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What matters more for South African households' debt repayment difficulties?

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Abstract

While the increased access to consumer credit has helped many families improve their welfare, the rising repayment burdens upon a background of chronically law savings rate have generated concerns that South African families are becoming ever more financially fragile and less able to meet their consumer debt repayment obligations. Using data from the Cape Area Panel Study (CAPS), this paper investigates whether consumer debt repayment problems are better explained by excessive spending which leaves households financial overstretched or by negative income shocks. The results indicate that households are significantly more likely to be delinquent on their financial obligations when they suffer negative events beyond their control rather than due to the size of the expenditure burden. This suggests that some consumers will experience repayment problems even when they borrow within their means. Thus regulatory efforts to improve mechanisms for debt relief might be more meaningful than restrictions on lending.

Introduction

The rising cost of living upon a background of increasing dependencies has meant that disproportionately large amounts household incomes are being commitment to consumption expenditure rather than saving. While the increased access to credit means that families can easily supplement this consumption expenditure, the rising consumer debt burdens have brought forth concerns that families are becoming more financially fragile and less able to meet debt repayment obligation when due.

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The debt repayment performance of households is not only an important indicator of the financial health of the household sector, but also an influential driver of the consumer protection policy debate. In South Africa, the debate has tended to focus largely on the behaviours of the credit market which allow consumers to borrow beyond their means and becoming financial overextended. In response, government policy has focused largely on 'prevention' of these behaviours through an unprecedented enforcement of affordability evaluation, consumer information and disclosure, and sanctions for reckless lending under the National Credit Act (NCA).

In spite of this, based on the National Credit Regulator (NCR) data[1], the average credit standing of consumers has only continued to deteriorate in tandem with rising incidences of litigation judgements and administration orders since the NCA came into full force in June 2007 (Figure 1). Such a trend generates a feeling that perhaps restrictions on lending might not be the ultimate antidote to consumer debt problems. Given the profit motive and loss aversion, lenders have an incentive to see that consumers only borrow what they can comfortably pay.
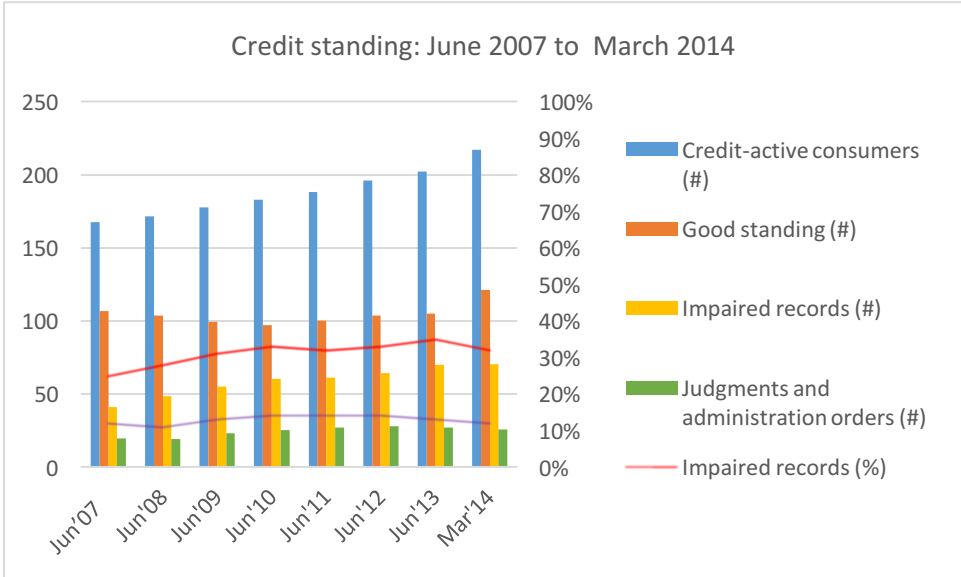
Credit standing: June 2007 to March 2014

Figure 1: Credit standing of consumers (June 2007 - March 2014).

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1 Available on: http://ncr.org.za/index.php?option=com_content&view=article&id=42 [accessed: 20/09/2014]

Assuming that lenders adhere to the strict lending regulations and painstakingly evaluate consumers' creditworthiness, then delinquencies are less likely occur due to excessive borrowing but rather due to interruptions or alteration in consumers' income streams ex-post.

