimately associated with consumption. Fisher (1930), for example, shows that a rational consumer faced with an inter-temporal budget constraint – which captures the choice between present consumption and saving for the future – chooses his consumption for the present and future with hopes of maximising utility over his or her lifetime. If in any period, current income is not sufficient to support the individual's inter-temporal consumption plans, he or she would borrow, defined as transferring future consumption to the present.

Building on the work of Fisher (1930), Ando and Modigliani (1963) also argue that household debt provides a means of smoothing consumption over an individual's expected lifetime. Unlike Fisher (1930), however, the authors contend that in the early stages of life, consumption has the tendency to be greater than income. Ando and Modigliani (1963) attributed this to households' expectations that their income would rise over time; relative to income, debt would, therefore, tend to be high when an individual is young and gradually decline over time (Modigliani & Brumberg, 1954; Attanasio & Browning, 1995). In a more recent article, Andreou (2011) noted that this high level of debt in early periods of the lifecycle was due to households' tendency to buy durable items such as houses, cars, appliances, among other things instead of renting or leasing such items. Given their budget constraint, credit is the only way to purchase such durable items and benefit from their services without having to forfeit too much of their present consumption.

Individuals' incomes tend to fluctuate from one period to the next. To account for this characteristic, Friedman (1957) introduced the concept of permanent income, arguing that income was made up of two components: permanent income (the amount individuals expect to receive over every period) and transitory income (windfall gains). Freidman opines that agents consume based on their permanent income, rather than total income. In testing this theory, Park and Rodrigues (2000) noted that the permanent income hypothesis implies that consumer borrowing should be an increasing function of the gap between permanent and current income. Using US data from 1959 to 1994, the authors found that consumer borrowing does increase with permanent income and decreases with current income.

Much of the theoretical models above speak to the concept of consumption smoothing. In this vein, fluctuations in the business cycle can have significant effects on consumption. Campbell and Mankiw (1991), for instance, report that private consumption growth was especially sensitive to disposable income growth, which may also have spill-over effects on household debt. Similarly, Zeldes (1989) noted that if individuals with constant risk aversion experienced any difference in transitory income they would alter their rate of savings. He further highlighted that during periods of growth, the consumer was liable to consume more, implying an increase in household borrowing and, relative to an economic downturn, would save, implying a decrease in household borrowing.

3.2 Recent Evidence on the Determinants of Household Debt

The previous section provides an explanation of why consumers might want to borrow. But, the underlying demand for household debt may also be influenced by institutional factors, policy shocks and commercial banks' policies. Liquidity constraints can have a significant impact on the structure of the lending market Greenidge and Miller (2008). For consumers, liquidity constraints can decrease the eligibility of borrowers in financial markets. In the case of financial markets in developing countries, liquidity constraints may occur due to the limitations in the sources of finance or increased demand for funds by government or businesses. In contrast, if financial markets are very liquid this could result in an expansion in the availability of credit, which is normally associated with above trend private consumption expenditure growth. This above trend consumption can often be due to inflationary pressures and may also affect financial stability (Lewis-Bynoe, et al., 2008).

In an attempt to lift these liquidity constraints, many developed and developing countries have engaged in various aspects of financial liberalization. Indeed, deregulation and financial innovation have greatly increased the household sector's access to credit and created more equity among borrowers in most developed countries (Davies, 2006). Deregulation, in particular, played a critical role in non-bank financial institutions raising their lending to households over the last two decades (Bank of England, 2004). As a result, households in more advanced economies have experienced an improved access to credit and a lower cost of borrowing than had been generally available from non-bank sources prior to deregulation.

But the link between deregulation and increased household lending does not necessarily hold for some developing countries. Focusing on the case of Barbados, the growth of the non-banks actually started before the liberalisation period. Haynes (1997) identified regulations on the banking sector as the initial reason for the increase in consumer loans issued by non-banks. Haynes continued by stating that the advancement in this sector (non-banks) was due to the inability of the commercial banks to penetrate the market based on the restrictions under the Interest Rates Act 1970 -47. Even though the rise in the Barbadian non-banking sector has been significant, the industry is still not yet large enough to present any meaningful competition to the commercial banks (Lewis-Bynoe, et al., 2008).

Another aspect of liberalisation came in the form of deregulation of interest rates. The cost of credit has historically been a key determinant of household debt (Debelle, 2004). The change in the cost of credit is usually attributed to alterations in the interest rate. Many countries have deregulated interest rates to allow the rate of return on funds to vary based on market conditions. With no intervention (monetary policy), the interest rate fluctuates with the demand and supply of credit (Balke & Zeng, 2011). The supply of credit is directly related to deposits, and hence an increase in savings could cause a lowered interest rate. On the other hand, an expansion in the demand for loans, with stagnant deposits, could result in a rise in the interest rate.

But, in many developing countries, the level of deregulation of interest rates still has not reached that of the advanced world. Interest rates rarely fluctuate according to market conditions, but rather by intervention policies, which are directly aimed at controlling the cost of borrowing and by extension, the amount of loanable funds. More specifically in Barbados, changes in monetary policy have been highlighted as a key determinant in household debt, even though studies have shown that the response is lagged and oft times small Moore and Williams, (2008). The authors estimate that in Barbados a tightening in monetary policy takes between 5 to 10 quarters to have an effect on consumer lending from commercial banks. This lag is believed to be due to imperfections in the market. Specifically, consumers are unable to find an alternative source of finance and therefore are forced to continue to rely on commercial banks, even in the face of higher credit costs. Worrell (1996) also notes that the effect of interest rates on consumer borrowing may depend on its magnitude and whether it is thought to be temporary or permanent. If the increase in the interest rate is expected to be temporary, the private sector may postpone expenditure.

Fiscal policy can also impact on household debt. First, it can affect household debt indirectly, by boosting income. The International Monetary Fund (IMF) World Economic Outlook (2010b) notes that fiscal transfers specifically targeted at households through some type of social safety net can have a positive effect on incomes and improve their ability to service debt. The article also highlighted that fiscal policy such as a stimulus aimed at offsetting rising defaults can soften the blow of macroeconomic shocks on individuals. These stimuli however have some degree of limitation as nominal interest rates can only be cut to zero and the scope for fiscal transfers may be constrained by high government debt. Alternatively, a government can use incentives to encourage the increase of a certain type of loan. For example, in the case of Barbados Haynes (1995) notes that fiscal policy changes to allow a 100% deduction on all the mortgage interest paid by borrowers in1995 had a significant impact on the demand for mortgages and the emergence of mortgage lending institutions, including insurance companies.

