The distributional impact of access to finance on poverty: evidence from selected countries in Sub-Saharan Africa

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Abstract

This paper uses household-level data from FinScope Surveys conducted in eight SSA countries between 2014 and 2015 to examine the impact of access to finance on household wealth. The few studies, which have looked at this relationship in the past, apply a linear estimation and thus inadvertently assume the impact of improved access to financial services is uniform distribution across all levels of poverty. This study examines the heterogeneous impact of access to finance along the entire wealth distribution line using a Re-centered Influence Function (RIF) regression model. Further, to eliminate potential endogeneity, an instrumental variable quantile approach is implemented. Results from both estimations indicate that the unconditional effect of access to finance on poverty is non-monotonic. For most of the countries, the effect is highest at the median level, and very low at the bottom of the wealth index, suggesting that the extension of formal financial services disproportionately benefits the middle-class more than the very-poor and rich categories.

Keywords: access to finance, financial inclusion, poverty

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1. Introduction and motivation

Over the past decade, the promotion of greater access to finance and financial inclusion has become an area of global policy focus and has emerged as one of the top agenda items at both international and country-level discussion forums. Similarly, particularly in the developing world, poverty reduction remains a high priority for both governments and international development organisations. Many key development institutions, such as The World Bank, the International Monetary Fund (IMF), the African Development Bank (AfDB), the Asian Development Bank (ADB), and the Organization for Economic Co-operation and Development (OECD), amongst others, have devoted much funding and research activity towards promoting and understanding financial inclusion, and finding ways of increasing the banked population. However, there still remains a lot of ambiguity on the efficacy of improved access on household micro-level development outcomes. One major question in this regard is the nature of the link between financial access and household wealth.

It is estimated that about 2 billion people around the world are unbanked[2], which is generally defined as lacking access to formal financial products and services such as savings and cheque accounts. Of these, 88% are in Africa, Asia, Latin America and the Middle East (Chaia et al., 2013; Demirgüç-Kunt, et al., 2015; World Bank, 2014b). In a cross-country analysis, Kendall, Mylenko, and Ponce (2010) established that in developed countries 81% of adults are considered to be banked, with on average of 3.2 bank accounts per person. In high income OECD countries, a mere 6% of adults lack access to financial services, with some countries having attained universal access[3] (Demirgüç-Kunt, et al., 2015). In developing countries, however, the same study finds only 54% banking penetration amongst adults, at an average of 0.9 accounts per person. For Sub-Saharan Africa (SSA), the figures are even worse. Close to 80% of the adult population is financially excluded, and only 22%[4] of adults has an account with a financial institution (Chaia et al., 2013; Demirgüç-Kunt et al.,

[2] The terms unbanked, financial exclusion , or lack of access to finance are often used interchangeable, alternatively some people may use banked, financial inclusion, access to finance

[3] In Australia, Canada, Germany, Netherlands and the United Kingdom 99% of the adults have a bank account, whereas in Denmark, Finland, New Zealand and Norway, 100% adults have a bank account (Demirgüç-Kunt et al., 2015)

[4] The figure increases to 34% if we consider mobile bank account ownership

2015). Across the SSA region account ownership varies greatly across countries. Whereas in Mauritius, Kenya and South Africa, respectively, about 82%, 75% and 70% of the adult population has a formal bank account, this number is only 7% in Burundi, Guinea and Niger (Demirgüç-Kunt et al., 2015)[5].

Until recently, the SSA region experienced more than a decade of unprecedentedly high economic growth rates, which were amongst the highest in the world (IMF, 2013a, 2013b). As a result, the region has drawn a lot of interest from investors, researchers and other stakeholders, as they seek to either take advantage of this growth trajectory or better understand the growth dynamics within the region. Empirical evidence indicates that financially inclusive economies tend to record economic growth and a significant reduction in poverty (Thorsten Beck, Demirgüç-Kunt, & Levine, 2007). However, SSA has the greatest proportion of population living in extreme poverty, and is the only region in the world which has been recording an increase in poverty over the past two decades, with the poor getting worse-off compared to other world regions (SESRTCIC, 2007; Simmons, 2015). Therefore, although improved access to financial services is a global challenge, the situation in the SSA region poses a unique economic challenge; not only because the region ranks among the lowest in terms of financial access compared to other regions, but also because of the heterogeneity that exists within the region, and the seeming anomaly between the low level of access to finance and recent high economic growth.

Financial exclusion (or lack of access to finance) refers to factors that prevent poor and disadvantaged social groups from gaining access to the mainstream financial system, and is traditionally measured in terms of access to a basic bank account (Thorsten Beck & de la Torre, 2007; Thorsten Beck, Demirgüç-Kunt, & Martinez Peria, 2007). However, there is no consensus on what exactly constitutes being banked or unbanked, and definitions of this range from having access to a commercial bank account (Grimes et al., 2010), to having any of a cheque account, savings account, work-related retirement plan, home loan, credit card or investment account (Birkenmaier & Fu, 2019). In this paper we define the banked (and hence those who

[5] These figures are based on The World Bank's Global Financial Inclusion Index (Global Findex) whose approach to deciphering whether an individual is financially included or not is different to FinScope. The numbers for Global Findex tend to be higher due to the manner in which the questions are asked.

are financially included) as those who have any form of bank account, card, investment or loan with a bank or financial institution.

Evidence from macro-economic studies suggests that financial sector improvements potentially impact positively on poverty reduction, asset accumulation, efficient risk management and entrepreneurial development opportunities (Tejerina, Boullion, & Demaestri, 2006). As such, the removal of financial market frictions could be key to poverty elimination and economic growth. Despite the existence of extensive empirical literature linking financial development, in general, with other developmental outcomes there is, however, limited empirical evidence on the link between financial inclusion and poverty.

Theory and anecdotal evidence suggests that access to financial services is important for poverty alleviation, social inclusion, wealth-building and economic growth (Thorsten Beck & Cull, 2014; Demirgüç-Kunt, Beck, & Honohan, 2008; Fitzpatrick, 2015; Triki & Faye, 2013). Access to a bank account is a more structured way of cultivating a savings culture among the poor, and thus assist this group with the accumulation of savings and assets (Blank & Barr, 2009; Collins, 2015; Greene, Rhine, & Toussaint-Comeau, 2006), ultimately improving their economic well-being (Fitzpatrick, 2015). Financial exclusion, which is more prevalent among the poorer and more disadvantaged members of society, is considered as a significant barrier to economic growth and development (World Bank, 2013, 2017). However, research suggests that in most instances, improving efficiency and quality in financial services without simultaneously expanding access is inadequate, as it leaves a greater proportion of the population unserved (Thorsten Beck, Demirgüç-kunt, & Honohan, 2009). Furthermore, although the conventional view is that improved access to finance for the poor promotes growth and leads to a reduction in poverty (see, for example, Beck et al., 2009; Beck et al., 2008; Demirgüç-Kunt et al., 2008; Gwalani and Parkhi, 2014; World Bank, 2014), some authors contend that this view is based on a misconception of the relationship between correlation and causality. Thus, Mader (2018) challenges the recurring claim in The World Bank Reports of 2007 and 2014, that 'l*ack of access to finance can be critical for generating persistent income inequality or poverty traps, as well as lower growth'* (World Bank, 2014:15), by arguing that the impact of financial inclusion has been exaggerated due to a selective reading

of existing literature and misinterpretation of findings. This author then suggests that there is need for more robust evidence, particularly on the effect of financial inclusion on the poor.

To be credible, estimates on the casual relation between bank account ownership and poverty must control for endogeneity, simultaneity and selection bias. Some studies address this by using natural experiments and randomized control trials. For example, Burgess and Pande (2005) and Burgess, Wong, and Pande (2005) use the Indian social banking program to investigate the impact of access to finance on poverty. Between 1969 and 1990 Indian government regulations sought to affect bank branch location in rural areas, by requiring banks to open four new branches in areas with no bank branches (mainly rural areas) in order to obtain a license for a new branch in an area with a bank presence. Both studies find that branch expansion into unbanked rural areas resulted in poverty reduction across Indian states. Specifically, Burgess and Pande (2005) find that rural branch expansion explains a decline of about 14-17% in rural poverty. In a similar study Beck et al. (2010) control for year and state fixed-effects and state time-varying characteristics in their investigation of US bank-branch deregulation policies implemented from the 1970s to the 1990s, and find that branch deregulation reduced the Gini coefficient by 4% by improving the income levels of the lower income groups, without negatively affecting the higher income category. Yet further evidence along these lines is obtained by Bruhn and Love (2014), who uses as basis of their study, the near-simultaneous opening of over 800 bank branches by Banco Azteca, a Mexican bank which targets low- and middle-income groups. In this case, the conclusion is that these bank openings resulted in a 7.6% increase in informal businesses, without changing the operations of formal businesses, and that over the first two subsequent years, income levels increased by 7%. In addition, it is established that the impact was larger for low income groups and municipalities that had relatively lower access to formal banking services. However, the above studies focus more on the impact of bank branch deregulation than access to finance *per se*, and do not provide any clear evidence on the channels through which improved access to finance affect poverty and income inequality.

In a study more directly addressing the link between access to finance and poverty reduction, Dupas et al., (2018) simultaneously offer a basic savings account to an average of 2000 respondents living close to banks in Uganda, Malawi, and Chile. All maintenance and account opening fees are catered for, such that no costs are payable for two years. Contrary to earlier evidence, however, despite the 'free' bank accounts resulting in increased financial service access and usage, no reduction in poverty is observed, leading to the conclusion that expansion of financial services to the unbanked may not be adequate for poverty alleviation.

Lastly, Honohan and King (2013) seek to solve the endogeneity problem by applying an instrumental variables approach to pooled data from FinScope Consumer Surveys (FinScope) conducted in 11 African countries to examine the causal impact of access to finance on income. The study finds that the use of formal banking services increases average monthly income by 1.67%, translating to about $1.41 in monthly income when evaluated at the mean. However, the authors note that the results also reveal significant country-level heterogeneity, which may suggest that the use of pooled data may not adequately capture cross-specific variations. Further, by applying a linear approximation, they inadvertently assume that the use of formal banking services has a uniform impact across all poverty levels, and thus ignore the potential heterogeneous impact.

Similar to the study above, we use nationally representative surveys on households' access financial services from FinScope Surveys for 8 African countries. We apply instrumental variable quantile regression techniques and thus examine the distributional effect of access to financial services, and thus expand the analysis conducted by Honohan and King beyond the median, to assess whether improved access to finance has a uniform impact across all levels of poverty.

Given the wide variations in financial inclusion levels across SSA countries, an understanding of the extent to which poverty depends on initial levels of access to formal banking services on a country-by-country basis, is important. Therefore, it is critical to clearly identify whether financial inclusion equally benefits the entire population (*i.e.* has a uniform effect), or whether it has a disproportionate impact on

the economic well-being of the lower quantiles or the upper quantiles. If access to finance does not have a uniform effect, efforts aimed at improving this access may either alleviate poverty or negate the benefit of financial inclusion for the poorest members of the society. Examining how the impact varies across the different levels of the poverty continuum potentially provides meaningful insights on interventions aimed at improving access to finance, and thus assist with both policy formulation and strategy implementation.