Lenders might be able to quantify a consumer's ability and willingness to repay the debt when due. However, they will not be able to predict the occurrence of negative situational change which will render consumers incapable of committing to their repayment obligations. The concurrence of factors beyond lenders' and consumers' control may result in severe repayment difficulties even where consumers borrow within their means. Hence, consumer debt delinquencies are more complex than the mere fact that consumers are spending excessively.

This contention is address by examining data on South African households. The key contribution is to establish whether consumer debt delinquencies are more likely to result from households spending excessively and rendering themselves financially overstretched or from unfortunate events that erode repayment capacity. The results of the investigation should stimulate discussion on the current consumer credit regulatory framework as to the role of regulation, and as to the form regulation might take.

In terms of theory, consumer debt delinquencies are not strategic, rather, they are a consequence of a genuine inability to pay when household resources become too strained to support the household's ongoing subsistence while meeting scheduled repayments. This is related to the 'cash flow' theory of defaults which is based on the assumption that debtors will avoid arrears as long as their income flows are sufficient to cover their debt repayments without undue financial stress (Alfaro *et al.*, 2010; Bhutta *et al.*, 2010). Hence, the behaviour of both the transitory income and monthly debt-service ratio should explain empirically overall consumer debt repayment performance of households.

Following an empirical strategy similar to Peter & Peter (2006) for the default risk of Australian home buyers, the study proceeds to examine the relative importance of excessive spending and negative income shock on borrowers' delinquency in South African – controlling for the assumption that some 'types'

of households are more likely to pay their due obligations than others. The study progresses as follows: some existing literature on debt delinquency is presented followed by the variables definition and data analysis. The results of the analysis are presented followed by conclusions and implications. Throughout the paper, the terms 'delinquency' and 'repayment problems' are mutually interchangeable to refer to the inability to pay financial obligations when due or be in arrears.

2. Literature review

There has been scanty formal analysis of household debt repayment in South Africa but there is substantial literature on the situation internationally. Regarding the specific factors behind consumer debt delinquency, a number of studies have blamed lending and borrowing practices that allow some consumers to over-burden themselves with more debt than they can afford. Predatory behaviours by lenders and/or the lack of self-control, financial illiteracy or irrational optimism about future income in respect of consumers are some of the behaviours cited (e.g., Jentzsch & Riestra, 2006; Gathergood, 2012). Alternatively, ex-post misfortunes or adverse trigger events often unanticipated during credit screening such as medical emergencies, or sudden unemployment can also contribute to delinquencies even where consumers borrow reasonable amounts (e.g., Getter, 2003; Avery *et al*., 2004).

A study by Hurwitz & Luiz (2007) identifies that both factors play an active role in South African borrowers' delinquency. On one side are cautious households forced to abandon their financial obligations due to emergencies that strain their cash flows, and then there are those who exhibit a 'reckless culture of non-payment' driven by short-sightedness, the low levels of formal education and financial literacy (*ibid*: 114).

Additionally, there are a few studies that model arrears on the legal costs, the efficiency of the debt collection mechanism and/or the possible sanctions for defaulting.

2.1 Excessive consumption

Some consumers will take on an unreasonable amount of debt (either knowingly or otherwise) and later find themselves financially overstretched and unable to repay (Bertaut *et al.*, 2009; Zhu, 2011). Such behaviour might result from, simply overestimating the immediate benefits of the credit or undervaluing the cost of the debt repayment (Meier & Sprenger, 2007; Heidhues & Kőszegi, 2010), a lack of self-control or a low level of knowledge about financial matters (Hurwitz & Luiz, 2007; Gathergood, 2012).

Some external market factors might also influence consumers to spend excessively, for instance they might be influenced by falling interest rates (e.g., Guttmann & Plihon, 2010), or by inflated expectations of future earnings (Hoffmann *et al.*, 2012; Bachmann *et al.*, 2015). Moreover, lax lending criteria that might allow an already over-stretched debtor to qualify for more debt can also be cited (e.g., James, 2012). Particularly, lenders' non-disclosure of important credit information and other deceptive practices might impair consumers' decision making (Hill & Kozup, 2007; Bertrand *et al.*, 2010).
Empirically, the relative effect of excessive spending on the debt repayment performance, has been investigated using different proxies for the level of indebtedness, notably, the size of the purchase (Godwin, 1999), the size of the credit balance and credit limit (Gross & Souleles, 2002; Lopes, 2008), the number of credit commitments held (Whitley *et al.*, 2004; Disney *et al.*, 2008) or the debt-service ratio (Getter, 2003; Alfaro *et al.*, 2010; Farinha & Lacerda, 2010). It is worth noting that the inability to find a universal indicator of excessive spending could be interpreted as result of data limitations rather than a personal choice. According to Getter (2003), the debt-service ratio would be a more sound measure as, it allows for a more accurate comparison of the household's immediate financial stress.