Macroeconomic conditions can also significantly influence household debt. Looking first at the demand for household debt, Davies (2006) noted that periods in which there was a strong economic performance, households felt more comfortable in obtaining debt.

Specifically, when macroeconomic conditions were favourable (highlighting indicators such as strong growth and low unemployment,) households maintained confidence in the financial system and increased their borrowing. It follows that high rates of unemployment and low growth bring about uncertainty about household's ability to repay or service its debt, and so acts as deterrents of demand.

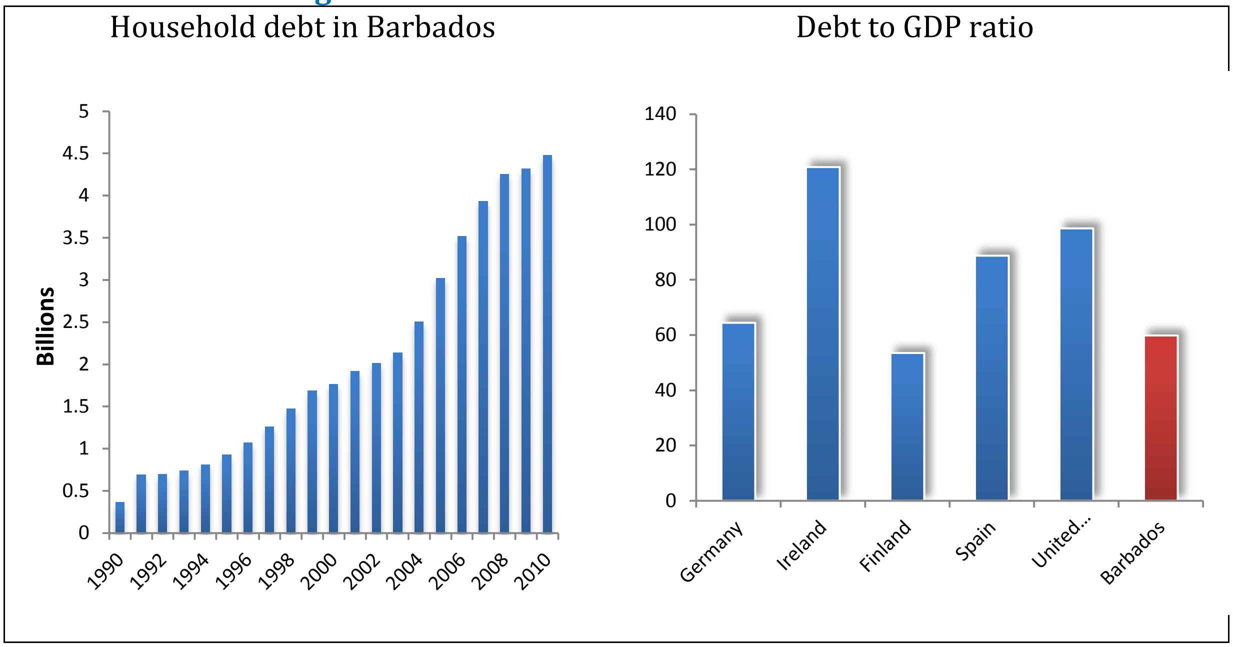
On the supply side, recessionary conditions are often associated with a reduction in willingness to lend. Often, banks reduce lending to certain categories of borrowers by rationing credit (Craigwell and Kaidou-Jeffery 2010, Financial Service Authority 2009). Credit rationing can be defined as an alteration in the allocation of loans to creditworthy borrowers by impure market means. This is usually a result of a favourable interest rate that in turn causes an excess of demand for loans. This, even though more applicable to small businesses and other deemed risky investments, still may have an effect on households.

4 Trends in Household Debt

4.1 Assessing the Size of Household Debt in Barbados

Consumer debt in Barbados has increased at a rapid pace during the last two decades (Figure 3). At the end of 1990, household debt was below $500 million. By end of 2001 this figure had jumped to just under $2 billion, and a further $0.5 billion up to 2004.With the start of the credit boom in late 2004, household debt climbed substantially: household debt rose from $2.5 billion at the end of 2004 to$4.3 billion at the end of 2008. The expansion of household debt, however, slowed significantly after 2008, as the Great Recession unfolded: between 2008 and 2010, household debt grew by a mere $0.2 billion, and by the end of 2010 was estimated at $4.5 billion.

Figure 3: Size of Household Debt in Barbados



Source: Central Bank of Barbados *Source: IMF*

An assessment of the magnitude of household debt in Barbados can be obtained by comparing Barbados to other countries. Ideally, Barbados should be evaluated with other countries in the same income category or countries at similar levels of development. However, data on household debt for other developing countries is relatively scarce. Instead, the size of household debt is examined by comparing the household debt to GDP ratio in Barbados relative to selected advanced economies. At the end of 2009, household debt as a percentage of GDP in Barbados was just under 60%. This figure was above that for Finland(54%) and just slightly below that for Germany (64%). In contrast, countries such as Spain (89%), Ireland (121%) and the United States (99%) had considerably higher consumer debt to GDP ratios. Indeed, some authors have attributed the property boom (bubbles) as one of the main contributing factors behind the Great Recession (Mian & Sufi, 2010).

Based on the above estimates of household debt, the average Barbadian household owed about $53,000 in debt in 2010. Given an interest rate of 10 per cent[7], Figure 4 shows that it would take more than 10 years for the typical household to repay this debt, and assuming a reasonable monthly repayment schedule almost 30 years[8].