The current study contributes to existing literature in a number of ways. Firstly, drawing from the intuition that the relationship between access to finance and poverty may not be uniform, unlike previous studies, we examine the distributional effects of access to finance, and thus extend the analysis to other statistics beyond the mean. Our study of the potential heterogeneous impact of access to finance along the wealth distribution line could provide key policy insights on the efficacy of improved access to finance as a welfare intervention strategy.

Secondly, we follow a novel approach to this research problem by constructing an asset-based wealth-index for each country, and then using this as a proxy for poverty in order to overcome the problem of non-reported income, which is common in most surveys. In developing economies, income-based indicators may be unreliable, since a greater proportion of economic activities are conducted outside the formal economy and there also exist wide variations in income due to seasonality and regional differences in both income and expenditure (Kolenikov & Angeles, 2009; McKenzie, 2005; Sahn & Stifel, 2003). Further, a significant proportion of household wealth is often held in kind (Vyas & Kumaranayake, 2006). Since assets are acquired over time and tend to last longer, an asset-based index captures household long-run socio-economic status and is therefore more likely to accurately capture wealth dynamics.

Thirdly, we use the Re-centered Influence Function (RIF) regression model, which allows for the unconditional quantile partial effects of access to finance on household poverty to be estimated. By holding the sample distributions of other covariates constant, the RIF extends the decomposition beyond the mean. However, for credibility, the estimation of the unconditional partial effect should control for the

reverse impact, and thus purge endogeneity, and simultaneity bias between poverty and the decision to own an account. We apply an instrumental variable quantile treatment effect approach using two instruments, namely mobile-money use and trust of banks, which thus allow for a causal interpretation of the results. We therefore seek to assess the unconditional partial effect of account ownership on the distribution of household wealth, and thus make a significant contribution to existing literature on the link between finance and poverty.

Lastly, our study is based on the most recent and comprehensive Finscope survey data set for SSA. This enables us to examine the efficacy of recent policies aimed at improving access to finance and gives our study broader and more recent coverage than its predecessors focusing specifically on this region.

We establish that the effect of access to finance is higher at the median level, and very low at the bottom pyramid of the wealth index. Besides highlighting the potential problem with linear estimation models, this also suggests that for most countries in the sample, being banked disproportionately benefits the middle-class more than the very-poor and rich categories. Although this reduces the gap between the middle-class and the rich, it however widens the poverty gap between the poor and middle-class, which may result in a poverty trap, more-so, as the benefit appears to be higher at the 90^{th} quantile than at the 10^{th} quantile. However, the above does not appear to hold for relatively more developed countries (South Africa in this case), where the impact is highest at the lower margins of wealth, suggesting the existence of specific country structural and macroeconomic characteristics which may not only affect the efficacy of financial service provision, but may set a limit to the extent of financial services provision.

The rest of this paper is structured as follows. Section 2 outlines the methodology and estimation strategy, Section 3 provides an analysis of results and findings, and Section 4 concludes.

2. *Data and Methodology*

2.1. Data Source

This study uses data from FinScope surveys an initiative of FinMark Trust, an independent organisation, based in South Africa. The surveys have been conducted in a number of African countries. Unlike other studies on consumer surveys, the FinScope surveys are much broader and contain significant detail on awareness and use of financial services. Although the questions are not exactly the same, they are structured in way that allows for cross-country comparison as they gather very similar information.

Significant attention is devoted to improving the quality of data gathered through FinScope Surveys. In addition to involvement of a wide range of stakeholders, the enumerators are initially exposed to an intensive training on data gathering procedures and use of the questionnaire. The questionnaire is also translated into local languages and modified to gather country specific data on household access to, and use of, informal, formal and semi-formal financial services. This helps to develop comprehensive metrics on household access to financial services.

However, because FinScope gathers data from a user-perspective, therefore it only sheds light on demand-side of access to finance and does not assist in understanding specific supply-side factors. Further, like all household surveys, it may be difficult to separate whether some metrics gathered are applicable at the individual-level or household-level (since data is obtained from individual household-members), especially for variables like income; this becomes even worse in instances where total household income data is not available. However, by gathering data from the user, the surveys provide adequate demand-side information, which can be useful for policy formulation.

The surveys are often conducted over different time intervals, which complicates direct cross-country comparisons due to different base years.

2.2. *Empirical Estimation strategy*

We use the unconditional quantile regression (UQR) methods, to investigate the heterogeneous effect of households' use of financial services on poverty and thus

adopt a partial equilibrium approach. This estimation approach allows for examination of the differential impact of financial inclusion along the wealth-index distribution (see appendix on the construction of the wealth-index). From a policy perspective, an intervention that shifts the lower-level of the wealth-index distribution would be more preferable to the one that shifts the median, *ceteris paribus.*

The aim is to model the household wealth-index or poverty (W_i) as a function of access to finance (A_i), underlying covariates (X_i), and the error term (ε_i) which can be represented as follows;

$$W_i = f(A_i, X_i) + \varepsilon_i \qquad (1)$$

For ease of identification, access to finance (A) focuses sample households who use on any form of bank account, card, investment or loan with a bank or financial institution[6] this definition exclude the third category of financial services providers, which Finscope classifies as informal (or non-formal) services. These include is burial societies, savings with friends, informal month-end loans, loans from friends or relatives etc.[7]

Equation (1) above is estimated *via* quantile regression methods using sampling weights derived from the Population Census Survey Statistics of each country (however there is no significant variation between weighted and unweighted results). Quantile regression has proven to be better than ordinary least squares regression (OLS), as it is not sensitive to outliers (Frölich & Melly, 2013). In addition, it shows the effect of the independent variable over the entire distribution of the dependent variable, as opposed to estimates only at the mean.

Two main approaches have been adopted in quantile regression estimates, namely the conditional quantile regression (CQR) approach and the unconditional quantile approach (UQR). CQR seeks to analyse how a particular covariate affects the quantile

[6]FinScope classifies these as use formal and semi-formal financial

[7] These have various names across countries, for example , “Metshelo” in Botswana, “Chipeleganyu” in Malawi, “Stokvel” in South Africa , “Tinhlangano “ in Swaziland, “Chilimba” in Zambia and “Rounds” in Zimbabwe. However the nature of operation is fairly similar.

of an outcome variable conditional on the mean of other covariates. Its major problem is that it provides within-group estimates which cannot be taken to reflect the effect on the quantile of the dependent variable, and therefore the interpretation of estimates is not always straight-forward (Porter, 2015). However, policy makers are often concerned about the unconditional distribution of the dependent variable. Further, research evidence (see, for example, Borah & Basu, 2013; Maclean, et al 2014) suggests that estimates from CQR often do not provide relevant policy information, neither can they be contextualized to a population, as they tend to be limited if there are variations in the effects of conditional quantiles. On the other hand, because UQR analyses the effect over the distributions of other model parameters, it provides meaningful interpretation of results and, unlike CQR, the estimates are interpreted just like OLS. The UQR, therefore, seeks to provide a remedy to the shortcomings of the CQR. Furthermore the estimates from UQR are efficient, asymptotically normally distributed, and root *n* consistent, whereas those obtained *via* CQR may change with the inclusion of covariates (Frölich & Melly, 2013).

2.3. *Identification*

UQR helps to show how the distribution of the wealth-index would have looked like if the entire population was banked or unbanked. By creating the counterfactual (*i.e.* the estimated wealth position or poverty level of non-users of financial services, if they had access to financial services), the UQR controls for a household's decision to use banking services given a set of covariates. But, since the counterfactual cannot be observed, the estimation relies on two identification strategies, namely; overlapping/common support and ignorability (or selection based on observables), to estimate the counterfactual distribution, and thus assess the effect of being banked on unconditional poverty distribution.

Common support ensures that no single observable or unobservable characteristic can be used to identify a household in the financially included or excluded category, *i.e.* $0 < Pr[A = 1|X = x, \varepsilon = e] < 1$.The stronger assumption of conditional independence, used in OLS, is replaced by ignorability, which posits that the distribution of random factors that affect households' wealth-index is the same for both categories of households (*i.e.* with and without access to finance). Therefore, although there are

some unobservable factors that influence household wealth, because the structural dependence of these factors is the same for both category of households, the unconditional estimates would still be valid.

Our analysis uses two approaches; we first use the Unconditional Quantile regression or Re-centered Influence Function (RIF) regression of Firpo, Fortin, and Lemieux (2009) and Fortin, Lemieux, and Firpo (2011) to model the effects of financial inclusion along the wealth-index profile. We then use the instrumental variable quantile treatment effect (IVQTE) of Frölich and Melly (2008, 2013) to allow for a causal interpretation of results, by controlling for potential endogeneity.

A positive and significant effect would suggest that access to finance is wealth enhancing. A priori the effect of access to finance is expected to have a different impact across intervals- *i.e.* the unconditional effect is non-monotonic. If, for example, the effect of access to finance is smaller at the 90th percentile than at, the lower 10th percentile, it implies that access to finance potentially reduces inequality.

2.4. *The Unconditional Quantile or Re-centered Influence Function (RIF) Regression Model*

The UQR approach by Firpo et al. (2009) and Fortin et al. (2011) provides a more direct indicator of the marginal effect of individual covariates on the population distribution of the wealth-index. It capitalizes on the strengths of both the OLS and the quantile regression methods of Koenker (2005) and Koenker and Bassett (1978), and therefore assesses the heterogeneous effects across the entire distribution of the outcome variable across the population. Holding sample distributional of other covariates constant, it extends the decomposition to beyond the mean. The model derives its utility from the re-centered influence function (RIF) in estimating the unconditional quantile effect. By definition the *'influence function measures the relative effect of a small perturbation in the underlying outcome distribution on the statistic of interest'* (Essama-Nssah and Lambert, 2012). The influence function plays a key role in robust statistical estimation. For any distributional statistic, $\upsilon(F_Y)$, the influence function, $IF(Y;\upsilon,F_Y)$, is a representation of the influence of a single observation on the

distributional statistic (Firpo et al., 2009). The RIF is therefore calculated as the sum of the influence function and the distributional statistic (*i.e*. $RIF(y; v) = v(F_Y) + IF(y; v)$), and its conditional expectation is given as:

$$E[RIF(Y; v)|X] = X\gamma, \quad (2)$$

Where γ, is estimated via OLS

For any τ^{th} quantile (q_τ);

$$\begin{aligned} RIF(y;q_\tau) &= q_\tau + IF(y,q_\tau) \\ &= q_\tau + \frac{\tau - I(y \le q_\tau)}{f_y(q_\tau)} \\ &= c_{1,\tau} \times I(y > q_\tau) + c_{2,\tau} \end{aligned} \quad (3)$$

Where I (.) is an indicator function which take a value of 1 if $y \le q_\tau$, and 0 otherwise, f_y(.) is the density of the marginal distribution of the dependent variable (y), $c_{1,\tau}$ and $c_{2,\tau}$ are constants.

2.5. *Estimation Strategy*

Firpo et al. (2009) show that (under some regularity conditions) the unconditional partial effect (α_τ) is given as:

$$\alpha_\tau = c_{1,\tau} \int \frac{dPr(y > q_\tau \mid X = x)}{dx} dF_x(x) \quad (4)$$

Under the assumptions of the linear probability model (LPM), $Pr(y > q_\tau \mid X = x) = x'\beta$. Consequently α_τ above would be given as $\alpha_\tau = c_{1,\tau}\beta$. Since by equation (3) above $RIF(y;q_\tau) = c_{1,\tau} \times I(y > q_\tau) + c_{2,\tau}$.

