Changes in Household Behaviour in times of Political instability: A study from South Africa

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Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Cover Letter

To whom it may concern

I am wanting to submit this article to the South African Journal of Economic and Management Sciences (SAJEMS). SAJEMS is accredited by the Department of Higher Education and Training of South Africa.

I believe this article will contribute to the economic literature of SAJEMS and the research conducted is important for South African economics and studies. The article looks directly at the consumption behaviour by South Africans in response to changes in South Africa’s political stability, this makes the journal an important part of South African economics, especially due to recent politically volatile periods.

The article written follows the author guidelines provided by SAJEMS. The article makes use Harvard referencing and is less than 7 000, contains 6 tables and less than 60 references, as stipulated by the SAJEMS guidelines.

The article written follows the sequence provided by SAJEMS and is set out as follows: introduction, literature review, data and methodology, results and discussions and conclusions.

Kind Regards

Jillian Elfick
Literature & Theory Review

Introduction

Academic literature and studies have increasingly looked at the effect that perceived macro political instability and uncertainty have on the economic growth of countries and, in particular in developing countries, how the persistent political instability has contributed to low economic growth rates (Ifere & Okoi, 2017). South Africa’s economic climate is categorised by decreased economic growth and reduced global competitiveness due to poor leadership, corruption and state-capture (Martin & Solomon, 2016). This study defines political instability as perceived instability in the decision making of those in political power of a country.

Traditional macroeconomic growth models put emphasis on local variables such as household demand and consumption behaviour, human capital and resources in addition to macroeconomic variables when determining the relationship between economic growth and household behaviour (Sorensen & Whitta-Jacobsen, 2010). These models provide an insight into how changes in household behaviour affect changes in economic growth and how the individual perceptions that change consumer behaviour have a larger overall impact. Recent studies done in West African countries contribute to this knowledge, indicating that poor governance and political instability have a negative relationship with economic growth (Okafor, 2017).

This article aims to investigate the relationship between the political stability perception of individuals in South Africa and their changes in household consumption behaviour over the past ten years during South Africa’s challenging economic climate.

Political Stability in South Africa

The recent years of poor and corrupt leadership in South Africa has led to a decreased economic growth and decreased global economic competitiveness in South Africa (Martin & Solomon, 2016). The South African economy is currently in decline, with unsustainable growth in the public sector, a high unemployment rate of about 27% and decreases in
exports, commodity prices as well as a constantly falling rand (Martin & Solomon, 2016). The Zuma leadership, led by a state capture designed to enrich a select group of individuals, destroyed public trust in the state and confidence in the economy of South Africa (Swilling, 2019). Swilling (2019), indicates that in order to attempt to resolve this crisis the networks created between individuals involved in state capture need to be broken, a new national economic consensus which addresses investment needs to be established and the government needs to create steps to realise the vision of this economic consensus.

The cost of this state capture and corruption in South Africa has had long lasting effects and contributed to the economic decline of the country. This cost of corruption includes the losses in investment in the country largely from Foreign Direct Investment and decreases in the development of the private sector (Farzanegen & Witthuhn, 2017). In addition to this, increases in corruption have also seen to increase poverty and inequality as a result of mismanaged institutions, which have not benefit the entire nation, but a select few (Farzenegen et al., 2017). This financial decline could be led by financial decisions that have been made purely due to political reasoning, increasing the link between political instability and economic decline (Steinberg, 2017).

Acemoglu and Robinson (2015), in their study of “The Rise and Decline of General Laws of Capitalism”, conclude that changes in the organisation of social and economic groups of a country lead to changes in political institutions and political power of the country. These institutions, in turn, directly affect the economic institutions of the country which affect the skills and technology, ultimately altering the economic performance of the country (Acemoglu & Robinson, 2015). It, therefore, seems evident that political unrest would also affect the stability of economic institutions in the country, and that this political instability leads to economic decline within the economy.

Literature has provided many alternative definitions on the concept of political instability. Ake (1975), defines political behaviour as acts by any member of a society that aim to change the distribution of power regarding the ability to make decisions for that society. Political instability, therefore, could be seen as the unstable distribution of this power, resulting in constant changes in the political power distribution. This study defines political instability as perceived instability in the decision making of those in political power of a
country. In addition to the concept of political instability being defined in different ways, the measurement of this political instability has also differed greatly in literature.

**Measures of political instability**

Macroeconomic models have been developed and improved over the years and can predict quantitative changes in the economy due to changes in the independent variables. While it is possible to accurately measure the economic growth of a country, it is more challenging to provide quantitative measures of political instability. Various measures have been used within literature, and these vary largely depending on both the affected country and the political shock/event that occurred.

Giesing and Music (2019) conclude that political instability can be defined in multiple ways including executive instability, political unrest and political violence. The paper looks at the Egyptian uprising and uses the number of deaths that occurred during the demonstrations as a proxy for political instability. While their measure provided an accurate proxy for their study on a specific external violent shock, it would not be feasible to use in a study on political instability which is not caused by a singular event, but rather by corruption and multiple non-violent events. In an attempt to create a measure for non-violent political instability, a more macroeconomic approach could be taken.

A macroeconomic uncertainty could be measured with multiple variables including: inflation, real interest rate, exchange rate volatility, exchange rate uncertainty and interest rate uncertainty (Escaleras & Kottaridi, 2014). Escaleras and Kottaridi (2014) focused on the volatility of the real exchange rate and the inflation rate of a country in order to measure the macroeconomic uncertainty and volatility. These independent variables were then used to model the effect that the macroeconomic volatility had on private investment within the country. These measures, however, are not specific to political instability.

Ravettia, Sarrb and Swansonc (2018) create a measurement for political instability which was asked to individuals and coded according to their answers. These two questions asked to individuals asked if the current leader of the country had used armed force against the country in an attempt to gain political power and whether there were mass demonstrations that contributed to the new leader being selected (Ravetti, 2018). The answer was coded as a “1” if the answer to either question was yes. This measure of
political stability, however, is only valuable when there has been a transition in leadership in the country and if that transition has been seen as violent.

Col, Durnov and Molchanov (2016), in their analysis of the effects of foreign political instability on the allocation of firm capital abroad, look at the firm exposure to foreign political instability during times of national elections within the foreign country. The measure of political instability is constructed through analysis of the national elections campaigns and the local media coverage of the national elections. While this measure also relates to a turnover and change in the rule of government, it relies on less extreme and violent measures.

Further political instability is created by changes in the dynamics of the ruling political party. This type of political instability could be measured in numerous ways, including the number of changes occurring within the political cabinet (Aisen & Veiga, 2013). In addition to this, Cumming, Rui and Wu (2016), use the turnover frequency of government officials in China in order to measure the degree of instability. This is done in order to determine the relationship between Chinese investment in innovation and the political instability in the country (Cumming, et al., 2016).

Other measures of political instability used in literature include using measures of protests and violence (Williams, 2017). Ifere and Okoi (2018), use different variables to include the turnover in the national assembly, the number of votes by which the ruling party won and control of governorship seats by the party at the centre, which are provided by the African Elections Data Base and INEC. Uddin Ali and Masih (2017), in their discussions on the relationship between political stability and economic growth, use macro perceptions of political stability, provided by the Worldwide Governance Indicators in order to generate their index of stability. These variables are unpacked and discussed in this article’s ‘methodology’ section.

Hendrix and Kang (2019), indicate the need for an ‘upgrade’ on the current measures of political stability. In their paper they analyse the current models predicating political instability, and indicate that forecasting these measures of political instability is difficult due to rare and unpredicted political events, which literature has used to construct indices as discussed above. The paper highlights a forecasting model that was developed by the United States’ Political Instability Task Force in 2010 which used multiple variables in order to forecast the expected political instability of a country (Hendrix & Kang, 2019). These
variables included different economic and environmental variables including: infant mortality, surrounding countries’ political instability, strength of democracy and the treatment of minority groups by government (Hendrix & Kang, 2019). This indicates that political instability can be measured by alternative measurements and should not be limited to events around changes in political rule.

**Economic Growth Theory and Political Stability**

Political stability and its effects on the macroeconomy have been largely researched. Traditional macroeconomic growth models both in the short and long run put emphasis on human capital, natural resources, investments and open-economy fluctuations such as exchange rate changes (Sorensen & Whitta-Jacobsen, 2010). In today’s globalized economy, foreign investment, business confidence and international ratings largely affect the investment a country receives and therefore, its ability to grow and prosper. Kapri (2019), in his analysis in South Asia, using South Asian firm level data concludes that increased political instability increases the likelihood of firms entering and expanding in foreign markets as opposed to growing in their domestic markets. While often not specifically measured in traditional macroeconomic models, it is often inherent that global confidence in the country, and external views of stability of the country, affected by changes in the political landscape and conflict within the country negatively affect the growth rate of the country.

Various proxies for political stability, as described above, have been used with models of endogenous economic growth to confirm this relationship. In particular, research has indicated that there is a strong relationship between political stability and economic growth in developing countries, which has been researched due to increased and persistent fiscal deficits and low growth in developing countries since the 1970s (Ifere & Okoi, 2017). Georgiou, Kyriazis and Economou (2015) indicate that this relationship exists specifically in democratic regimes, where political stability is positively related to economic freedom which increases both investment and economic growth of the country.

These results indicate that increases in political stability directly affect the perceived economic freedom of individuals and people and companies act on this by increasing their investment. The Index of Economic Freedom, has been developed by the Heritage
Foundation and uses measurements that relate to: the rule of law of a country, the limitation of governance, the openness of markets and the regulatory efficiency of a country in order to determine the economic freedom of individuals within that country (The Heritage Foundation, 2019). This index is further looked at in the methodology section of this article.

Evidence from the Economic Community of West African States (ECOWAS), which has been characterised by political uncertainty through corruption and political unrest, show that the poor governance and unrest in these countries have a negative relationship with economic growth (Okafor, 2017). Uddin, et al., (2017) use a combination of macroeconomic measures and concur with the above-mentioned relationships in their analysis using panel data of 120 countries. Changes in economic growth are measured through multiple variables including inflation, real interest rate uncertainty, exchange rate volatility and uncertainty (Escaleras & Kottaridi, 2014). While these measures affect macroeconomic and international behaviour of a country, they also affect the individual consumer of a country through volatility in private investment and other behavioural choices (Escaleras & Kottaridi, 2014).

Increased policy and political uncertainties negatively affect economic growth through rational investment behaviour by individuals, as individuals will base their private investments on the perceived positive return on investment (Gholipour, 2019). While this relationship has been tested on a global scale, different countries and cultures would react differently depending on the savings culture present in that country. Owusu-Sekeyere (2017) notes that South African’s highly credit driven consumption behaviour may result in less changes in investment behaviour and instead lead to increases in credit in times of macroeconomic instability.

Changes in political stability, as with macroeconomic stability, affect economic growth by internal measures of changes in consumer behaviour. Both political instability and conflict lead to decreased economic growth of a country through changes in the labour supply and productivity caused by changes in the wealth effect of the country (Barseghyan & Battaglini, 2016). This wealth effect exists where consumers alter their consumption pattern based on their perceived wealth, which is seen to have decreased due to increased political instability (Barseghyan & Battaglini, 2016).
Tabassam, Hashmi and Rehman (2016), studied the relationship between political instability and economic growth in Pakistan and conclude that there is a negative relationship. In line with the findings of Barseghyan and Battaglini (2016), Tabassam, et al., (2016) indicate that this is largely due to a decreased productivity in the country. Their results show that this decreased productivity is a result of decreased investment in the country. They further expand on this relationship and state that these decreases in investments further increase inflation and unemployment which may increase uncertainty and unrest within the country, increasing the probability of demonstrations and protests (Tabassam, et al., 2016). These findings give the illustration of a circular flow of political instability which seems difficult to disrupt. These changes in the political stability of a country affect individuals in ways shown here as well as affecting changes in individual consumption patterns and behaviour.

**Effects on consumer behaviour with increased political instability**

It is evident that household behaviour affects the economic growth rate of a country through consumption, savings and private investment. While there is literature supporting the macroeconomic channels through which the political uncertainty of a country results in economic decline and a decreased aggregate consumption response, there is limited literature that tries to understand how the households change their consumption and saving patterns after an uncertain political shock (Aaberge, Liu & Zhu, 2017). These uncertainty shocks in political instability are usually rather short and detailed data is needed in order to analyse the initial impact of the uncertainty shock and how the households adjust to the new steady state (Aaberge et al., 2017).

Research has shown that some major political events and times of uncertainty which increase the view of political instability within a country have major economic impacts in the short and long term (Aaberge et al., 2017). For example, retail values in the United States decreased by 2.5% in the month following the 9/11 attack in September 2001 (Aaberge et al., 2017). This indicates that consumers were acting in a precautionary manner, by increasing savings in the event that the uncertainty had to continue.
A study done on the Egyptian uprising of 2011, using representative household survey data, found that households that were affected by the uprising increased their spending on education, spent less on health care and increased their savings (Giesing & Music, 2019). This behaviour could be viewed as more precautionary behaviour, while citizens were evidently positively investing in the future after the uprising (Gieseng & Music, 2019).