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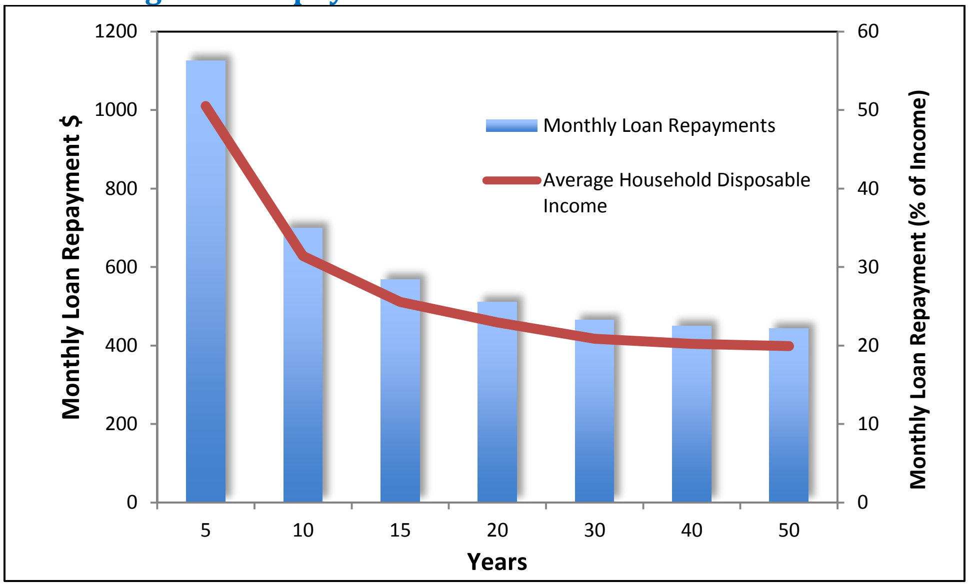
[7] The weighted average rate on total loans at the end of 2010 was 9.39 percent.

[8] It must be noted that in some instances individuals in Barbados may be able to better service their debt due to remittances. These remittances were not included in the study as such the debt service ratio which was estimated serves only to depict the spread of household over the estimated number of households with little consideration of the source of funding for servicing the debt.

Figure 4: Repayment Schedule for Household Debt



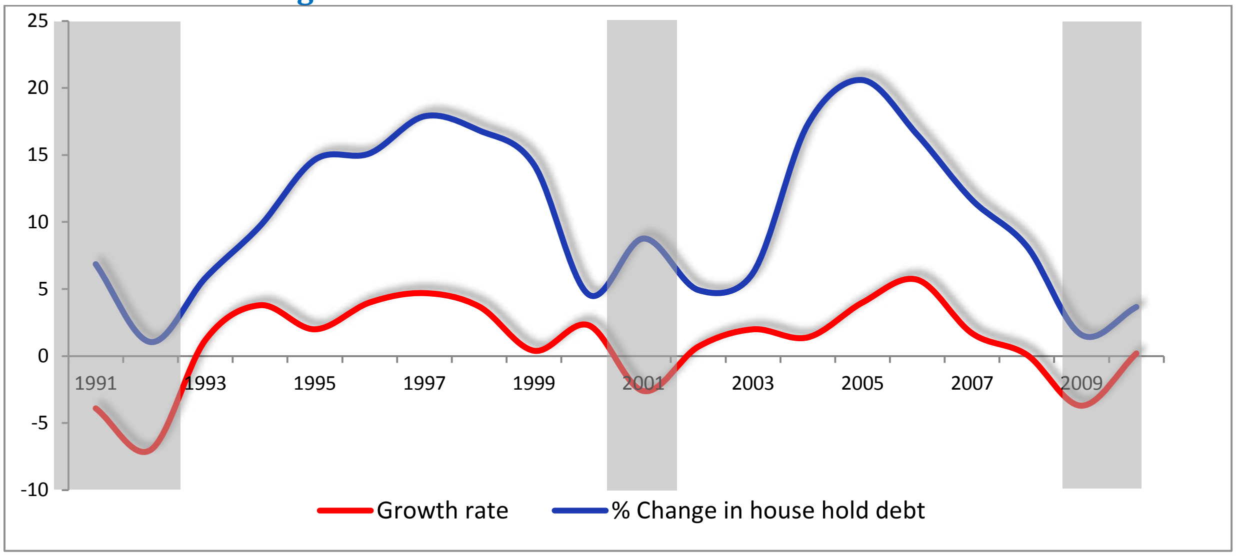
Source: Authors' calculations

4.2 Factors Influencing the Magnitude of Household Debt in Barbados

Given the magnitude of household debt, understanding the factors driving indebtedness is imperative. From the review of the literature, household debt and national income should be positively correlated. Rising incomes allow households to meet the criteria for borrowing and also encourage current consumption, if the household believes that income will continue to rise over the medium- to long-run. Figure 5 plots the changes in household debt and economic growth over the period 1991 to 2011. In general, there is a fairly apparent positive relationship between the two variables: for every 1 percent increase in growth, household debt rises by 2.5percent[9]. This relationship is even evident during economic downturns (the shaded regions).

[9] Estimate obtained from a simple bivariate regression.