Therefore, the OLS regression model for the τ^{th} quantile is estimated as follows:

$$\begin{aligned} RIF(y;q_\tau) &= c_{2,\tau} + c_{1,\tau}x'\beta + u \\ &= c_{2,\tau} + x'\beta^* + u \end{aligned} \quad (5)$$

With $\beta^* = c_{1,\tau}\beta = \alpha_\tau$

To obtain the above we first obtain the quantiles and estimate $f_y(q_\tau)$ using the Gaussian[8] kernel density estimator, and thus estimate it non-parametrically we then use it to obtain an estimation of the RIF for each observation and regress it on the covariates. We use the RIF with bootstrapped robust standard errors, over 200 times. The obtained coefficient of access to finance (*A)* represents the 'unconditional quantile partial effect' of each of the covariates, holding the other covariates constant[9].

The RIF can also be used to derive an Oaxaca–Blinder (Blinder, 1973; Oaxaca, 1973) type of decomposition of the wealth-index between the two subpopulations as follows:

$$RIF_1^\tau - RIF_0^\tau = \left(\overline{X_1} - \overline{X_0}\right)\gamma_\tau + \left[\overline{X_1}\left(\beta_{1,\tau} - \gamma_\tau\right) - \overline{X_0}\left(\beta_{0,\tau} - \gamma_\tau\right)\right] + \xi_\tau \qquad (6)$$

Where the first part, $\left(\overline{X_1} - \overline{X_0}\right)\gamma_\tau$ is the composition (explained/endowment) effect, the middle part, $\left[\overline{X_1}\left(\beta_{1,\tau} - \gamma_\tau\right) - \overline{X_0}\left(\beta_{0,\tau} - \gamma_\tau\right)\right]$ the structure (unexplained/discrimination) effect, and the last part, ξ_τ is an error term which indicates the extent to which the decompositions approximate the variation in the wealth-index.

The above RIF estimation helps to provide a more direct link between household characteristics and access to finance. It is also important to note that the coefficients obtained from RIF estimation are a local estimation of the effect of financial inclusion on poverty. Furthermore, like other similar estimation models, it is based on the assumption of zero general equilibrium effects.

[8] We checked the sensitivity of results using various kernel density estimation methods (results available), and there are no significant changes in coefficients due to kernel method selection and bandwidth calculation.

[9] The estimation controls for gender of household-head, age of household-head, age of household-head-squared, marital status of household-head, household-size, area (*i.e.* rural or urban), provincial dummies, education level dummies, source of income/employment sector, and financial literacy.

2.6. *Instrumental Variable Quantile Regression Model*

Equation (1) poses an estimation challenge due to potential endogeneity between access to finance and household wealth level. There is a possibility that households of high socio-economic status (as measured by their poverty/wealth index) may have a higher usage of financial services. In addition, unobserved household/individual characteristics such as higher drive for growth or development, imply that household/individual(s) with a higher wealth-index may have a potentially high need for formal financial services such as insurance, bank account etc. Research has shown that poor and low income households tend to have higher levels of financial exclusion (e.g. Allen et al., 2016; Dymski, 2009; Kumar, 2012; Peachy and Roe, 2004).

The RIF estimations above are based on the assumption that once access to finance is controlled for, there is no systematic differences in the unobserved variables between the financially excluded and financially included households after including the control variables, i.e. selection on observables. If this assumption fails, the above estimation may underestimate the real impact of access to finance on poverty. To address these problems and to recover a causal interpretation of estimates, we therefore use instrumental variable (IV) estimation.

Abadie, Angrist, and Imbens (2002) and, Chernozhukov and Hansen (2005) demonstrate how IV estimation may help to eliminate the potential estimation challenges raised above and thus estimate the conditional quantile estimate. Frölich and Melly (2008, 2010, 2013) extended this and show both theoretical and empirically how the unconditional IV quantile estimation of an endogenous binary treatment provides more meaningful results. From equation (1) the vector A is taken to be potentially endogenous and determined by;

$$A = \phi(Z, \eta) \qquad (7)$$

Where Z is a vector of instruments, and η a scalar of error terms. The aim is to examine the distributional effect of A, (a binary treatment) on W (a continuous outcome). The estimation hinges on the Local Average Treatment Effect (LATE) of Imbens and Rubin (1997), where both A and Z are considered to be binary. If W_i^1 and

W_i^0 are the potential wealth-index for any household, *i,* with the superscript, *1*= *banked,* and *0*= *unbanked*, then the distributional impact of access to finance for the τ^{th} quantile is;

$$\Delta^{\tau} = q^{\tau}_{W^1} - q^{\tau}_{W^0} \quad (8)$$

The endogeneity of A implies that the identification is through the instrumental variable, Z. Allowing A to be arbitrarily heterogeneous, implies that the effect is only identifiable to the subpopulation that responds to changes in the instrument, *i.e.* compliers. Therefore, the quantile treatment effect for the compliers (*c*) is;

$$\Delta^{\tau}_{c} = q^{\tau}_{W^1|c} - q^{\tau}_{W^0|c} \quad (9)$$

Where Δ^{τ}_{c} is the unconditional partial effect of access to finance, because the conditioning is not on other covariates[10]. The bivariate quantile regression estimator is obtained via the optimization problem;

$$(\alpha_{IV}, \Delta^{\tau}_{IV}) = \arg \min_{\alpha,\Delta} \sum \omega_i \rho_{\tau}(W_i - \alpha - A_i\Delta)$$
$$\omega_i = \frac{Z_i - Pr(Z = 1 | X_i)}{Pr(Z = 1 | X_i)(1 - Pr(Z = 1 | X_i)} (2A_i - 1) \quad (10)$$

The solution is obtained via two separate univariate weighted quantile regressions, for A = *1*(i.e. banked) and A= *0* (i.e. unbanked), where ω_i are nonnegative weights, which provide a balance between the distribution of the covariates for the financial included and excluded households .We estimate the first-step *via* local logit estimation using robust bootstrapped standard errors, over 200 times.

[10] The population can be subdivided into four categories; Compliers-. $A_i^1 > A_i^0$. , Defiers - $A_i^1 < A_i^0$, Never takers- $A_i^1 = A_i^0 = 0$, Always takers $A_i^1 = A_i^0 = 1$, where $A = Access$. Frölich & Melly (2013) provides the following key assumptions: (i) Presence of compliers, (ii) Monotonicity, (iii) Instrument Independence (iv) Common support *0 < P(Z = 1|X) < 1*

2.7. *Instrument Validity*

The IVQR estimate hinges much on the validity of the instrument. There is need for an exogenous variable instrument, Z, which will isolate the part of the endogenous variable which is not correlated with ε, and thus fix endogeneity. A valid instrumental variable should satisfy both instrument relevance and instrument exogeneity conditions (Angrist & Krueger, 2001; Dougherty, 2007; Hall, Rudebusch, & Wilcox, 1996).

Research has shown that the identification of a valid and legitimate instrument is not easy, and often almost impossible (Bound, Jaeger, & Baker, 1995; Stock, Wright, & Yogo, 2002). This study seeks to build upon the findings by Honohan and King (2013)[11] and assess the distributional effect of access to finance on poverty using a newer dataset.

Following the success of mobile-banking Kenya, in 2007, mobile-banking has rapidly expanded into other African countries, and in most instances with great success. According to the World Bank, Africa is leading the world in mobile-money or mobile-banking usage and in some countries where mobile money is used, there are more mobile accounts than bank accounts (Demirguc-kunt, et al, 2015). There is overwhelming evidence from literature which shows that if individuals are not able to access to the main banking products and services, they may opt for other services providers outside the main baking system. The use of mobile-money has proven to be beneficial platform, for societal members who previously had no access to formal financial products. This has been further argument by the growth in mobile-phone subscriptions. Globally, the proportion of people subscribing has grown tremendously to even exceed usage of basic facilities like sanitation (World Bank, 2019). Africa has the fastest growth of mobile market, with a penetration of more than 74% in 2016, and expected to grow to 85% in 2020 (GSMA, 2017). In developing countries, mobile-banking has been found to have a significant impact on financial inclusion (Okello, Bongomin, Ntayi, Munene, & Malinga, 2018).

[11] Further explanation on the plausibility and the intuition behind the exogeneity of the instruments can be found in Honohan and King (2013).

This variable takes a value of 1 if the respondent has mobile-money account or uses mobile phone to transact and zero otherwise. We use this to instrument for potential endogeneity between access to finance and poverty[12].

A number of potential instruments were considered - for example, level of education, confidence in the finance sector. However, because studies in labour economics suggests that wealth accumulation is often explained by the level of education, using education as an instrument might bring further complications. From a behavioural economics perspective, one reason why some individuals may be unbanked is distrust of banks (Bertrand, Mullainathan, & Shafir, 2004; Springford, 2011). If consumers distrust banks they may not even bother to check the products or services being offered. Literature suggests that a lack of trust or confidence in banks is one of the reasons why certain individuals may not be formally banked (Allen et al., 2016; Asli Demirgüç-Kunt & Klapper, 2013a). The FinScope Survey asks a question to respondents on whether they trust banks with their money, to which they respond with agree, disagree and don't know. However, like other survey metrics, it is not clear whether the response relates to the respondents and the main decision maker in the household and in some countries (South Africa, Zambia), and for Malawi, it is only asked to the unbanked sub-sample and therefore cannot be used across the sample. Therefore we did not use this variable, further for some countries, for example, Mauritius and South Africa the first stage F is for this variable is not significant. More-over the questions are not consistently asked in some countries (South Africa, Zambia), and for Malawi, it is only asked to the unbanked sub-sample and therefore cannot be used across the sample

Another potential instrument could be the distance to a bank or ATM; however, the nature of the datasets and the ambiguity underlying the determination of what can be considered as a distant location in a modern society makes it difficult to use such an instrument

[12] We would like to the acknowledge the anonymous reviewer for suggesting this instrument

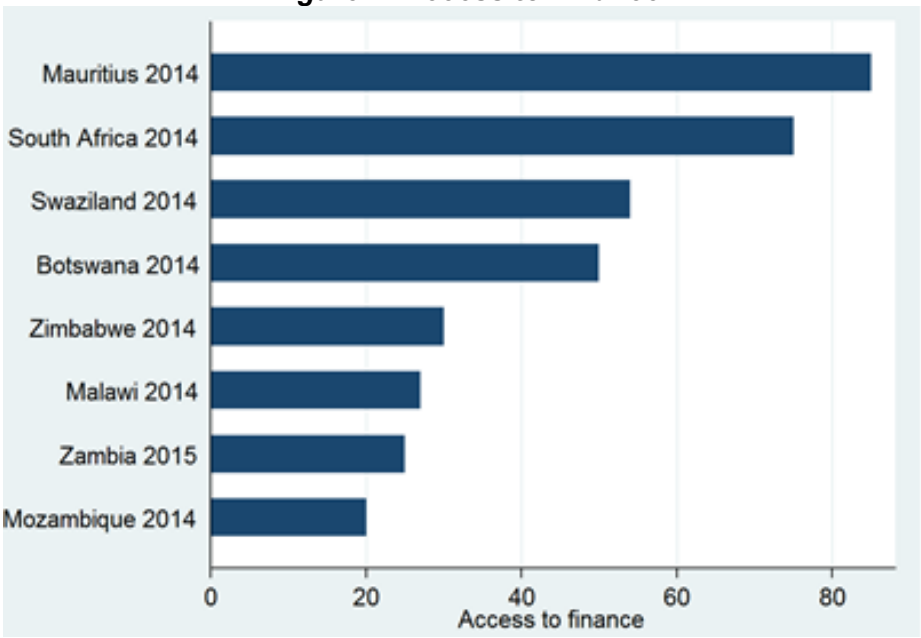
Therefore, in line with Honohan and King (2013), and based on the argument above and the test results in Table 3 below, we posit that there is sufficient exogeneity between the instrument and the error term.