The observations from the political rising in Egypt indicated that the households that were affected by the uprising, increased their savings, when calculated as the difference between disposable income and household expenditure (Gieseng & Music, 2019). It was indicated that those that were heavily affected by the uprising, saved approximately 25% more than those not affected. Gieseng & Music (2019) found that there was both a decrease in expenditure and net wage of individuals following the revolution. This decreased expenditure can, therefore, be explained by both the increase in savings and the decrease in wage value.

The increased savings phenomenon was also noticed in China, with a political shock in 1989 with the occurrence of the Tian’anmen Square Movement in Beijing which resulted in a change in the political structure of China. Using monthly panel consumer data, it was seen that in the month preceding the event, the average saving rate increased by 18% (Aaberge et al., 2017). It was also noticed that the increase in the savings amount was larger the older the head of the household was(Aaberge et al., 2017). Furthermore, the overall wealth of the household affected the precautionary behaviour, as savings rates were seen to be higher in wealthier households (Aaberge et al., 2017). This relationship, however, could also be due to an inability of the lower income households to save due to increasing costs of goods and services. The increase in saving was noted to be mainly due to a decrease in semi-durable consumption during the time of increased political uncertainty.

The study on the political uprising in Egypt, also found a relationship between the shocks and effects on education expenditure. Gieseng & Music (2019) indicate that the relationship with education is vital as education plays a stabilising role in an economy. The study notes that education can be seen as either a consumption good or as an investment for the individual households, and the effect on the amount spent on education differs depending on the believed outcome that the political instability will bring (Giesing & Music, 2019). Ali and Memon (2018), also found predicted positive relationship between
economic growth and education, where human capital is seen to be robustly and positively related to increased economic growth.

Ouili (2017), concludes that the effect of the armed conflicts in Ivory Coast affected children’s education differently depending on their level of education. The study noted that the conflict had a negative effect on children’s school enrolment, resulting in a 15% decrease of enrolment rates during conflict (Ouili, 2017). In addition to this, students between twelve to twenty-four years old, had an decrease of two years in average schooling, which relates both to students being involved in the conflicts and students leaving school in order to join the labour force (Ouili, 2017). Although this study was modelled on an armed conflict and not on more “peaceful” political instability as in the case of South Africa’s state capture, it provides insight into changes in education during times of uncertainty.

Gieseng & Music (2019) also looked at the relationship between political instability and health expenditure. The results showed that in times of uncertainty the general expenditure on health decreased across all income levels. In the case of South Africa, health expenditure differs largely due to the use of public or private healthcare and the accessibility of healthcare to the average household in South Africa.

In addition to physical health expenditure, literature has also found a predicted positive relationship between political stability and mental health. Ott (2011) found that good governance within a country led to an overall increased happiness amongst citizens of the country. In addition to this, an increase in good governance led to lower inequality of happiness measures amongst citizens. Woo (2018), however, found that happiness is only positively associated with good governance, and therefore, political stability in countries that are classified as high-income. In addition to the consumption and spending patterns of households, the literature has also noted a change in employment type and desired sources of income of workers in times of political instability.

In addition to the consumption and spending patterns of households, literature has also noted a change in employment type and desired sources of income of workers in times of political instability.
Consumers & Politics in South Africa

Formally employed workers by nature have more income security and may respond differently to the changes in political instability than workers who have less income security and stability. A study looking at the informal or “precarious workers” in South Africa, shows that there has been an increased in importance of households in the livelihood of these workers (Scully, 2016). These precarious workers have complex lives as they rely on a combination of different income sources and do not have the stability of a fixed income (Scully, 2016).

The number of these “precarious” workers in South Africa is increasing and the income volatility and uncertainty that comes with the increased precarious work indicates that these workers may be more concerned with changes in the political landscape. Scully (2016), uses National Income Dynamics Survey (NIDS) data from 2016, to conclude that there seems to be a shift from traditional labour politics due to this increase in precarious work.

The economic shift in South Africa which has resulted in less wage paid labour and more informal labour could indicate that the South African workers and households are more likely to react to changes in the political stability of the country. This is because this form of labour is seen to be more economically unstable than formal employment. In addition to this, it has been indicated that the degree to which the household susceptible to changes in the political environment is dependent on the percentage of household income this informal work constitutes (Scully, 2016).

A pattern of increased informal labour after a time of political instability was also determined in a study looking at the effects of the Arab Spring. Elsayed and Wahba (2019), found that the political instability that surrounded the Arab Spring resulted in increased informal work for both highly-educated and skilled workers and unskilled workers (Elsayed & Wahba, 2019). This study seems to concur with the results of increased informal workers in South Africa, and the differing effects that political instability have on formal and informally employed workers in South Africa need to be analysed and unpacked in this study.
Precautionary Saving Behaviour

The changes in consumption patterns of consumers can be understood by various consumer theories that try to understand the reactions of consumers from external shocks. Consumer behaviour theory tries to analyse the effects that changes in the economy and the certainty of outcomes has on the behaviour of consumers and households. A rational, stable consumer changes his consumption as conditions change, but it is noted that a more reasonable and cautious consumer, in normal times, changes consumption patterns slowly and could even be considered to maintain a stable consumption pattern in the long run (Goodwin, 2017). However, major shocks and events creates a sense of uncertainty which could disrupt the normal behaviour of a consumer.

Precautionary savings theory aims to try to understand this relationship between risks and saving behaviours. Naranjo and Gemeren (2016), understand this precautionary savings to be the additional savings that individuals embark on in order to reduce the amount of vulnerability an individual has towards external shocks such as changes in political stability.

Baiardi, Magnani and Menegatti (2013), in their analysis of precautionary savings, try to understand the effect that labour income risk and interest rate risk have on saving. Their results also indicate that there is an increase in precautionary saving when there are larger risks that affect the certainty of future income.

When looking at the effect that the political instability had on saving rates in China, Aarberge et al. (2017) use theoretical models of buffer-stock saving and the results align with the conclusions from Baiardi et al. (2013). This model predicts that household consumption will decrease in times of uncertainty; this happens quickly and is accompanied by an increase in the saving rate.

Analysing the determinants of household saving in South Africa, Syden (2014) concluded that the consumption patterns of South African remained relatively stable during the period 1994-2009, and that decreases in economic performance of the country resulted in increased household debt. There has been a gradual decline in private savings rates in South Africa in recent years, but, it also is important to note the increase in informal or “stokvel” savings within the country (Koenane, 2019). “Stokvels” relate to the informal savings clubs and societies in South Africa, and these stokvels play an important part in
the economic development of South Africa and contribute to improving the economic distribution within society (Koenane, 2019).

Hypotheses Development

There is limited literature that explores the effect of perceived instability from an individual, micro-level without focussing on externally developed indices for stability at a macro level. Current literature on the changes made by households in times of political instability are largely focussed on political instability arising from more violent events and not on gradual changes in personal perceptions. The results from the current literature indicate a change in households’ savings rate, expenditure on education and health and an increase in informal employment due to increases in political instability. This study aims to unpack these relationships at a micro, household level.

From the literature discussion, hypotheses have been developed that are used to analyse the effects of political stability on consumer behaviour:

- **H01**: An increase in perceived political instability leads to an increased private saving rate by consumers.
- **H02**: An increase in perceived political instability leads to an increased investment spending on human capital.
- **H03**: An increase in perceived political instability leads to a decreased spending on health care.
- **H04**: An increase in perceived political instability leads to an increased reliance on alternative sources of income.

Conclusion

In conclusion, this study will aim to contribute to literature by understanding the effects that perceived political uncertainty and instability have had on the South African economy over the past 10 years. The study will focus on how the perceived political stability of individuals in South Africa affect their household consumer decisions. Literature has been conducted between the relationship of macroeconomic views on political stability as well as specific uncertainty shock variables and the impact these have had on the consumption decisions.
of households of that country. From the literature researched, a gap exists in literature on the creation of an index of perceived political stability from a micro-level (individual) consumer perspective and how individuals change their consumption due to their own changes in perceived political stability. This study aims to contribute to literature on political stability and consumer behaviour by providing a link by individual perceived political stability and individuals own household consumption behaviour.
Methodology Used

Choice of Methodology

The study followed a positivist paradigm as it looked at observable social realities and concluded with unambiguous solutions (Antwi & Hamza, 2015). The study used quantitative methods in order to defend the hypotheses presented by using dependant and independent factual and quantitative data. In addition, the study focused on providing measurable and observable facts in order to defend the hypotheses presented, which are required for a positivist approach (Saunders & Lewis, 2018). The study was designed in order to follow this paradigm.

The design of this quantitative study follows a deductive approach. This approach is used because there is an existing theoretical base around consumer and household behaviour in times of uncertainty and instability (Saunders & Lewis, 2018). The theory presented in the literature research provides an over-arching view on the movements of households and the different hypotheses are used to test these theories in the case of South Africa. Traditional macroeconomic theory has explored the relationship between political instability and macroeconomic fluctuations. Empirical research conducted to determine the relationship between political stability and household behaviour is, however, sparse. It is here where this study aims to contribute to the literature.

The research design of this study also followed a descripto-explanatory design (Sekara & Bougie, 2013). The study is explanatory, as it sought to describe the phenomena that has occurred due to a causal relationship between variables. The study considers changes in the perceived political stability of South Africa and sees how this affects the dependent variables of household behaviour. The analysis of these variables aimed to determine the causal relationship between perceived political instability and certain changes in household behaviour. Following the research design, a design strategy was formulated in order to create a research plan.

An experimental design strategy is followed in this study (Sekara & Bougie, 2013). The study has identified a research problem as the way household consumption behaviour
changes in times of political instability. In order to analyse the effect of the change on the household behaviour, numerous hypotheses were formulated. These hypotheses were tested against secondary data, namely the National Income Dynamics Survey (NIDS) data (see explanation of the data and its collection in the section below), while holding the independent variables constant and testing how the changes in the political instability impact household behaviour.

The study uses a longitudinal panel approach in analysing the data. A longitudinal approach is needed as the study relies on the ability to view the change and development of the relationship between the variables over time (Lewis & Saunders, 2018). The panel study considered data from the years 2008-2018, which are part of the 5 NIDS waves. A longitudinal panel approach will be able to identify and evaluate trends in the data.

The study made use of secondary data, primarily NIDS data available from the South African Labour and Development Research Unit (SALDRU). In addition to this, variables provided from the Worldwide Development Indicators were used in order to compare the generated index of political stability against (World Bank, 2019). The Consumer Price Index (CPI), is used in this study and was obtained from World Bank Data (World Bank, 2019).

**Proposed research methodology and design**

**Population**
This study looks at the affect that individual’s perceived measure of political instability in South Africa affects changes in their consumption behaviour. In order to analyse these changes, the study makes use of panel data, collected over the past 10 years in five different waves by South African Labour and Development Research Unit (SALDRU).

This study uses quantitative, raw data from the National Income Dynamic Study (NIDS) which made available by the University of Cape Town. The data is collected through a project by SALDRU. The NIDS database is South Africa’s first household panel study, which aims to be a representative study of all South Africans (Brophy et al., 2018). This dataset was created to try and understand shifts in poverty in South Africa and examines the changes in household’s livelihood over time. In addition to this, questions are asked to
individuals which try to understand how households adjust to different shocks (Brophy et al., 2018). The data is collected through surveys which are given to the same individuals in each wave and collected using Computer Assisted Personal Interviewing (CAPI) software from field workers (Brophy, et al., 2018).

The NIDS dataset is made up of several data files which include: household questionnaire, household roster, adult, child and proxy surveys, household derived, individual derived and an admin data file. These data files are generated for each wave and are available in both a public and private release. For the purpose of this study, only the publicly released data was needed.

The panel data contained in the NIDS data is compiled by surveying the same individuals and households bi-annually. The data is published every two years, which is termed a “wave”. Each wave consists of an adult, child, household and proxy questionnaire (Brophy, et al., 2018). There are currently five waves of data available, as the first wave was made available in 2008. Where Scully (2016) uses only the third wave of NIDS data, this study made use of all five waves currently available.

This study follow’s Greyling and Rossouw’s (2019) methodology. They utilise the first four waves of NIDS data in their analysis of micro-loans on the non-income quality of life. This study uses all five current waves of NIDS data, which increases population size used by Greyling and Rossouw (2019). The NIDS dataset is seen to be a nationally representative dataset and active measures, as described under “sampling method and size”, have been taken to ensure the data remains nationally representative even after high attrition rates.

**Unit of analysis**

The unit of analysis is the country of South Africa, and political changes that have occurred in the recent years. The units of observation are therefore the households that are continually interviewed over the different waves.
Sampling method and size

This study used a longitudinal approach in order to be able to analyse the effects that changes in the political stability of South Africa have on the behaviour of households in terms of their... In order to create a sample for the population of NIDS data, the study used a non-purposive, non-probability sampling technique. This is to ensure consistency throughout the five waves of data and that the same households have remained in the dataset over the period studied.

The survey process in 2017 consisted of 39 400 individuals and 20 800 households interviewed (Brophy et al., 2018). The size of the waves has increased over the different waves, as NIDS tries to increase the reach of their data. The first wave was collected in 2008, and successive waves of data have been collected approximately every 2 years since. Version 7 of the first wave of data consists of only 16 872 adult surveys, 9 604 child surveys, 1 750 proxy surveys, and 7 296 households surveys, indicating a 149% increase in the number of individuals interviewed (Brophy et al., 2018). Each individual was given a personal identity number (pid), which is used to track individuals through the different waves. The different wave datasets were merged together by the unique pid number, using stata software and then converted into a panel format for further analysis.

