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Household Over-indebtedness: Understanding its Extent and Characteristics of those Affected

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ABSTRACT Household over-indebtedness has become a matter of concern across the world, in so far, as its social implications are concerned. The objective of this paper is to provide a snapshot of the prevalence of over-indebtedness, using various indicators, and describe which households are over-indebted. In terms of the National Credit Regulator indicator, 8 percent of South African households are over-indebted. Results also show that, under the unsecured debt indicator, 15.2 percent of households are over-indebted, and 11 percent of households are driven below the relative income poverty line after making debt repayments. Most over-indebted households are found in the lowest income category, do not receive government grants and have an unemployed household head.

INTRODUCTION

In South Africa, financial liberalization and political transformation in the early 1990s led to wider access to credit (Prinsloo 2002). The most notable positive impact of financial liberalization was the reduction in credit constraints and enhanced supply of financial services. Debt is necessary to sustain a constant consumption level, and to boost the economy. It is widely acknowledged that finance plays an important role in promoting economic growth (King and Levine 1993; Cecchetti et al. 2011). However, the ultimate problem is the accumulation of debt, with no repayment plan. The economic recession following the global financial crisis which began in 2008, and the resultant job losses, together with a continuing squeeze on credit, triggered concerns that a substantial and growing number of households are likely to have difficulty in managing their debts. Household indebtedness, measured as the value of debt to disposable income, has climbed significantly in recent years. A ratio as high as 77.8 percent, implies that South African households are spending a major portion of their income on debt service (South African Reserve Bank 2015). In 2012, it was reported that the protest actions in the platinum belt that led to deaths in Marikana were induced by, amongst other things, inadequate income owing to high interest charged by micro-lenders in the area. The Credit Bureau Monitor reports that more than fifty-four percent of active credit users are outside their credit terms (National Credit Regulator 2015). For many, debt-servicing costs consume a large share of monthly income, despite the low level of interest rates.

Over-indebtedness poses a serious threat, not only to the households directly concerned, but to society as a whole (Griffiths 2000). It can be hard for a person with serious payment difficulties to obtain a home loan, employment, new credit, take out a telephone or internet subscription, take out life insurance or pension policies. Research has also revealed a clear connection between impaired physical/mental health and over-indebtedness (Civic Consulting of the Consumer Policy Evaluation Consortium 2008; Cuesta and Budria 2015). Many people with financial problems suffer from depression, stress-related symptoms, thoughts of suicide, and feelings of helplessness, shame or second-class citizenship (Fatoki 2015). As for the impact on the financial industry, theory predicts that when a negative income shock occurs – particularly in an environment characterised by high levels of household indebtedness – debtors may find it difficult to meet their commitments. This causes an increase in non-performing loans, and therefore weakens the balance sheets of financial intermediaries. This in turn leads to a reduction in credit availability, as financial institutions become more wary about lending, and eventually results in a fall in household consumption (Dynan 2012; Albuquerque and Krustev 2015).

Despite the overwhelming global interest and articulated consequences of over-indebtedness, in South Africa, the already few quantitative studies are not recent and suffer from small sample sizes (Daniels 2001; Mashigo 2006; Hurwitz and Luiz 2007; Collins 2008; Nyaruwata 2009). Fatoki (2015) deals with qualitative aspects of the causes and consequences of over-indebtedness. In contrast, the data used in this paper is nationally representative (8040 households surveyed in 2012) and is applied to a wide range of over-indebtedness indicators.

Objectives

The objective of this paper is to provide descriptive statistics on the prevalence of households' over-indebtedness in South Africa, using the commonly accepted indicators in the international literature, as well as, those of the National Credit Regulator. Additionally, overlap between measures of over-indebtedness and the identity of the types of households who are over-indebted, is provided.

Literature Review

Defining Over-indebtedness

The steady growth in the literature on over-indebtedness reveals some difficulties, both in definition and measurement. There is no universal definition of over-indebtedness. This has led, for example, to the production of different definitions and measures, each with its own strengths and weaknesses (Kearns 2004; Oxera 2004; Haas 2006; Betti et al. 2007; Stamp 2009). Even in Europe, where high household indebtedness is considered prevalent, the literature is inconsistent. There seems to be no attempt to find a global definition; most of the focus is on the detection of over-indebtedness, its causes, and the consequences in the financial system. Causes of over-indebtedness are broadly categorised into supply and demand factors, with the former focused on deregulation, marketing and innovation by financial intermediaries. Demand factors look at consumer behaviour and the related aspects which influence credit decisions (Civic Consulting of the Consumer Policy Evaluation Consortium 2008; Fatoki 2015). According to Fatoki (2015), over-indebtedness experienced by households has adverse effects on, amongst other things, consumption, investment and economic growth.

In the UK, over-indebtedness is defined as a state, where households are in arrears, or at a significant risk of being in arrears on a structural basis (Oxera 2004). Although, this definition justly excludes situations of being temporarily in arrears, it does not present the precise meaning of 'significant', and for how long arrears should be for debt to be considered a structural problem. Haas (2006) proposed, a definition derived from the German Federal Ministry, which defines over-indebtedness as follows: "A household is regarded to be over-indebted when its income, in spite of a reduction of the living standard, is insufficient to discharge all payment obligations over a longer period of time." A longer-term view of the definition requires the estimation of minimum living standards and potential income, which is difficult to ascertain. Kearns (2004) used a summary indicator termed 'debt at risk', which captures the borrowing capacity and a share of all debts with high probability of falling into arrears for Irish households and corporate borrowers. According to D'Alessio and Lezzi (2013), in France an individual is considered over-indebted when he or she is incapable, although willing, of fulfilling his or her debt obligations obtained for non-professional reasons. In a cross-country study, Betti et al. (2007) introduced a subjective definition, which focuses on the individual's own assessment of debt burden. This definition is prone to error, as other people may have a problem with disclosing their debt difficulties, and may suffer from different interpretations of what repayment difficulties actually are.