3. Results and Analysis of Findings

3.1. Descriptive statistics

The empirical analysis is based on nationally representative household surveys from eight countries within the SADC region. The sample consists of 1503 households from Botswana, 3005 households from Malawi, 4000 households from Mauritius, 3905 from Mozambique, 3900 from South Africa, 3400 for Swaziland, 8479 from Zambia, and 4000 from Zimbabwe. The data are weighted based on household sample weights derived from the respective countries' national statistics agencies. As shown in Figure 2, there are wide variations in access to finance across the countries in the sample[13]. In Mauritius, about 86% of the population have access to finance, whereas for Mozambique the figure drops to 23%.

Figure 1: Access to Finance



Source: Own Calculations from FinScope Consumer Surveys

[13] Some of the figures above may be different from those published in the FinScope survey. The values above reflect access to both formal and semi-formal financial services.

In line with World rankings which suggest that Malawi is the poorest country in the World, (see for example Pasquali, 2016; Yakobe, 2015) the results suggest the existence of high poverty and inequality in Malawi. Thus, with a mean adjusted wealth-index of 4.098 and a standard deviation of 5.517, there is a high proportion of low wealth-index households in Malawi. This could also be evidence that the wealth-index captures the key elements that determine household wealth. As shown in Table 1a, 1b and 1c there seems to be a difference in wealth accumulation between the banked and the unbanked population categories across all countries; on average the banked population has a higher wealth index compared to the unbanked.

The data suggests that, with the exception of Mauritius, Zambia and Zimbabwe, most households in the sample are female headed. The average age of household heads is between 38 and 51 years, thus, on average, all household heads are economically active. Generally, there is an uneven distribution in the levels of financial literacy across the sampled countries. Whereas Mauritius, Zambia, and Zimbabwe record levels above 55%, in most countries financial literacy levels are below 50%, based on the questions asked on the major domains of financial literacy used to construct our measurement of financial literacy/capability. Interestingly financial inclusion is very low in Zimbabwe and Zambia. Since the data suggest the existence of a significant relationship between access to financial inclusion and financial literacy, the case of Zambia and Zimbabwe may indicate a problem of structural and socio-economic imbalances. Financial literacy levels are lowest in Mozambique and Malawi, where financial literacy rates are 21% and 26%, respectively. A closer analysis reveals that in Mozambique 54% of the respondents indicated that they have never heard of interest rates, while 77% indicated that they have never heard of the term ‘instalments’, whereas in Malawi 74% of the respondents indicated that they have no knowledge of interest rates and 57% indicated they need some education on interest rates.

Table 1a: Descriptive Statistics

	Botswana						Malawi						Mauritius					
	Overall		Unbanked		Banked		Overall		Unbanked		Banked		Overall		Unbanked		Banked	
Variable	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**
Banked	0.496	0.042	-	-	-	-	0.249	0.013	-	-	-	-	0.854	0.009	-	-	-	-
Wealth Index	6.274	0.327	4.638	2.573	7.618	2.454	4.342	0.215	2.964	3.904	7.728	7.865	11.5	2.581	10.043	3.262	11.77	2.332
Female	0.574	0.052	0.527	0.049	0.621	0.063	0.421	0.494	0.394	0.489	0.497	0.5	0.763	0.022	0.695	0.461	0.742	0.437
Age of head	47.27	1.935	52.34	17.13	45.81	16.42	37	15.92	37.19	16.35	36.42	14.58	51.04	13.653	51.29	13.56	51.45	13.67
Age of head Squared	2728	1830	3033	1887	2367	1693	1622	1463	1651	1507	1539	1323	2830	1442	2814	1419	28833	1446
Financial literacy	0.394	0.030	0.151	0.358	0.623	0.485	0.264	0.441	0.19	0.392	0.482	0.5	0.587	0.492	0.262	0.44	0.648	0.478
Trust	0.567	0.035	0.347	0.476	0.767	0.423	-	-	-	-	-	-	0.855	0.352	0.585	0.493	0.906	0.292
Mobile Money	0.245	0.031	0.069	0.254	0.371	0.483	0.031	0.172	0.014	0.119	0.078	0.268	0.016	0.118	0 .017	0.129	0.0	0.0
Area	0.682	0.096	0.461	0.499	0.779	0.415	0.165	0.020	0.085	0.28	0.266	0.442	0.415	0.038	0.303	0.460	0.0348	0.476
Household-size		-	-	-	-	-	2.353	1.289	2.318	1.282	2.454	1.307	3.551	1.568	3.716	1.725	3.52	1.535
Marital Status																		
Single	0.444	0.497	0.446	0.497	0.441	0.497	N/A	N/A	N/A	N/A	N/A	N/A	0.0923	0.289	0.111	0.314	0.089	0.285
Divorced	0.015	0.123	0.009	0.093	0.023	0.151	N/A	N/A	N/A	N/A	N/A	N/A	0.062	0.241	0.081	0.272	0.059	0.235
Widowed	0.136	0.343	0.148	0.355	0.123	0.328	N/A	N/A	N/A	N/A	N/A	N/A	0.138	0.345	0.139	0.346	0.138	0.345
Level of Education																		
1	0.364	0.481	0.407	0.492	0.313	0.464	0.325	0.468	0.328	0.47	0.317	0.466	0.17	0.376	0.205	0.404	0.164	0.37
2	0.225	0.418	0.199	0.4	0.257	0.437	0.187	0.39	0.136	0.343	0.335	0.472	-	-	-	-	-	-
3	0.052	0.222	0.2	0.134	0.09	0.287	0.013	0.112	0.003	0.056	0.041	0.197	0.454	0.498	0.321	0.467	0.059	0.235
4	0.108	0.31	0.01	0.0987	0.224	0.418	0.009	0.1	0.0009	0.03	0.034	0.181	0.0823	0.275	0.016	0.125	0.138	0.345
Source of Income																		
Own Business	0.093	0.292	0.075	0.263	0.116	0.321	0.098	0.297	0.086	0.278	0.135	0.342	0.117	0.321	0.101	0.302	0.119	0.324
Farming	0.049	0.215	0.054	0.226	0.042	0.201	0.237	0.425	0.221	0.415	0.281	0.45	0.033	0.425	0.028	0.166	0.034	0.182
Pension/Grants	0.208	0.406	0.287	0.453	0.115	0.319	0.003	0.052	0	0.021	0.009	0.095	0.258	0.438	0.28	0.449	0.254	0.435
Remittances	0.214	0.41	0.272	0.445	0.144	0.351	0.033	0.178	0.028	0.166	0.046	0.209	0.251	0.178	0.461	0.499	0.211	0.408
Other/Informal	0.208	0.406	0.254	0.435	0.153	0.36	0.497	0.5	0.559	0.497	0.316	0.465	0.013	0.114	0.021	0.142	0.0112	0.108

Table 1b: Descriptive Statistics

	Mozambique						South Africa						Swaziland					
	Overall		Unbanked		Banked		Overall		Unbanked		Banked		Overall		Unbanked		Banked	
Variable	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**
Banked	0.188	0.42	-	-	-	-	0.746	0.413	-	-	-	-	0.565	0.5	-	-	-	-
Wealth Index	2.5	2.44	1.85	1.93	4.68	2.71	6.3	3.075	4.795	2.491	6.72	3.092	5	2.58	3.65	2.051	6.163	2.421
Female	0.469	0.5	0.43	0.5	0.58	0.493	0.481	0.495	0.494	0.5	0.41	0.492	0.543	0.5	0.477	0.5	0.576	0.494
Age of head	37.83	18.9	37.7	19.2	38.2	17.99	39.46	15.87	31.72	14	41.6	15.69	48.18	16.3	51.18	17.1	45.57	15.09
Age of head Squared	1789	1987	1791	2001	1780	1940	1809	1442	1202	1069	1979	1486	2586	1692	2912	1819	2304	1519
Financial literacy	0.168	0.41	0.09	0.28	0.61	0.489	0.417	0.497	0.155	0.362	0.53	0.499	0.305	0.45	0.168	0.374	0.397	0.489
Trust	0.118	0.32	0.09	0.29	0.21	0.409	-	-	-	-	-	-	0.702	0.46	0.558	0.497	0.828	0.378
Mobile Money	0.025	0.18	0.01	0.09	0.12	0.33	0.364	0.487	0.348	0.477	0.4	0.49	0.222	0.41	0.114	0.318	0.297	0.457
Area	0.308	0.5	0.35	0.48	0.75	0.431	0.416	0.478	0.26	0.439	0.38	0.485	0.375	0.46	0.164	0.37	0.413	0.493
Household-size	4.982	2.47	4.98	2.5	4.99	2.379	3.641	2.142	3.982	2.28	3.55	2.092	4.476	2.87	5.073	2.957	3.958	2.679
Marital Status																		
Single	0.277	0.45	0.28	0.45	0.28	0.451	0.451	0.498	0.646	0.478	0.4	0.489	0.228	0.42	0.185	0.388	0.266	0.442
Divorced	0.047	0.21	0.05	0.21	0.05	0.215	0.031	0.172	0.017	0.127	0.03	0.182	0.019	0.14	0.02	0.14	0.018	0.133
Widowed	0.082	0.27	0.09	0.29	0.05	0.215	0.088	0.283	0.042	0.201	0.1	0.301	0.13	0.34	0.161	0.367	0.103	0.304
Level of Education																		
1	0.563	0.5	0.62	0.49	0.37	0.484	0.392	0.488	0.589	0.492	0.34	0.473	0.266	0.44	0.345	0.476	0.196	0.397
2	0.212	0.41	0.14	0.35	0.44	0.496	0.351	0.477	0.247	0.431	0.38	0.485	0.249	0.43	0.262	0.44	0.237	0.425
3	0.026	0.16	0.01	0.09	0.09	0.279	0.105	0.306	0.015	0.123	0.13	0.336	0.237	0.43	0.172	0.378	0.294	0.456
4	-	-	-	-	-	-	0.042	0.201	0.005	0.068	0.05	0.223	0.093	0.29	0.013	0.111	0.164	0.37
5													0.022	0.15	0.002	0.043	0.039	0.193
Source of Income																		
Own Business	0.16	0.37	0.15	0.36	0.19	0.394	0.044	0.204	0.021	0.144	0.05	0.218	0.023	0.15	0.01	0.098	0.034	0.182
Farming	0.283	0.45	0.34	0.47	0.09	0.291	0.233	0.423	0.032	0.175	0.29	0.453	0.038	0.19	0.044	0.205	0.034	0.18
Pension/Grants	0.015	0.12	0.01	0.1	0.04	0.187	0.217	0.413	0.488	0.5	0.14	0.349	0.067	0.25	0.077	0.267	0.058	0.234
Remittances	0.288	0.45	0.31	0.46	0.21	0.406	0.122	0.327	0.329	0.47	0.06	0.244	0.31	0.46	0.409	0.492	0.226	0.418
Other/Informal	0.134	0.34	0.14	0.35	0.12	0.321	-	-	-	-	-	-	0.306	0.46	0.406	0.491	0.221	0.415
No Income	0.014	0.02	0.13	0.01	0.08		-	-	-	-	-	-	0.009	0.09	0.016	0.126	0.003	0.052