The non-probability sampling method ensures that the same individuals are present in all waves. In order to correctly determine the size of households and household variables, children were initially included in the study’s panel dataset. After the household variables were generated, children were excluded from the dataset, so that the panel dataset was balanced in that it only consisted of adults (15 years and older) who were present in all five waves. The reason for excluding children is firstly that children were not asked any questions pertaining to political stability and secondly that the majority of children are not responsible for household expenditure decisions.

Due to non-random attrition rates, individuals in the balanced panel dataset are not a random subset of all persons interviewed in wave one. This is because there was no control over who left the survey due to reasons of: death, relocation, and refusals to participate. Table 1 below shows the attrition rates and refusals over the five waves. In order to adjust for these attrition rates, a balanced panel weight has been constructed by
SALDRU, which has been applied to the study’s balanced panel dataset. This was done by creating a survey panel design in stata which takes panel weights into account (Finn & Liebbrant, 2016).

The panel weight provided in the NIDS database is seen as the inverse of the probability of appearing in the NIDS sample (Brophy, et al., 2018). These weights were created by generating the probability of an individual being interviewed in wave one multiplied by the probability of being successfully re-interviewed in another wave, having been interviewed in wave one (Brophy, et al., 2018). This then creates a panel weight that is essentially the product of the weight of being selected to appear in the successive wave and a weight accounting for the attrition rate of individuals from wave one. This weight was applied to the panel data and used in the Pooled Ordinary Least Squares regression (POLS) in order to determine the effect that individuals’ demographics of the country would have on their perceived political stability.

Table 1 – Attrition of NIDS Survey

<table>
<thead>
<tr>
<th>Reason Participant left Study</th>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Wave 4</th>
<th>Wave 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too Busy</td>
<td>168</td>
<td>141</td>
<td>66</td>
<td>86</td>
<td>440</td>
</tr>
<tr>
<td>Not Interested/Waste of time</td>
<td>346</td>
<td>212</td>
<td>202</td>
<td>298</td>
<td>425</td>
</tr>
<tr>
<td>Questionnaire too personal/too intrusive</td>
<td>38</td>
<td>29</td>
<td>11</td>
<td>13</td>
<td>59</td>
</tr>
<tr>
<td>Don’t trust surveys</td>
<td>78</td>
<td>15</td>
<td>12</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Never do surveys</td>
<td>12</td>
<td>15</td>
<td>14</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>Too old</td>
<td>23</td>
<td>10</td>
<td>6</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>Other (specify)</td>
<td>77</td>
<td>237</td>
<td>63</td>
<td>12</td>
<td>108</td>
</tr>
<tr>
<td>Imputed refusal</td>
<td>317</td>
<td></td>
<td>17</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Not home/Unavailable</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>1 241</td>
<td>659</td>
<td>374</td>
<td>476</td>
<td>1 147</td>
</tr>
</tbody>
</table>

Source: Table adapted data from SALDRU, 2019a-e, National Income Dynamics Study, Waves 1 – 5, Cape Town: Southern Africa Labour and Development Research [producer], Cape Town: DataFirst [distributor].
Measurement instrument & scale

This study made use of secondary data and therefore the instrument used is dependent on the SALDRU data collection team. The instrument includes the three questionnaires presented to individuals and households. These questionnaires are available for the public to view and are accompanied with a user manual which explains the collection process and the variables recorded (Brophy, et al., 2018).

The NIDS data is large and complex and makes use of different scales. The qualifying questions for all individuals and households consist of nominal data which provides gender and race statistics, employment type and relation to the household. These are important in order to determine if different types of people respond differently to these problems in times of perceived political instability.

The dataset includes several interval scale questions, as it the questionnaires ask for employment and income data within a selected category. Education levels, as well as savings and debt amounts are also asked on a category basis.

Ratio data is also provided in the NIDS dataset, which includes salary amount (from formal and informal work), grant amount (if received) as well as the amount of medical aid and/or pension received. The questionnaires provide an in-depth analysis and cover all of the main parts of the household and individual’s lifestyles, day-to-day activities and choices.

Data gathering process

This study primarily makes use of secondary data collected by SALDRU to form part of the NIDS waves and database (see data collection on the NIDS data above in section “Population” above). In addition to this, other secondary data was also collected in order to compare the macro level perceived political stability indices to the generated perceived political stability index as well as to be able to obtain real values for all nominal values in the dataset. These datasets include:

• Consumer Price Index: Data collected from Statistics South Africa

**Analysis approach**

The analysis approach in this study involved the creation of a perceived stability index. This index was then analysed or regressed against dependant variables created from the NIDS data in order to test the following four hypotheses:

• Hypothesis 01: An increase in perceived political instability leads to an increased private saving rate by consumers.

• Hypothesis 02: An increase in perceived political instability leads to an increased investment spending on human capital.

• Hypothesis 03: An increase in perceived political instability leads to a decreased spending on health care.

• Hypothesis 04: An increase in perceived political instability leads to an increased reliance on alternative sources of income.

The analysis section of the methodology is organised as follows: a description of the data used in the macro-level political instability index; a description of the data used in order to construct the micro-level perceived political instability index; the methodology followed in order to construct the perceived stability index; the methodology used to get results. The first political stability index was constructed in order have a macro-level overview on perceived political stability in South Africa, and to have variables against which variables used in the second index (individual perceived political stability) were chosen. The second index was then created to order to have an individual level perceived political stability measure. This measure is then used in order to establish relationships between this perceived political stability and changes in household consumption behaviour.

**Data used in the first perceived political instability index**

Following Uddin et al. (2017) and their analysis on the relationship between political instability and growth (using panel data from 120 countries), table 2 was created to provide
an overview of the different measures of political instability. Uddin et al. (2017) find negative and significant correlations between economic growth and political risk, the corruption perception index and rule of law index. Additionally, positive significant relations were found between economic growth, political stability and economic freedom. Using the same indices and data (obtained from the Worldwide Governance Indicators, the Heritage Foundation and Transparency International), Uddin et al.’s (2017) results were recreated using South African data over the period 2007 to 2017, corresponding to the five NIDS waves. Table 2 was created in order to match them to individual level variables given by NIDS to generate the index of perceived political stability, as described in the section “Second index: NIDS measures of perceived political instability”.

Table 2: Measures of Perceived Instability

<table>
<thead>
<tr>
<th>Source</th>
<th>2008</th>
<th>2010</th>
<th>2012</th>
<th>2015</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Stability</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>-0.2</td>
<td>-0.3</td>
</tr>
<tr>
<td>Government Effectiveness</td>
<td>0.5</td>
<td>0.4</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Political Risk</td>
<td>4.6</td>
<td>4.5</td>
<td>4.2</td>
<td>4.4</td>
<td>4.3</td>
</tr>
<tr>
<td>property rights</td>
<td>67.6</td>
<td>50.0</td>
<td>50.0</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>government integrity</td>
<td>47.6</td>
<td>42.0</td>
<td>41.0</td>
<td>49.0</td>
<td>46.0</td>
</tr>
<tr>
<td>judicial effectiveness</td>
<td>59.7</td>
<td>69.5</td>
<td>70.5</td>
<td>69.1</td>
<td>69.5</td>
</tr>
<tr>
<td>tax burden</td>
<td>70.2</td>
<td>68.2</td>
<td>69.2</td>
<td>76.8</td>
<td>76.8</td>
</tr>
<tr>
<td>government spending</td>
<td>68.4</td>
<td>68.2</td>
<td>69.2</td>
<td>76.8</td>
<td>76.8</td>
</tr>
<tr>
<td>fiscal health</td>
<td>70.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Freedom Index</td>
<td>62.0</td>
<td>73.0</td>
<td>74.7</td>
<td>73.0</td>
<td>71.4</td>
</tr>
<tr>
<td>business freedom</td>
<td>58.9</td>
<td>61.6</td>
<td>55.6</td>
<td>59.0</td>
<td>59.1</td>
</tr>
<tr>
<td>labor freedom</td>
<td>75.8</td>
<td>74.9</td>
<td>75.8</td>
<td>70.2</td>
<td>77.2</td>
</tr>
<tr>
<td>monetary freedom</td>
<td>77.3</td>
<td>76.6</td>
<td>76.3</td>
<td>76.0</td>
<td>74.2</td>
</tr>
<tr>
<td>trade freedom</td>
<td>40.0</td>
<td>50.0</td>
<td>45.0</td>
<td>45.0</td>
<td>50.0</td>
</tr>
<tr>
<td>investment freedom</td>
<td>50.0</td>
<td>60.0</td>
<td>60.0</td>
<td>60.0</td>
<td>60.0</td>
</tr>
<tr>
<td>overall score</td>
<td>62.3</td>
<td>62.6</td>
<td>61.8</td>
<td>62.8</td>
<td>63.4</td>
</tr>
<tr>
<td>World Economic Forum EOS</td>
<td>43.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bertelsmann Foundation TI</td>
<td>45.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMD World Competitiveness Year Book</td>
<td>32.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Justice Project ROL</td>
<td>43.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRS International Country Risk Guide</td>
<td>41.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economist Intelligence Unit</td>
<td>54.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHS Global Insight</td>
<td>42.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall score</td>
<td>4.9</td>
<td>4.1</td>
<td>4.3</td>
<td>4.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Corruptions Perception Index</td>
<td>54.0</td>
<td>54.0</td>
<td>69.0</td>
<td>61.0</td>
<td>71.0</td>
</tr>
<tr>
<td>Index</td>
<td>49.0</td>
<td>40.8</td>
<td>43.0</td>
<td>44.0</td>
<td>43.0</td>
</tr>
<tr>
<td>Rating</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Control of Corruption</td>
<td>0.21</td>
<td>0.13</td>
<td>-0.12</td>
<td>0.03</td>
<td>-0.2</td>
</tr>
<tr>
<td>Regulatory Quality</td>
<td>0.50</td>
<td>0.36</td>
<td>0.38</td>
<td>0.28</td>
<td>0.23</td>
</tr>
<tr>
<td>Voice and Accountability</td>
<td>0.58</td>
<td>0.60</td>
<td>0.58</td>
<td>0.65</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Source: Alternative sources, sources given in Appendix A
Second index: NIDS measures of perceived political instability

In order to create an index for political instability from the NIDS data, answers to questions on perceived measures of stability were selected. This was done for two reasons. Firstly, there has been no consensus in the literature on a definitive measure of political and economic stability. Secondly, the measures from the NIDS data were used in order to create an index at a household (micro) level. As political and economic stability is something that is perceived, it makes sense to use measures from questions that have been answered by individuals in the survey.

For this reason, and the proven relationship between economic growth and political stability, four measures were selected from the NIDS dataset to act as proxies for economic status, rule of law and corruption following the indices used by Uddin et al. (2017) above. These measures are: Current Perceived Income level, trust in neighbours, trust in strangers, current perceived safety.

The construction of a general economic freedom index is seen to include the freedom to engage in transactions and have access to money, the freedom to compete and engage in transactions outside borders, personal choice and property rights (Spruk & Kešeljević, 2015). Economic Freedom is a perceived index and is also noted to be positively and significantly correlated to individuals’ real wages (Ashby, Bueno & Martinez, 2015). As a proxy to this index, the “current Perceived Income step” variable within the NIDS dataset was included where individuals were asked to assess their current income step from 1 to 6, where 1 being the poorest. The same measurement was used when asked about future perceived income, which allows for a suitable comparison between current and future income step.

Hughes et al. (2017) use the order and security dimension of Rule of Law in their analysis, which is created from an index of perceived crime, political violence and social acceptance of interpersonal violence. This they see as a measure of how society assures the security of people. In the NIDS questionnaire, questions of safety were asked to every household which included questions about the frequency of burglaries, muggings and thefts; violence within households; violence between households; gangsterism; murder, shootings and stabbings; alcohol and drug abuse. For a proxy to Rule of Law, this study used the question...
related to the frequency of burglaries, muggings and thefts. The answers to the frequencies of murder, shootings and stabbings could also have been used in this analysis, however it was not asked in wave one and therefore the scope of this answer is limited. When correlated with the question related to burglaries, muggings and theft, the Pearson’s Coefficient is 0.55, indicating a correlation between these two indices. The Pearson’s Coefficient would most likely be higher if all waves were asked the same question Safety is measured on a scale of 1 to - 5, with 5 being “very common” and 1 being “never happens”. In order to generate a composite index with all scores in the same direction, the method of reverse coding was applied to the variable representing safety (Saander, Lewis & Thornhill, 2016).

Newton, Stolle and Zmerli (2018), in their research on links between social and political trust, state that views on social trust and political trust are linked and socially trusting communities tend to have corruption. Also, personal views on social trust are also seen to change in times of rapid economic and political change. Therefore, two questions of social trust are both used as a proxy for the corruption index. The questions asked that if an individual were to lose a wallet with R200 in it, did they believe that 1) a neighbour would return it and 2) a stranger would return it. This variable is measured from 0 to 2, with 0 being “never” and 2 being “always happens”.