Given the difficulty in defining over-indebtedness, the European Commission appointed researchers to develop a common operational definition in Europe (Davydoff et al. 2008). The researchers identified some common elements that can be applied as criteria: (1) The household is used as a unit of measurement, since individual resources are typically pooled within it; (2) All financial commitments are incorporated, such as the mortgage, vehicle finance, consumer credit, utility bills, and rent; (3) There is a persistent inability to meet recurrent expenses; (4) It is impossible to resolve the problem by simply borrowing more, and; (5) To resolve the issue, a household needs to significantly reduce its expenses or increase its income.

Based on these criteria, an over-indebted household is defined as one who's existing and foreseeable resources are insufficient to meet its financial commitments without lowering its living standards. This has social and policy implications if this means reducing them below what is regarded as the minimum acceptable in the country concerned (European Commission 2010). In Ireland, Stamp (2009), also borrowed criteria from the European definitions, stated that "People are over-indebted if their net resources (income and realisable assets) render them persistently unable to meet essential living expenses and debt repayments as they fall due".

In South Africa, academic literature does not provide a conceptual, comprehensive definition for over-indebtedness. Nonetheless, it is clear that definitions are derived from the indicators or measurements that are being used. The National Credit Regulator, established in terms of the National Credit Act, 2005 (Act No. 34 of 2005), is the institution responsible for the regulation of the South African credit market. It therefore appears appropriate to adopt its definition. According to the prescripts of the National Credit Act, Part B, Section 3 of the National Credit Act sets out the objectives of the National Credit Act, and, among other things, lists: a) promoting the development of a credit market that is accessible to all South Africans, and in particular to those who have historically been unable to access credit under sustainable market conditions, and b) addressing and preventing over-indebtedness of consumers, and providing mechanisms for resolving over-indebtedness based on the principle of satisfaction by the consumer of all responsible financial obligations (Department of Trade and Industry 2006).

Over-indebtedness is defined in the National Credit Act, as a situation that arises when a consumer, given the information at the time, the current financial prospects and obligations, and given the consumer's debt repayment history, will probably not be able to serve or meet all debt obligations in a timely manner (Department of Trade and Industry 2006). In terms of the provisions of regulation 24(7) of the Act: a) a consumer is over-indebted if his/her total monthly debt payments exceed the balance derived by deducting his/her minimum living expenses from his/her net income; b) net income is calculated by deducting from the gross income, statutory deductions, and other deductions that are made as a condition of employment, and; c) minimum living expenses are based upon a budget provided by the consumer, adjusted with reference to guidelines issued by the National Credit Regulator" (Department of Trade and Industry 2006: 23).

This definition, prioritises basic necessities over debt repayment, as households' well-being should not be compromised by debt service with reference to the socio-economic status of many South Africans. The inherent difficulty with this definition is in determining the minimum living expenses.

Measuring Over-indebtedness

It is widely accepted that the concept of over-indebtedness is multifaceted, and no single indicator can encapsulate it. This is illustrated by the fact, that overlaps between different indicators are not perfect. The indicators represent different dimensions of credit behaviour, and some show current debt problems (arrears indicators), while others provide a warning sign of debt problems to come (multiple loans). The common indicators cover features in relation to debt service relative to income; being in arrears; heavy use of credit; and finding debt a burden (Bryan et al. 2010; D'Alessio and Lezzi 2013).

The objective indicators make reference to a defined benchmark beyond which a household is considered burdened by debt. However, no recognised methodology exists for determining the benchmarks. In the first instance, Oxera (2004) and Bryan et al. (2010) identify a 50 percent threshold for debt service relative to income, but some studies have used a benchmark of 30 percent (Hurwitz and Luiz 2007; D'Alessio and Lezzi 2013). Secondly, for unsecured loans a 25 percent threshold is used (Kempson 2002). However, D'Alessio and Lezzi (2013) suggested a reduction from 25 percent to 15 percent for unsecured loans, following their impressive study in which they tested the indicators for statistical associations with the subjective measure. It was found that the association measure reaches a peak when the limit is 15 percent. The weakness in this ratio is that it ignores assets that might be available to settle the households' obligations (D'Alessio and Lezzi 2013). In addition, it does not take into account the Life Cycle-Permanent Income hypothesis, which suggests that debt accumulation is not uniform over the life cycle, and a breach of the cut-off by a young adult may be normal unlike when it happens for senior citizens. The third indicator identifies households as being over-indebted when their income is below the poverty line; and under the fourth indicator households are over-indebted if after servicing debt, their disposable income goes below the poverty line (Davydoff et al. 2008; D'Alessio and Lezzi 2013). The poverty line is calculated as 50 percent of the median income (Organisation for Economic Co-operation and Development 2014)[1].

With regard to arrears (fifth indicator), if the household bill or loan remains unpaid for more than two months, the household is considered to be over-indebted (D'Alessio and Lezzi 2013). Since this indicator looks at households that are currently in arrears, those who can still manage repayments, or have borrowed much more, will be overlooked. There are, however, differences in opinion over how long the time ought to be in order for debt to be considered a structural problem. Davydoff et al. (2008) and Russell et al. (2011) specify that falling in arrears more than once during the last 12 months constitutes being over-indebted.