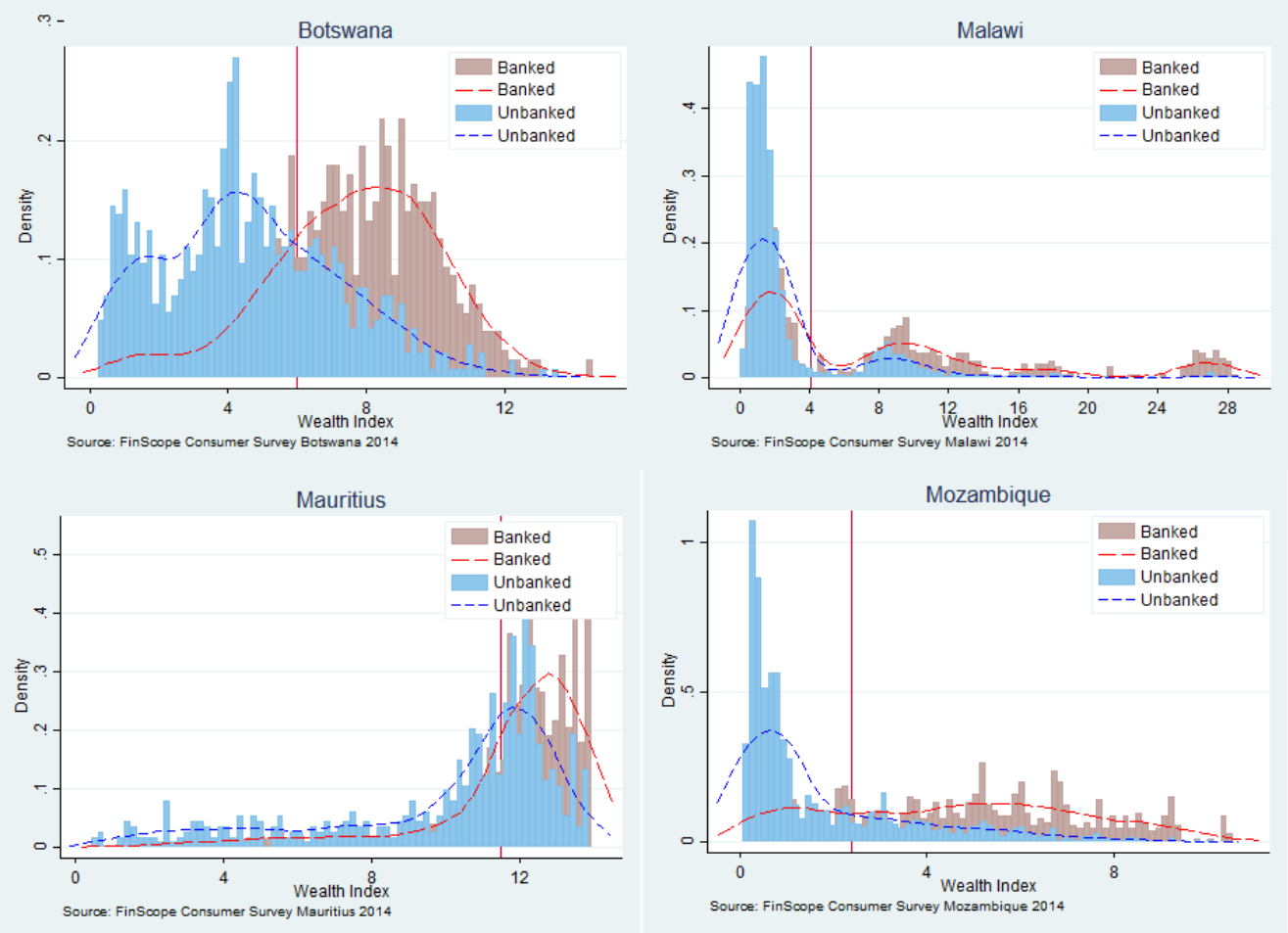
Table 1c: Descriptive Statistics

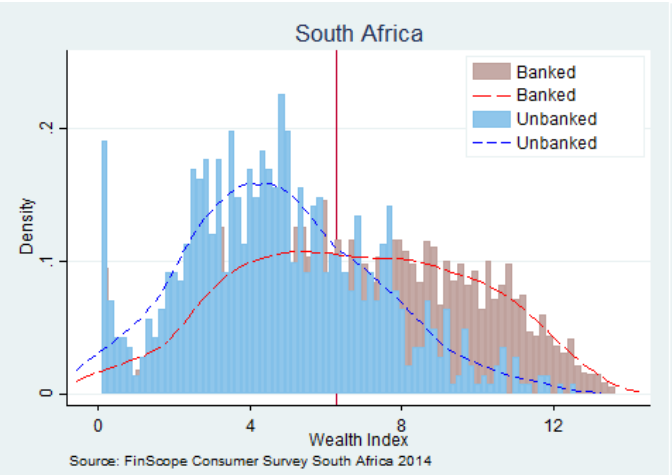
	Zambia						Zimbabwe					
	Overall		Unbanked		Banked		Overall		Unbanked		Banked	
Variable	**Mean**	**Std.Dev**	**Mean**	**Std.Dev**	**Mean**	**Std.Dev**	**Mean**	**Std.Dev**	**Mean**	**Std.Dev**	**Mean**	**Std.Dev.**
Banked	0.248	0.439	-	-	-	-	0.305	0.462	-	-	-	-
Wealth Index	4.500	2.565	3.821	2.429	6.425	1.866	4.488	2.941	3.879	2.610	6.214	3.001
Female	0.713	0.453	0.706	0.455	0.730	0.444	0.698	0.458	0.694	0.461	0.718	0.450
Age of head	40.94	14.50	40.95	14.81	40.89	13.59	45.27	15.91	45.60	16.52	44.51	14.45
Age of head Squared	1886	1404	1896	1441	1857	1294	2302	1562	2352	1625	2190	1405
Trust	-	-	-	-	-	-	0.599	0.490	0.570	0.495	0.650	0.474
Financial literacy	0.758	0.427	0.731	0.443	0.842	0.365	0.589	0.490	0.542	0.498	0.723	0.448
Mobile Money	0.151	0.358	0.082	0.275	0.347	0.476	0.468	0.499	0.344	0.475	0.747	0.435
Area	0.452	0.388	0.404	0.104	0.589	0.340	0.330	0.476	0.273	0.446	0.509	0.500
Household-size	5.195	2.672	5.266	2.675	4.995	2.653	4.621	2.081	4.699	2.090	4.445	2.049
Marital Status												
Single	0.104	0.306	0.089	0.285	0.148	0.355	0.064	0.244	0.052	0.222	0.089	0.285
Divorced	0.084	0.278	0.092	0.289	0.062	0.241	0.073	0.260	0.072	0.258	0.076	0.265
Widowed	0.115	0.319	0.124	0.330	0.088	0.283	0.167	0.373	0.179	0.384	0.139	0.346
Level of Education												
1	0.472	0.499	0.542	0.498	0.272	0.445	0.344	0.475	0.394	0.489	0.232	0.422
2	0.226	0.418	0.203	0.402	0.291	0.454	0.522	0.500	0.518	0.500	0.531	0.499
3	0.137	0.344	0.067	0.251	0.335	0.472	0.063	0.243	0.028	0.166	0.140	0.347
4	0.020	0.140	0.006	0.076	0.060	0.238	0.0273	0.163	0.004	0.066	.079	0.269
Source of Income												
Own Business	0.171	0.376	0.170	0.375	0.173	0.378	0.171	0.376	0.171	0.377	0.169	0.375
Farming	0.213	0.410	0.247	0.431	0.118	0.322	0.311	0.463	0.358	0.480	0.206	0.405
Pension/Grants	-	-	-	-	-	-	0.033	0.177	0.016	0.124	0.0700	0.256
Remittances	-	-	-	-	-	-	0.083	0.276	0.094	0.292	0.0590	0.236
Other/Informal	0.447	0.497	0.495	0.500	0.312	0.464	0.128	0.334	0.154	0.361	0.0690	0.253

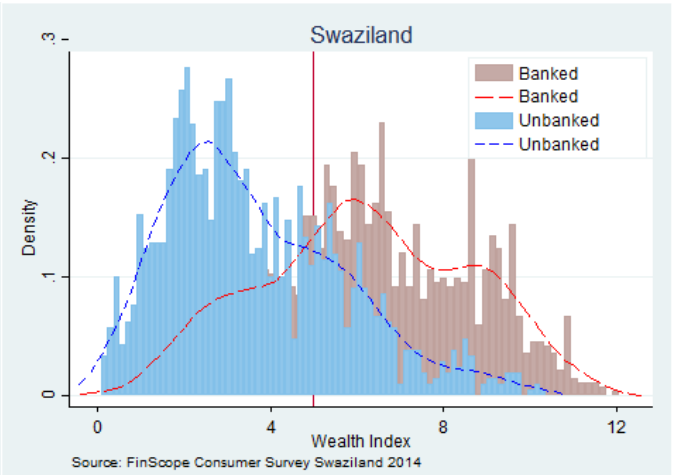
With the exception of Botswana, there are more rural households than urban households in the samples. Botswana is a special case where a significant proportion of households reside in peri-urban areas. In the 2014 FinScope survey for Botswana, 24% of the households in the sample indicated that they reside in urban areas, 39% in rural areas and 37% in an urban-village; the latter where classified as “urban” in this study, thus disproportionately increasing the urban population. Generally, across all countries within the SSA region, the bulk of the population resides in rural areas. This contributes to the poverty structure as the rural population often tends to have challenges in accessing basic necessities.