The descriptive statistics for the study’s NIDS proxy measures are listed in table 3 below:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Income Step in 2 years</td>
<td>3.49</td>
<td>1.15</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Perceived Income Step in 5 years</td>
<td>4.26</td>
<td>1.28</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Current Perceived Income Step</td>
<td>2.63</td>
<td>0.99</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Trust in Neighbours</td>
<td>0.47</td>
<td>0.73</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Trust in Strangers</td>
<td>0.26</td>
<td>0.58</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Perceived Safety</td>
<td>2.87</td>
<td>1.45</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Table adapted data from SALDRU, 2019a-e, National Income Dynamics Study, Waves 1 – 5, Cape Town: Southern Africa Labour and Development Research [producer], Cape Town: DataFirst [distributor].

From the standard deviations provided in the results above, it is clear that individuals had different views on their perceived income steps, their trust and perceived safety in their environment. In addition to this, by looking at the mean values for perceived income step,
it is evident that individuals assumed economic growth as the mean is higher in both “future steps” than their current perceived step. These descriptive statistics, however, provide a pooled estimation and further analysis is done in this study to find the changes in this view between waves. As perceived political stability is not directly asked in the NIDS survey, a composite index was created from the above measures, This index was then regressed against perceived economic growth and the residual term $\mu_{it}$ was used as a proxy for every individual’s perception of political stability and risk. A detailed discussion of this is provided in the next section.

**Methodology followed in order to construct an instability Index**

Academic literature has provided no consensus on a single measure of economic and political stability. The literature shows different proxies and constructed indices that have been used in order to generate an instability index. In addition to this, literature has predominately been focussed on the perceptions of political instability at a macroeconomic level. Indeed, as shown in the literature review, various studies have found that political stability and economic growth are positively related. Uddin et al. (2017) use macro perceptions of political stability, economic freedom, the corruptions perceptions index and the index of the rule of law in their analysis of the relationship between economic growth and political stability and concur with the above positive relationship.

In order to construct an index for perceived political instability, the method used by Greyling and Rossouw (2019) is followed to generate a composite index using various measures or variables in the NIDS data (as described in the previous section). Greyling and Rossouw generated a composite index of measures at a micro level in order to construct an income-independent quality of life index. Nanzir and Leibbrant (2018) followed a similar methodology in their use of principal component analysis (PCA) in order to create a composite index from the NIDS data on financial literacy.

This study selects measures of individuals’ perceived views on their current economic standing, safety and trust in their surroundings, as described above, and uses them as indicators for macro perceptions. These variables are then each standardised in order to generate a consistent measure of stability. The standardised variables are used to perform a principle component analysis (PCA), which are then rotated in order to generate linear components with the maximum variance of original variables (Jolliffe & Cadima, 2016). In
order to test the choice of PCA to develop the index, the constructed index is correlated with an index made with equal weighting of the variables. The Pearson's correlation coefficient is equal to 0.74 and the PCA method is therefore chosen, as it assigns weighting to independent variables in order to generate the maximum variance.

Next, the first principle component was selected, as it represented an objectively weighted composite index measuring economic, safety and trust stability in this study (OECD handbook, 2008). This index is then regressed against the standardized variable representing an individual’s future perceived income standard in two years’ time. The result of this regression is significant. The residual is retained and is interpreted as the individual’s perception of political stability. This function of the index of perceived political stability is seen as:

\[ std\gamma_{it} = \alpha + \beta Q_{it} + \mu_{it} \]  

[Eqn. 1]

Where \( std\gamma_{it} \) is the standardised future perceived income step, as described above, and \( Q_{it} \) refers to the generated stability index for individual \( i \) in the time period \( t \). This residual \( \mu_{it} \) is then tested for normality and meets the necessary requirements (kurtosis =0.000, skewness=0.000) (Wooldridge, 2013). The residual is then used as an independent variable representing perceived political stability and is used to test the four hypotheses against various aspects of consumer behaviour.

**Model and estimation techniques**

A basic model was created in order to test the four hypotheses against the generated perceived political stability index. This model is applied to the balanced panel data set with different dependant variables, as discussed in the data section. The model is as follows:

\[ Q_{it1-n} = \beta_0 + \beta_1 P S_{it} + \beta_1 X_{2it} + \cdots + \beta_j X_{jit} + \epsilon_{it} \]  

[Eqn. 2]

Where \( Q_{it1-n} \) represents the 1-\( n \) tested dependant variables of education, savings, health and alternative income sources for each individual \( i \) within each time period \( t \), \( \beta_i P S_{it} \) represents the generated political stability index for each individual and \( \beta_1 X_{2it} + \cdots + \beta_j X_{jit} \) represents the control variables 1- \( j \) for each individual \( i \) in period \( t \), and the individual error term is represented by \( \epsilon_{it} \). Panel data estimation techniques were used in order to appropriately measure equation (2), as explained below.
Due the panel nature of the selected dataset, Fixed Effects or Random Effects methods were seen to best match the desired estimation as it these determined internal variation between waves and is not biased towards individual unobserved heterogeneity (Bruderl & Ludwig, 2015). To select the appropriate estimation technique between Fixed Effects and Random Effects methods, the Hausman test was conducted on the panel dataset (Badi & Long, 2016). From the results, the null hypothesis of the Hausman test is rejected (H0: difference in coefficients not systematic) with a chi2 = 421.09 and p = 0.0000. The model is therefore estimated using Fixed Effects in subsequent regressions.

**Quality Controls**

In order for a quantitative study to have quality controls, it needs to have both reliability and validity. Most factors of reliability have been controlled for within the NIDS data. The NIDS data aimed to create a representative sample of South African households and therefore aims to have a valid subject selection. The mortality of subjects has been considered with the sample selection of the NIDS data, which ensures that the same households are in each wave of the study.

Many of the income and savings values provided by survey participants were not validated, and this may affect the validity of the data. For this reason, outliers in these values were excluded from the panel.

Furthermore, the data collected seems to be reliable due to the collections processes and procedures that were put in place (Brophy, et al., 2018). The survey has been conducted in five different waves, and this therefore limits the subject error the participants have been asked the same survey questions at over a number of years. The survey was most likely not administered by the same person in each of the five waves and therefore the observer error is limited, where individuals administering the survey are biased towards the outcome (Saunders & Lewis, 2018).

**Limitations**

All secondary data has a limitations in that there is no knowledge of the exact methods used to collect every survey answer as these surveys are conducted by different field
workers (Saunders & Lewis, 2018). A major limitation that exists within this study, is that although steps have been taken to ensure that the NIDS data is a representation of the South African population, is that it may not represent the full spectrum of South African households. This limitation, however, is controlled for by the use of panel weights in order to create a representative panel. With all secondary data, there is a potential limitation that the data is not value-neutral, NIDS, however, limits this risk as questions are standardised, and answers are taken with a standardized software (Saunders & Lewis, 2018).

Limitations within the secondary dataset exist that only those questions asked to individuals in the NIDS collection process can be used in the analysis and there is no control over the questions asked and answers collected. A limitation of the Fixed Effects method is that incomplete data is eliminated from the regression in a pairwise deletion (Wooldridge, 2013). This limitation, however, is controlled for by only including variables where there were enough answers from the sample that a pairwise deletion of variables would not affect the integrity of the results (Wooldridge, 2013).
Reference List

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DOI: http://dx.doi.org/10.1016/j.econmod.2017.04.028

DOI: https://doi.org/10.3390/economies6010002


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DOI: 10.1215/00182702-419299


DOI: [https://doi.org/10.4102/sajems.v22i1.2944](https://doi.org/10.4102/sajems.v22i1.2944).

DOI: 10.1080/1461670X.2016.1266278


DOI: [http://dx.doi.org/10.1098/rsta.2015.0202](http://dx.doi.org/10.1098/rsta.2015.0202)


DOI: https://doi.org/10.4102/sajems.v21i1.1645.

DOI: https://doi.org/10.1111/roiw.12164


DOI: 10.1080/10242694.2015.1092206

DOI: doi:10.1007/s11205-010-9719-z
DOI: 10.007/s10834-016-9499-y

DOI: https://doi.org/10.4102/sajems.v20i1.1660

DOI: 10.1080/10242694.2015.1092206


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DOI: https://doi.org/10.25828/7pgq-q106

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1.0, Cape Town: Southern Africa Labour and Development Research Unit [producer], Cape Town: DataFirst [distributor].
DOI: https://doi.org/10.25828/fw3h-v708.


### Political Stability
Political Stability and the absence of Violence/Terrorism measures the likelihood of political stability and violence by political motives. The measure is scaled from -2.5 (weak governance) to 2.5 (strong governance). **Source:** Worldwide Governance Indicators, The World Bank.

### Political Risk
This indicator is sourced from Worldwide Governance Indicators and is then manipulated. Government Effectiveness indicates the governments commitment to generate economic growth through policies. The Government Effectiveness shows the public's perceptions of the quality of civil service and public services and how these are independent from politics, the credibility of the government and the quality of the government's commitment to policies. The Political Risk Indicator is calculated by: Government Effectiveness/2.5"3+4. **Source:** Worldwide Governance Indicators.

### Economic Freedom Index
The Economic Freedom Index consists of 12 different measures. These components can be organised into 4 main categories: Rule of Law, Limited Governance, Open Markets and Regulatory Efficiency. The Economic Freedom is measured from 0 - 100, with 100 being the most economic freedom. **Source:** The Heritage Foundation.

### Corruptions Perception Index
The Corruption Perception Index indicates the public perceptions of corruption in the public sector for both administrative and political corruption. The 2018 CPI is a result of “13 surveys and expert assessments to measure public sector corruption in 180 countries and territories, giving each a score from zero (highly corrupt) to 100 (very clean).” **Source:** Transparency International, 2019.

### Rule of Law
The Rule of Law reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. The estimates are measured from y -2.5 (weak rule of law) to 2.5 (strong rule of law). **Source:** The Worldwide Governance Indicator, The World Bank.

### Control of Corruption
Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. **Source:** The Worldwide Governance Indicators, The World Bank.

### Regulatory Quality
Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. **Source:** The Worldwide Governance Indicators, The World Bank.

### Voice and Accountability
Reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. **Source:** The Worldwide Governance Indicators, The World Bank.
Appendix B – Journal Guidelines

These guidelines are have been copied from the SAJEMS journal website, and are presented here.

Source: SAJEMS Website.
URL: https://sajems.org/index.php/sajems/pages/view/submission-guidelines

Overview

The author guidelines include information about the types of articles received for publication and preparing a manuscript for submission. Other relevant information about the journal’s policies and the reviewing process can be found under the about section. The compulsory cover letter forms part of a submission and must be submitted together with all the required forms. All forms need to be completed in English.

Book Reviews

Book reviews are brief articles providing insights or opinions on new books within the research field of the journal. Please contact the editor if you would like to suggest a book for review.

| Word limit | 1000 words |

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An original article provides an overview of innovative research in a particular field within or related to the focus and scope of the journal, presented according to a clear and well-structured format.

| Word limit | 7000 words (excluding the structured abstract and references) |
| Structured abstract | 250 words to include a Background, Aim, Setting, Methods, Results and Conclusion |
| References | 60 or less |
| Tables/Figures | no more than 7 Tables/Figure |
| Ethical statement | should be included in the manuscript |
| Compulsory supplementary file | ethical clearance letter/certificate |

New Perspectives

A summary of the literature is not considered as constituting a new perspective on previous research.

<p>| Word limit | 7000 words (excluding the abstract and references) |
| References | 30 or less |
| Unstructured abstract | 100 words |</p>
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<th>Tables/Figures</th>
<th>data in the text should not be repeated extensively in tables or figures</th>
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**Research Notes**

These should focus on a controversy in the literature, present a new empirical finding, or discuss the policy implications of recently gained insight.

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**Cover Letter**

The format of the compulsory cover letter forms part of your submission. Kindly download and complete, in English, the provided cover letter.

Anyone that has made a significant contribution to the research and the paper must be listed as an author in your cover letter. Contributions that fall short of meeting the criteria as stipulated in our policy should rather be mentioned in the ‘Acknowledgements’ section of the manuscript.

Read our authorship guidelines and author contribution statement policies.

**Original Research Article full structure**

**Title:**
- Full title: Specific, descriptive, concise, and comprehensible to readers outside the field. Max 95 characters (including spaces).
- Tweet for the journal Twitter profile: This sentence/statement will be used on the journal Twitter profile to promote your published article. Max 101 characters (including spaces). If you have a Twitter profile, please provide us your Twitter @ name. We will tag you to the Tweet.

**Abstract:** The Abstract should provide the context or background for the study and should state the study’s purpose, basic procedures (selection of study participants, settings, measurements, analytical methods), main findings (giving specific effect sizes and their statistical and clinical significance, if possible), and principal conclusions. The Abstract should not exceed 250 words. Please minimize the use of abbreviations and do not cite references in the abstract. Refer to the relevant article type’s guideline you are submitting for the abstract sections.

**Introduction:** The Introduction should put the focus of the manuscript into a broader context and explain its social and scientific value. Address this to readers who are not experts in this field and include a brief review of the key literature. If there are relevant controversies or disagreements in the field, they should be mentioned. Conclude with a brief statement of the overall aim of the experiments and a comment about whether that aim was achieved. Cite only directly pertinent references, and do not include data or conclusions from the work being reported.