In terms of the number of loans (sixth indicator), the findings of Kempson (2002) recognised a significant relationship between experiencing repayment difficulties and holding four or more credit commitments. Investigating over-indebtedness in the Philippines, Diaz and Ledesma (2011) state, that multiple borrowing leads clients to take a further loan to repay existing loans. D'Alessio and Lezzi (2013) suggested that only three credit commitments are enough to expose the household to financial difficulties. Multiple lines of credit do not automatically translate into financial difficulties, for instance, small loans do not pose a threat to a household with a good income. The more credit commitments households have and the larger the proportion of their income spent on repaying credit, the more likely they will be in arrears (Kempson et al. 2004). Households that hold more than four outstanding credit commitments are those with higher levels of income, which again is not unexpected (Department for Business Enterprise and Regulatory Reform 2007). However, interestingly, regression analysis has shown that credit commitments have statistically significant effects on levels of arrears among families, when all other factors are held constant, including income (Kempson et al. 2004).

Lastly, the subjective indicator recommends, that households are placed in a better position to assess their own scale of burden imposed by debt (Betti et al. 2007; Brunetti et al. 2012; Keese 2012; Vale and Camoes 2014; Loke 2016). Households who declare that they are confronted with debt repayment problems are classified as over-indebted. The shortcoming with this indicator is, that the state of being heavily burdened may be interpreted in different ways by different households.

In a study of financial diaries of households in South Africa (Collins 2008), it is stated that households are over-indebted if more than 20 percent of gross monthly income is spent on debt. This reflects a departure from the 30 percent threshold (Hurwitz and Luiz 2007). The difference in benchmarks might be caused by the sample evaluated; the earlier study considered poorer households earning below R2 000 per month. In Lea et al. (1995) a household is considered over-indebted if, without a choice, cannot repay at the agreed-upon time. Nyaruwata (2009) identifies over-indebted households as those in which debt servicing and basic expenditure exceed 70 percent of disposable income. Ardington et al. (2004) have presented another way of looking at over-indebtedness, and state that a household is over-indebted if it requires another loan in order to repay a current loan.

The National Credit Regulator, appointed a debt-review task team to evaluate over-indebtedness as contained in the National Credit Act, its definitions, and the manner in which it is applied in practice. The minimum living expenses stated in the legislation are difficult to operationalise in terms of how they are calculated. In the interim, the task team provided the guidelines contained in Table 1, which are currently

Table 1: Acceptable debt service ratios

After-tax income	*Percentage of household income available for debt service*
R0 – R2 000	23% to 45%
R2 001 – R5 000	32% to 47%
R5 001 – R10 000	35% to 49%
R10 001 – R20 000	37% to 51%
R20 001 – R40 000	40% to 53%
R40 001 – R60 000	45% to 55%
R60 001 +	45% to 58%

Source: National Credit Regulator (2010) being used to assess over-indebtedness. The approach followed, recognises that the debt service burden is experienced differently based on income level. The guidelines provided, for a minimum level of net income that a household should have available for debt repayments, and beyond these thresholds a household is over-indebted.

The literature supports the view that income is a strong predictor of over-indebtedness (Kempson et al. 2004; Department of Trade and Industry 2005; Mashigo 2006; Nyaruwata 2009; Stamp 2009; Bryan et al. 2010; Russell et al. 2011). In addition, the South African economy is characterised by high levels of income inequality, and therefore it appears appropriate to consider debt burdens in terms of income levels.

Theoretical Framework Underpinning Debt Use

Subsequent to the 2008 global financial crisis, over-indebtedness of households has received more attention than ever before. The research interest indicates that this trend is expected to continue into the future because of the greater use of credit across the world. Various stakeholders and policymakers are hard at work attempting to find ways of addressing over-indebtedness, as it poses a huge fragility risk to the financial system. However, the success of these efforts depends on understanding the multidimensional nature of over-indebtedness. Research in the area has followed several paths, ranging from definitions and measurements to causes and consequences.

The understanding of household debt accumulation is associated with a dominant conceptual framework of the Life Cycle –Permanent Income model, presented by Modigliani (2005), dating back to 1966, and Friedman (1957). This framework suggests, that a household will take on credit in order to maintain a stable level of consumption, subject to resources, that will accrue to it over a lifetime when current income is temporarily below the permanent income level, known as smoothing theory. For instance, the establishment of a household and education will lead a young family to incur debt which can be compensated for later in life when earnings exceed expenditure. The shortcoming of this model is that it assumes a forward-looking, rational household, with unconstrained credit markets and predictable life-cycle demands. Hall (1978), made further improvements in the model to incorporate unexpected events or shocks. Therefore, credit demand arising from unexpected factors beyond the control of a household – like changes in macroeconomic variables (e.g. interest rate hikes), sickness, job loss, changes in family structure (like divorce) – fall within the Life Cycle – Permanent Income model.

Barba and Pivetti (2009) challenge the Life Cycle – Permanent Income model and argue that growth in household debt is a substitute for higher wages. Low, stagnant wages and growing income inequality, force households into debt regardless of their stage of life. Ludvigson (1999) agrees that consumption grows, with or without, corresponding income growth, and consequently, households are compelled to make ends meet, using debt. This makes low income one of the strongest predictors of over-indebtedness. Mashigo (2006) found that in South Africa the highest debt-to-income ratio and the highest increase in the number of loans is found within low-income households.