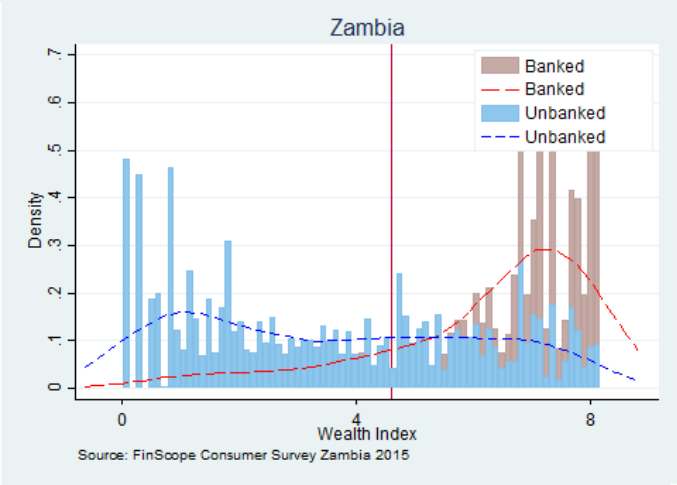
Figure 3 below presents a density plot of the wealth-index by country, for both the banked and unbanked category (the red line represents the average wealth-index for each country). For all countries, with the exception of Malawi, both the banked and unbanked sub-samples are observed across the entire distribution of the wealth-index. However, in general at high levels of the wealth-index there tend to be more banked households, and *vice-versa*, and this is consistent across all countries. An interesting scenario is that of Zimbabwe, where the wealth-index is bi-modal. This could be a reflection of the impact of the political and economic challenges that the country has gone through, which has led to a wide variation between the rich and poor, resulting in very few households in the middle-class category.

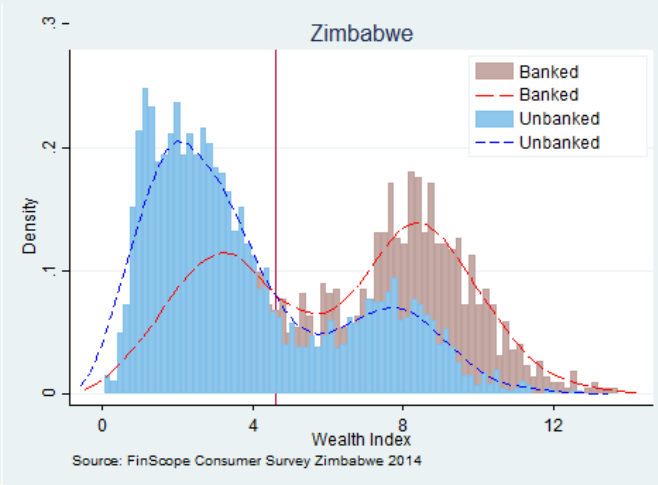
Figure 2: Densities of banked and unbanked wealth index levels

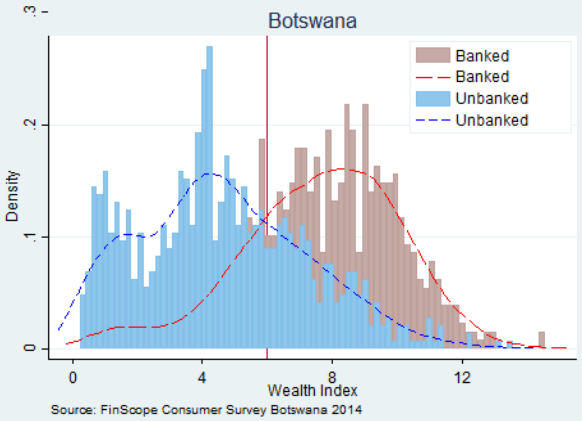


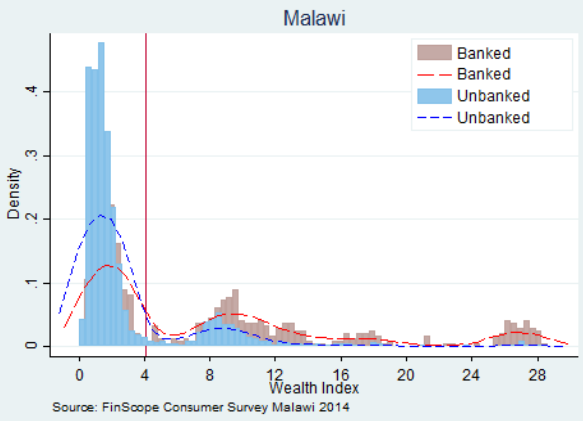

South Africa
Banked
Banked
Unbanked
Unbanked
Density
0
.1
.2
0
4
8
12
Wealth Index
Source: FinScope Consumer Survey South Africa 2014

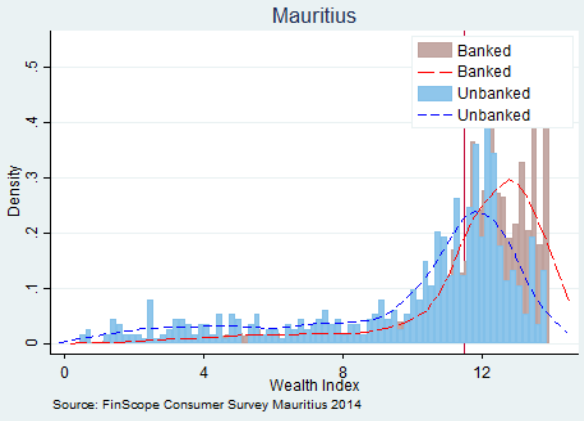

Swaziland
Banked
Banked
Unbanked
Unbanked
Density
0
.1
.2
.3
0
4
8
12
Wealth Index
Source: FinScope Consumer Survey Swaziland 2014

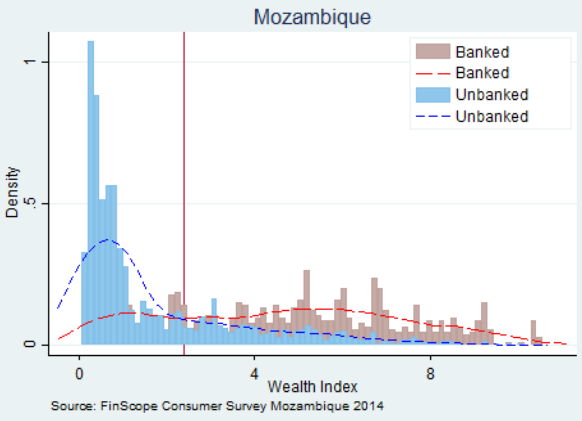

Zambia
Banked
Banked
Unbanked
Unbanked
Density
0
.1
.2
.3
.4
.5
.6
.7
0
4
8
Wealth Index
Source: FinScope Consumer Survey Zambia 2015

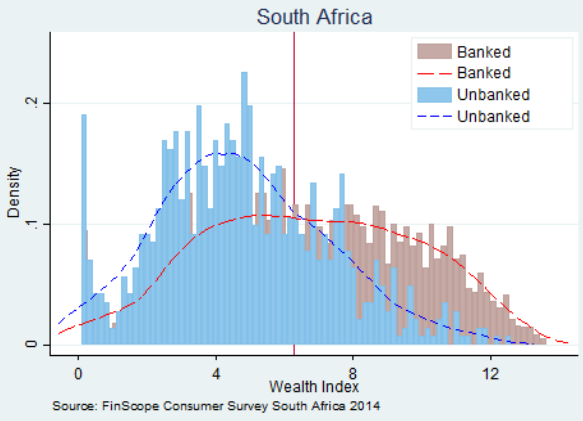

Zimbabwe
Banked
Banked
Unbanked
Unbanked
Density
0
.1
.2
.3
0
4
8
12
Wealth Index
Source: FinScope Consumer Survey Zimbabwe 2014

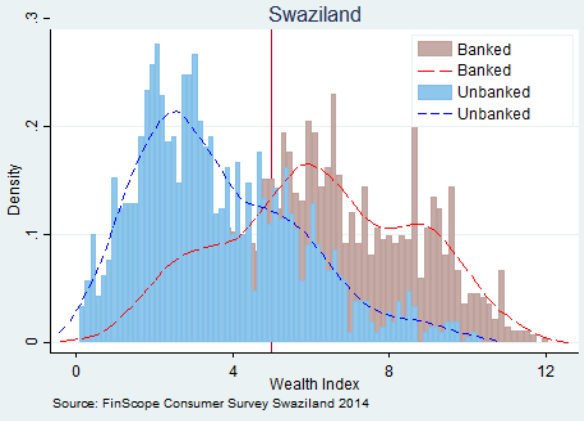

Botswana
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey Botswana 2014

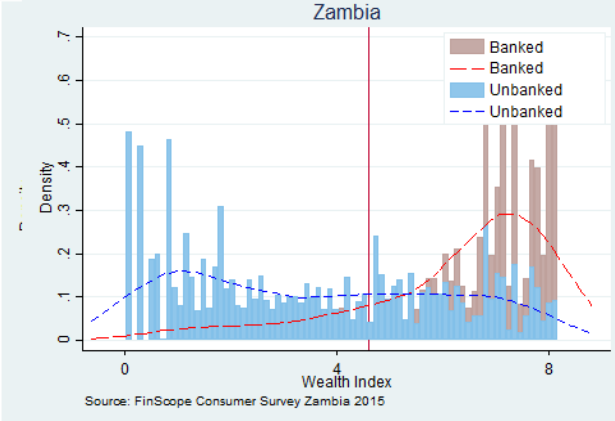

Malawi
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey Malawi 2014

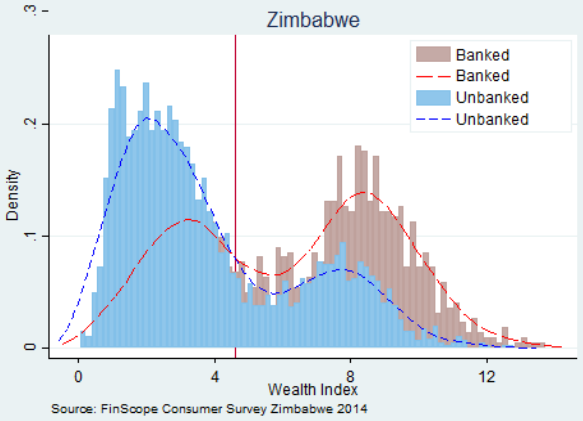

Mauritius
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey Mauritius 2014


Mozambique
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey Mozambique 2014


South Africa
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey South Africa 2014


Swaziland
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey Swaziland 2014


Zambia
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey Zambia 2015


Zimbabwe
Banked
Banked
Unbanked
Unbanked
Density
Wealth Index
Source: FinScope Consumer Survey Zimbabwe 2014

3.2. Unconditional quantile effects of access to finance on the wealth index distribution

Table 2 provides a summary of the estimated effect of access to finance on the distribution of poverty, as measured by the wealth-index model. Column 1 provides OLS estimates, which suggest the existence of a positive relationship between access to finance and household wealth. However, as highlighted above, OLS shows the estimation at the mean and does not show the variation across the distribution of the wealth-index. Columns 2 through 6 provide the unconditional quantile partial effects estimates of the relationship between access to finance and household poverty. The coefficients vary across the quantiles, thus conforming the hypothesis that improved access to finance affect poverty in a heterogeneous manner. This is statistically significant at the 0.01 level across all quantiles.

Across all countries, the coefficients for the 50^{th} and 75^{th} quantiles are higher than the lower and upper quantiles. For the 10^{th} quantile the coefficients range for 0.0548 (for Mozambique) to 0.763 (for Swaziland). Except for Swaziland and Zambia, the coefficients reach a peak around the 75^{th} quantile. The highest coefficient at this quantile is 10.18 for Malawi and the lowest is 0.946 for Zambia. The quantile coefficients for Zambia and Swaziland reach their peak at the 50^{th} quantile. The regression coefficients also vary across countries suggesting existence of country-specific factors that affect the relationship. This would imply that although improved access to finance appears to enhance wealth, the net effect varies across countries within the sample.