Figure 5: Household Debt and Economic Growth



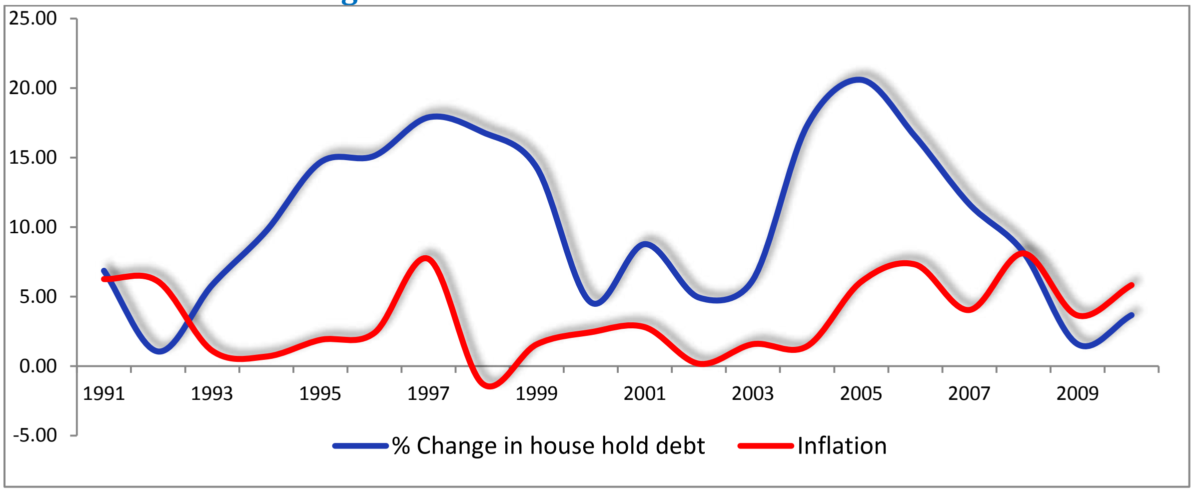
Source: Central Bank of Barbados

The above chart suggests that, in line with *a priori* expectations, household debt tends to fall during economic downturns. While it is difficult to guess as to whether this is a demand- or supply-side adjustment, it is likely that both factors play a role. On the demand-side, uncertainty surrounding a downturn in the economy could result in households reducing their demand for debt as well as the early repayment of existing loans. On the supply-side, financial institutions might tighten their lending criteria during downturns in the business cycle, given the expectation of rising defaults.

The only years that bucked the trend in terms of the relationship between growth and household debt were 2001 and 2002. In these two years, the Barbadian economy contracted by about 2% per annum. Even though the growth in consumer credit was modest, the increase relative to the downturn was greater than it was in similar economic conditions. In particular, a double-digit rise in mortgage lending was reported. It should be noted that this period was characterised by expansionary monetary and fiscal policies, which may have cushioned the income blow. During the period, the Bank reduced the minimum deposit rate by 150 basis points, lowered the cash reserve requirement, and cut the discount rate by 300 basis points.

Rising inflation increases the prices of goods and services and should lead to an expansion in the value of loans demanded from financial institutions. During periods of rising prices, borrowers usually benefit, as the real value of loan repayments would be falling. Figure 6 plots the growth in household debt and inflation over the period 1991 to 2011. In general, there appears to be a positive association between inflation and household debt. Further empirical investigations show that the correlation coefficient between the change in inflation and the change in household debt stands at 0.205, which further confirms the positive relationship shown in Figure 7. Since 2008, however, the rate of growth in household debt has fallen below the rate of inflation for the first time since 1992, the period of the last significant downturn in the Barbados economy.

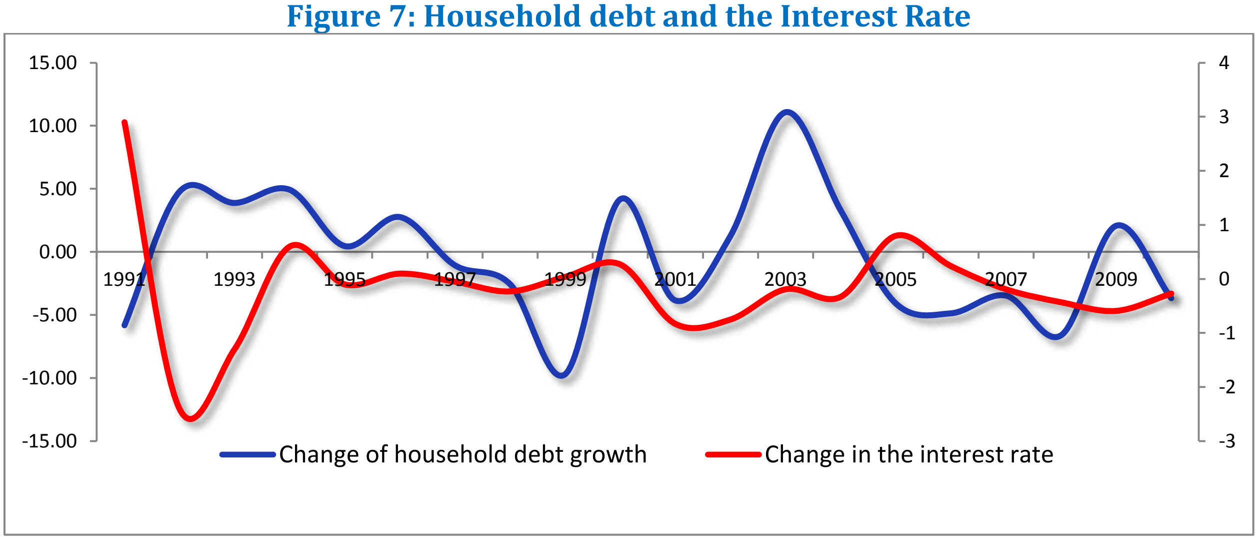
Figure 6: Household Debt and Inflation



Source: Central Bank of Barbados

As the cost of credit has been highlighted in the literature as a determinant of household debt, one would expect that interest rates and the change in the growth rate would be negatively correlated. The graph along with the correlation coefficient (-0.334) shows this negative relationship, however there is an apparent lagged response in some periods. This indicates that the cost of credit does have the ability to slow household credit growth in the Barbados consumer loan market.

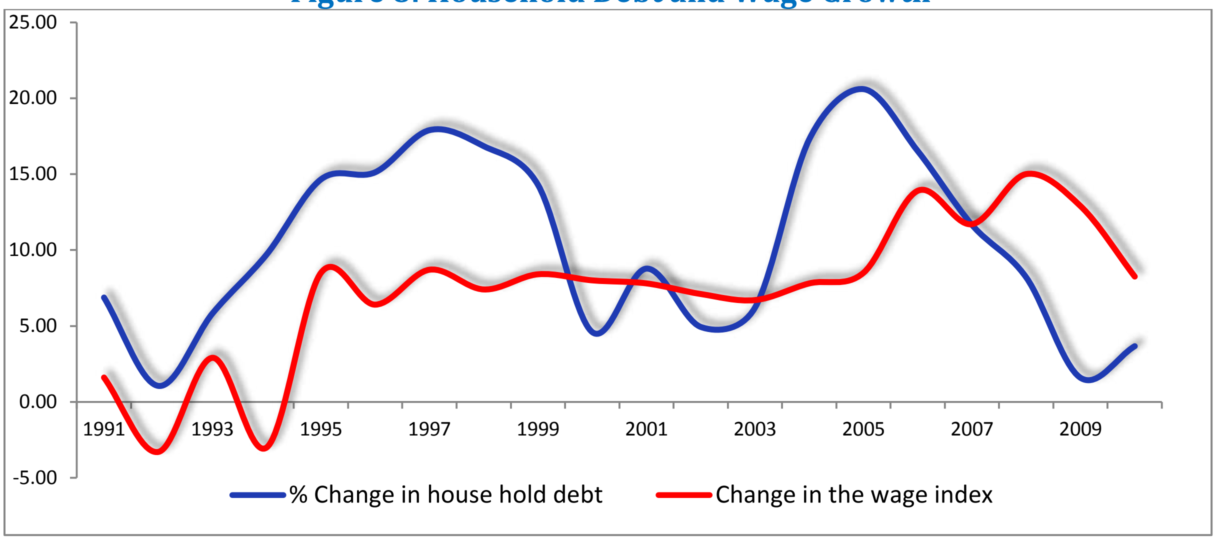
Figure 7: Household debt and the Interest Rate