Besides the Life Cycle - Permanent Income model, no significant literature helps in understanding the irrational aspects of debt accumulation. However, behavioural economics reveals that human beings do not always act rationally, even when they know what is best. Households' decisions on debt, can therefore be analysed considering such biases. Under the relative income theory (Duesenberry 1951), consumers have social status pressure to keep up with the group of people they have frequent contact with, in terms of their standard of living, and thus increase their indebtedness. Consumers are sometimes overly optimistic about their susceptibility to over-indebtedness. They believe that their financial situation will get better, and tend to exaggerate their ability to be successful (Kilborn 2005). Brown et al. (2013) find that interpersonal differences about risk, play a role in debt accumulation. Risk-averse households are less likely to be highly indebted.

Another key concept in behavioural theory, is the availability heuristic or the representativeness heuristic (Kilborn 2005). According to this, individuals tend to estimate the likelihood of a future event based on how often similar events happen in the present. As a result, if consumers have not been exposed to financial problems in the recent past, they will not accurately estimate the probability of a future personal crisis. The opposite is also true, and if someone is constantly in touch with certain events, for instance because they are occurring daily in the media, they will overestimate the likelihood of a similar future event.

The hyperbolic discount factor concept explains, that certain human behaviours are inclined to the 'buy now, pay later' syndrome, because of lack of self-control (Kilborn 2005). Present benefits and gratification tend to be highly overvalued, whereas future burdens and costs are discounted. This is closely linked to the prospect theory of Kahneman and Tversky (1979), which suggests that consumers value gains and losses differently, and thus decisions are based on perceived gains rather than perceived losses. Ottaviani and Vandone (2011) link this conduct to impulsivity , which is found to be a strong predictor of consumer debt decisions. According to Anderloni et al. (2012), impulsive behaviour by individuals who cannot delay their need for instant gratification increases financial vulnerability, primarily because these individuals tend not to acknowledge the consequences of their behaviour, and repeat their actions. This confirms the Somatic Marker Hypothesis of Damasio (1994), applied to understand patients that seem unable to learn from previous mistakes.

Another important aspect related to consumer behaviour is bounded self-interest. It elevates fairness or reciprocity to play a decisive role in shaping human behaviour, when the general rule is "be kind to the kind and unkind to the unkind" (Kilborn 2005). Bounded self-interest is the idea that people have self-enforcing social preferences, that is, altruism and fairness. If anything is viewed as being unfair, people tend to shun it and punish those who continue doing it. Hence, the diversion of higher proportions of income towards debt repayment will be seen as unfair, and households will not be interested in too much credit in the first place - even if this means not starting a new business or making huge gains.

Empirical Evidence

The results of empirical studies on over-indebtedness, clearly show that indebtedness and over-indebtedness are distinct concepts, though related. This is emphasised by the coexistence of high indebtedness with lower over-indebtedness in some instances. Bryan et al. (2010) find a small but significant minority of individuals and households in Great Britain who suffer from problems of over-indebtedness. Depending on the indicator used, over-indebtedness affects 4 percent to 6 percent of individuals (unsecured credit only), and 8 percent to 17 percent of households. Kempson (2002) indicates that 5 percent and 7 percent of households are over-indebted based on debt-service ratios and a large number of current credit commitments respectively. In the 1990s, only about 10 percent of households in Sweden were afflicted with over-indebtedness, and they later found a solution through debt restructuring (Persson 2010). The Northern Ireland Statistics and Research Agency (2006) ranked Northern Ireland's personal over-indebtedness at an average of 10 percent. Betti et al. (2007) found that over-indebtedness was a substantial problem across EU countries in the mid-1990s. According to Civic Consulting of the Consumer Policy Evaluation Consortium (2008), average over-indebtedness in the EU is 10 percent; the highest rates of over-indebted households are in Greece and Poland (31 percent and 19 percent respectively), but fewer households are over-indebted in Austria and Spain (3 percent and 5 percent).

There is a lack of comparative information in developing countries, where most studies focus on micro finance, which is only targeted at lower-income groups, or simple non-numerical analysis of over-indebtedness. For example, Porto (2012) looked at regulation aspects of over-indebtedness in Brazil. Both Ruthven (2002) and Rutherford (2003), using data from Bangladesh and India respectively, explored capital formation among poor households, and concurred that informal credit channels such as moneylenders and small shops are popular.

Financial diaries of the poor in selected areas (Langa, Cape Town; Diepsloot, Johannesburg; and Lugangeni, Eastern Cape), revealed that only 24 percent of households experienced high indebtedness (Nunez et al. 2008). In Johannesburg, poor households who had access to credit and were able to pay in time represented only 31 percent (University of Johannesburg 2008). Applying both objective and subjective measures of over-indebtedness, consumers admitted that they borrow to repay other credit, cannot pay as expected, and their gross monthly income committed to instalments was more than 30 percent, according to Hurwitz and Luiz (2007). They found that 60 percent of the working class are over-indebted, 28 percent are committed to paying more than 100 percent of their gross monthly income, and 10 percent are committed to paying more than 200 percent. Using the 20 percent benchmark for households earning below R2 000 per month, Collins (2008) found that over-indebtedness is not endemic, and about 50 percent of households scored 0 to 10 percent.

With respect to the type of households who are over-indebted, the literature distinguishes between (i) characteristics of the head of household, and (ii) characteristics of the whole household in assessing which groups are over-indebted:

(i) Household Head Characteristics

Age

Atkinson et al. (2006) confirm the general consensus, that age is a strong predictor of over-indebtedness. Numerous authors state that debt problems decline with age, that is, households headed by young adults are associated with high risks of experiencing financial difficulties, particularly in the 25-35 age group (Kempson 2002; Kempson et al. 2004; Bryan et al. 2010). According to the Department of Trade and Industry (2005), the 25-44 age group is significantly over-represented in high levels of debt. Some studies put the most vulnerable group as being under 25 years of age (Department for Business Enterprise and Regulatory Reform 2007; Russell et al. 2011), whereas, Bryan et al. (2010) find that age has little impact on the probability of being over-indebted. In contrast, Nyaruwata (2009) argues that, though statistically insignificant, the probability of over-indebtedness increases with age – given that older household heads have more dependents to look after.