The distribution of the coefficients is illustrated graphically in Figure 4, which shows hump-shaped graphs for all countries, with the exception of Mauritius and South Africa (South Africa has an almost even distribution). As shown in the graph for very poor countries like Malawi, the effect is almost uniform up to the 75^{th} quantile. Data evidence from the World Bank and the calculated wealth-index in this study suggest the existence of extreme poverty in Malawi. This would suggest that generally improved access to formal financial services has limited effect on improving the wealth conditions of the poorer members of the society. In fact, it might even result in widening inequality, as it pushes the middle-class higher, with only a marginal effect on the poor.

Generally, across all countries, the coefficients at the 90th percentile are higher than the coefficients at the 10th, which suggests that improved access to finance potentially widens inequality.

For Malawi, Mozambique and Zimbabwe the effect is zero at quantiles below the 10th percentile, *i.e.* there is no difference in household wealth levels between the banked and unbanked population. Malawi and Mozambique represent special cases, as shown in both Table 2 and Figure 4. Specifically, for Malawi the coefficients increase from around 0.5 for the 70th quantile to 10.2 for the 75th quantile. Besides being driven by low counts (there are very few respondents within the 70th and the 80th quantile), this could also possibly be attributed to a number of other reasons - for example, as highlighted above, besides having the lowest wealth-index, its poverty structure is very unique. It has the lowest level of bank penetration, lowest financial literacy measured by our index, and the lowest levels of mobile money penetration. In addition, there is no information available on the marital status of respondents (this could potentially result in biased coefficients-omitted variables problem). The coefficients increase rapidly for Swaziland and Zambia, and whilst they increase steadily for Zimbabwe to reach the maximum around the median, they then drop to zero suggesting that at higher levels of wealth there is no difference between the banked and the unbanked households. The graphs also show that at lower wealth quantiles the 95% confidence intervals are below zero, suggesting the existence of non-statistically significant differences at the lower levels of the distribution. In general, the impact of access to finance appears to be higher on the median compared to other quantiles. This further highlights the importance of using quintile regression, as OLS cannot reveal such evidence because it only focuses on the median.

An interesting case is that of South Africa and Mauritius. For the former, the curve is flatter than for the other countries. This suggests the existence of a nearly even distribution of the impact across quantiles at quantiles below the 70th, after which the impact gets lower. For Mauritius, the curve is downward sloping, suggesting that improved access to finance has a higher impact on the lower quantiles than on the higher. Such results could be a manifestation of the impact of policy initiatives aimed at improving access to finance. For example, South Africa's leading retail banks and the South African Post Office introduced the Mzansi account in 2004, which is low cost

banking initiative targeting the poor and disadvantaged members of the society. Further this could be a reflection of the impact of an enabling environment on access to finance. Both countries have better developed economies and financial systems. This could suggest that expanding access in economies with poor financially enabling environments may only result in widening the gap between the rich and poor, thus worsening the poverty structure.

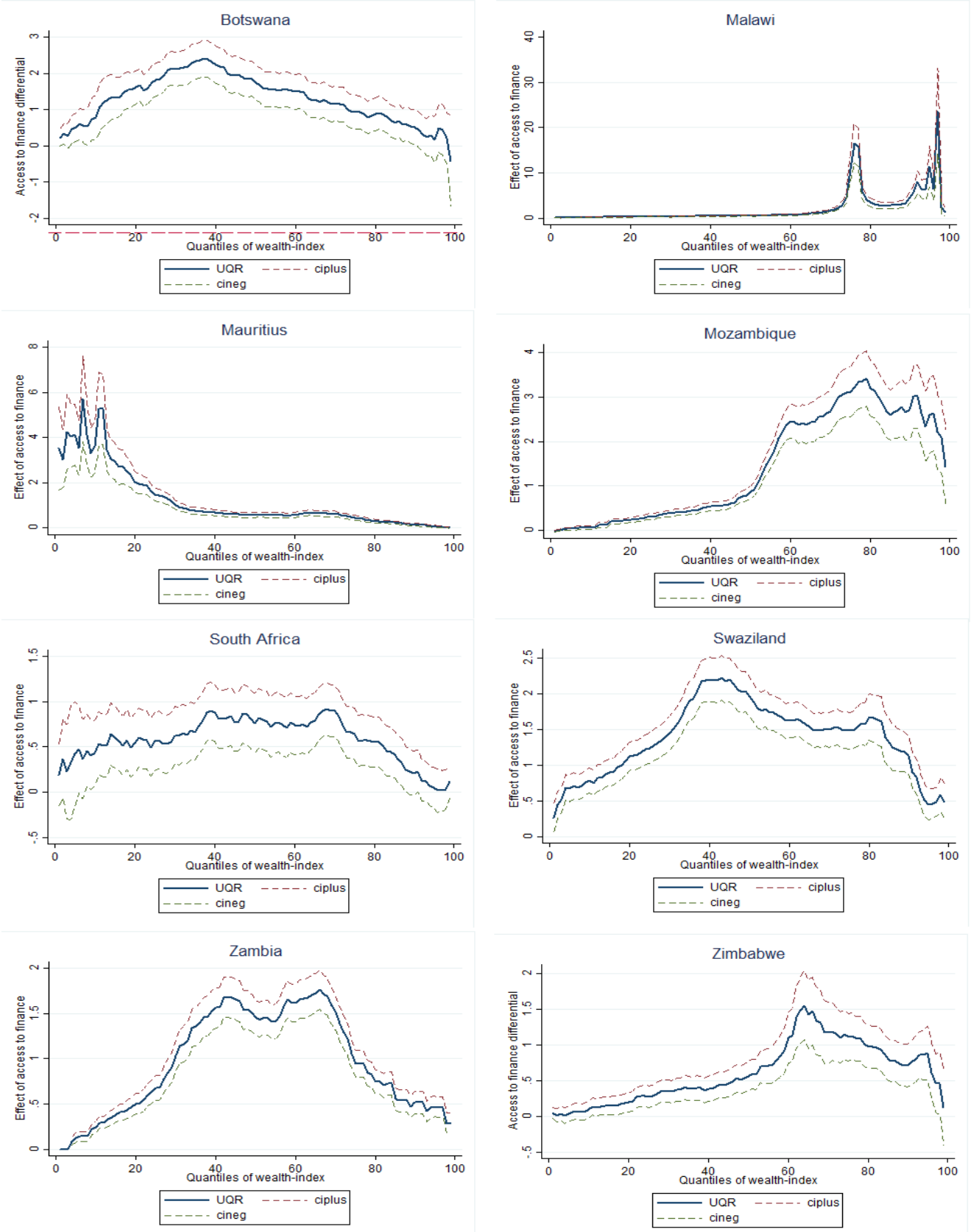
Table 2: Unconditional quantile partial effects

Country	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
Botswana	1.263***	0.790***	1.829***	1.758***	0.930***	0.524**
	(0.141)	(0.285)	(0.238)	(0.292)	(0.242)	(0.225)
Observations	1,313	1,313	1,313	1,313	1,313	1,313
Malawi	2.837***	0.0811*	0.222***	0.608***	12.76**	5.382***
	(0.256)	(0.0427)	(0.0536)	(0.0885)	(6.287)	(1.287)
Observations	2,599	2,599	2,599	2,599	2,599	2,599
Mauritius	1.087***	3.003***	1.378***	0.523***	0.407***	0.107***
	(0.084)	(0.811)	(0.176)	(0.062)	(0.058)	(0.026)
Observations	4,000	4,000	4,000	4,000	4,000	4,000
Mozambique	0.0337	0.113***	0.389***	2.581***	2.912***	0.0337
	(0.0234)	(0.0423)	(0.0937)	(0.410)	(0.555)	(0.0234)
Observations	3,296	3,296	3,296	3,296	3,296	3,296
South Africa	0.461***	0.255	0.492***	0.511***	0.602***	0.269*
	(0.104)	(0.195)	(0.177)	(0.187)	(0.172)	(0.150)
Observations	3,893	3,893	3,893	3,893	3,893	3,893
Swaziland	1.077***	0.727***	1.021***	1.614***	0.957***	0.789***
	(0.0832)	(0.0892)	(0.121)	(0.158)	(0.150)	(0.152)
Observations	3,154	3,154	3,154	3,154	3,154	3,154
Zambia	1.038***	0.251***	0.719***	1.659***	1.085***	0.540***
	(0.0473)	(0.0308)	(0.0676)	(0.103)	(0.0803)	(0.0703)
Observations	8,359	8,359	8,359	8,359	8,359	8,359
Zimbabwe	0.768***	0.149***	0.319***	0.747***	1.399***	0.940***
	(0.0718)	(0.0559)	(0.0755)	(0.114)	(0.194)	(0.189)
Observations	3,985	3,985	3,985	3,985	3,985	3,985

Note:

1. The dependent variable for each country is the wealth index. For all estimations we control for gender, age of household head, age of household head squared, household size, marital status (except for Malawi, as this variable is not captured), financial literacy rural-urban dummy, provincial dummies, dummy variables for level of education, and dummies for major source of income. For robustness unconditional quantile bootstrapped standard errors over 200 times is used (shown in parenthesis).
2. *** p<0.01, ** p<0.05, * p<0.1

Figure 3: Unconditional quantile partial effects



Notes: UQR- Unconditional Quantile regression, ciplus- Upper confidence level, cineg- Lower 95% confidence level

3.3. Unconditional instrumental variable quantile effects of access to finance on the wealth index distribution

Whereas the above estimates from UQR are limited in accounting for endogeneity in access to finance, the instrumental variable quantile treatment effect helps to address this limitation. We use household financial literacy to instrument for access to finance, as shown in Table 3. The *F* statistic is above 10 for all countries, suggesting that there is no problem of a weak instrument. Therefore, we conclude the instrument is not weak. However, some countries, *i.e.* Malawi, South Africa and Zambia, do not have data on the "trust" variable, for these we use mobile-money to instrument for the potential endogeneity, across all countries.

As shown in Table 4, the results are almost similar to the previous ones, but with minor variations. Firstly, the IV estimates are higher than the *RIF* estimates, suggesting that failure to account for endogeneity results in downward-biased estimates as expected. If endogeneity was driven by non-observable factors (a common factor in household surveys) such as desire for higher wealth, individual capability or eagerness to improve overall well-being, the *RIF* estimates would be biased upwards. On the other hand, reverse causality between access to finance and household wealth would bias the estimates either downwards or upwards. This could partially explain why the IVQTE coefficients are higher.

Another plausible explanation could be regression dilution or attenuation bias due to measurement error. Ordinarily, measurement error in access to finance would not result in bias and inconsistency problems if the error is uncorrelated with the explanatory variables. However, random measurement error in the explanatory variables would bias the *RIF* estimates towards the null, and thus make them inconsistent.