**Methods:** The Methods section should provide clarity about how and why a study was done in a particular way. It should provide enough detail for reproduction of the findings. Protocols for new methods should be included, but well-established methodological procedures may simply be referenced. A full description of the methods should be included in the manuscript itself rather than in a supplemental file. Only information that was available at the time the plan or protocol for the study was being written must be included; all information obtained during the study belongs in the Results section. If an organization was paid or otherwise contracted to help conduct the research (examples include data collection and management), then this should be detailed in the methods. The methods section should include:
- The selection and description of participants or description of materials.
- The aim, design and setting of the study.
- The description of the processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses.
- The type of statistical analysis used, including a power calculation if appropriate.

The Methods section should include a statement indicating that the research was approved or exempted from the need for review by the responsible review committee (institutional or national). If no formal ethics committee is available, a statement indicating that the research was conducted according to the principles of the Declaration of Helsinki should be included.

Results: Present your results in logical sequence in the text, tables, and figures, giving the main or most important findings first. Do not repeat all the data in the tables or figures in the text; emphasize or summarize only the most important observations. Provide data on all primary and secondary outcomes identified in the Methods Section. Give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical significance attached to them, if any. Restrict tables and figures to those needed to explain the argument of the paper and to assess supporting data. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables. Avoid nontechnical uses of technical terms in statistics, such as “random” (which implies a randomizing device), “normal,” “significant,” “correlations,” and “sample.” Separate reporting of data by demographic variables, such as age and sex, facilitate pooling of data for subgroups across studies and should be routine, unless there are compelling reasons not to stratify reporting, which should be explained.

Conclusion: It is useful to begin the discussion by briefly summarizing the main findings, and explore possible mechanisms or explanations for these findings. Emphasize the new and important aspects of your study and put your findings in the context of the totality of the relevant evidence. State the limitations of your study, and explore the implications of your findings for future research and for clinical practice or policy. Discuss the influence or association of variables, such as sex and/or gender, on your findings, where appropriate, and the limitations of the data. Do not repeat in detail data or other information given in other parts of the manuscript, such as in the Introduction or the Results section. Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data. In particular, distinguish between clinical and statistical significance, and avoid making statements on economic benefits and costs unless the manuscript includes the appropriate economic data and analyses. Avoid claiming priority or alluding to work that has not been completed. State new hypotheses, when warranted and label them clearly.

Acknowledgements: Those who contributed to the work but do not meet our authorship criteria should be listed in the Acknowledgments with a description of the contribution. Authors are responsible for ensuring that anyone named in the Acknowledgments agrees to be named. Also provide the following, each under their own heading:

- Competing interests: This section should list specific competing interests associated with any of the authors. If authors declare that no competing interests exist, the article will include a statement to this effect: The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article. Read our policy on competing interests.
- Author contributions: All authors must meet the criteria for authorship as outlined in the authorship policy and author contribution statement policies.
- Funding: Provide information on funding if relevant
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References: Authors should provide direct references to original research sources whenever possible. References should not be used by authors, editors, or peer reviewers to promote self-interests. Refer to the journal referencing style downloadable on our Formatting Requirements page.

The above manuscript section guidelines are adapted from the recommendations from the International Committee of Medical Journal Editors: preparing for submission, available from http://www.icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html on April, 24, 2017.
Appendix C – Example Journal Article

Provided on the next page
Access to micro- and informal loans: Evaluating the impact on the quality of life of poor females in South Africa

**Background:** Since the early 1980s, many governments have investigated the possibility of utilising access to microloans as a pathway to grow economies out of unemployment and thereby improve people’s quality of life. Studies that have previously investigated the impact of microloans found a positive effect on quality of life. Unfortunately, these mainly measure quality of life using monetary (income) measures rather than assessing the entire multidimensionality of quality of life.

**Aim:** This article investigates the relationship between objective multidimensional income-independent quality of life (IIQoL) and having access to micro- and informal loans (M&ILs). Specifically, we focus on South Africa’s most marginalised – ‘poor females’ and ‘poor females residing in rural areas’ – as their empowerment is a critical social objective aligned to that of international agencies.

**Setting:** This study investigates the relationship between IIQoL and access to M&ILs in South Africa.

**Methods:** We use a panel data set spanning four waves from 2008 to 2015 of the National Income Dynamics Survey. Principal component analysis is used to construct the IIQoL index and various panel and survey estimation techniques are applied in the regression analyses.

**Results:** M&ILs are significant and negatively related to IIQoL for both ‘poor females’ and ‘poor females residing in rural areas’. This implies that those with loans failed to translate those monetary gains into higher levels of IIQoL over time.

**Conclusion:** Access to M&ILs is not succeeding in raising the quality of life of South Africa’s most marginalised groups. Without intervention and education programmes imbedded within microloan initiatives, the marginalised will not experience an increase in their non-income quality of life.

**Keywords:** Quality of life; income-independent measures; microloans; informal loans; South Africa.

**Introduction**

In this article we investigate the relationship between micro- and informal loans (M&ILs) and income-independent quality of life (IIQoL) of poor females in South Africa. For the purpose of clarity, the study defines M&ILs as those loans of a small value given to people who do not have access to the formal credit market. We do this in order to determine whether access to these kinds of loans indeed succeeds in raising the quality of life of South Africa’s most marginalised groups: ‘poor females’ and, more specifically, ‘poor females residing in rural areas’ (Bhorat, Naidoo & Van der Westhuizen 2006). This is important since from the early 1980s many governments have investigated the possibility of access to microloans as a pathway to grow economies out of unemployment and thereby improve people’s quality of life. Duggan et al (2000) maintain that the groups targeted to participate in microloan initiatives are those seen as marginalised and excluded from the formal credit market. This is because they have no collateral to offer as security and must depend on professional moneylenders for informal loans (Kundu 2011). The intention of these initiatives is to enable borrowers, who are mostly women, to make more choices (empowerment), thereby ultimately allowing them to contribute to greater economic growth and development in their countries (Swain & Wallentin 2009). Additionally, Becchetti and Conzo (2013) argue that access to microloans has the ability to increase one’s level of dignity, self-esteem, social recognition.
and life satisfaction. In essence, M&ILs are necessary to increase marginalised individuals’ overall quality of life.

Previous studies analysed the relationship between microloans and quality of life mainly in developing countries, located in the regions of South/South East Asia including Malaysia (Chan & Ghani 2011), India (Banerjee et al. 2009; Kundu 2011), Bangladesh (Duvendack 2010), Thailand (Kaboski & Townsend 2005) and the Philippines (Karlan & Zinman 2010). Outside of this region, studies investigated microloans in Kenya (Dupas & Robertson 2013), Mexico (Banerjee, Karlan & Zinman 2015), Argentina (Becchetti & Conzo 2013) and Uganda (Afroze 2012), but there is still no clear-cut answer to the question whether access to credit markets through M&ILs improves the quality of life of borrowers (see Table 2-A1 in Appendix 1 for a summary).

On the one hand, mainstream studies such as Chan and Ghani (2011) and Afroze (2012) argue that microloans are successful in reaching the marginalised poor and increasing women’s quality of life. It helps to create small and microenterprises in remote areas and significantly increases economic quality of life. These studies, as well as most of the existing literature (too many to discuss here), mainly measure quality of life using monetary (income) measures. Income measures, however, do not reveal the change in quality of life over a longer period, nor directly measure the outcomes of policy aimed to better human development (Proctor & Anand 2017).

On the other hand, studies such as Orso (2011), Banerjee et al. (2015), Van Rooyen, Stewart and De Wet (2012) and Wahab, Bunyau and Islam (2018) contradict mainstream studies claiming significant positive effects of microloans on poverty (economic quality of life). Orso (2011) found that microlenders themselves were biased in choosing areas that already have entrepreneurial ability and infrastructure, therefore ensuring a positive impact. Consequently, many studies suffer from weak methodologies. Banerjee et al. (2015) and Van Rooyen et al. (2012) were not able to find robust evidence of improvements in social indicators, such as child schooling or female empowerment. Duvendack et al. (2011) concluded that mainstream studies in favour of microloans had questionable results, due to lack of robustness tests and small sample bias.

The current article seeks to add to the existing microloan literature by being the first known study to investigate the relationship between M&ILs and an objective income-independent quality of life measure, constructed at a micro level. The study makes use of a large representative panel data set that allows us to use panel estimation techniques, which address criticisms raised against the use of cross-sectional data analyses used in previous studies (Orso 2011). Additionally, it adds to the relatively sparse array of studies focusing on (1) the sub-Saharan Africa region (see Van Rooyen et al. 2012) and (2) the importance of including informal loans in determining the success of credit initiatives (see Proctor & Anand 2017).

This study’s first contribution, of constructing an objective multidimensional income-independent quality of life measure, recognises the argument put forth by Stiglitz, Sen and Fitoussi (2010) that quality of life is a multidimensional concept. One can no longer simply rely on real income per capita (economic) and non-income domains (social indicators) as quality of life achievement should also be considered. Lutfallai and Koja (2002) argue that low levels of quality of life encompass a perpetual state of chronic deprivation with respect to education, health, housing, service delivery and a deeply rooted lack of self-esteem (non-income quality of life). The problem though is that social indicators are strongly correlated with income measures and therefore an argument can be made that social indicators are redundant (Drèze & Sen 1991) and that one could simply return to using income measures (see McGillivray 1991). To properly ascertain quality of life achievement from non-income indicators, one must remove the variance from those social indicators explained by income. This type of measure will more directly address the outcomes of policy and thus the development of human welfare, in as much as it addresses ‘the ends’ rather than ‘the means’.

In saying this, one must not overlook the significance of utilising objectively measured indicators when measuring our non-income quality of life. Stiglitz et al. (2010) argue that objectively measured indicators, such as the ones used in the construction of the Human Development Index (HDI), are still popular among policymakers. This could be because they are useful when sudden, rudimentary, short- run, aggregate inferences are required. Objectively measured indicators are also deemed more receptive, faster to reflect change, cheaper and less complex to collect. Lastly, there is the presumption that objective measures are more adaptable to quantification, as they are observable. Veenhoven (2004:21) argues that objectively measured indicators are important, as they reflect the ‘actual state of problems and the effects of attempts to solve these’. Therefore, our income-independent quality of life measure consists of objectively measured non-income indicators, from which the income variance is removed.

Therefore, against this backdrop, the study seeks to achieve the following research objectives:

- Construct a composite objectively measured income-independent quality of life (IQoL) index at a micro level.
- Analyse the relationship between M&ILs and IQoL for the whole sample.
- Determine whether the same relationship that was found between M&ILs and IQoL for the whole sample holds for the sub-samples ‘poor females’ and, more specifically, ‘poor females in rural areas’.
- Compare the results obtained from analysing the ‘poor female’ sub-sample to a similar ‘poor male’ cohort, to determine the extent of similarity (if any) between access to M&ILs and IQoL for sub-samples defined by gender. This is important since literature suggests that females typically spend their M&ILs on education and health,

http://www.sajems.org
whereas males traditionally end up satisfying current consumption needs (Karlan, Osman & Zinman 2016). This could indicate that females’ usage of these M&ILs play a more significant role towards development than those of males.

The study will achieve the above by using a panel data set spanning four waves from 2008 to 2015 of the National Income Dynamics Survey (NIDS) and utilising various panel and survey estimation techniques. Our results indicate that access to M&ILs is negatively related to IIQoL for all samples analysed. This implies that many who did have access to these kinds of loans failed to, over time, translate those monetary gains into higher levels of IIQoL.

This leads us to conclude that micro- and informal loans do not raise the quality of life of South Africa’s most marginalised groups – ‘poor females’ and, more specifically, ‘poor females residing in rural areas’. We find this to be in line with the work done by Pronyk et al. (2008) and Bateman (2015), who found that M&ILs do not decrease the exceptionally high levels of unemployment and poverty, but instead further impoverish these groups. Additionally, M&ILs create negative changes in an individual’s family relations (some males misuse resources, there is a higher frequency of domestic abuse and women are not being empowered), increased time pressure and a decreased participation in social activities.

The rest of the article is structured as follows. The next section contains an outline of the methodology used, whereas Section ‘Data and variables’ describes the data and the selected variables. The results and analyses follow in Section ‘Results’, while the article concludes in Section ‘Conclusions’.

**Methodology**

We structure the methodological section as follows:
- The composition of the IIQoL index.
- The model and the estimation techniques.

**Methodology followed to construct the composite income-independent quality of life index**

We follow the method proposed by McGillivray (2005) to develop a non-income composite index. The index differs from McGillivray’s (2005) in that it focuses on quality of life measured at a micro level rather than a macro level. The essence of this method is to extract the first principal component from selected social indicators, using principal component analysis (PCA), that explains the most variance in the data set. In line with the OECD’s handbook (2008), the first extracted component represents an objectively weighted composite index, in this instance of non-income quality of life. Secondly, we regress the composite index on the natural log of household income per capita. Lastly, we retain the residual, \( \mu \), from this regression and interpret it as an individual’s income-independent quality of life (IIQoL). Where \( Y_i \) is the IIQoL, \( \beta X_i \) is a vector of demographic and economic variables including the variable of interest M&ILs, and the idiosyncratic individual error term is given by \( \varepsilon_i \).

To estimate the specified model in equation (2), we use panel data estimation techniques and adjust these for the complex sampling design. Cluster corrections are necessary, as the assumption that our sample is extracted by means of simple random sampling is not adhered to. We deal with the cluster correction at the geographical level, assuming that people within a similar cluster might have similar levels of quality of life and therefore similar needs for microloans. Additionally, we make use of panel weights to correct for attrition.