Source: Central Bank of Barbados

To capture the effects of income on household debt, the change in the total wage index and the change in household credit were plotted over a given period to investigate the relationship between the two variables. The wage index can be defined as the average wage in which a typical Barbadian may receive and is calculated by taking an average of the wages paid to the different sectors of the labour market. Studies have concluded that current income does affect consumption and by extension consumer debt (Bloemen & Stancanelli, 2005). The correlation coefficient, which was calculated at 0.278, was positive however, a look at Figure 9 seems to suggest that household debt tends to fall before the decline in wages. This relationship indicates that households, by making forecasts of wages, incorporate this information into their borrowing decisions.

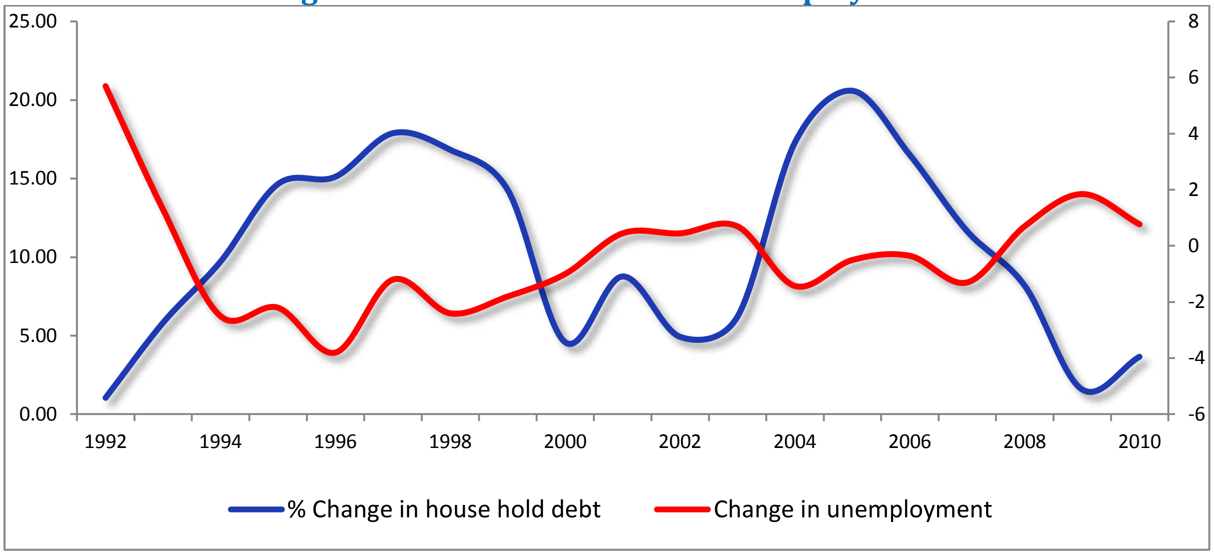
Figure 8: Household Debt and Wage Growth



Source: Central Bank of Barbados

Unemployment can result in some uncertainty in the job market. This uncertainty is likely to cause both individuals and lending institutions to become more risk averse and hence more reluctant to borrow and lend, respectively (Dromel, et al., 2009). This implies that credit growth should either fall or stagnate during periods where unemployment has increased. Figure 9 shows that the change in consumer lending does indeed follow this general pattern. In periods where movements in unemployment are small or even negative (improvement in the unemployment rate) credit generally expands. The reverse is also true, i.e.in periods where there is a rise in the unemployment rate there is also a decrease in the change of consumer credit.

Figure 9: Household Debt and Unemployment



Source: Central Bank of Barbados

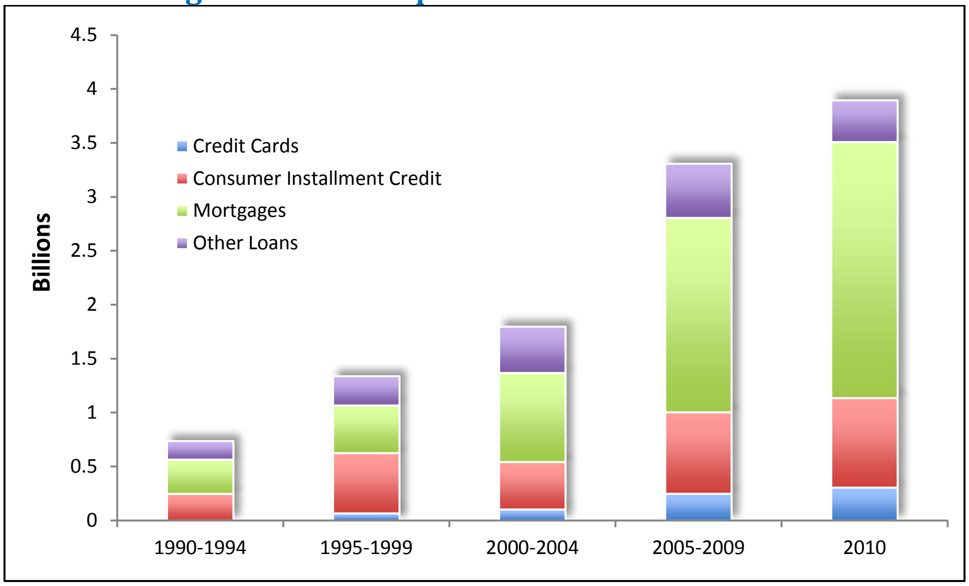
In periods where the change in unemployment was below 5% (1993-2000, 2004-2007) household debt significantly increased, and in periods where the change exceeded 5% (2001-2003) there was a significant decrease in the change of credit. The correlation coefficient was also calculated and estimated at -0.691. This analysis, even though only over 2 decades, does show that credit does fluctuate with employment, confirming that the common view that consumer credit has a positive relationship with unemployment, do hold relative to the Barbadian financial sector.