With regards to the policy implications, if delinquency results from excessive spending, it would suggest a failure of the pre-contractual regulatory mechanism thereby incentivizing irresponsible lending practices (Ho & Pennington-Cross, 2006; Stoop, 2009; Campbell *et al.*, 2011).

2.2 Socio-economic shocks

Even consumers who take on a 'reasonable' amount of debt, with every intention (and means) to repay may face repayment difficulties. Misfortunes or financially adverse events that befall households from time to time often cause substantial declines in income which renders them suddenly incapable of committing to their repayment obligations (Himmelstein *et al*., 2005; Getter, 2003; Grant, 2010). Unfortunate interruptions in a household's income stream and other trigger situations – for which lenders or debtors have no control – especially after a credit request has been granted often means a sudden inability to committee to repayment schedules even for small claims. If rational creditors validate potential borrowers' creditworthiness ex-ante, then debtors will be able to carry as much debt as they desire (subject to the credit limit) without becoming delinquent (Chatterjee *et al*., 2007), but may still become delinquent should they suffer unfortunate changes in their circumstances ex-post (Getter, 2003).

To underscore the importance of trigger events, Disney *et al*. (2008), contends that the changes in the debtors' circumstances do not necessary have to result in massive shifts in earnings in order for delinquencies to occur. It is often the surprise factor and the attempts to survive the immediate consequences of these negative situational changes that matter more for repayment performance.

Additionally, the economic environment in which an individual lives or works should provide some information on his/her probability of delinquency risk as this determines one's sensitivity to shock which (Avery *et al*., 2004; Grant, 2010). Consumers who live/work in environments which highly exposes them to risk will face higher probabilities of delinquency. Such exposure can be empirically informed from family characteristics including dependency ratio, number of income sources, or the type and level of financial buffering (e.g., Avery *et al*., 2004; Alfaro *et al*., 2010).

 In summation, shocks or trigger events do not only erode the consumer's repayment capacity, but also, force consumers to act strategically to avoid jeopardising their day-to-day upkeep. Consumers may be forced to suspending manageable obligations if they realise that continuing to honour them might lead to further deteriorations in their wellbeing. Because the prevalence of

negative events beyond the market's control suggests that consumers' economic information and/or credit histories (at the time of consumption) are unlikely to suffice for risk assessment, the possibility of delinquency should be seen as an inevitable feature of the credit system (Viimsalu, 2010). In essence, this justifies the need for legal mechanisms to relieve unfortunate debtors of their indebtedness should they find themselves under those situations, not only as a form of consumption insurance, but also to protect them from creditor actions such as, repossessions, or wage garnishments (see, Niemi-Kiesiläinen & Henrikson, 2005; Van Apeldoorn, 2008).

2.3 Other factors

Besides excessive consumption and the occurrence of adverse shocks, another stream of literature focuses on institutional factors to explain debt delinquency. Essentially, these argue that the efficacy of predatory lending and insolvency regulations might be more relevant in explaining variations in debt delinquencies across countries. Namely, decisions to default may not only depend on the possible legal and social costs or the lack thereof (e.g. Jentzsch & Riestra, 2006; Chatterjee *et al*., 2007), but also on the ease with which creditors can recover bad loans (see, Duygan-Bump & Grant, 2009). This seems to suggest that debt delinquency could be a strategic behaviour after all. Similarly, sanctions for predatory lending reduce the propensity for bad loan origination (Goodman & Smith, 2010; Ho & Pennington-Cross2006), whilst the tightness of information sharing regulations and infrastructure reduces poor judgement (Jappelli *et al*., 2008).

Debt repayment performance might also be affected by life-cycle factors such as the path of labour incomes or consumption behaviours, which are affected by education and age (e.g., Kotlikoff, 2008; Lopes, 2008; Townley-Jones *et al*., 2008). Given the paucity of previous empirical studies on the debt repayment performance of South African households, the variables used for this analysis are, for the most part, drawn from studies of other countries. Thus, the current study is largely exploratory in nature and contributes to this literature by examining empirically the relative importance of negative income shock and excessive spending on the consumer debt delinquency among South African households.

