Access to micro – and informal loans: evaluating the impact on the quality of life of poor females in South Africa

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Abstract

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 relationship to quality of life. Unfortunately, these studies mainly measure quality of life using monetary (income) measures rather than assessing the entire multidimensionality of quality of life.

Aim: This paper 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 marginalized, i.e. 'poor females' and 'poor females residing in rural areas', as their empowerment is a critical social objective, aligned to that of international agencies.

Methods: We use a panel dataset spanning four waves from 2008 to 2015 of the National Income Dynamics Study (NIDS). 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.

Conclusions: Access to M&ILs does not increase the quality of life of South Africa's most marginalized groups. Without government interventions and education programmes, related to microloans, the marginalized will not experience an increase in their non-income quality of life.

JEL Codes: C01, C33, O15, O55, R2

Keywords: Quality of life, income-independent measures, microloans, informal loans, South Africa

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1 Introduction

In this paper 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 lend 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 marginalized groups; i.e. 'poor females' and more specifically, 'poor females residing in rural areas' (Bhorat, Naidoo and van der Westhuizen 2006). This is important, as many governments, since the early 1980s, have investigated the possibility that access to microloans is a pathway to grow economies out of unemployment and therefore improve people's quality of life. Duggan et al (2000) maintain that the groups targeted to participate in microloan initiatives are those seen as marginalized 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, which are mostly women, to make more choices (empowerment), thereby ultimately allowing them to contribute to greater economic growth and development in their countries (Swain and Wallentin 2009). Additionally, Becchetti and Conzo (2013) argue that access to microloans, has the ability to increase a person's level of dignity, self-esteem, social recognition and life satisfaction. In essence, M&ILs are necessary to increase marginalized individuals' overall quality of life.

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

On the one hand, mainstream studies such as Chan and Ghani (2011) and Afroze (2012) argue that microloans are successful in reaching the marginalized 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 measures 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 and Anand 2017).

On the other hand, studies such as Orso (2011), Banerjee et al (2015), van Rooyen et al (2012) and Wahab et al (2018) contradict mainstream studies, claiming significant positive effects of microloans on poverty (*economic quality*

of life). Orso (2011) found that micro borrowers select areas to invest in, which already have entrepreneurial potential and infrastructure, therefore ensuring a positive outcome. Furthermore, 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 a lack of robustness tests and suffers from small sample bias.

The current paper 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 dataset 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 i) the Sub-Saharan Africa region (see van Rooyen et al 2012) and ii) the importance of including informal loans in determining the success of credit initiatives (see Proctor and 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 (2009), in 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), thus unidimensional measures, to measure quality of life achievement. Lutafali and Khoja (2002) argue that low levels of quality of life encompasses 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 that exists is that social indicators are strongly correlated to income measures and therefore an argument can be made (Drèze and Sen 1991) that social indicators are redundant and to 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 social indicators explained by income. This type of measure will more directly address the *outcomes* of policy for 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 non-income quality of life. Stiglitz et al (2009) argue that objectively measured indicators, such as the ones used in the construction of the Human Development Index (HDI), are still popular amongst 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 easier measurable, 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

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indicators, from which the income variance was removed.

Against this backdrop, the study therefore seeks to achieve the following research objectives:

(i) construct a composite *objectively* measured income-independent quality of life (IIQoL) index on a micro level;

(ii) analyse the relationship between M&ILs and IIQoL for the whole sample;

(iii) determine whether the same relationship that was found between M&ILs and IIQoL for the whole sample holds for the sub-samples 'poor females' and more specifically, 'poor females in rural areas'; and

(iv) 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 IIQoL, for sub-samples defined by gender. This is important since literature suggests that females typically spend their M&ILs on education and health, whereas males traditionally end up satisfying current consumption needs (Karlan et al 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 dataset spanning four waves from 2008 to 2015 of the National Income Dynamics Study (NIDS) and utilise 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 M&ILs is not succeeding in raising the quality of life of South Africa's most marginalized groups i.e. 'poor females' and more specifically, 'poor females residing in rural areas'. We find this to be in line with the works 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 impoverishes these groups. Additionally, M&ILs create negative changes, as regards to individual's family relations (some males misuse resources, higher frequency of domestic abuse and women not being empowered), increased time pressure and a decreased participation in social activities.

The rest of the paper is structured as follows. The next section contains the outline of the methodology used, whereas section 3 describes the data and the selected variables. The results and analyses follow in section 4, whilst the paper concludes in section 5.

2   Methodology

We structure the methodological section as follows:

(i) the composition of the IIQoL index, and

(ii) the model and the estimation techniques

2.1 Methodology followed to construct the composite IIQoL 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), which explains the most variance in the dataset. In line with the OECD's (2008) guidelines on the construction of composite indicators, the first extracted component represents an objectively weighted composite index, in this instance, of non-income quality of life. Second, we regress the composite index on the natural log of household income per capita. Lastly, we retain the residual, μ_i, from this regression and interpret it as an individual's *income-independent quality of life* (IIQoL). This estimated function of the composite non-income quality of life index can be expressed as:

$$Q_{it} = \alpha + \beta lny_{it} + \mu_{it} \tag{1}$$

Where Q_{it} is the composite non-income quality of life index for the individual i in period t ($t =$2008 to 2015); and lny_{it} is the natural log of household income per capita for the same individual i in time t, with μ_{it} the residual term. This residual term μ_{it} 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 lny_{it}. To test the choice of PCA, to weight the composite index, we also develop an index, in which we apply 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 proof that our newly constructed IIQoL is indeed independent of income, we correlate it to both objective and subjective monetary measures of wellbeing (other than income). Low correlations are an indication of the independence of the newly constructed index.