Gender

The overwhelming evidence is that female-headed households are more likely to be over-indebted than male-headed households (Department of Trade and Industry 2005; Nyaruwata 2009; Bryan et al. 2010; Russell et al. 2011). This may be due to their lower than average incomes, and because they are prone to working fewer hours on account of their maternal responsibilities (Department of Trade and Industry 2005). Despite this, research in South Africa indicates that debt to income ratios are much more for male-headed households than for those headed by females. However, females who do get access to credit are more likely to be over-indebted than their male counterparts (Daniels 2001; Nyaruwata 2009).

Employment Status

Employment is linked to earning capacity, and therefore being unemployed translates to low income (Taylor 2011). Over-indebtedness is prevalent in households where the head is not working, sick or disabled (Kempson 2002; Kempson et al. 2004; Bryan et al. 2010). The argument advanced, given the connection between income and employment, was proven incorrect, and in a logistic regression analysis, Russell et al. (2011) found that even after controlling for income, over-indebtedness is associated with being unemployed and the inability to work owing to illness or disability.

Education

There are contrasting views on whether a household head's level of education influences household over-indebtedness. There is some evidence that education reduces the probability of over-indebtedness (Bryan et al. 2010). Russell et al. (2011) agreed, and suggested, through regression analysis, that households where the head has no qualifications are most likely to be over-indebted. Nyaruwata (2009), however, argued that a tertiary academic education increases the odds of being over-indebted. This advances the view that finances need specific financial skills, and an automatic link between higher education and better financial management cannot be assumed. On the other hand, Guerin (2012) was strongly against the belief that financial illiteracy causes over-indebtedness, and pointed to predatory lending practices as being a key problem among low-income groups.

Ethnicity

There is scant literature on the influence of ethnicity. In the UK, Del-Rio and Young (2005) found that individuals from non-white backgrounds reported more financial difficulties when other factors were controlled for. The Department of Trade and Industry (2005) found that people categorised as British are underrepresented in over-indebtedness indicators compared to ethnic minority groups. Studies in Malaysia found that ethnicity has significant effect on the probability of living beyond one's means (Loke et al. 2013; Loke 2016). In South Africa, Daniels (2001) found that indebtedness is racially distributed, and that white people were the most indebted, with the African ethnic group experiencing the lowest levels of indebtedness. This could be because many black South Africans had limited or no access to a variety of basic services, including financial services, for some years after the 1994 democratic election.

(ii) Household Characteristics

Housing Tenure

Housing tenure makes a distinction between those that live in rented houses and owner-occupied houses. When all other factors are held constant, home ownership is associated with a lower risk of over-indebtedness than renting (Kempson et al. 2004). The odds of being in arrears are higher for households that buy their homes on a mortgage, compared to outright owners (Department for Business Enterprise and Regulatory Reform 2007; Bryan et al. 2010). The mortgagors, however, have fewer financial difficulties than tenants (Kempson 2002; Kempson et al. 2004; Department of Trade and Industry 2005; Russell et al. 2011). Conversely, Nyaruwata (2009) found that house ownership is associated with significantly more likelihood of being over-indebted, than renting. The study does not distinguish between mortgagors and outright owners.

Settlement Type

South African literature finds, that living in an urban area significantly increases the probability of being over-indebted, given the reduced credit constraint that urban households face (Nyaruwata 2009). Collins (2008) reported that high indebtedness is found among the high-income groups in urban areas, and at all levels in rural areas, driven by informal financial services. According to Kempson et al. (2004), arrears in household bills are strongly related to local area deprivation, and therefore over-indebtedness is much more likely in the poorest areas. This is consistent with the cross-country study of Betti et al. (2007), where they find that liquidity constraints in a less liberalised credit market is associated with over-indebtedness.

Government Grants

Nyaruwata (2009) demonstrated the significance of receiving social grants in reducing the probability of being over-indebted. Even though Collins (2008) found that high indebtedness is persistent with those receiving social grants, the study did not show that such people are necessarily over-indebted. However, Russell et al. (2011) suggested that households that rely on social grants for more than 25 percent of their income have a high chance of being over-indebted.

Income

There is consensus in the literature, that concentration of over-indebtedness is found in the lower sections of the income spectrum. Household income has an independent effect on risk of over-indebtedness (Russell et al. 2011). Households on low incomes were more likely to face persistent over-indebtedness (Kempson et al. 2004; Department of Trade and Industry 2005; Mashigo 2006; Nyaruwata 2009; Bryan et al. 2010). The relationship is stronger when equivalised income (income per person in the household) is used instead of total income (Kempson 2002). The Department for Business Enterprise and Regulatory Reform (2007) observed, a persistent reduction in the prevalence of over-indebtedness as income rose. Interestingly, regression analysis showed that income falls, rather than income rises, had statistically significant effects on levels of arrears among families, when all other factors were held constant (Kempson et al. 2004). There is a degree of ambiguity in the relationship between debt and income, because some studies have found high indebtedness among high income groups – for example, Collins (2008), Daniels (2001) said, that limited access to formal financial services in the form of credit might be the cause of lower levels of debt in the lower income brackets, where greater demand for credit exists.