3. The data and analysis

Household data from Wave one (2002), Wave three (2005) and Wave four (2006) of the Cape Area Panel Study (CAPS) – a representative survey of households in metropolitan Cape Town – were used for this investigation. To avoid possible biases that may result from attrition (of households), the subsample for this analysis comprises of only those households on which information was successfully collected in the all three waves (i.e., 2002, 2005 and 2006) (n = 2549).

The CAPS household survey not only collected information on household characteristics but also household income, expenditure, and debt participation. In particular it asks questions on whether the household was participating in non-housing debt and whether they have experienced problems paying these dates. The key question exploited for the current study is whether the household reports that it has been unable to make a scheduled payment on their consumer debt in the last 12 months prior to the 2006 survey. A household is considered to be delinquent in respect of their consumer (non-housing) debt if the respondent answered yes to the above question. Presumably the questionnaire respondent understood this question to refer to all consumer credit obligations, excluding any housing debt. Because this question cannot capture the severity of the household's delinquency problem, it impossible to judge whether the non-payment was transitory or not. Nevertheless, this question should provide enough information on household repayment performance, considering that delinquency has a wide definition (citing Grant, 2010:5): from bankruptcy at one extreme to being a few weeks behind on some payments at the other, whatever the case, lenders will view any late payment as a risk of default.

Following Bikker & Metzemakers (2005), the study defines negative shock as a surprise relative to expectation or as a negative situational change which might lead to an adverse shift in earnings, or increase claims on family resources. Insofar as the plans of economic agents are based on the current state of affairs, the economic outlook and expectations, any deviations from this state of affairs will affect the agents' economic plans (Pesola, 2007). For this study, the timing of events is crucial, thus, the variables depicting adverse events are derived from households' circumstances observed or self-reported during the 2002 and 2005 waves of the survey with the assumption that those circumstances will affect

the repayment performance in the subsequent period (2006). The aim is to distinguish whether households react to the circumstances in the preceding period when they fail to pay their scheduled obligations.

These variables were negative income shock, random negative shock (e.g., death or illness), expenditure shock (i.e., if households have to spend more on general expenditure than previously) and increase in family size. A subjective measure of financial pressure was also included[2] to gauge whether households are able to avoid arrears even when they have genuine financial worries. Unfortunately, it is not possible to distinguish whether these shocks were anticipated or unanticipated which would provide more insight into households' consumption planning horizons and coping mechanisms. It could be assumed that households who anticipate negative swings in income might (or might not) choose to prioritise resources or make tougher sacrifices beforehand, so they may continue satisfying the obligations when due. Conversely, others might not have the luxury to deliberate on such decisions if they were to be caught off-guard by unanticipated shocks.

Because there is no information on the actual levels of indebtedness, the variable depicting excessive spending was derived from the households' total expenditure (excluding housing rental or mortgage charges). This was measured as the ratio of the household's total monthly expenditure to the household's gross monthly income (expenses-to-income) following Kennedy *et al.* (2011) – on Irish households and Saunders & Hill (2008) – on Australian households. Expenses-to-income ratio represents the standard level of the household's expenditure on commodities and services and therefore a good indicator of the level of household financial strain. Moreover, where the expenses-to-income ratio is very high, it raises doubts about relying on income alone to indicate the current living standard of the household (Saunders, 2011:50).

Some variables related to credit quality were also included in the analysis to account for the assumption that some households are more likely to repay their obligations than others – based on Katona's (1960) exposition of 'ability to borrow' (see, Roos, 2008; Zhu & Meeks, 1994). These were monthly per-capita

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[2] 'How would this household classify its overall financial situation these days? Would you say it is very comfortable, comfortable, just getting by, poor, or very poor?' (Financial pressure).

income, financial buffers and homeownership. While the financial buffers available in the data (having a saving account and/or life insurance) are quite modest, it should be noted that, in South Africa, access to these is still far from ubiquitous, even with recent market expansions. Thus assuming all else is equal, access to these assets comes with some degree of financial sophistication. Table 2 below presents the definition of the variables of interest and their mean values for this subsample.