2.2 Model and estimation techniques

The generic model estimated (equation 2) applies to i) the whole sample, ii) a sub-sample of 'poor female' respondents, iii) a sub-sample of 'poor females residing in rural areas' respondents and to compare findings based on gender iv) a sub-sample of 'poor male' respondents.

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \varepsilon_{it} \tag{2}$$

Where Y_{it} is the IIQoL, $\beta_1 X_{it}$ is a vector of demographic and economic variables. including the variable of interest M&ILs, and the idiosyncratic individual error term is given by ε_{it}.

To estimate the specified model in equation (E2), we use panel data estimation techniques, and adjust it 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 of 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 that states the difference in coefficients are not systematic (Chi-square = 1754.67; p = 0.000) and therefore we estimate the model using FEs. 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 endogeneity arising from simultaneity. Therefore, to test for endogeneity arising from simultaneity, we make use of instrumental variable (IV) regressions, using the FE estimator. In saying this, the dataset 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 with its lagged variable. With the IV regression, we find the instrument to be strong, with the Kleibergen-Paap Wald F statistic = 222.998 and larger than the Stock-Yogo weak ID test's critical value at 10 per cent. However, testing for endogeneity, the Durbin-Wu Hausman test shows that the variable of interest, M&ILs, is not endogenous (p = 0.4304), therefore also addressing the question of endogeneity arising from simultaneity. Therefore, we do not pursue the matter further and interpret the POLS in the case of time invariant variables and the FE models, for time variant variables.

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 6 in Appendix A). 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 the ideal to use these individual social indicators to represent quality of life, as they are unidimensional, 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.

3 Data and Variables

3.1 Data

The data used in this paper come from the first four waves of the National Income Dynamics Study (NIDS), spanning the period 2008-2015. NIDS is a face-to-face longitudinal survey, which is repeated with the same individual household members every two years (NIDS 2016b). This dataset focuses on the livelihoods of individuals and households, over time. The reason for choosing the NIDS dataset is, because it provides rich data on non-income quality of life indicators on micro level, which is not the case with other national surveys. The analysis is restricted to a balanced panel – adults 18+ years old (wave 1), who were successfully interviewed in all four waves and includes 9360 individuals in the four waves amounting to 37440 observations. Table 1 provides the summary statistics for a select number of demographic variables in the balanced panel.

As seen from table 1, there has been a significant increase, from 2008 to 2015, in the share of the population engaging in the M&IL market, from 1.3 per cent to 7.9 per cent, although there was a minor decrease in wave 3. This finding of increased dependence on M&ILs holds for each of the cohorts of interest, i.e. '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 was on average 3.5 per cent higher. This higher level of activity by the poor can be interpreted as a higher number of individuals accessing the only financial service they have access to.

The percentage of the population who falls below the upper[1] poverty line has declined significantly, from 65.5 per cent to 44.6 percent, over the four waves. This is also true for females, as poverty decreased from 69 per cent in wave 1, to 50 per cent in wave 4 and among females in rural areas, where poverty decreased from 81 per cent in wave 1 to 64 per cent in wave 4. Notably the percentage poor among the female and the females in rural areas is higher than the percentage poor in the whole sample. However, although poverty rates have decreased, we cannot conclude that higher levels of M&IL participation, has directly caused a decrease in poverty. Simanowitz (2010) argued that it could be very difficult to proof the positive effects of microloan initiatives on increasing the quality of life for South Africans, since many who participate, are also recipients of welfare payments.

With regards to the different geographical areas included in the sample: we refer to respondents residing in either rural or urban areas. In this paper, people residing in rural areas, are highlighted, as they are typically more marginalized and represents a substantial proportion of the whole sample, 44.71 per cent - wave 1 to 50.5 per cent - wave 4. Almost all inhabitants of rural areas are of African descent (on average 99.98 per cent), as well as female (67 per cent).

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[1] To see the formal definition of South Africa's upper poverty line please visit Statistics South Africa at www.statssa.gov.za/publications/ Report-03-10-06/Report-03-10-06March2014.pdf

3.2 Selection of variables

3.2.1 *Non-income quality of life variables*

As discussed in section 2.1, 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 were thoughtful not to stray too far away from the original HDI. The reason for this is that the domains of health and education have been well documented, as contributing the most to individuals' perceived quality of life (see also Land et al 2012, McGillivray 2005). Added to this, both the United Nations (UN) and the World Bank (WB) (United Nations publication, Series F, No. 49 (1989), Series F, No. 18 (1975 and 2015)) have placed significant importance on education, health, and developing basic infrastructure pertaining to housing, water and sanitation. These are seen, as breakthrough policy areas, needed to achieve higher non-income quality of life in developing regions. The three domains also reflect the South African Government's investment priorities, as stipulated in the 2017/2018 budget (National Treasury 2017) and forms 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 1 for discussion); the non-income quality of life index includes the below three objectively measured indicators. This index is ultimately regressed on household income per capita (see table 2 for descriptive statistics).