Family Type and Number of Children

Family circumstances such as having a baby, or relationship breakdown, increase the likelihood of over-indebtedness (Kempson 2002; MORI Financial Services 2004; Department of Trade and Industry 2005; Legge and Heynes 2009). This could be because a high proportion of childcare expenses cannot be reduced; there is one parent working reduced hours after birth; and in the case of relationship breakdown, adjusting down a lifestyle initially based on double incomes is difficult. Couples, without children are hardly ever over-indebted (Haas 2006).

Some studies suggest that single people who have never married, face similar financial difficulties to married couples (Davydoff et al. 2008), and the Department for Business Enterprise and Regulatory Reform (2007) suggested that singletons with and without children are overrepresented in the arrears indicator.

Regression analysis, shows that being divorced or separated, or being a lone parent, have the strongest influence on over-indebtedness (Russell et al. 2011). Bryan et al. (2010) asserted, that separated or divorced household heads have a higher probability of over-indebtedness, than those who have never been married. A study in Norway found that being a single parent increased the odds of experiencing problems in repaying consumer credit commitments, even when age and relationship breakdown and the debt-to-income ratio were controlled for (Tufte 1999). However, Kempson et al. (2004), after controlling for other factors, found insignificant association between separating from a partner, or having a new baby, with over-indebtedness.

Household Size

Increasing household size is associated with a higher probability of being over-indebted (Nyaruwata 2009; Bryan et al. 2010). This is in line with expectations, as larger households tend to experience greater pressure on their income in trying to cater for more household members.

METHODOLOGY

This study is based on data from the third wave of the National Income Dynamics Study, conducted in 2012. Wave three contains nationally representative data of 8040 households. In other instances, no data or response was provided by the household. On an average, all indicators have about nine percent of missing data. The housing tenure variable is the one least responded to, at 13.5 percent. Weightage for attrition is provided in the survey, as well as the original survey design and non-response. The number of households amount to 15,815,236 after the relevant variables have been weighted.

With regard to the subjective perception of debt problems and the arrears indicator, there is no information that allows the construction of these specific indicators. All the repayment-income ratios have been calculated using the net, rather than gross, household income, as specified in the indicators.

RESULTS

Table 2 summarises the proportion of households that are over-indebted across various indicators. Among households with unsecured debt repayments of more than 15 percent of household income, about 15.2 percent are over-indebted. Unsecured debt includes, personal loans from banks, micro-lenders and loan sharks (commonly known as *mashonisa*), study loans, credit cards and store-card debts, and loans from family and friends. Households that made total

Table 2: Over-indebted households across various indicators

Indicator	*%*	*(Total households= 15,815,236)*
All repayments/income >30%	10.9	1,730,708
All repayments/income >50%	4.6	721,144
Unsecured repayments/income >15%	15.2	2,400,142
Poor and in debt	1.4	218,454
Debt poor	11.0	1,741,345
Number of credit commitments	7.5	1,192,970
0	0.0	
1	0.0	
2	0.0	
3	44.7	
4	33.7	
5+	21.5	
Income category (R)	8.0	1,259,156
0 – 2 000	61.4	
2 001 – 5 000	15.2	
5 001 – 10 000	10.3	
10 001 – 20 000	7.6	
20 001 – 40 000	5.5	
40 001 – 60 000	0.0	
60 000 +	0.0	

Source: compiled by authors

debt repayments amounting to more than 30 percent and 50 percent of income comprised 10.9 percent and 4.6 percent respectively. Surprisingly, considering the media coverage of high indebtedness in the country, it is worth noting that 11 percent of households are below the poverty line, after repaying debts. Only 1.4 percent of households that are poor useddebt as an additional funding source to meet their needs. This represents the lowest cases of over-indebtedness. Based on the number of credit commitments, 100 percent of households had three or more commitments. The National Credit Regulator indicator reveals that 8 percent of households are over-indebted, but an alarming 61.4 percent of those households are found in the lowest income category (R0 – R2 000), and spend more than 45.0 percent of their household income on debt repayments, which is beyond sustainable levels. Using different measures and data, Nunez et al. (2008) found that 24 percent were over-indebted. Hurwitz and Luiz (2007) presented worrisome results, and claimed that 60 percent of the working class are over-indebted. The concentration of over-indebtedness in the lowest income groups is consistent with Mashigo (2006).

Given the various alternative indicators of over-indebtedness, it is important to assess the degree to which they overlap as contained in Table 3. The National Credit Regulator and the three repayment-to-income indicators are linked by construction, as well as, the indicators that look at households in poverty with debt and those that are debt poor. These indicators show the biggest overlaps. Substantial (more than 50.0%) overlaps are between households that are poor with debt indicator and National Credit Regulator indicator (63.3%), National Credit Regulator and debt poor indicator (66.2%), credit commitment indicator and repayment to income of more than 30.0 percent (61.7%), and credit commitments indicator and unsecured repayments (57.4%).

Results also show that about two-thirds (66.2%) of households declared over-indebted using the National Credit Regulator indicator are debt poor, and 57.1 percent of households that have three or more credit commitments, commit more than 15.0 percent of their income to unsecured debt repayments. With households that have debts while their income is below the poverty line, 63.3 percent are also declared over-indebted in terms of the National Credit Regulator indicator, and 61.7 percent of households with three or more credit commitments spend more than 30.0 percent on total debt repayments.