It is revealed that 18% of the sub-sample reported being in arrears on their consumer debts in 2006. Between 2002 and 2005, 53% (1342) of the 2549 households experienced negative incomes while 66% experienced expenditure shock during the same period. Households that reported experiencing a random negative event that may have had an impact their financial situation (e.g., death or illness of a family member) in 2005 were 19% of the subsample. On average, the sampled households used 65% of their incomes on general household expenditures. However, it is not known what the remainder was spend on.

Table 1. Variable definition, sample mean values and expected signs (n=2549).

Variable	Mean values	Description
Delinquent (Dependent variable)	0.18	Binary variable (0/1): 1 if a household experienced arrears in 12 months preceding the 2006 survey, 0 otherwise.
Expenses-to-income	0.65	Continuous; Total household expenditure in 2005 divided by total income in 2005 (1st and 99th percentiles) [max .11 – min 3.1] (+).
Family size▲	0.50	Increase in family size (continuous variables of 2002 and 2005 family sizes compared). Dummy: 1 household had more members in 2005 compared to 2002, 0 otherwise (+).
Income shock	0.53	Decrease in income (Comparisons of household's 2002 and 2005 net income). Dummy: 1 if 2005 income is less, 0 otherwise (+).

Variable	Value	Description
Expenditure shock	0.66	Increase in expenditure. Dummy: 1 if the 2005 household expenditure is greater than 2002 expenditure, 0 otherwise (+).
Random shock	0.19	Dummy: 1 if household reported at least one of the negative events listed in the year prior to the 2005 survey, 0 if none faced (+).
Financial pressure	0.67	Dummy: how respondent considers the family's 2005 general financial situation to be (1= poor/very poor, 0= otherwise) (+).
Per- capita income	R5 791	Continuous: Household per-capita income after deductions in 2005; [min R45 – max R 20, 000] (-).
Financial buffers	0.79	Continuous: If household had, life insurance, bank account, both of these together or none of them in 2005 (-).
Homeownership	0.74	Dummy: 1 if family owns the primary residence in 2005; 0 otherwise 0 (-).

Descriptive statistics were examined for each variable of interest and presented in Table 3 below including Chi-square measures of association between the household characteristics and the binary dependent variable (delinquent).

Table 2. Descriptive statistics of key variables for delinquent and non-delinquent sample (N = 2549).

	Non-delinquent	Delinquent		
Variables	Mean	Mean	Corr	*P**
Excessive spending				
Expenses-to-income	0.64	0.65	0.003	.900
Sources of shock				
Family size ▲	0.49	0.55	0.052	.009
Income shock	0.51	0.58	0.055	.006
Expenditure shock	0.65	0.73	0.061	.003
Random shock	0.19	0.23	0.039	.049
Financial pressure	0.66	0.72	0.052	.009
Ability to borrow				
Homeownership	0.76	0.64	-0.106	.000

Per capita income (2005)	R1, 460	R1, 336	-0.022	.268
Financial buffers	0.63	0.64	0.003	.857

Notes: *Corr refers to bivariate correlation coefficients; P* Refers to chi-square test for significance.*

The distribution of characteristics among the delinquent and non-delinquent households is presented as mean values including the bivariate correlation coefficients for the measures of the strength of the relationship between the 'delinquent' variable and the individual independent variables. A statistically significant *p* value ($p<0.05$) suggests that one of categories of the variable depicting household characteristics is statistically significantly different from one of the categories of the dependent variable.

The underlying problem is whether a household fails to repay its due financial obligations as a result of 'excessive' spending or due to negative income shocks – even where it might have been spending within its budget. Based on the bivariate relationships in Table 3 above, households are more likely to be in arrears if they experienced an income shock, a random negative shock, an expenditure shock, or increase in household size. These results are intuitive to the extent that these household circumstance will not only exert pressure on or reduce resources but might also be unanticipated at the time of the credit request. Households that self-reported being in financial distress were more likely to be in arrears on their consumer debts than those that did not. No relationship was observed between the household's expenses-to-income ratio and delinquency. The relationship between credit quality and arrears is only supported by homeownership. Intuitively, just as homeownership might contribute positively to credit ratings, homeowners are also less likely to be delinquent on their consumer debts.

Overall, the first signs presented by the bivariate relationships seem to suggest that consumer debt arrears are inevitable outcomes of unfortunate disruptions in consumers' income streams and budget rather than the size of their expenditure burden. Finally, the fact that the CAPS survey is not a typical survey of consumer finances and did not collect enough information on household income and expenditure, and given that the delinquency is self-reported thereby suggesting a higher possibility of under-reporting, are major caveats which might affect the certitude of the conclusions drawn.