1. To represent the domain of literacy, years of education was selected. The level of education is measured as the total number of years in school and varied between no schooling up to 18 years of education (reflecting postgraduate qualifications).

2. As regards 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 increases the quality of housing).

3. Objectively measured health. To derive an objective measure of health, the study summed the number of diseases with which a person has previously been diagnosed. The diseases include asthma, high blood pressure, cancer, diabetes, heart problems, stroke, tuberculosis, and other diseases which are not mentioned in the list (for example HIV). Very few (3%) people reported to have all eight the above-mentioned diseases, whereas the majority (almost 70%) reported not to have any of the diseases. We realise that these responses might be biased, as people prefer not to reveal their true health status. Therefore, to test the validity of this indicator we correlate it with the variable '*perceived health status of a person*' and found that it was statistically significant and positively correlated (Spearman's correlation coefficient = 0.47).

3.2.2 *Variables selected for the regression analyses*

The selection of the independent variables included in the regression analyses are based on an extensive literature review (see section 1), 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, expected relationships discussed below is based on the results of quality of life – or subjective wellbeing studies.

These variables are (see table 3):

(i) Micro – and informal loans, the variable of interest: In order to derive said variable, we considered loans from micro- and informal moneylenders, such as Mashonisas[2]. The survey asked whether a respondent had a loan, with a "yes" or a "no" response option. If a respondent answered in the affirmative, we code it as 1 and 0 in the alternative. As can be seen from table 3, only 3.3 per cent of all respondents (1 238 out of 37 440) are classified as *'with'* a loan. Of these 3.3 per cent with M&ILs the majority is classified as being poor (56 per cent) and the dominant gender of the poor cohort is female (63 per cent). As was discussed in section 1, there are those that find that M&ILs are successful in developing microenterprises and therefore increases 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.

(ii) Geographical type: The classifications are urban built-up or rural areas (see section 3.1 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 and 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).

(iii) 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 group, since it constitutes the largest demographic group, totalling nearly 87 per cent of the entire population. Since South Africa is still struggling to rectify the inequalities 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 interpret the results for this group with care, as it might be biased, and the interpretation thereof limited.

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[2] African term for a person or company that provides loans to consumers.

(iv) Gender: Male (estimated at 5.1 million[3]) is the reference group. Approximately 40 per cent of the respondents are male and 60% are females (8.5 million). The expectation is that South African females, being the largest cohort, will have on average a higher level of IIQoL than their male counterparts. This is the general assumption in the subjective wellbeing/ happiness literature (Kundu 2011, Becchetti and Conzo 2013).

(v) Age and age squared: The average age of the sample is approximately 37 years. A U-shaped relationship has been revealed in the subjective wellbeing literature, between age and wellbeing, with relatively high levels of wellbeing reported for young people, lower for the middle ages, and subsequently higher again for the elderly (Frijters and Beatton 2012).

(vi) Trust: In previous research it has been shown that higher levels of trust is positively related to individual – and collective quality of life (Kuroki 2011). Interesting to note that approximately 67 per cent of the sample believed that it is unlikely that a neighbour will return a lost wallet.

(vii) Relative income: This is derived from a question that ask a household to compare their income to that of other households in their neighbourhood. If a household classified their income above average, a positive relationship to IIQoL is expected (Clark, Frijters and Shields 2008). Only 9 per cent of the sample believed that their income is higher than the average of their neighbours'.

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

(ix) Employment (being employed is the reference group): The positive effects of employment on quality of life has been well documented and we expect a similar relationship regarding IIQoL (Winkelmann and Winkelmann 1998). In saying this, only 38 per cent of the sample indicated to be employed.

(x) Safety: A positive relationship between an individual's feeling of safe, measured in accordance to the perceived frequency of theft in the community and IIQoL is expected (Cheng and Smyth 2015).

4 Results

The results section reports on (i) the IIQoL index derived through PCA and (ii) the estimation results.

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[3]Derived using design weights.

4.1 Construction of IIQoL

To construct our IIQoL index, we first applied 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 extracted the first component, which explained 58 per cent (eigenvalue = 1.60) of the variance, deemed acceptable for the construction of a composite index (see Naudé et al. 2009, Greyling and Tregenna 2016). Second, 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 IIQoL.

To proof the independence of our IIQoL measure from income, we correlate it to both objective and subjective measures of monetary wellbeing, i.e. expenditure per person and self-reported relative income. We find the correlation coefficients to be significant, though at a very low level of $r = 0.10$ and $r = 0.07$, respectively. At these low levels of correlation, we can assume the independence of the IIQoL index from income and accept it as a good measure of IIQoL.

Figure 1 expresses IIQoL of different groups as a percentage of the maximum IIQoL in South Africa. We find the mean IIQoL, of the average citizen, to be relatively low at 53.3 per cent. 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, i.e. all South Africans, poor females, poor males and poor females in rural areas, those 'with' a M&IL have between 2-3 per cent lower levels of IIQoL than those 'without'. The sub-samples 'poor females' and 'poor females residing in rural areas', experience the lowest levels of IIQoL 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 IIQoL than their female counterparts. In general, IIQoL for males is higher than for females and IIQoL for poor males 'without' these loans is even higher than IIQoLfor 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 are further investigated in section 4.2, as other factors might also be at play.