There are very small overlaps (less than 5%) between having three or more credit commitments, spending more than 15.0 percent of income on unsecured debt, and a debt repayment ratio exceeding 30.0 percent of income while in poverty. Having three or more credit commitments is a less good predictor of being poor with debt (only 0.9% of households with credit commitments were already poor). Similarly, only

Table 3: Overlap of household over-indebtedness indicators

	NCR	*Debt_30*	*Debt_50*	*Unsecured_15*	*Poor and in debt*	*Debt poor*	*Commitments*
NCR[1]	-	61.6	56.7	54.9	11.0	66.2	26.0
Debt_30[2]	44.8	-	41.7	76.6	4.7	21.7	42.6
Debt_50[3]	98.9	100.0	-	88.3	9.3	45.8	44.3
Unsecured_15[4]	28.8	55.2	26.5	-	4.4	16.4	28.4
Poor and in debt[5]	63.3	37.5	30.6	48.4	-	100.0	4.9
Debt poor[6]	47.9	21.6	20.1	22.6	12.5	-	7.7
Commitments[7]	27.4	61.7	26.8	57.1	0.9	11.2	-
All households(%)	**8.0**	**10.9**	**4.6**	**15.2**	**1.4**	**11.0**	**7.5**

Source: Compiled by authors based on the results of various indicators in Table 2
[1] NCR: National Credit Regulator indicator.
[2] Debt_30: Households spending more than 30% of their income on total borrowing repayments.
[3] Debt_50: Households spending more than 30% of their income on total borrowing repayments.
[4] Unsecured_15: Households spending more than 15% of income on unsecured lending repayments.
[5] Poor and in debt: Households below poverty line, with debt.
[6] Debt poor: Households whose spending on debt service takes them below the poverty line.
[7] Commitments: Households with three or more credit commitments.

4.4 percent and 4.7 percent of households declared over-indebted under 15.0 percent and 30.0 percent benchmark indicators were over-indebted under the poor with debt.

Which Households are Over-indebted?

Table 4 presents descriptive statistics of household characteristics for the over-indebted, as measured by the National Credit Regulator. Households in which the heads are aged between 31 - 40 years have the highest levels of over-indebtedness (29.0%). This falls to 10.6 percent over retirement ages of 61-70. Over-indebtedness is more common among households that are male-headed (53.8%) compared to those headed by females. Unemployment is associated with high levels of over-indebtedness, households in which the household head is unemployed make up 53.5 percent. Secondary schooling is associated with relatively high risks of over-indebtedness (49.9%) and those with no schooling are the least over-indebted (6.1%). Black South Africans constitute the most over-indebted race (79.0%) while only 2.8 percent of over-indebted households are Asian/Indians. Home-owners (78.6%) experience more financial difficulties than tenants. Households in urban areas are more than three times over-indebted (78.8%) than those in rural areas (17.9%). Households in Gauteng are the most over-indebted, representing 35.6 percent of over-indebted households. In Limpopo, most households are below the poverty line (Statistics South Africa 2014). Owing to the high prevalence of low-income households in Limpopo, it would likely seem, that it would have the highest rating of household over-indebtedness, but in fact the province has the second lowest number of over-indebted households (4.0%).

Government grants seem to be making a difference, as households who do not receive them are more over-indebted (71.7%). There is an inverse relationship between household income and household over-indebtedness. The level of over-indebtedness reduces with income, from 61.4 percent in households with an income of R0 – R2 000 to 5.5 percent among households with an income of R20 000 to R40 000. The frequency of over-indebtedness in household heads who have never been married is high at 47.6 percent, followed by married couples at 32.5 percent.

Table 4: Descriptive analysis of the types of over-indebted households, based on the National Credit Regulator indicator

Variable	*%*
Age	
15-20	2.0
21-30	19.1
31-40	29.0
41-50	20.1
51-60	16.6
60 +	13.2
Gender	
Female	46.2
Male	53.8
Employment Status	
Employed	46.5
Unemployed	53.5
Educational Qualifications	
No schooling	6.1
Primary schooling	16.22
Secondary schooling	49.9
Tertiary	27.8
Ethnicity	
African	79.0
Asian/Indian	2.8
Coloured	7.0
White	11.2
Housing Tenure	
Own	78.6
Rent	21.4
Settlement Type	
Farms	3.3
Traditional	17.9
Urban	78.8
Province	
Eastern Cape	8.9
Free State	8.0
Gauteng	35.6
KwaZulu-Natal	11.9
Limpopo	4.0
Mpumalanga	7.2
Northern Cape	3.4
North West	8.8
Western Cape	12.3
Government Grant Recipient	
No	71.7
Yes	28.3
Household Income Category	
R0 – R2 000	61.4
R2 001 – R5 000	15.2
R5 001 – R10 000	10.3
R10 001 – R20 000	7.6
R20 001 – R40 000	5.5
R40 000 +	0.0
Marital Status	
Divorced or separated	5.9
Living with partner	6.4
Married	32.2
Never married	47.6
Widow/Widower	8.1
Number of Children	
0 - 2	91.3
3-6	8.6
6 +	0.2
Household Size	
1-4	80.9
5-8	16.4
8 +	2.6

Source: Compiled by authors

Surprisingly, households with more children are less likely to be over-indebted. Over-indebtedness reduces with the number of children in a household: 61.3 percent of over-indebted households have no children, followed by 29.9 percent with one child being over-indebted, while 0.0 percent of over-indebted households have 9-10 children. Similarly, households with more household members are less over-indebted: 1.6 percent of over-indebted households have 11+ members, compared to 54.9 percent that have one or two members.