3.1 Logistic regression analysis

What matters most for consumer debt delinquencies: excessive spending that renders borrowers financially over-stretched or shocks to income that erode repayment capacity?

Because there is a definable probability that individuals will become delinquent on their financial obligations – based on their characteristics – (see, Greene 1998), this dichotomous outcome (delinquent or non-delinquent) can only be reliably generated by probabilistic models, such as logit or probit. For this study, binary dependent variable logistic regression models were estimated to test whether a household's reaction to circumstances over the preceding period affects its repayment performance over the following period. The relationship to be estimated takes the general form:

$$Y^*_{it} = \beta' X_{it} + \varepsilon_{it} \tag{1}$$

Where the dependent variable Y^*_{it} is binary, taking the value of one if household i was delinquent at a period t in the 12 months preceding the 2006 survey and 0 otherwise. The independent variables which represent household circumstances reported during the earlier surveys (2002 and 2005) are represented by X, while β is the vector of their coefficients and ε_{it} is the idiosyncratic error. There are three groups of independent variables (negative shocks, expenses-to-income ratio and ability to borrow) and the delinquency risk of a household is represented by:

$$L_1 = \ln\left(\frac{P_1}{1-P_1}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \tag{2}$$

Where:
X_1 is the matrix of shock effects
X_2 is the matrix of measures of excessive spending
X_3 is the matrix of ability to consume
ε is the error term

If Y^*_{it} is large enough in relation to these characteristics, then the household is delinquent on their consumer debts and this probability is represented by:

$$P_{it} = \text{Prob}[Y_{it} = 1 \mid X_{it}] \tag{3}$$

If the error term is normally distributed (i.e., mean 0 and variance 1), then the delinquency probability should be expressed as:

$$\text{Prob}[Y_{it} = 1 \mid X_{it}] = \text{Prob}[Y^*_{it} > 0 \mid X_{it}] = \text{Prob}[\varepsilon \leq \beta' X_{it} \mid X_{it}] = \Phi(\beta' X_{it}) \tag{4}$$

Where $\Phi(\ )$ is the standard normal cumulative distribution function (see, Evans et al., 2002), classified as:

$$Y_{it} = 1 \text{ if } \Phi(\beta' X_{it}) > P^* \tag{5}$$

To test the effect of excessive spending on repayment performance, quintiles of the household expenditure burden (expenses-to-income ratio) were created to see if households at the top of the distribution of the expenditure burden are more likely to experience repayment difficulties. Breaking the variable into quintiles reduces the likelihood of heteroscedasticity in the regression analysis. Households with the expenditure burden below the first percentile and above the 99th percentile were eliminated as extreme outliers.

Comparing household income between the 2002 and 2005 waves of the survey made it possible to identify households who experienced an income shock. Dummies for random shock, expenditure shock, increase in family size, and subjective financial pressure were also included to see if other sources of financial strain matter for delinquency.

In addition, some modest wealth related effects (i.e., homeownership, financial buffers, and per capita income) are included in the analysis to control for credit quality. In essence, the model estimated is a combination of household characteristics visible to lenders in credit applications and the unobservable ones (ex-post shocks) which should affect the size of the error term in lenders' credit scoring algorithms.

Multivariate logistic regression models are specified in a framework that assumes that, if households pass lenders' due diligence, then subsequent repayment difficulties will not result from the fact that they consumed excessively, rather from ex-post disruptions in their income streams. In other words, the level of consumption is only indicative of the ability to borrow –

subject to idiosyncratic constraints. Hence the coefficients on the dummies for the expenses-to-income ratio, if significant, are expected to be negative.

Thus, households are expected to experience repayment difficulties if they experience shocks to their incomes. Therefore, the coefficients for income shock, random shock, expenditure shock, increase in family size, and subjective financial pressure are expected to be positive. Having to content with higher than normal expenditure needs or with more family members should have the same effect as other events that reduce income. Finally, repayment difficulties are expected to be negatively related to homeownership, financial buffers, and per capita income.

3.2 Results

The logistic regression results (coefficients and their robust standard errors) appear in the Table 4. All the coefficients of the variables have the expected signs whether significant or not. The most notable finding is that all the variables representing financially adverse circumstance were robust and positive – even when controlling credit quality.