4.2 Results (dependent variable = IIQoL)

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 make use of the FE estimations though, in the event of time invariant variables, we also refer to the POLS results (see table 4).

Table 4 reveals an interesting and troubling result; M&ILs   are statistically significant and *negatively* related to IIQoL for all sub-samples, except for 'poor males', in which the relationship is negative but not significant. Therefore, we can assume that South Africans in general 'with' a M&IL have lower IIQoL 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 IIQoL. 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, i.e. education, housing and health.

To test the robustness of this negative relationship between M&ILs and IIQoL, we also test it using the individual indicators of quality of life, remembering that these indicators are *income dependent* and unidimensional (as discussed in sections 1 and 2), contrary to our IIQoL index (Saltelli et al   2007, OECD 2008). Notwithstanding this, the results in Appendix A table 6, 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 IIQoL. Male respondents are deemed better off than females, which confirms the initial findings in section 4.1. Turning to the geographical area, as expected, the respondents residing in rural areas' IIQoL is lower than that of their urban counterparts. This is in line with the literature that suggests that females, and more specifically females residing in rural areas, are more marginalized than other groups (Bhorat et al 2006, Kirsten 2011). This finding emphasises the importance of addressing the second and third research questions, thus investigating the relationship between M&IL's within gender and geographical sub-samples. In what follows, we discuss the results related to the whole sample (table 4, column 1&2), poor females (table 4, column 3), poor males (table 4, column 4) and poor females in rural areas (table 4, column 5).

The time variable for waves 2 – 4 is significant and negative for the whole sample, indicating that IIQoL has decreased from wave 2 as compared to wave 1. The reasons for the decrease in IIQoL from wave 2 to wave 4, is associated with health (as time goes by it is more likely that a person is 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 seeing as the young generally has higher levels of health, whereas the older respondents have better housing, more assets and access to service delivery, than those in their middle ages. Therefore, it mirrors the findings from the subjective wellbeing literature (Frijters and 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 as 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, not being 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 positive and significant, only for the sub-sample 'poor females in rural areas'. This is not surprising, since women staying in rural areas are seen to have better social capital in the form of stronger bonds, i.e. links to people based on a sense of common identity ("people like us") (Keeley 2007). This trust also forms a 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 was found to be statistically significant and, against expectation, negative for the whole sample as well as for the 'poor female' sub-sample. South Africa suffers from very high levels of unemployment and very limited employment opportunities. In the whole sample we found 68 per cent of the respondents were unemployed, and among 'poor females', this percentage was even higher at 84 per cent. The fact that being employed is negatively related to IIQoL is contradicting theory, though in the South African context, where the social welfare system is very well developed, it might be plausible. More than 67 per cent of the whole sample and 83 per cent 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 therefore lose their right to a grant. Seeing that the average wages are very low in South Africa and often very similar to the monies received from grants, it can be that people prefer not to work and rather depend on grants as an income source. This situation reflects the unintended disincentive of a social welfare system, which is to discourage productive employment. This dependency on government grants is not sustainable or conducive to development or growth.

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 IIQoL of 'poor males' and 'poor females residing in rural areas'. As was already mentioned, females are the primary caretakers of relatively large households, thereby shouldering most of the responsibilities regarding children's education and health care. This means that a large portion of their time is spend 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

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they will be employed and therefore employment is not related to their IIQoL. 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 to be 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 IIQoL for all South Africans. South Africa is known for high crime rates, which influences the daily lives of all citizens.

Lastly, the results pertaining to the 'poor female' and 'poor male' clearly contradicts general populace[4] in the subjective wellbeing literature, which shows that females often have higher levels of wellbeing than males. Since 2008, the South African Social Attitude Survey (SASAS) has shown that females indeed do report lower levels of quality of life than males in South Africa (HSRC 2010). Kirsten (2011) pointed out that African females, living in rural areas, are 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) argued that African women, in general, do not have control over their own income, which excludes them from the decision-making process. Furthermore, the threat of violence remains a major form of control for men over women. This indeed, corroborates our findings and highlights the plight of this gender, in terms of:

1. greater employment discrimination (71 per cent are unemployed compared to 29 per cent of males),

2. wage gap (Hinks 2010),

3. abuse (Posel and Rogan 2012) and

4. higher levels of responsibility towards dependents.

Work done by Teixeira and Chambers (1995:43) summarises it well "*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*".

5   Conclusions

In this paper, we investigated the relationship between micro – and informal loans (M&IL) and income-independent quality of life (IIQoL) in South Africa. We derived IIQoL through the construction of an objectively measured index, which is independent of income, and therefore satisfies all previous critique

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[4]Subjective wellbeing literature indicate that females have higher levels of quality of life than males (Kundu 2011, Becchetti and Conzo 2013).

against non-income indicators of quality of life. This index allowed us to 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 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 focused on 'poor females' and 'poor females in rural areas', as these are the most marginalized groups in South Africa and their empowerment is a critical social objective aligned to that of international agencies and South Africa's National Development Plan. M&IL is a form of financing directed at the marginalized groups, in the hope of increasing their quality of life. In order to gain a better understanding of gender and M&ILs, we also compared 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 did have access to these kinds of loans in South Africa, irrelevant of being poor or non-poor, failed to translate those monetary gains into higher levels of IIQoL over time. We find that females in general have 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 regards 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 as in the whole sample. Notably, nearly double the amount 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 that do not partake in this market. Interestingly, in the 'poor male' sub-sample M&ILs, though negative, is not significant. These results have allowed 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, possibly have a M&IL and are the primary care givers responsible for the non-income quality of life of children. This leads us to conclude that M&ILs have failed to raise the quality of life of South Africa's most marginalized groups.