To determine the most appropriate estimation technique between fixed effects (FE) and random effects (RE), we make use of the Hausmann test. Based on the results, we reject the null hypothesis which states that the difference in coefficients is not systematic (\( \chi^2 = 1754.67; p = 0.000 \)) and therefore we estimate the model using FE. Although panel data estimation techniques have the benefit, over cross-sectional estimation methods, to address endogeneity, which arises from omitted variables and measurement errors, it does not address simultaneity. Therefore, to test for endogeneity arising from

This estimated function of the composite non-income quality of life index can be expressed as:

\[
Q_i = a + \beta \ln y_i + \mu
\]

where \( Q_i \) is the composite non-income quality of life index for individual \( i \) in period \( t \) (\( t = 2008 \) to \( 2015 \)); and \( \ln y_i \) is the natural log of household income per capita for the same individual \( i \) in the same time period \( t \), with \( \mu \) being the residual term. This residual term \( \mu \) is a purely statistical construct and is defined inter alia as IIQoL, which is central to our analysis and by definition orthogonal with respect to \( \ln y_i \). To test the choice of PCA to weight the composite index, we also developed an index in which we applied equal weighting. Correlating the two indices, we find the Pearson’s correlation coefficient to be 0.94. We prefer and report the results using the PCA method of weighting, as it weights the independent variables according to the most variance explained in the data.

To prove that our newly constructed IIQoL is indeed independent of income, we correlate it with both objective and subjective monetary measures of well-being (other than income). Low correlations are an indication of this independence of the newly constructed index.

**Model and estimation techniques**

The generic model estimated (equation 2) applies to: (1) the whole sample, (2) a sub-sample of ‘poor female’ respondents, (3) a sub-sample of ‘poor females residing in rural areas’ respondents and to compare findings based on gender (4) a sub-sample of ‘poor male’ respondents:

\[
Y = \beta + \beta X + \varepsilon
\]

**[Eqn 2]**
simultaneity, we make use of instrumental variable (IV) regressions using the FE estimator. In saying this, the data set did not offer a suitable option to instrument M&ILs, our variable of interest. For that reason, following Cameron and Trivedi (2010) we instrument M&ILs by its lagged variable. With the IV regression, we find the instrument to be strong, with the Kleibergen-Paap Wald F statistic = 222.998 and the Stock-Yogo weak ID test’s critical value being 10%. However, testing for endogeneity, the Durbin-Wu Hausman test shows that the variable of interest, M&ILs, is not endogenous ($p = 0.4304$). Therefore, we do not pursue the matter further and interpret the pooled ordinary least squares (POLs) (in the case of time invariant variables) and the FE models.

To test the robustness of our results, we also run regressions on individual non-income quality of life indicators, including education, health and housing (Table 1-A1 in Appendix 1). Similar results on the relationship between M&ILs and the individual social indicators are indicative of robust results. One should keep in mind that it is not ideal to use these individual social indicators to represent quality of life, as they are one dimensional and, secondly, they are not income-independent.

In all analyses, we run diagnostic tests as appropriate. With the exception of the age and age-squared variables, there is no evidence of multicollinearity. However, we find evidence of heteroscedasticity and this problem is addressed by making use of robust standard errors.

**Data and variables**

**Data**

The data used in this article comes from the first four waves of the National Income Dynamics Survey (NIDS), spanning the period 2008–2015. The NIDS is a face-to-face longitudinal survey, which is repeated with the same individual household members, every 2 years (NIDS 2016b). This data set focuses on the livelihoods of individuals and households over time. The reason for choosing the NIDS data set is because it provides rich data on non-income quality of life indicators at a micro level, which is not the case with other national surveys. The analysis is restricted to a balanced panel – adults aged 18+ years old (wave 1), who were successfully interviewed in all four waves and includes 9360 individuals in the four waves amounting to 37 440 observations. Table 1 provides the summary statistics for a select number of demographic variables in the balanced panel.

As seen in Table 1, there is a significant increase from 2008 to 2015 in the share of the population engaging in the M&IL market from 1.3% to 7.9%, although there was a minor decrease in wave 3. This finding of increased activity of M&ILs holds for each of the cohorts of interest – ‘poor females’ and ‘poor females residing in rural areas’. The rate of increase in M&ILs among the poor cohorts compared to the whole sample is 3.5% higher on average. This higher level of activity by the poor could be interpreted as a higher number of individuals accessing the only financial service they are able to.

**Selection of variables**

**Non-income quality of life variables**

As discussed in Section ‘Methodology followed to construct the composite income-independent quality of life index’,


2. Geographical type classifications are:
   - Urban: a continuously built-up area that is established through township establishment such as cities, towns, ‘townships’, small towns, and hamlets.
   - Rural: consists of traditional communities (communally owned land under the jurisdiction of traditional leaders) as well as farm lands [allocated and used for commercial farming, including the structures and infrastructure on it] (NIDS 2016b).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Wave 4</th>
</tr>
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<tbody>
<tr>
<td>% respondents with a micro- or informal loan</td>
<td>1.28</td>
<td>2.91</td>
<td>1.80</td>
<td>7.85</td>
</tr>
<tr>
<td>Poverty line</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>South African rand</td>
<td>R682</td>
<td>R779</td>
<td>R883</td>
<td>R992</td>
</tr>
<tr>
<td>United States dollar‡</td>
<td>$56.7</td>
<td>$64.92</td>
<td>$78.58</td>
<td>$82.66</td>
</tr>
<tr>
<td>% poor respondents</td>
<td>65.5</td>
<td>62.8</td>
<td>55.8</td>
<td>44.6</td>
</tr>
<tr>
<td>% poor females with a micro- or informal loan</td>
<td>1.14</td>
<td>3.11</td>
<td>2.06</td>
<td>9.49</td>
</tr>
<tr>
<td>% poor females with a micro- or informal loan in rural areas</td>
<td>0.92</td>
<td>2.41</td>
<td>2.16</td>
<td>9.60</td>
</tr>
<tr>
<td>Geo-type‡</td>
<td>Rural</td>
<td>Urban</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 1</td>
<td>55.29</td>
<td>45.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 2</td>
<td>54.34</td>
<td>45.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 3</td>
<td>51.63</td>
<td>48.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 4</td>
<td>49.50</td>
<td>50.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% per wave</td>
<td>9360</td>
<td>9360</td>
<td>9360</td>
<td>9360</td>
</tr>
</tbody>
</table>
in order to derive an IIQoL measure, the first step is to construct a composite non-income quality of life index. To select the variables included in the index, we are careful not to stray too far away from the original HDI. The reason for this is that the domains of health and education are well documented as contributing the most to individuals’ perceived quality of life (see also Land, Michalos & Sirgy 2012; McGillivray 2005). Added to this, both the United Nations (UN) and the World Bank (WB) (UN publications: Series F, No. 49, 1989; Series F, No. 18, 1975 and 2015) have placed significant importance on education, health, and the development of basic infrastructure pertaining to housing, water and sanitation. These are seen as the breakthrough policy areas needed to achieve higher non-income quality of life in developing regions. These three domains also reflect the South African government’s investment priorities as stipulated in the 2017/2018 budget (National Treasury 2017) and form an integral part of their National Development Plan (NDP) (National Planning Commission 2012).

Against this backdrop, together with the goal of using objective indicators at a micro level (see Section ‘Introduction’ for discussion), the non-income quality of life index includes the three objectively measured indicators below. This index is ultimately regressed on household income per capita (see Table 2 for descriptive statistics):

- To represent the domain of literacy, years of education is selected. The level of education is measured as the total number of years in school and varies between no schooling up to 18 years of education (reflecting postgraduate qualifications).
- With regard to the development of basic infrastructure, the study uses the number of rooms in the house per person (consequently, also a proxy for the quality of housing, i.e. more rooms per person increase the quality of housing).
- Objectively measured health. Here, the study sums up the number of diseases with which a person has previously been diagnosed. These diseases include asthma, high blood pressure, cancer, diabetes, heart problems, stroke, tuberculosis and any other diseases that are not mentioned in the list (for example HIV). To test the validity of this indicator we correlate it with the variable ‘perceived health status of a person’ and find that it is statistically significant and positively correlated (Spearman’s correlation coefficient = 0.4).

### Variables selected for the regression analyses

The selection of the independent variables included in the regression analyses is based on an extensive literature review (see Section ‘Introduction’), as well as the availability of data. However, the reader is reminded that no previous studies have been done on the relationship between IIQoL and the independent variables of choice. Thus, the expected relationships discussed below are based on the results of quality of life – or subjective well-being – studies.

These variables, descriptive statistics presented in Table 3, are:

- Micro- and informal loans, the variable of interest: In order to derive said variable we consider loans from micro and informal moneylenders, such as Mashonisas and informal loans from friends and family. We exclude any formal loans, such as those from commercial banks. The survey asks whether a respondent has a loan, with a ‘yes’ or ‘no’ response option. If a respondent answer in the affirmative, we code it as 1 and 0 in the alternative. From Table 3, it can be seen that only 3.3% of all respondents (1238 out of 37 440) is classified as ‘with’ a loan. Of this 3.3% with M&ILs, the majority is classified as being poor (56%) and the dominant gender of the poor cohort is female (63%). As discussed in Section ‘Introduction’, there are those that find that M&ILs are successful in developing microenterprises and therefore increase economic (income) quality of life, but when it comes to increasing quality of life using non-income indicators, such as education and health, there is a clear point of contention.

- Geographical type: The classifications are urban built-up or rural areas (see Section ‘3.1. Data’ for descriptive statistics). The expected relationship between the geographical type and IIQoL is inconclusive. Regarding rural areas, the respondents can either have a higher or lower IIQoL compared to their urban counterparts. This is because of the increased burden placed on infrastructure by an influx of destitute individuals into urban centres, which can leave urban dwellers’ IIQoL worse off than their rural-dweller counterparts (Bhuiyan & Ivlevs 2017). Conversely, the lack of amenities in rural areas can leave these respondents’ IIQoL worse off than those of the urban respondents (Alemu 2012).

- Race: South African inequality and even poverty can be attributed to racial discrimination and in particular to apartheid. This is seen as an important determinant of IIQoL (Van der Berg 2011). Here African is the reference, since it constitutes the largest demographic group, totalling nearly 87% of the entire population. Since South Africa is still struggling to rectify the inequality caused by apartheid, the expectation is that Africans have a lower IIQoL than most of the other ethnic groups. It should be noted that the Asian/Indian ethnicity cohort for the balanced panel is very small. One must therefore take care when interpreting results for this group as it might be biased, and the interpretations limited.

#### Table 2: Descriptive statistics of variables used to construct the income-independent quality of life (whole sample)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education (Total years of schooling)</td>
<td>8.50</td>
<td>3.77</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Health (number of diagnosed diseases per person)</td>
<td>0.37</td>
<td>0.70</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Housing (rooms per person)</td>
<td>1.11</td>
<td>0.99</td>
<td>0.07</td>
<td>11</td>
</tr>
<tr>
<td>Household income per capita ($1 = R12)†</td>
<td>R1385.79</td>
<td>R3378.61</td>
<td>R0</td>
<td>R62 342.67</td>
</tr>
<tr>
<td>United States dollar</td>
<td>$115.48</td>
<td>$281.55</td>
<td>$0</td>
<td>$6228.56</td>
</tr>
</tbody>
</table>

† Exchange rate as at 18 April 2018.

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3 African term for a person or company that provides loans to consumers.
• Gender: Male (estimated at 5.1 million) is the reference. Approximately 60% of the respondents are female (8.5 million). The expectation is that South African females, being the largest cohort, will have a higher level of IIQoL on average, than their male counterparts. This is the general assumption in the subjective well-being and happiness literature (Becchetti & Conzo 2013; Kundu 2011).

• Age and age: The average age of the sample is approximately 37 years. A U-shaped relationship is revealed in the subjective well-being literature between age and well-being with relatively high levels of well-being reported for young people, lower for the middle ages and subsequently higher again in their later years (Frijters & Beaton 2012).

• Trust: In previous research it is shown that higher levels of trust are positively related to individual and collective quality of life (Kuroki 2011). Interesting to note that approximately 67% of the sample believe it is unlikely that a neighbour will return a lost wallet.

• Relative income: This is derived from a question that asks a household to compare their income to that of other households in their neighbourhood. If a household classifies their income above average, a positive relationship to IIQoL is expected (Clark, Frijters & Shields 2008).

Only 9% of the sample believe their income is higher than the average of their neighbours.

• Household expenditure per person: Here we expect to find a positive relationship to IIQoL (DeLeire & Kalil 2010).

• Employment (being employed is the reference): The positive effects of employment on quality of life are well documented and we expect a similar relationship regarding IIQoL (Winkelmann & Winkelmann 1998). In saying this, only 38% of the sample indicated being employed, on average.

• Safety: A positive relationship between an individual’s feeling of safety, measured against the perceived frequency of theft in the community and IIQoL is expected (Cheng & Smyth 2015).

### Results

The results section reports on: (1) the IIQoL index derived through PCA and (2) the estimation results.