5 Sources and Uses of Household Debt

Household debt is usually reported in one of four main categories: mortgages, consumer instalment credit, credit card debt and other loans. Other loans include overdrafts, debt consolidation and any other type of personal loan that cannot be placed in any of the four major groups stated above.

Over the last twenty years, mortgages and consumer instalment credit have been the fastest growing segments of household debt (see Figure 10). At the end of 2010, outstanding mortgages were estimated at 2 billion, or $1.5billion above the figure in 1999 and more than thrice the value of 1990. This tremendous acceleration in property loans can be attributed to, among other factors, the increasing cost of housing, financial liberalisation – which resulted in an expansion in the supply of loanable funds, the evolution of the financial market and the emergence of institutions like credit unions and mortgage and trust companies that specialise in mortgages and other property loans. Similarly total outstanding consumer instalment credit was $180 million in 1990, peaked in 1998 at $670 million but subsequently fell to $490 million in 2010.

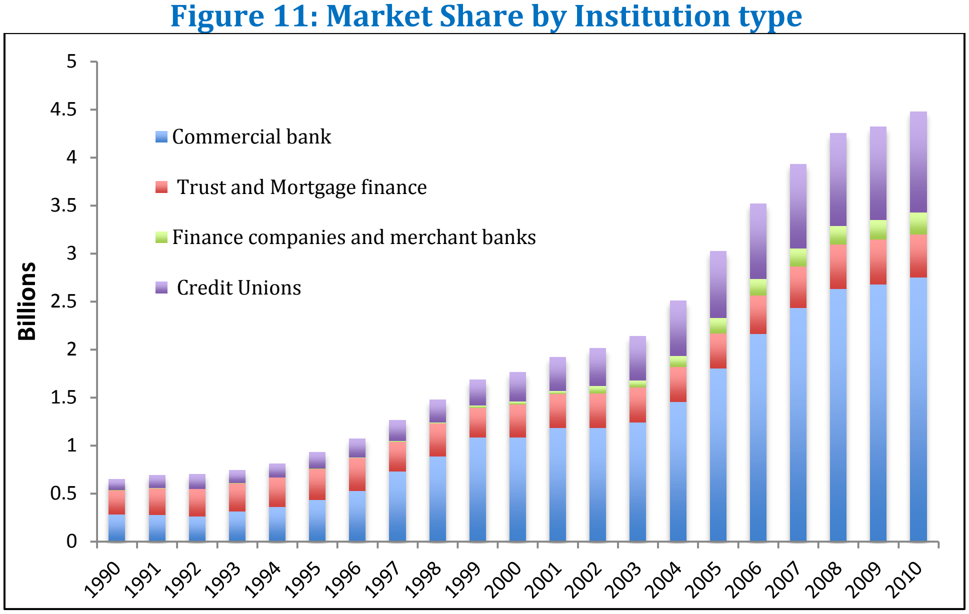
Figure 10: Decomposition of Household Debt



Source: Central Bank of Barbados

Commercial banks have traditionally dominated consumer lending. At the end of 2010, commercial banks held almost two-thirds of all consumer debt in Barbados (Figure 11). Despite this dominance, the non-bank financial industry has been making some significant inroads. Credit unions, in particular, have seen their share of total household debt rise from 15% to 27% over the 20 year period under review. This expansion can partly be attributed to a significant increase in credit union membership, which more than quadrupled over the period under review.

Figure 11: Market Share by Institution type



Source: Central Bank of Barbados

Trust and Mortgage Finance companies' share of the consumer lending market significantly decreased moving from 69% in 1990 to only 10% in 2010. The financial liberalisation that progressively occurred during this time released commercial banks from credit controls and hence most commercial banks shifted the loans of these financial institutions back onto their books. As finance companies and merchant banks only account for a small part of the financial sectors as such it was expected that their share of the loans market would be minimal.

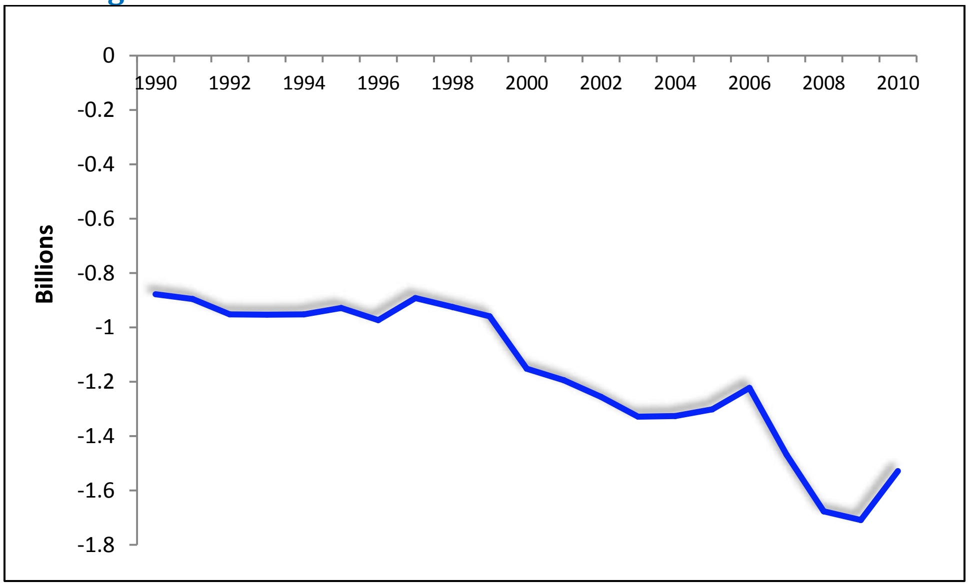
6 Is the Magnitude of Household Debt in Barbados a Concern?