Policymakers, who strive to increase the quality of life of the marginalized through allowing micro – and informal lenders to operate within specific targeted areas, should also provide training, workshops to create awareness to the pros and cons of microloans, support programmes, and proper debt counselling. Furthermore, government policy should be developed to enhance the empowerment of women and give them the ability to make more informed decisions.

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, M&IL's will most likely rather affect quality of life negatively than positively.

References

[1] Afroze, R., 2012, 'An early assessment of the BRAC Uganda microfinance programme: estimate the changes of living standard', *OIDA International Journal of Sustainable Development*, 5(8): 121-130.

[2] Alemu, Z., 2012, 'Livelihood strategies in rural South Africa: Implications for rural development', 2012 Conference, August 18-24, 2012, Foz do Iguacu, Brazil 125411, International Association of Agricultural Economists.

[3] Banerjee, A., Duflo, E., Glennerster, R. & Kinnan, C., 2009, 'The miracle of microfinance? Evidence from a randomized evaluation', *Working Paper* 13-09. Massachusetts Institute of Technology.

[4] Banerjee, A., Karlan, D. & Zinman, J., 2015, 'Six randomized evaluations of microcredit: Introduction and further steps', *American Economic Journal: Applied Economics*, 7(1): 1-21.

[5] Bateman, M., 2015, 'South Africa's post-apartheid microcredit experiment: moving from state-enforced to market-enforced exploitation', *Forum for Social Economics*, DOI: 10.1080/07360932.2015.1056202.

[6] Becchetti, L. & Conzo, P., 2013, 'Credit access and life satisfaction: evaluating the nonmonetary effects of micro finance', *Applied Economics*, 45: 1201-1217.

[7] Bhorat, H., Naidoo, P. & van der Westhuizen, C., 2006, 'Shifts in non-income welfare in South Africa: 1993-2004', *Development Policy Research Unit Working Paper No. 06/108*.

[8] Bhuiyan, M. F. & Ivlevs, A., 2017, 'Micro-entrepreneurship and subjective well-being: Evidence from Bangladesh', DOI: 10.13140/RG.2.2.27480.60162. Available at https://www.researchgate.net/publication/321145791/ Micro-entrepreneurship_and_subjective_well-being_Evidence_from_rural_Bangladesh

[9] Cameron, A. C. & Trivedi, P. K., 2010, *Microeconometrics using Stata*. Stata Press.

[10] Chan, S. H. & Ghani, M. A., 2011, 'The impact of microloans in vulnerable remote areas: evidence from Malaysia', *Asia Pacific Business Review*, 17(1): 45-66.

[11] Cheng, Z. & Smyth, R., 2015, 'Crime victimization, neighborhood safety and happiness in China', *Economic Modelling*, 51: 424-435.

[12] Clark, A., Frijters, P. & Shields, M. A., 2008, 'Relative income, happiness, and utility: An explanation for the Easterlin Paradox and other puzzles', *Journal of Economic Literature*, 46(1): 95–144.

[13] DeLeire, T. & Kalil, A., 2010, 'Does consumption buy happiness? Evidence from the United States', *International Review of Economics*, 57(2): 163–176.

[14] Drèze, J. & Sen, A., 1991, *Hunger and public action*, Oxford University Press, Oxford.

[15] Duggan, C., Immink, R., Kearney, P.& Shea, C. O., 2000, *Enterprise creation by the unemployed in Ireland: the role of microfinance*, London: International Labour Office.

[16] Dupas, P. & Robertson, J., 2013, 'Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya', *American Economic Journal: Applied Economics*, 5(1): 163–192.

[17] Duvendack, M., 2010, 'Smoke and mirrors: Evidence from microfinance impact from evaluation of SEWA Bank in India', The School of International Development, University of East Anglia Working Paper No. 24.

[18] Duvendack, M., Palmer-Jones, R., Copestake, J. G., Hooper, L., Loke, Y. & Rao, N., 2011, *What is the evidence of the impact of microfinance on the well-being of poor people?*, London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

[19] Frijters, P. & Beatton, T., 2012, 'The mystery of the U-shaped relationship between happiness and age', *Journal of Economic Behavior & Organization*, 82(2-3): 525-542.

[20] Greyling, T. & Tregenna, F., 2016, 'Construction and analysis of a composite quality of life index for a region of South Africa', *Social Indicators Research*, 131(3): 887-930.

[21] Hinks, T., 2010, 'Gender wage differentials and discrimination in the New South Africa', *Applied Economics*, 34(16): 2043-2052.

[22] Human Sciences and Research Council (HSRC)., 2010, 'How South Africans rate their quality of life', *HSRC Review*, 8(3): 2-4. Available at http://www.hsrc.ac.za/uploads/pages/1278/HSRCReviewwwwproofsep2010.pdf

[23] Kaboski, J. & Townsend, R., 2005, 'Policies and impacts: An analysis of village-level microfinance institutions', *Journal of European Economic Association*, 3(1): 1-50.