Experiencing a reduction in income increases the risk that the household will not pay its debts when due, possibly because they lose the capacity to do so or they might be forced to divert the resources to other more binding expenditures as a way of preventing further deterioration in family welfare. Other such variables that negatively affect the ability of households to meet their payment obligations on time were random negative events (e.g., death, illness or divorce), increase in expenditure needs and increase in family size. Although this could not be deduced from the data, such variables could represent adverse changes in household circumstances after a credit request has been granted. Indeed, indebted households may become suddenly unable to committee to their repayment obligation if they should experience a negative trigger event such as an inability to work through injury. The extra costs of dealing with these random events and/or the resultant reduction in income might even damage or erode the value of precautionary wealth. Additionally, unanticipated increase in the cost of living (e.g., through increases in family size and/or budgetary requirements) might have the same effect even when incomes remain stable.

Families who reported feeling financial pressure were more likely to be delinquent on their consumer debt repayments. If families feel that their financial situation is poorer than it should be, they are likely to exercise greater caution when choosing how to spend their money. They may skip payments in order to prioritise resources at least in the interim.

Another important finding is that there is no compelling evidence to suggest that excessive spending is related to consumer debt delinquency. The expenditure burden was only significant at the lower end of the distribution of variable (second quintile) and negative while other quintiles were not statistically significant. The results were similar even when controlling for credit quality. One possible explanation for this would be that any level of expenditure is subject to a certain limit. Those who buy with cash will only buy as much as their cash can allow, whilst those who depend on credit to finance consumption will be constrained by lenders' credit limits – commensurate with their capacity to repay. Note that rational lenders are less likely to invite financial losses by lending more than what consumers can comfortably repay. As such, the level of consumption undertaken will be only a reflection of a consumer' capacity to consumer (or solvency) rather than a crisis

Of the three covariates of credit quality, only homeownership was significant and negatively related to delinquency while per-capita income, and financial buffers were insignificant. This result is not surprising given that lenders are able to observe these characteristics before the credit is granted and therefore, will not matter for future repayment performance. Since household wealth status can change after the credit has been consumed, it is sensible that current per-capita income, and/or financial assets will not be related to later delinquencies as debts are expected to be paid from future incomes. While the negative sign on homeownership is intuitive, homeownership is a weak indicator of wealth in South Africa since the government's RDP policy has enable many poor people to own homes while many rich people are renters.

A similar analysis was conducted only on households who experienced a negative income shock (first column on the right) and those whose income increased or remained stable (second column from right). In both analyses, excessive spending was not related to delinquency. For households whose

income remained stable or increased, random negative shock and expenditure shock were the primary determinants of delinquency. Even where incomes meet or exceed expectations, households are still likely to experience repayment difficulties if they should suffer from negative trigger events that affect expenditure needs especially since many South Africans are inadequately insurance against risk (see, e.g., Collins & Leibbrandt 2007).

In the model conditional on experiencing negative income shock, expenditure shock was the primary determinant of debt delinquency. This suggests that, household consumption needs can be binding and will not necessary respond to the negative changes in financial circumstances. Household will still need to cater for their dependents' ongoing subsistence even when they experience negative income shocks. To manage this, rational households might decide to abandon or defer their repayment obligations.

Table 3: Default risk logistic model for income shock and excessive spending

	Dependent Variable: Delinquent = 1 Not delinquent = 0			
		With ability to borrow	Income increased / stable	Income decreased
Income shock	0.01***	0.02**		
	(0.01)	(0.01)		
Random shock	0.32**	0.37***	0.75***	0.05
	(0.13)	(0.14)	(0.20)	(0.18)
Expenditure shock	0.41***	0.49***	0.43**	0.66***
	(0.13)	(0.14)	(0.20)	(0.20)
Family size▲	0.26**	0.23**	0.30*	0.19
	(0.11)	(0.11)	(0.17)	(0.15)
Financial pressure	0.37***	0.36***	0.29	0.37**
	(0.12)	(0.13)	(0.20)	(0.17)