The analysis thus far has highlighted the significant growth in household debt in Barbados over the last two decades. Prior to the crisis, many advanced economies held the optimistic view that the increasing trend of household debt was good for households, reflecting a sounder economic and financial environment (see Filardo, 2008). However, the recent crisis has led to a less optimistic view. Rising debt trends may, instead, be an indicator of increased vulnerability, particularly when households leverage against high and expanding asset prices. If asset prices prove to be largely unsustainable (as was the case of housing prices in the US), households can become saddled with debt overhangs and heavy debt servicing costs.

Traditionally, it has been assumed that there is a link between credit growth and non-performing loans (NPLs). As such, the trend of rising household debt raises some concerns about financial stability. Particularly, the literature suggests that during a credit boom, additional risks are realized as credit is extended to "lower quality debtors" and consequently, when the contractionary phase of the business cycle sets in, NPLs increase (Louzis et al., 2012). Against this backdrop, recent developments since the crisis (i.e. the expansion in the defaults of household as shown in Figure 3) are not surprising. It is clear that a high level of household debt can have significant implications for the health of the financial sector, and by extension, macroeconomic stability. In fact, a recent study (IMF, 2012) showed that that housing busts and recessions preceded by larger run-ups in household debt tend to be more severe and protracted. While the level of household debt may not currently pose a threat to the health of the system, (growth in the bad debts of household seems to have abated) if the experience from the developed countries is any indication, close monitoring of this variable is necessary in the pursuit of financial and macroeconomic stability.

But, a recent strand of the literature suggests that focusing on the gross level of debt can be misleading since what matters for countries is net wealth and not gross debt (Fatás, 2012). As such, Figure 12 plots net indebtedness of households. The average savings of households has been consistently higher than their borrowing for the period under review, with the gap significantly widening as household borrowing increased. This may indicate that household debt may not currently be problematic.

Figure 12: Net Indebtedness of Households in Barbados

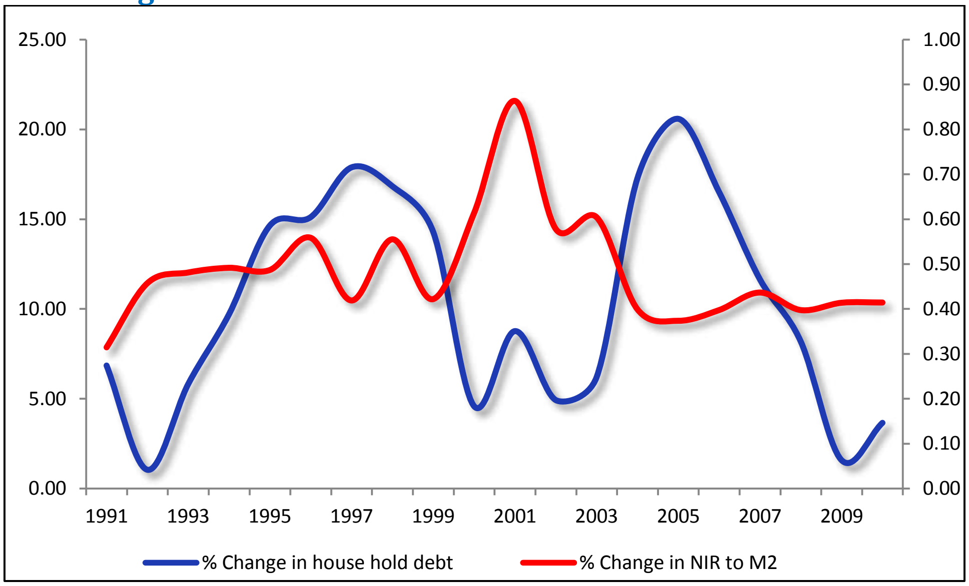


Source: Central Bank of Barbados

Another area of concern for Barbadian policy makers would be the relationship between the growth in household debt and net international reserves (NIR). The relation stems from the monetary approach to balance of payments, which posits that a deficit in the balance of payments can persist only if accompanied by domestic credit creation, to the extent that excess credit creation will ultimately leak out abroad (see for instance, Boamah et al 2011b).

Generally, a portion of household debt in Barbados is used for importation of goods, and by extension, reserve losses. Based on Figure 13, this indeed seems to be the case: there is an inverse relationship between household debt and NIR as a ratio of M2 (total money supply). However, the true nature of the relationship between credit and growth is difficult to decipher, as the Barbadian government often borrows to replenish its NIR.

Figure 13: Household Debt and NIR as a Ratio of M2



Source: Central Bank of Barbados

Taken at face value, policy makers should closely monitor household debt, as excess growth can impact the country's ability to maintain its peg. It should be noted that in periods of excessive reserve losses, the Central Bank of Barbados has historically sought to reduce private importation of goods, through curbing personal credit growth. For instance, the early 1990s saw the Central Bank implement credit controls to preserve its NIR position in the midst of balance of payments difficulties. This saw a sharp reduction in the growth of credit to households, and the NIR recovered from its lowest level in recent history. Of particular note was the period 1994 to 1998, which marked emergence of the reconditioned car market, which allowed individuals to import cars at a significantly reduced price when compared to new cars (Moore and Walkes, 2009). The substantial rise in the demand for imported cars, coupled with the significant losses in reserves, prompted the Central Bank to tighten its monetary stance to curb credit demand.

7 Conclusions

This paper provides an assessment of the size and composition of household debt over the period 1990-2011. First, the study estimates and analyses the size of household indebtedness in Barbados. Based on the estimations, consumer debt in Barbados has increased at a rapid pace during the last two decades. At the end of 1990, household debt was below $500 million. By end of 2010, this figure was estimated at $4.5 billion.

Against this backdrop, the authors sought to determine the factors influencing the growth of household indebtedness in Barbados. In addition, the study found that household debt is positively associated with economic growth, inflation, wages, but inversely related to interest and unemployment rates.

While household debt has grown significantly, there does not seem to be any indication that it has yet become a risk to financial and overall macroeconomic stability. Particularly, net indebtedness continues to be largely negative and bad debts to the household sector seem to have stabilised. However, it is recommended that authorities closely monitor this indicator, as it has been a leading predictor of financial difficulties in other countries.