[24] Karlan, D. & Zinman, J., 2010, 'Expanding credit access: Using randomized supply decisions to estimate the impacts', *The Review of Financial Studies*, 23(1): 433-464.

[25] Karlan, D., Osman, A. & Zinman, J., 2016, 'Following the money: Methods for identifying consumption and investment responses to a liquidity shock', *Journal of Development Economics*, 121: 11-23.

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[26] Keeley, B., 2007, *Insights Human Capital: How what you know shapes your life*, Published by the OECD, Paris.

[27] Kirsten, M. A., 2011, 'Improving the well-being of the poor through microfinance: Evidence from the Small Enterprise Foundation in South Africa', *Dissertation presented for the degree of Doctor of Philosophy in the Faculty of Economic and Management Science at the University of Stellenbosch.* Available at http://scholar.sun.ac.za

[28] Kundu, A., 2011, 'Can microcredit and job under NREGS jointly bring more happiness to villagers?', *The IUP Journal of Governance and Public Policy*, 6(1): 7-23.

[29] Kuroki, M., 2011, 'Does social trust increase individual happiness in Japan?', *The Japanese Economic Review*, 62(4): 444-459.

[30] Land, K. C., Michalos, A. C. & Sirgy, J., 2012, *Handbook of Social Indicators and Quality of Life Research,* Springer, Netherlands.

[31] Lutafali, S. & Khoja, F., 2002, 'Multidimensional poverty and expanding role of Microfinance Institutions', FMFB First Micro Finance Bank (AKDN) and Grameen Bank, Available at http://saicon2011.ciitlahore.edu.pk/Economics/Dr.%20shabnam%20Lutafali.pdf

[32] May, J. & Norton, D., 2012, A difficult life: The perceptions and experience of poverty in South Africa, *In* Quality of life in South Africa, V. Möller (eds), Springer Science and Business Media.

[33] McGillivray, M., 1991, 'The Human Development Index: Yet another redundant composite development indicator?', *World Development*, 19, 1461–8.

[34] McGillivray, M., 2005, 'Measuring non-economic well-being achievement', *Review of Income and Wealth*, 51(2), 337-364.

[35] Mutopo, P., 2014, 'Belonging and rural livelihoods: Women's access to land and non-permanent mobility at Merrivale farm, Mwenezi district, Zimbabwe', *Erdkunde* 68(3): 197–207.

[36] National Income Dynamics Study 2008 – 2014/2015, 2016, 'Waves 1 - 4 [dataset]. Southern Africa Labour and Development Research Unit', Cape Town: Southern Africa Labour and Development Research Unit [producer], Cape Town: DataFirst [distributor], Pretoria: Department of Planning Monitoring and Evaluation [commissioner].

[37] National Income Dynamics Study, 2016b, *NIDS Panel User Manual* (eds) Michelle Chinhema, Timothy Brophy, Michael Brown, Murray Leibbrandt, Cecil Mlatsheni and Ingrid Woolard, Available at http://www.nids.uct.ac.za/images/documents/wave4/20170227-NIDS-W4PanelUserManual-V1.1.pdf

[38] National Planning Commission, 2012, 'National Development Plan', Retrieved from http://www.poa.gov.za/news/Documents/NPC%20National20Development %20Plan%20Vision%202030%20-lo-res.pdf Accessed 16 September 2017

[39] National Treasury, 2017, 'Budget Review 2017', Republic of South Africa, Available at: http://www.treasury.gov.za, Accessed 23 November 2017

[40] Naudé, W. A., Krugell, W. F. & Rossouw, S., 2009, 'The Non-Monetary Quality of City Life in South Africa', *Habitat International*, 33(4), 319-327

[41] OECD, 2008, *Handbook on constructing composite indicators. Methodology and user guide*, Available at https://www.oecd.org/sdd/42495745.pdf

[42] Orso, C. E., 2011, 'Microcredit and poverty. An overview of the principal statistical methods used to measure the programme net impacts', *POLIS Working Paper No.* 180, February.

[43] Posel, D. & Rogan, M., 2012, 'Gendered trends in poverty in the post-apartheid period, 1997-2006', *Development Southern Africa,* 29(1): 97-113.

[44] Proctor, J. & Anand, P., 2017, 'Is credit associated with a higher quality of life? A capability approach', *Progress in Development Studies*, 17(4): 322-346.

[45] Pronyk, P. M., Harpham, T., Busza, J., Phetla, G., Morison, L. A., Hargreaves, J. R., Kim, J. C., Watts, C. H. & Porter, J. D., 2008, 'Can social capital be intentionally generated? A randomized trial from rural South Africa', *Social Science & Medicine*, 67(10): 1559-1570.

[46] Saltelli, A., Tarantola S., Campolongo F. & Ratto M., 2007, *Sensitivity Analysis in practice, a guide to assessing scientific models*, New York: John Wiley & Sons, Available at http://www.jrc.ec.europa.eu/uasa/prj-sa-soft.asp.

[47] Simanowitz, A., 2010, *Progress against Terms of Reference report to Board of Directors, October,* Unpublished report, Small Enterprise Foundation (SEF).