### Principal component analysis

Firstly, to construct our IIQoL index, we apply PCA to our selected non-income quality of life variables: years of education, rooms in house per person (proxy for quality of housing) and objectively measured health. We extract the first component, which explains 58% (eigenvalue = 1.60) of

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**TABLE 3: Descriptive statistics of the variables included in regression analyses.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (%)</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro- and informal loans (Have a loan = 1)</td>
<td>-</td>
<td>0.033</td>
<td>0.111</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Geo-type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>52.69</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Urban (reference group)</td>
<td>47.31</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black people (reference group)</td>
<td>86.79</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mixed race people</td>
<td>7.61</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Asian and/or Indian people</td>
<td>1.32</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>White people</td>
<td>4.28</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gender (Male = 1)</td>
<td>-</td>
<td>0.37</td>
<td>0.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age (years)</td>
<td>-</td>
<td>36.69</td>
<td>-</td>
<td>16.75</td>
<td>-</td>
</tr>
<tr>
<td>Age</td>
<td>-</td>
<td>1627.53</td>
<td>1429.81</td>
<td>196</td>
<td>10201</td>
</tr>
<tr>
<td>Trust (likelihood that neighbour will return lost wallet)</td>
<td>-</td>
<td>1.32</td>
<td>0.76</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Unsure</td>
<td>6.29</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not likely</td>
<td>66.54</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Somewhat likely</td>
<td>14.34</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Very likely</td>
<td>11.69</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Relative income (self-perceived relative income)</td>
<td>-</td>
<td>2.84</td>
<td>0.92</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Much below</td>
<td>15.37</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Below</td>
<td>31.05</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Average</td>
<td>36.34</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Above average</td>
<td>6.77</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Much above average</td>
<td>2.39</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Employment (employed = 1)</td>
<td>-</td>
<td>0.38</td>
<td>0.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Safety (frequency of theft in neighbourhood)</td>
<td>-</td>
<td>3.06</td>
<td>1.52</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Adapted with data from National Income Dynamics Study (NIDS), 2016a, Waves 1–4 [dataset]. Southern Africa Labour and Development Research Unit, Southern Africa Labour and Development Research Unit (producer), Cape Town, DataFirst (distributor), Cape Town, Department of Planning Monitoring and Evaluation (commissioner), Pretoria.

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4 Derived using design weights.
the variance, deemed acceptable for the construction of a composite index (see Naudé, Krugell & Rossouw 2009; Greyling & Tregenna 2016). Secondly, we regress the non-income quality of life index on the natural log of household income per capita to derive the residual. The residual is what we identify as objectively measured IQoL.

To prove the independence of our IQoL measure from income, we correlate it to both objective and subjective measures of monetary well-being: expenditure per person and self-reported relative income. We find the correlation coefficient significant, though at very low levels of $r = 0.10$ and $r = 0.07$. At these low levels of correlation, we assume the independence of the IQoL index and accept it as a good measure of IQoL.

Figure 1 expresses the IQoL of different groups as a percentage of the maximum IQoL in South Africa. We find the mean IQoL of the average citizen to be relatively low at 53.3%. This is not surprising, seeing that South Africa is a developing country with high levels of inequality and poverty. What should be noted is that within each of the samples represented – all South Africans, poor females, poor males and poor females in rural areas – those ‘with’ a M&IL have between 2% and 3% lower levels of IQoL than those ‘without’. The sub-samples ‘poor females’ and ‘poor females residing in rural areas’, experience the lowest levels of IQoL relative to the rest of the country.

Comparing the poor female and male sub-samples, males ‘with’ and ‘without’ M&ILs enjoy higher levels of IQoL than their female counterparts. In general, the IQoL for males is higher than for females and, the IQoL for poor males ‘without’ these kinds of loans is even higher than the IQoL as determined for the whole sample.

These initial results suggest possible negative effects of participating in the M&IL market on those it was supposedly created to help, and it also alludes to the existence of a gender gap. These possible relationships as well as the associated implications will be further investigated in Section ‘Results (dependent variable = IQoL)’ as other factors might also be at play.

**Results (dependent variable = income-independent quality of life)**

We find the estimated models for the sample as a whole and the sub-samples statistically significant ($p = 0.00$). To interpret the results, we use the FE estimations, although in the event of time invariant variables we also refer to the POLS results (see Table 4).

Table 4 reveals an interesting result, namely that M&ILs are statistically significant and negatively related to IQoL for all sub-samples, except for ‘poor males’ in which the relationship is negative, but not significant. Therefore, we assume that South Africans in general ‘with’ M&IL have a lower IQoL than those ‘without’. The not significant relationship to the ‘poor male’ sub-sample implies that M&ILs, controlling for all other factors, are not related to their IQoL. Based on previous research (Karlan et al. 2016), it seems that poor men involved in the M&IL market use the funds to provide for current consumption expenditure needs, which is not related to non-income quality of life, explaining the not significant result. In contrast, as females are mostly the primary caretakers of children, they often spend their M&ILs in sectors related to the non-income quality of life of their children, such as education, housing and health.

To test the robustness of this negative relationship between M&ILs and IQoL, we test it using the individual indicators of quality of life. However, these single indicators of education, health and housing, suffer from the critique of being *income dependent* and unidimensional (as discussed in Sections ‘Introduction’ and ‘Methodology’), contrary to our IQoL index (OECD 2008; Saltelli et al. 2007). Notwithstanding this, the results in Appendix 1 (Table 1-A1), are similar to those reported in Table 4, in that these individual indicators of quality of life are statistically significant and negatively related to M&ILs.

The estimation results pertaining to the whole sample indicate both a gender and geographical inequality when it comes to IQoL. Male respondents are deemed better off than females, which confirms the initial findings in Section ‘Principal component analysis’. Turning to the geographical area, as expected, the IQoL of respondents residing in rural areas is lower than that of their urban counterparts. This is in line with the literature which suggests that females, and more specifically females residing in rural areas, are more marginalised than other groups (Bhorat et al. 2006; Kirsten 2011). This finding emphasises the importance of addressing the second and third research questions (see Table 4, columns 3 – 5).
The time variable for waves 2 to 4 is significant and negative for the whole sample indicating that the IIQoL decreased from wave 2 to wave 4. The variable is associated with health (as time goes by it is more likely that a person was exposed to more health-related problems) and factors related to housing, such as service delivery. However, the wave variable is not significant for the poor sub-samples, except for wave 2 for the ‘poor female’ respondents. The poor might be less affected by the lapse in time as their health, type of housing and service delivery could have been less affected or not affected at all. One should remember that respondents in rural areas report to be healthier than those in urban areas. Furthermore, the housing of the poor is basic with limited services; thus the deterioration thereof is much less likely than for their richer counterparts.

In terms of race, the POLS results show that Coloureds have lower levels of IIQoL, whereas White South Africans experience higher levels, relative to Africans. This is indicative of the persistent inequality in access to health, housing and educational services, attributed to the racial discrimination of the old apartheid regime (Van der Berg 2011).

Age performed as expected in explaining IIQoL for the whole sample as well as the sub-samples ‘poor females’ and ‘poor females residing in rural areas’. This statistically significant and positive quadratic (U-shaped) relationship is not surprising, since the young generally have higher levels of health while the older respondents have better housing and more assets and access to service delivery than those in their middle ages. Therefore, it mirrors the findings from the subjective well-being literature (Frijters & Beatton 2012). In saying this, the opposite holds true if only the sub-sample ‘poor males’ is considered, with both the young and old experiencing lower levels of IIQoL than those in their middle ages. This might be since many of the middle-aged men are employed and residing in urban areas, which is positively correlated to IIQoL relative to the young and the old, who might not be employed and likely residing in rural areas, which is commonly accepted to be related to lower levels of IIQoL.

Trust, which is an important determinant of IIQoL, is only positive and significant for the sub-sample ‘poor females in rural areas’. This is not surprising since women staying in rural areas are seen as having better social capital in the form of stronger bonds, that is, links to people based on a sense of common identity (‘people like us’) (Keeley 2007). This trust also forms the basis of their IIQoL as they depend on one another for support (child caring, toiling of lands) and survival (sharing of basic necessities) (Mutopo 2014; Vercillo 2016).

Employment is statistically significant and, against expectations, negative for the whole sample as well as for the

| TABLE 4: Estimation results of pooled ordinary least squares and fixed effect for the whole sample and sub-samples ‘poor females’, ‘poor males’ and ‘poor females in rural areas’ (income-independent quality of life = dependent variable) |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Poor females | Poor males | Poor females rural areas |
| Variable | FE | FE | SE | FE | FE | FE | SE | FE | FE | SE |
| Micro- and informal loans | -0.229*** | 0.05 | -0.084*** | 0.02 | -0.091** | 0.04 | -0.0330 | 0.06 | -0.136** | 0.07 |
| Geo-type (Urban reference): | 0.0152 | 0.03 | -0.0493** | 0.02 | 0.0769 | 0.07 | 0 | - |
| Wave 1 reference | | | | | | | | | | |
| Wave 2 | 0.139*** | 0.01 | -0.0147 | 0.03 | 0.0324 | 0.05 | 0.0984 | 0.06 | 0.114 | 0.09 |
| Wave 3 | -0.217*** | 0.05 | -0.318*** | 0.05 | -0.262*** | 0.08 | -0.000409 | 0.10 | -0.126 | 0.14 |
| Wave 4 | 0.0381*** | 0.01 | -0.0739*** | 0.02 | -0.0416 | 0.03 | 0.0175 | 0.04 | 0.0149 | 0.06 |
| Race (African reference): | | | | | | | | | | |
| Mixed race people | -0.147** | 0.06 | - | - | - | - | - | - | - | - |
| Asian and/or Indian people | -0.103 | 0.14 | - | - | - | - | - | - | - | - |
| White people | 0.448*** | 0.14 | - | - | - | - | - | - | - | - |
| Age | -0.0418*** | 0.00 | 0.0291*** | 0.01 | 0.0161 | 0.02 | 0.0228 | 0.02 | 0.0277 | 0.03 |
| Age 2 | 0.0000709 | 0.00 | 0.000195*** | 0.00 | 0.000176** | 0.00 | -0.000494*** | 0.00 | 0.000296* | 0.00 |
| Trust | 0.0316*** | 0.01 | -0.00367 | 0.01 | 0.00299 | 0.01 | -0.0115 | 0.01 | 0.0419*** | 0.02 |
| Relative income | 0.0760*** | 0.01 | 0.00408 | 0.00 | 0.00664 | 0.01 | 0.0315 | 0.03 | 0.00195 | 0.01 |
| Employment | 0.150*** | 0.03 | -0.0954*** | 0.01 | -0.0792*** | 0.02 | -0.0299 | 0.03 | -0.0553 | 0.04 |
| Safety | 0.0044 | 0.01 | 0.0130*** | 0.00 | 0.0180*** | 0.00 | 0.0130* | 0.01 | 0.00365 | 0.01 |
| Constant | 1.192*** | 0.11 | -1.396*** | 0.47 | -1.078 | 0.71 | -0.000927 | 0.78 | 0.442 | 1.17 |
| N | 25670 | - | 34088 | - | 13494 | - | 5944 | - | 4686 | - |
| Population size | 55852.09 | - | - | - | - | - | - | - | - | - |
| adj. $R^2$ | 0.34 | - | - | - | - | - | - | - | - | - |
| F/ Wald chi² | 203.71 | - | 68.02 | - | 33.05 | - | 18.2 | - | 16.2 | - |
| Probability | 0.000 | - | 0.000 | - | 0.000 | - | 0.000 | - | 0.000 | - |

Source: Adapted with data from National Income Dynamics Study (NIDS), 2016a, Waves 1 – 4 [dataset]. Southern Africa Labour and Development Research Unit, Southern Africa Labour and Development Research Unit (producer), Cape Town, DataFirst (distributor), Cape Town, Department of Planning Monitoring and Evaluation (commissioner), Pretoria.

Note: Cluster-robust standard errors are used to address heterogeneity. Panel weights are used in the POLS estimations. POLS, pooled ordinary least squares; FE, fixed effect; SE, standard error.

***, Significance at 0.1% confidence level; ***, significance at 1% confidence level; *; significance at 5% confidence level using two-tailed tests.
‘poor female’ sub-sample. South Africa suffers from very high levels of unemployment and very limited employment opportunities. In the whole sample we find 68% of the respondents are unemployed and among ‘poor females’ this percentage is higher at 84%. The fact that being employed is negatively related to IQoL contradicts theory, although in the South African context, where the social welfare system is very well developed, it might be plausible.

More than 67% of the whole sample and 83% of the ‘poor female’ sub-sample reported to be recipients of some kind of social welfare grant. These grants are mostly dependent on a means test. Therefore, if a person is employed, they might earn more than the means test and lose their right to the grant. Those that are employed earn an average wage of R3560 per month and ‘poor females’ earn R1070. If household size is considered, the mean wage income per household for the whole sample is R1170 and for ‘poor female households’ it is R445 per month. Thus, their income is very low and travel costs to their place of work present a real cost associated with working, which could sometimes be more than half of their earnings.

Now, if individuals make use of the welfare system, we find the average household income per month per person to be R283 and for ‘poor females’ lower at R220. As the mean income earned is relatively low, the opportunity cost to work is high, and therefore respondents might prefer to be unemployed and receive a grant. They then have more time to spend on improving their IQoL. This situation reflects the unintended disincentive of a social welfare system to discourage productive employment (Blau & Robins 1986; Camissa 1998; Keane 1995; Weaver, Shapiro & Jacobs 1995). This dependency on government grants is not sustainable or conducive to development, especially if the unemployment rate is already high.