But should household debt become problematic, what can policy makers do? Financial deregulation has resulted in the Central Bank having limited control over banks and the amount in which they lend. However, unsustainable household debt may mean a reintroduction of credit controls, a raise in deposit requirements and increasing the regulations on the interest rate. These would surely have adverse effects on the availability and cost of credit, which the literature suggests are the drivers behind rapid increases of household debt.

References

Ando, A. & Modigliani, R., (1963). The life-cycle hypothesis of saving: Aggregate implications and tests. *American Economic Review vol 53,* pp. 55-84.

Andreou, S., (2011). The Borrowing Behaviour of Households: Evidence from the Cyprus Family Expenditure Surveys. *Cyprus Economic Policy Review,* 5(2), pp. 57-83.

Anon., (2009). *A regulatory response to the global banking crisis,* s.l.: Financial Service Authority.

Attanasio, O. & Browning, M., (1995). Consumption over the Life Cycle and over the Business Cycle. *American Economic Review,* 5(85), pp. 1118-1137.

Balke, N. S. & Zeng, Z., (2011). *Credit Demand, Credit Supply, and Economic Activiy,* s.l.: s.n.

Bank of England, 2011. *Financial Stability Report,* London: Bank of England.

Bloemen, H. & Stancanelli, E., (2005). "Financial Wealth, Consumption Smothing and Income Shocks Arising From Job Loss. *Economica,* Volume 72, pp. 231-452.

Boamah, D., Jackman, M. & Mamingi, N., (2011)a. Bahamas and Barbados: empirical evidence of interest rate pass-through. *CEPAL Review,* Volume 103, pp. 115-128.

Boamah, D., Jackman, M. & Mamingi, N., (2011)b. Credit Growth and the External Current Account. *Journal of Eastern Caribbean Studies,* 36(3), pp. 16-39.

Budd, E. & Sieders, D., (1971). The Impact of Inflation on Income and Wealth. *The American Economic Review.*

Campbell, J. & Mankiw, G., (1991). The Response of Consumption to Income. *European Economic Review,* Volume 35, pp. 723-767.

Central Bank of Barbados, 2001-2010. *Central Bank Annual Report,* s.l.: Central Bank of Barbados.

Central Bank of Barbados, (2011). *Financial Stability Report,* s.l.: Central Bank of Barbados.

Craigwell, R. & Kaidou-Jeffery, D., 2010. Lending Behaviour and Credit Rationing in Barbados: A Regime Switching Model.

Davies, M., (2006). *Household Debt in Australia,* s.l.: Bank of International Settlements.

Debelle, G., (2004). *Macroeconomic Implications of Rising Household Debt,* s.l.: Bank For International Settlements.

Dromel, N., Kolakez, E. & Lehmann, E., (2009). *Credit Constraints and the Persistence of Unemployment,* s.l.: The Institute for the Study of Labour.

Fatas, A. & Mihov, I., (2012). *No need to deleverage gross debt.* [Online] Available at: http://fatasmihov.blogspot.com/2012/01/no-need-to-deleverage-gross-debt.html
[Accessed 12 08 2012].

Filardo, A., (2009). *Household debt, monetary policy and financial stability:Household debt, monetary policy and financial stability:,* s.l.: Bank of International Settlements.

Fisher, I., (1930). The Rate of Interest. *The Macmillan Co..*

Friedman, M., (1957). The Permanent Income Hypothesis. *Princeton University Press,* pp. 20 - 37.

Greenidge, K. & Milner, C., (2008). Financial Liberalisation and Economic Growth in Selected Caribbean Countries. *Central Bank of Barbados Working Papers.*

Griffith, R., Waithe, K., Lorde, T. & Craigwell, R., (2009). The Contribution of Credit Unions to the National Development of Barbados. *Journal of Public Policy Analysis ,* Volume 4, pp. 20-42.

Haynes, C., (1995). *The Financial Structure in Barbados 1950-1990: A Survey,* Bridgetown: Central Bank of Barbados.

Haynes, C., (1997). The Evolution of the Financial Sector in Barbados, 1970-1996. In: *Financial Evolution of the Caribbean Community.* Port of Spain: Caribbean Centre for Monetary Studies, pp. 143-168.

IMF , (2012). Dealing with Household Debt. *World Economic Outlook - Growth Resuming, Dangers Remain*, April.

IMF, (2003). *Barbados: Financial System Stability,* Washington, DC: International Monetary Fund.

IMF, (2010)a. Barbados: 2010 Article IV Consultation. *IMF Country Reports*.

IMF, (2010)b. Unemployment Dynamics during Recessions and Recoveries: Okun's Law and Beyond. *World Economic Outlook - Rebalancing Growth*, April.

Lewis-Bynoe, D., Moore, W. & Howard, S., (2008). *Credit Booms and Busts in the Caribbean,* s.l.: Caribbean Centre for Money & Finance.

Louzis, D., Vouldis, A. & Metaxas, V., (2012). Macroeconomic and bank-specific determinants of performing loans in Greece: A comparative study of business and consumer loan portfolios. *Journal of Banking & Finance,* pp. 1012-1027.

Mian, A. & Sufi, A., (2010). *Household Leverage and the Recession of 2007 to 2009,* Cambridge: National Bureau of Economic Research.

Modigliani, F. & Brumberg, R., (1954). Utility analysis and the consumption function an interpretation of cross-section data. *Post-Keynesian economics,* pp. 388-436.

Moore, A. & Walkes, C., (2009). *The Demand for Motor Car Imports in Barbados.* Paper presented at the Central Bank of Barbados Annual Review Seminar: s.n.

Moore, W. & Williams, M., (2008). Evidence on sectoral monetary transmission process under a fixed exchange rate regime. *International Economic Journal,* pp. Vol.22,No.3 387-398.

Park, S. & Rodrigues, A., (2000). Is Aggregate Consumer Borrowing Consistent with the Permanent Income Hypothesis?. *The Manchester School,* June, Volume 68(3), pp. 301-320.

Worrell, D., (1996). Monetary Policy In Small Open Economies. *Central Bank of Barbados,* pp. WP 1995-21.

Zeldes, S., (1989). Optimal consuption with stochastic income: deviations from certainty equivalence. *Quarterly Journal of Economics,* Volume 104, pp. 275-258.