DISCUSSION

Existing literature associates over-indebtedness with age groups less than 35 years (Kempson 2002; Kempson et al. 2004; Department for Business Enterprise and Regulatory Reform 2007; Bryan et al. 2010; Russell et al. 2011; Rodrigues 2014). Though compatible with the life-cycle hypothesis, the researchers' results show high over-indebtedness until the age of 40. These findings may suggest shifting patterns in debt use with households carrying more debt into their old age, which might have severe consequences once they are on retirement. Mann (2011) found that late-life debt use prolongs labor force participation in older segments of the population. The results contradict those of Nyaruwata (2009) – in that he observed that over-indebtedness increases with age throughout the life-cycle suggesting that the older household heads have more dependents to look after, including their grandchildren.

Inconsistent with most literature, male-headed households are more over-indebted (53.8%) than those headed by females (Department of Trade and Industry 2005; Nyaruwata 2009; Bryan et al. 2010; Russell et al. 2011; Keese 2012). However, Brunetti et al. (2012) report that males are more likely to experience financial fragility. But Del Rio and Young (2005) and Loke (2016) find no gender difference in self-assessed financial burdens and living beyond ones means, respectively. Even though Daniels (2001) found higher debt to income ratios amongst males, there was greater occurrence of over-indebtedness in females. Results confirm previous research findings that being unemployed is associated with over-indebtedness (Kempson 2002; Kempson et al. 2004; Bryan et al. 2010; Russell et al. 2011; Keese 2012). However, Hurwitz and Luiz (2007) found that the depth of over-indebtedness among urban working class is worrisome.

Authors such as Bryan et al. (2010) and Russell et al. (2011) argue that education (of whatever kind) reduces the probability of over-indebtedness. This study's findings agree with this view because household heads with only secondary schooling are the most over-indebted. However, other studies found that tertiary education increases the chances of being over-indebted, and should not be confused with financial literacy, which has a recognisable value in managing debt (Nyaruwata 2009; Brunetti et al. 2012; Loke 2016). Lack of financial education is a key determinant of over-indebtedness (Disney and Gathergood 2011; Cavalletti et al. 2012).

Although 78.6 percent of households that own their accommodation were found to be over-indebted but most of the existing literature states that tenants are more likely to experience financial difficulties than owners (Kempson 2002; Kempson et al. 2004; Russell et al. 2011). The researchers' results are consistent with Nyaruwata (2009), who reported that in South Africa house ownership is more associated with financial difficulties than renting. Urban dwellers are highly over-indebted as also found by Nyaruwata (2009). Kempson et al. (2004) says over-indebtedness is related to local deprivation and therefore expected to be found in rural and poor areas.

Households that receive government grants are less over-indebted. The results agree with Nyaruwata (2009), who showed that receiving government grants reduces the likelihood of being over-indebted. With regard to household income, high over-indebtedness occurs in the lowest income category. Mashigo (2006) confirmed that lower income groups have greater debt burdens, but Daniels (2001) drew on limited access to credit to support seemingly contradictory evidence that there are lower debt levels in the lower income brackets.

The researchers' findings reflect a divergence from the literature, and shows divorced or separated people as the least over-indebted. Bryan et al. (2010) and Russell et al. (2011) found that being divorced or separated, or being a lone parent, has the strongest influence on over-indebtedness. We find a similar pattern for the number of children and household size, over-indebtedness decreases as both variables increase. Contrasting other research which asserts that having a baby increases the likelihood of being over-indebted, as some childcare expenses cannot be reduced or avoided (Kempson 2002; MORI Financial Services 2004; Department of Trade and Industry 2005; Legge and Heynes 2009). Regarding household size, the association could be due to pooling of resources, but Nyaruwata (2009) and Bryan et al. (2010) agree that larger households are more prone to financial difficulties.

CONCLUSION

The objective of this paper was to use data from the National Income Dynamics Study wave three to measure over-indebtedness across different indicators, assess overlaps between the indicators, and identify the types of household who are over-indebted.

The results emphasise, that the excessive use of debt, in particular unsecured debt threatens households' financial stability. It is also clear that, for some, debt repayments lead to debt poverty. This is particularly important as such households can longer purchase basic necessities because of debt repayments. Management of over-indebtedness is thus critical in the effective reduction of poverty.

Overall results suggest that over-indebted households are generally male-headed, with the head of the household aged 31- 40; unemployed; have secondary schooling; are of African ethnicity; are homeowners rather than tenants; live in urban settlements in Gauteng province; do not receive government grants; have the lowest income; and have never been married. Given the difficulties that over-indebted households face, widening access to credit cannot afford to ignore the issue of over-indebtedness.

A goal for future research should be to conduct specially commissioned surveys that contain all the different dimensions of over-indebtedness, assess the persistence of over-indebtedness over time, scientifically evaluate the different indicators to establish an indicator that substantially captures over-indebtedness, and evaluate the performance of the National Credit Regulator indicator against such an improved indicator.

RECOMMENDATIONS

An effective policy response to household over-indebtedness must seek to achieve a balance between greater access to credit and prevention of over-indebtedness for the low income groups. Households should develop a strong culture of saving rather than to rely on debt to meet consumption needs. Savings play a key cushioning role against unforeseen circumstances. Financial literacy programs could be incorporated in the schooling system curriculum to improve households' money management skills and protect them from slipping into bad debtors. Since employment is less associated with over-indebtedness, policies to promote employment or entrepreneurial opportunities are extremely imperative to strengthen households earning capacities. The National Credit Regulator needs to enforce responsible lending behaviour on financial institutions especially in the unsecured lending market where households may be vulnerable to unregistered credit providers.

NOTE

1. For this purpose, the square root scale is used, which divides household income by the square root of household size.

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