Contrary to the above results, employment is not statistically significant in either the ‘poor male’ or the ‘poor female residing in rural areas’ sub-samples. This implies that being employed is not related to the IQoL of ‘poor males’ and ‘poor females residing in rural areas’. As already mentioned, females are the primary caretakers of relatively large households, thereby shouldering most of the responsibility regarding children’s education and health care. This means that a large portion of their time is spent on household and childcare duties. At the same time, these unskilled females, a common phenomenon in rural areas, have very few real employment opportunities. This means that it is unlikely that they will be employed and therefore employment is not related to their IQoL. As for the ‘poor male’ sub-sample, there are relatively few job opportunities for unskilled labour and they do not have the main responsibility of caring for children. Therefore, they most likely also earn some type of government grant, which makes them indifferent to being employed or unemployed.

Safety, measured as the likelihood of being a victim of a crime, rated on a scale from likely to very unlikely, is significant and positive for all samples. This indicates the importance of safety to the IQoL of all South Africans, who are being impacted by crime on a daily basis both in the form of property (housing) and bodily harm (health).

Lastly, the results pertaining to the ‘poor female’ and ‘poor male’ sub-samples clearly contradict general populace in the subjective well-being literature, which shows that females often have higher levels of well-being than males. Since 2008, the South African Social Attitude Survey (SASAS) shows that females indeed do report lower levels of quality of life than males in South Africa (HSRC 2010). Kirsten (2011) points out that ‘African females living in rural areas’ is the most deprived demographic group in South Africa and that, even after 20 years of redistribution policies, their level of quality of life is still unacceptable. May and Norton (2012) argue that African women, in general, do not have control over their own income which excludes them from the decision-making process and the threat of violence remains a major form of control by men over women. This indeed, corroborates our findings and highlights the plight of this gender in terms of:

- greater employment discrimination (71% are unemployed compared to 29% of males)
- wage gap (Hinks 2010)
- abuse (Posel & Rogan 2012)
- higher levels of responsibility towards dependents.

Work done by Teixeira and Chambers (1995) summarises it nicely:

If there is a man in the household who is working, it is our tradition that he will bring home the money and give it to his wife to spend. If there is not enough in the month, she will have to run around borrowing or making a plan to ensure that her children’s needs are met. (p. 43)

**Conclusion**

In this article, we investigate the relationship between micro- and informal loans (M&IL) and income-independent quality of life (IQoL) in South Africa. We derive IQoL through constructing an objectively measured index, which is independent of income and therefore satisfies all previous critique against non-income indicators of quality of life. This index allows us to more directly address the outcomes of policy for the development of human welfare, in as much as the outcome of policy should be measured by the ‘the ends’ rather than ‘the means’. This is the first study, to the knowledge of the authors, for which an objective composite income-independent quality of life index, applied to a developing country at a micro level, was constructed.

In our analysis we specifically focus on ‘poor females’ and ‘poor females in rural areas’, as these are the most marginalised groups and their empowerment is a critical social objective aligned to that of international agencies and South Africa’s NDP. M&IL initiatives are directed at the marginalised groups

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5 Subjective well-being literature indicate that females have higher levels of quality of life than males (Kundu 2011, Becchetti & Conzo 2013).
in the hope of increasing their quality of life. In order to gain a better understanding of gender and M&ILs, we also compare the outcomes of regression analyses based on a sub-sample of ‘poor males’ and ‘poor females’.

In general, considering the whole sample, we find a statistically significant and negative relationship between M&ILs and IIQoL. This implies that many who had access to these kinds of loans in South Africa, irrelevant of being poor or non-poor, failed to translate monetary gains into higher levels of IIQoL over time. We find that females in general have a lower IIQoL than males, which goes against the general populace theory. The female respondents residing in rural areas, controlling for other factors, also achieve lower levels of IIQoL than their urban counterparts.

With regard to the focus of our study, the sub-samples ‘poor female’ and ‘poor females residing in rural areas’, we find the same significant and negative relationship between M&ILs and IIQoL. Notably, nearly double the number of ‘poor females’ compared to ‘poor males’ partake in these loans. ‘Poor female’ respondents with a M&IL are worse off than their fellow poor females who do not partake in this market. Interestingly, in the ‘poor male’ sub-sample the relationship with M&ILs, although negative, is not significant. These results allow us to compile a profile for the least desired demographic group in terms of IIQoL. They are female, of African descent, are classified as being poor, are more likely to be unemployed, have a M&IL and are the primary caregivers responsible for the non-income quality of life of children. This leads us to conclude that M&ILs failed in raising the quality of life for South Africa’s most marginalised groups.

Policymakers who strive to increase the quality of life of the marginalised through allowing micro and informal lenders to operate within specific targeted areas, should also provide training, workshops on awareness creation, support programmes, proper debt counselling and government policy to enhance women empowerment, instead of merely relying on the provision of credit initiatives. These support programmes should focus on empowering individuals to allow them better accountability for the choices they make.

Finally, another area that deserves greater consideration from the South African government is regulation. In the absence of a well-functioning regulatory framework within which micro and informal lenders can operate, it will be harder to run flexible savings accounts and effectively provide intermediate finances. This lack of proper regulation could negate every potential to improve the conditions of recipients and ultimately the negative impacts of this industry will outweigh any positives.

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Competing interests

The authors have declared that no competing interest exist.

Author’s contributions

Both authors contributed equally to the manuscript.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

References


Cameron, A.C. & Trivedi, P.K., 2010, Microeconometrics using Stata, Stata Press, College Station, TX.


## Appendix 1

**TABLE 1-A1:** Comparative estimations result with education, health and housing alternatively used as dependent variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1) Education</th>
<th></th>
<th>Standard error</th>
<th>(2) Health</th>
<th></th>
<th>Standard error</th>
<th>(3) Housing</th>
<th></th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro- and informal loans</td>
<td>-0.0320***</td>
<td>0.03</td>
<td>-0.0677****</td>
<td>0.02</td>
<td>-0.0212*</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geo-type (Urban reference) Rural</td>
<td>0.129***</td>
<td>0.04</td>
<td>0.0268*</td>
<td>0.02</td>
<td>0.128**</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave (Wave 1 reference) Wave 2</td>
<td>0.171***</td>
<td>0.04</td>
<td>-0.0155</td>
<td>0.03</td>
<td>-0.0320</td>
<td>0.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 3</td>
<td>0.280***</td>
<td>0.07</td>
<td>-0.274***</td>
<td>0.05</td>
<td>-0.101</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 4</td>
<td>0.102***</td>
<td>0.03</td>
<td>-0.0528***</td>
<td>0.02</td>
<td>-0.0334</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.144***</td>
<td>0.02</td>
<td>0.00465</td>
<td>0.01</td>
<td>0.0452***</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age²</td>
<td>-0.00171***</td>
<td>0.00</td>
<td>0.000494***</td>
<td>0.00</td>
<td>-0.000145***</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>-0.00731</td>
<td>0.01</td>
<td>-0.00123</td>
<td>0.00</td>
<td>-0.0127*</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative income</td>
<td>-0.00692</td>
<td>0.01</td>
<td>0.0103***</td>
<td>0.00</td>
<td>0.0186***</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>0.0330**</td>
<td>0.02</td>
<td>0.00210</td>
<td>0.01</td>
<td>0.0555***</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>-0.000533</td>
<td>0.00</td>
<td>0.0114****</td>
<td>0.00</td>
<td>0.00408</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>5.387***</td>
<td>0.60</td>
<td>7.532***</td>
<td>0.42</td>
<td>-0.481</td>
<td>0.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>34606</td>
<td>-</td>
<td>34615</td>
<td>-</td>
<td>34107</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.100</td>
<td>-</td>
<td>0.033</td>
<td>-</td>
<td>0.007</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted with data from National Income Dynamics Study (NIDS), 2016a, Waves 1 – 4 [dataset]. Southern Africa Labour and Development Research Unit, Southern Africa Labour and Development Research Unit (producer), Cape Town, DataFirst (distributor), Cape Town, Department of Planning Monitoring and Evaluation (commissioner), Pretoria.

***, Significance at 0.1% confidence level; ***, significance at 1% confidence level; *, significance at 5% confidence level using two-tailed tests.
TABLE 2A1: Summary of the most influential microcredit studies

<table>
<thead>
<tr>
<th>Paper name and full reference</th>
<th>Method</th>
<th>Data source</th>
<th>Critique of the study</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chan, S.H. &amp; Ghan, M.A., 2011, ‘The impact of microloans in vulnerable remote areas: evidence from Malaysia’, Asia Pacific Business Review 17(1), 45–66.</td>
<td>Non-randomized evaluation.</td>
<td>72 female microloan borrowers from three remote villages in Malaysia.</td>
<td>Participants were interviewed after receiving their first loan. They could have given positive answers out of fear that negative answers could remove them from the approved applicants list.</td>
<td>It was found that 52.8% of the female borrowers became ‘non-poor’ and therefore graduated out of the poverty state.</td>
</tr>
<tr>
<td>Karlan, D.S. &amp; Zinman, J., 2010, ‘Expanding microcredit access: Using randomized supply decisions to estimate the impacts’, The Review of Financial Studies 23(1), 433–464.</td>
<td>Randomized evaluation.</td>
<td>The sample is made up of 1601 marginally creditworthy applicants of which 1272 were assigned to the treatment group and 329 to the control group.</td>
<td>From the marginally rejected applicants, it could be seen that they were not very poor.</td>
<td>Microcredit participation was associated with high levels of stress and depression.</td>
</tr>
<tr>
<td>Duflo, E., Glennerster, R. &amp; Kremer, M., 2008, ‘Using randomization in development economics research: A toolkit’ in T. Schultz and J. Strauss (eds.), Handbook of Development Economics, vol. 4, North Holland, Amsterdam and New York.</td>
<td>Randomized evaluation.</td>
<td>The Lender® operated in South Africa (Cape Town, Port Elizabeth and Durban).</td>
<td>The potential borrowers in the selected areas are poor, but not ‘the poorest of the poor’.</td>
<td>Microcredit participation had positive effects on:</td>
</tr>
<tr>
<td>Khandker, S.R., 2005, Microfinance and poverty: Evidence using panel data from Bangladesh, Published by Oxford University Press on behalf of the World Bank, viewed from <a href="https://openknowledge.worldbank.org/handle/10986/16478">https://openknowledge.worldbank.org/handle/10986/16478</a></td>
<td>Non-randomized evaluation.</td>
<td>Bangladesh (BRAC, BRDB, Grameen Bank), World Bank and Bangladesh Institute of Development Studies.</td>
<td>There is a positive impact of microcredit participation on:</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 2A1 continues on the next page
<table>
<thead>
<tr>
<th>Paper name and full reference</th>
<th>Method</th>
<th>Data source</th>
<th>Critique of the study</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coleman, B., 1999, ‘The impact of group lending in northeast Thailand’, <em>Journal of Development Economics</em> 60, 105–141.</td>
<td>Non-randomized evaluation. Double difference comparison between participants and non-participants and between villages with program and villages in which program will be introduced later.</td>
<td>Thailand (village bank). Data was for 445 households in 14 villages: 8 with village banks that started their activity in 1995, the other 6 one year later..</td>
<td>Control group made up of self-selecting participants in villages identified for later inclusion in the program. Generally, the villagers in Thailand are wealthier than villagers in Bangladesh and have easier access to credit. The results cannot be extended to a large context.</td>
<td>No evidence of program impact. Village bank membership does not have an impact on income.</td>
</tr>
<tr>
<td>Pitt, M. &amp; Khandker, S., 1998, ‘The impact of group-based credit programs on poor households in Bangladesh: Does the gender of participants matter?’, <em>Journal of Political Economics</em> 106(5), 958–996.</td>
<td>Non-randomized evaluation. Double difference between eligible and non-eligible households and programs with and without microcredit interventions. An estimation process is conducted for male and female clients, respectively. Cross-sectional analysis for the years 1991 and 1992.</td>
<td>Bangladesh (Grameen, BRDB*, BRAC); World Bank and Bangladesh Institute of Development Studies survey.</td>
<td>Eligibility criteria are not clearly exogenous. Microcredit participation is restricted to ‘functionally landless’, i.e. those households that own less than 0.5 acre of land. No evidence of consumption impacts. Identifying assumptions do not hold.</td>
<td>Positive impact on microcredit participation regarding: † weekly expenditure per capita, ‡ women’s non-land assets, and § women’s labour supply. Positive effect of female participation in Grameen Bank on schooling of girls. Microcredit intervention can contribute to change the attitudes and general characteristics of the villages.</td>
</tr>
</tbody>
</table>

**TABLE 2-A1 (Continues...):** Summary of the most influential microcredit studies
AIM, Amanah Ikhtiar Malaysia; BRDB, Bangladesh Rural Development Board; BRAC, Building Resources Across Communities.

Note: Bangladesh Rural Development Board is a public sector organization working for rural development and poverty alleviation in Bangladesh (http://www.brdb.gov.bd). The Lender in question was merged into a large bank holding company in 2005; it does not exist as a single entity.