[48] Stiglitz, J. E., Sen, A. & Fitoussi, J., 2009, *Report by the Commission on the Measurement of Economic Performance and Social Progress*, Available at https://www.economie.gouv.fr/files/finances/presse/dossiers_de_presse/ 090914mesure_perf_eco_progres_social/synthese_ang.pdf

[49] Swain, R. B. & Wallentin, F.Y., 2009, 'Does microfinance empower women? Evidence from self-help groups in India', *International Review of Applied Economics*, 23(5): 541-556.

[50] Teixeira, L. & Chambers, F., 1995, *Child Support in Small Towns in the Eastern Cape, Port Elizabeth, South Africa*, Black Sash Advice Office.

[51] Wahab, H. A., Bunyau, W. & Islam, M. R., 2018, 'Microcredit for rural poverty alleviation and social well-being: A study of Sabah, Malaysia', *Asian Social Work and Policy Review*, 12: 4-16.

[52] United Nations, 1975, *Towards a system of social and demographic statistics*, United Nations publication, Series F, No. 18.

[53] United Nations, 1989, *Handbook on social indicators*, United Nations publication, Series F, No. 49.

[54] Van der Berg, S., 2011, 'Current poverty and income distribution in the context of South African history', *Economic History of Developing Regions*, 26(1): 120-140.

[55] Van Rooyen, C., Stewart, R. & De Wet, T., 2012, 'The impact of microfinance in Sub-Saharan Africa: A systematic review of the evidence', *World Development*, 40(11): 2249-2262.

[56] Veenhoven, R., 2004, 'Subjective measures of well-being', *WIDER discussion paper no. 2004/07,* Helsinki: United Nations University.

[57] Vercillo, S., 2016, 'Sustainable livelihoods and rural development', *Canadian Journal of African Studies / Revue Canadienne des Études Africaines*, 50(2): 326–328.

[58] Winkelmann, L. & Winkelmann, R., 1998, 'Why are the unemployed so unhappy? Evidence from panel data', *Economica*, 65(257): 1-15.

Table 1

Relevant demographic statistics per wave

Variable	Wave 1	Wave 2	Wave 3	Wave 4
% respondents with a micro – or informal loan	1.28	2.91	1.80	7.85
Poverty line	R682 ($56.78) *	R779 ($64.92)	R883 ($78.58)	R992 ($82.66)
% poor respondents	65.5	62.8	55.8	44.6
% poor females with a micro- or informal loan	1.14	3.11	2.06	9.49
% poor females with a micro- or informal loan in rural areas	0.92	2.41	2.16	9.60
Geo -type[1]				
% Rural	55.29	54.34	51.63	49.50
% Urban	44.71	45.68	48.37	50.5
N per wave	9360	9360	9360	9360
N	**37440**			

Source: NIDS (2016) Note: *R12=$1 (exchange rate on 16 April 2018). All statistics were reported with design weights

Table 2

Descriptive statistics of variables used to construct the IIQoL (whole sample)

Variable	Mean	Std. Dev	Min	Max
Education (Total years of schooling)	8.50	3.77	0	18
Health (number of diagnosed diseases per person)	.37	.70	0	8
Housing (rooms per person)	1.11	.99	.07	11
Household income per capita in South African Rand (ZAR) ($1 = R12) *	R1385.79 ($115.48)	R3378.61 ($281.55)	R0 ($0)	R62 342.67 ($6228.56)

Source: Authors' own calculations from NIDS (2016). Note: *Exchange rate as on 18 April 2018

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

Table 3
Descriptive statistics of the variables included in regression analyses

Variable	Frequency %	Mean	Standard deviation	Min	Max
Micro – and informal loans (Have a loan = 1)		0.033	0.111	0	1
Geo Type					
Rural	52.69	-	-	-	-
Urban (reference group)	47.31	-	-	-	-
Race					
African (reference group)	86.79	-	-	-	-
Coloured	7.61	-	-	-	-
Asian/Indian	1.32	-	-	-	-
White	4.28	-	-	-	-
Gender (Male=1)		0.37	0.48	0	1
Age Years		36.69		16.75	
Age Squared		1627.53	1429.81	196	10201
Trust (likelihood that neighbour will return lost wallet)		1.32	0.76	0	3
Unsure	6.29	-	-	-	-
Not likely	66.54	-	-	-	-
Somewhat likely	14.34	-	-	-	-
Very likely	11.69	-	-	-	-
Relative income (self-perceived relative income)		2.84	0.92	1	5
Much below	15.37	-	-	-	-
Below	31.05	-	-	-	-
Average	36.34	-	-	-	-
Above average	6.77	-	-	-	-
Much above average	2.39	-	-	-	-
Employment (employed=1)		0.38	0.49	0	1
Safety (frequency of theft in neighbourhood)		3.06	1.52	1	5
Very common	24.70	-	-	-	-
Fairly common	14.33	-	-	-	-
Not common	15.25	-	-	-	-
Very rare	22.01	-	-	-	-
Never happens	23.71	-	-	-	-