Exp-to-income 2	-0.36**	-0.37**	-0.38	-0.35
	(0.17)	(0.18)	(0.26)	(0.25)
Exp-to-income 3	-0.28	-0.31	-0.42	-0.17
	(0.17)	(0.18)	(0.26)	(0.24)
Exp-to-income 4	0.00	-0.01	0.00	0.03
	(0.17)	(0.17)	(0.26)	(0.23)
Exp-to-income 5	-0.18	-0.20	-0.19	-0.05
	(0.17)	(0.18)	(0.30)	(0.23)
Per capita income		-0.00	-0.00	0.00
		(0.00)	(0.00)	(0.00)
Financial assets		0.28*	0.24	0.19
		(0.16)	(0.28)	(0.20)
Homeownership		-0.65***	-0.49**	-0.74***
		(0.12)	(0.19)	(0.15)
Intercept	-2.15***	-1.86***	-2.00***	-1.88***
	(0.20)	(0.26)	(0.42)	(0.36)
N	2,316	2,282	1,076	1,206
Log likelihood	-1070.84	-1037.92	-445.12	-587.46
AIC	2161.69	2101.83	914.24	1198.92
chi2	49.515	83.079	42.252	43.808
Pseudo R^2	0.022	0.038	0.042	0.037

*Note: Robust standard errors in parentheses; AIC refers to: Akaike information criterion for measure of the relative goodness of fit. *** p<0.01, ** p<0.05, * p<0.10*

In a nutshell, the evidence suggests that income shocks and other trigger events that increase strains on the family budget are more important in explaining consumer debt repayment difficulties than the household's expenditure burden. It is important to acknowledge that excessive spending might render some households more sensitive to trigger events. Some consumers might be treading

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on the edge and borrowing on top of huge outstanding bills. Naturally, such consumers will be more sensitive to trigger events than the average consumer who borrows sparingly. Nonetheless, excessive spending does not appear to be important overall. These findings support the hypothesis formulated.

4. Conclusion and Implications

This analysis used the CAPS data to investigate whether South African households were more likely to be delinquent on their consumer debts as a result of shocks that negatively affect their economic circumstances or as a result of excessive expenditure that renders households financially overstretched. The findings of the logistic regression analysis indicate that households are more likely to experience debt repayment difficulties if they suffer from negative income shocks and other circumstances that alter their financial circumstances. The level of household expenditure burden (expenses-to-income ratio) was not significantly related to arrears – even when controlling for household's ex-ante ability to repay (i.e., credit quality). The inference then, is that, insofar as lenders evaluate risk, they will only lend amounts consumers are able and willing to repay such that the size of the repayment burden will only reflect a household's ability to access credit rather than delinquency risk.

Because lenders have an intrinsic profit motive and an aversion to loss, they will have no incentive to see households borrowing more than they can comfortably repay rather, they have a greater incentive to self-regulate. This suggests two things: first, excessive spending is less likely to be a major factor in the repayment performance for the majority of credit-active households. Second, the concept of reckless lending might be over exaggerated in the well-meaning academic and political discourses, perhaps even a myth.

Complementary to the above, the importance of trigger events suggests that even where households borrow within their means, repayment difficulties are still likely to occur if households should experience ex-post disruptions in their income streams. This suggests further that, while traditional credit risk evaluation procedures might reduce the preponderance arrear on consumer debt, their inability to account for the likelihood of shock means that consumer debt problems cannot be completely eliminated. Credit underwriters would do well

to incorporate situational factors in their credit risk models. Predictive models should incorporate as many variables that measure sensitivity to shock as possible. Factors such as local economic conditions, overall dependency or type and level of insurance, among others, should provide some information to the end.

Overall, it is unlikely that there will be enough information to warn lenders of the possibility that debtors will experience economic shock post-consumption. Given this perspective, it makes sense to accept consumer debt delinquency (or over-indebtedness) as an inevitable feature of the credit system. The implication for credit regulation in this respect is clear. In a context like South Africa where idiosyncratic shocks are widespread and often have longer lasting consequences, tighter regulations on credit granting cannot be enough to eradication debt delinquency (i.e., because factors responsible for debt repayment difficulties are often beyond lenders and consumers' control). Post-consumption regulatory interventions with tightly regulated measures for relief and rehabilitation of consumers' indebtedness are as important, if not more so. The current legislation (the NCA) falls far short in this respect, and this is to be expected, given that the arguments that preceded its formulation solely blamed consumer debt problems on lenders' irresponsible practices. Neither the DTI's policy document, nor the politicians in the portfolio committee saw consumer debt problems as a function of circumstances beyond lenders' and consumers' control and that was a costly oversight which needs to be revisited.

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