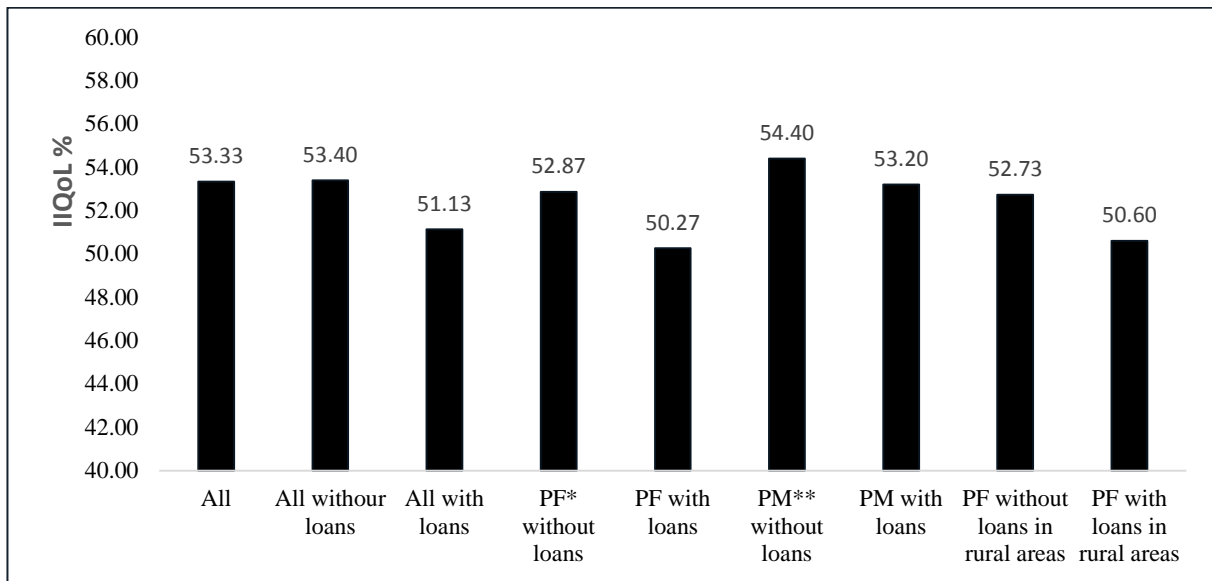Source: Authors' own calculations from NIDS (2016).

Table 4

Estimation results of POLS and FE for the whole sample and sub-samples 'poor females', 'poor males' and 'poor females in rural areas' (IIQoL = dependent variable)

	All	All	Poor Females	Poor Males	Poor Females Rural Areas
	POLS	**FE**	**FE**	**FE**	**FE**
Micro – and informal loans	-0.229*** (0.05)	-0.0840*** (0.02)	-0.0918** (0.04)	-0.0330 (0.06)	-0.136** (0.07)
Geo Type (Urban reference)					
Rural	0.0152 (0.03)	-0.0493** (0.02)	0.00762 (0.04)	0.0769 (0.07)	0 (.)
Wave (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)					
Coloured	-0.147** (0.06)	-	-	-	-
Asian/Indian	-0.103 (0.14)	-	-	-	-
White	0.448*** (0.14)	-	-	-	-
Gender	0.0673** (0.03)	-	-	-	-
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)	0.0135 (0.01)	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	0.0144 (0.01)	0.0130*** (0.00)	0.0190*** (0.00)	0.0133* (0.01)	0.0136* (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 chi^2	203.71	68.02	33.05	18.2	16.2
Probability	0.000	0.000	0.000	0.000	0.000

Source: Authors' own calculation from NIDS (2016).

*** Significance at 0.1 % confidence level, ** significance at 1 % confidence level and * significance at 5 % confidence level using two-tailed tests. Cluster–robust standard errors are used to address heterogeneity. Panel weights are used in the POLS estimations.

Figure 1 IIQoL of various sub-samples

*Poor Female (PF) ** Poor Male (PM)

Source: Authors' own calculations using NIDS (2016). Note all IIQoL scores are standardised + 2, to derive positive scores.

Appendix A

Table 6

Comparative estimations result with education, health and housing alternatively used as dependent variables

	(1)	(2)	(3)
	Education	**Health**	**Housing**
Micro – and informal loans	-0.0320*	-0.0677***	-0.0212*
	(0.03)	(0.02)	(0.03)
Geo Type (Urban reference)			
Rural	0.129***	0.0268*	0.128**
	(0.04)	(0.02)	(0.06)
Wave (Wave 1 reference)			
Wave 2	0.171***	-0.0155	-0.0320
	(0.04)	(0.03)	(0.04)
Wave 3	0.280***	-0.274***	-0.101
	(0.07)	(0.05)	(0.06)
Wave 4	0.102***	-0.0528***	-0.0334
	(0.03)	(0.02)	(0.02)
Age	0.144***	0.00465	0.0452***
	(0.02)	(0.01)	(0.01)
Age ^{2}	-0.00171***	0.000494***	-0.000145***
	(0.00)	(0.00)	(0.00)
Trust	-0.00731	-0.00123	-0.0127*
	(0.01)	(0.00)	(0.01)
Relative Income	-0.00692	0.0103**	0.0186***
	(0.01)	(0.00)	(0.01)
Employment	0.0330**	0.00210	0.0555***
	(0.02)	(0.01)	(0.02)
Safety	-0.000533	0.0114***	0.00408
	(0.00)	(0.00)	(0.00)
Constant	5.387***	7.532***	-0.481
	(0.60)	(0.42)	(0.54)
N	34606	34615	34107
	0.100	0.033	0.007
Population size	0.100	0.033	0.007

Source: Authors' own calculations from NIDS (2016).

*** Significance at 0.1 % confidence level, ** significance at 1 % confidence level and * significance at 5 % confidence level using two-tailed tests.