Therefore, the impact of access to finance on household wealth position is larger once endogeneity is control for. However, the most profound element is the consistent estimation in both models on the impact of access to finance on the distribution of the wealth-index. In-line with previous estimation the instrumental variable estimations also show that the effect is not homogenous. Improved access to finance appears to have a profound impact on the middle-income households, more than the rich and the bottom poor households. The coefficients for the 10^{th} quantile range from 0.142 to

6.485, and the impact on the 90th quantile range from 0.272 to 17.37. This effect is insensitive to both the kernel estimation method and bandwidth selection. Similarly, the impact is very high in poorer countries such as Malawi, where the impact at the 90th percentile is 17.37, suggesting that expanding broad access to financial services in such countries significantly widens inequality.

Table 3: Instrument Validity Tests

Variables	Botswana		Mauritius		Malawi	Mozambique		South Africa	Swaziland		Zambia	Zimbabwe	
First Stage Regression Results													
Mobile Money	0.835***		0.731***		0.450***	1.040***		0.661***	0.478***		0.217***	0.263***	
	(0.0985)		(0.0677)		(0.072)	(0.0743)		(0.0846)	(0.0656)		(0.054)	(0.053)	
Trust		0.811***		1.098***			0.397***			0.677***			0.229***
		(0.0892)		(0.0774)			(0.0864)			(0.0615)			(0.0489)
F test	71.9	82.74	116.61	201.56	39.19	196.04	21.15	61.11	53.16	121.16	16.14	24.67	21.88
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Overidentification Test													
Sargan (or Hansen J) test -p-value	0.3186		0.2300		N/A	0.3444		N/A	0.1337		N/A	0.2588	
Observations	1,310	1,464	3,943	4,000	2,843	3,904	3,904	3,893	3,274	3,316	8,359	3,985	4,000

First stage regression estimates are made *via* a probit model; controlling for gender, age of household head, age of household head squared, household size, marital status (except for Malawi, as this is variable not captured), financial literacy, rural-urban dummy, provincial dummies, dummy variables for level of education, and dummies for major source of income the dependent variable is access to finance. Robust standard errors (p-values) in parentheses or the coefficients (for *F-test)*, *** p<0.01, ** p<0.05, * p<0.1

The IV estimates for Mauritius and South Africa again provide an interesting exception, with the results suggesting that after controlling for endogeneity, the impact of access to finance on poverty is higher in the lower quantile than all other quantiles. After, controlling for potential endogeneity, the results for South Africa suggest that the impact is significantly higher at the lower quantiles of poverty. Although the pattern for Mauritius does not change, the magnitude of the coefficients is higher for the IV estimates. As suggested, above this could be attributed to the existence of a financially enabling environment and unique interventions, such as the Mzansi account. Studies by Kostov, Arun, and Annim (2014, 2015) established that although the Mzansi account is limited in enabling households to move up the financial access ladder, it is quite appealing to consumers with low levels of financial literacy. The results above harness the need for deliberate product/service innovations aimed at addressing the needs of poor households. With the right products, access to finance potentially has a significant positive (reducing) impact on poverty.

Table 4: Unconditional instrumental variable quantile partial effects

Country	(1) 10th Quantile	(2) 25th Quantile	(3) 50th Quantile	(4) 75th Quantile	(5) 90th Quantile
Botswana	0.902***	0.0885	1.044***	1.589***	0.882***
	(0.146)	(0.245)	(0.227)	(0.269)	(0.268)
Observations	1,464	1,464	1,464	1,464	1,464
Malawi	1.183	1.392	2.506**	7.305***	17.37***
	(0.840)	(0.855)	(1.125)	(2.220)	(2.521)
Observations	2,599	2,599	2,599	2,599	2,599
Mauritius	5.002**	3.497**	2.107**	1.403*	1.080
	(2.058)	(1.458)	(1.005)	(0.787)	(0.682)
Observations	4,000	4,000	4,000	4,000	4,000
Mozambique	0.835**	1.850***	4.682***	6.405***	6.279***
	(0.424)	(0.565)	(0.657)	(0.484)	(0.453)
Observations	3,296	3,296	3,296	3,296	3,296
South Africa	6.485***	5.748***	5.379***	4.375***	3.494***
	(2.253)	(1.121)	(0.935)	(0.788)	(0.828)
Observations	3,893	3,893	3,893	3,893	3,893
Swaziland	1.999***	2.791**	3.734***	3.035*	1.713
	(0.739)	(1.181)	(0.820)	(1.565)	(1.278)
Observations	3,154	3,154	3,154	3,154	3,154
Zambia	3.399	2.284	0.702	-0.0147	0.332
	(4.786)	(2.718)	(2.677)	(0.731)	(0.436)

Observations	8,359	8,359	8,359	8,359	8,359
Zimbabwe	0.142***	0.232**	0.439***	0.448***	0.272**
	(0.0481)	(0.114)	(0.0340)	(0.0972)	(0.108)
Observations	3,984	3,984	3,984	3,984	3,984

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

4. Conclusion

Improved access to finance has become one of the key agenda items in most development forums. Although it is believed to have a significant impact on welfare outcomes, the direction of the relationship is not very straight forward, and theoretical postulations provide conflicting views. Furthermore, there is limited empirical evidence on the robust link between access to finance and household welfare indicators. This paper uses quantile regression methods on country representative survey data to examine the effect of access to finance on the unconditional distribution of household wealth from eight countries in the SADC. Compared to the classical OLS, unconditional quantile estimates give a clearer description of the relative effect of access to finance on the entire distribution of household wealth.

The effect of access to finance is found to be higher at the median level, and very low at the bottom pyramid of the wealth-index. These results are more aligned to the Kuznets hypothesis (Kuznets, 1955), which postulate that the relationship between economic development and inequality has an inverted-*U*-curve. This suggests that increased availability to, and usage of, financial services may disproportionately benefit the middle-class more than the very-poor and rich categories. Although this reduces the gap between the middle-class and the rich, it further widens the poverty gap between the poor and middle-class, which may result in a poverty trap, more-so, because the benefit appears to be higher at the 90^{th} quantile than at the 10^{th} quantile.

Similar findings were established by Amin, et al (2003) who, using household data from two villages in Bangladesh, established that although micro-credit is effective in reaching the poor, it fails to assist the vulnerable poor households. Therefore, for effective poverty eradication, policy initiatives should focus on custom-designed financial services and products aimed at addressing the specific needs of the poor

sub-population, as broad-based interventions seem to have a limited effect on the welfare conditions of the poor.

To allow for a causal interpretation, the instrumental variable quantile treatment effect is used. In line with Honohan and King (2013), we use financial literacy to instrument for access to finance. However, it is important to highlight that the instrumental variable estimates only provide a *local average treatment effect (LATE), i.e.* it is applicable to the subpopulation for which the effect is estimated. For example, there is limited information on the impact of access to finance on households who would never use financial services (voluntary exclusion), due to cultural or other reasons, regardless of their level of financial literacy. For such households the decision to be banked is independent of financial literacy levels. The results from instrumental variable estimation suggest that even after controlling for endogeneity, the Kuznets type of relationship remains significant with even higher coefficients. Thus, access to finance benefits the middle-class more than other societal members, with very little impact at lower levels of the wealth -index. However as highlighted above, the results should be interpreted with caution, as causal effect is only attributable to the subpopulation of compliers, and not the entire population.

These findings are in-line with Amin, et al (2003) who, using household data from two villages in Bangladesh, established that although micro-credit is effective in reaching the poor, it fails to assist the vulnerable poor households.

Although this study provides insight into the importance of access to finance on household wealth, it also suggests that in order to ensure effective poverty eradication, *via* improved access to finance, there is a need for custom designed financial services and products aimed at addressing the specific needs of the poor sub-population (for example the Mzansi account in South Africa). Further, improved access to formal financial services has limited effect on the welfare conditions of the poor. This would suggest that policies should focus at improving access to non-formal financial services by the poor, such as microfinance products. Indeed, empirical evidence from Bangladesh by Khandker (2005) and Pitt and Khandker (1998) suggested that microfinance and group-based micro-credit schemes have a larger impact on the poor.

However, because poverty levels vary widely across countries, some intervention which may be effective in one country may fail in another. There is therefore a need to understand household dynamics, in order to develop effective financial services and products. This gives rise to the need to examine the effect of specific products/services on household welfare at country-level.

However, development finance initiatives should not be viewed in isolation, as they are intricately linked to each other. Further, as a cross-sectional survey, this study is limited in that it cannot trace how households transcend from exclusion to inclusion. This is a general concern in most studies on financial inclusion as the field is fairly new and there is limited data available on most variables.

Although the results suggest that access to finance has a potential positive benefit for the poor, due to the nature of the analysis, this study does not seek to outline how to implement access to finance in a poverty reducing manner, or of the extent to which specific financial products help alleviate poverty. As more, data becomes available or is gathered over time, future studies could look into this domain and thus examine the linkage between access to finance and poverty in a broader way.

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6. Declarations of interest

None

7. References

Abadie, A., Angrist, J., & Imbens, G. (2002). Instrumental Variables Estimates of the Effect of Subsidized Training on the Quantiles of Trainee Earnings. *Econometrica*, *70*(1), 91–117. https://doi.org/10.1111/1468-0262.00270

Allen, F., Demirgüç-Kunt, A., Klapper, L., & Martinez Peria, M. S. (2016). The foundations of financial inclusion: Understanding ownership and use of formal accounts. *Journal of Financial Intermediation*, *27*, 1–30. https://doi.org/10.1016/j.jfi.2015.12.003

Amin, S., Rai, A. S., & Topa, G. (2003). Does microcredit reach the poor and vulnerable? Evidence from northern Bangladesh. *Journal of Development Economics*, *70*(1), 59–82. https://doi.org/10.1016/S0304-3878(02)00087-1

Angrist, J. D., & Krueger, A. B. (2001). Instrumental Variables and the Serach for Identification: From Supply and Demand to Natural Experiments. *Journal of Economic Perspectives*, *15*(4), 69–85. Retrieved from http://links.jstor.org/sici?sici=0895-3309%2528200123%252915%253A4%253C69%253AIVATSF%253E2.0.CO%253B2-3

Beck, T., Demirguc-Kunt, A., & Martinez Peria, M. S. (2008). Banking Services for Everyone? Barriers to Bank Access and Use around the World. *The World Bank Economic Review*, *22*(3), 397–430. https://doi.org/10.1093/wber/lhn020

Beck, Thorsten, & Cull, R. (2014). Banking in Africa. In A. N. Berger, P. Molyneux, & J. O. S. Wilson (Eds.), *The Oxford Handbook of Banking* (2nd ed., pp. 913–937).

Beck, Thorsten, & de la Torre, A. (2007). The Basic Analytics of Access to Financial Services. *Financial Markets, Institutions & Instruments*, *16*(2), 79–117.

Beck, Thorsten, Demirgüç-kunt, A., & Honohan, P. (2009). Access to Financial Services : Measurement , Impact , and Policies. *The World Bank Research Observer*, *24*(1), 119–145. Retrieved from http://www.jstor.org/stable/pdf/40282380.pdf

Beck, Thorsten, Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth*, *12*(1), 27–49. https://doi.org/10.1007/s10887-007-9010-6

Beck, Thorsten, Demirgüç-Kunt, A., & Martinez Peria, M. S. (2007). Reaching out: Access to and use of banking services across countries. *Journal of Financial Economics*, *85*(1), 234–266. https://doi.org/10.1016/j.jfineco.2006.07.002

Beck, Thorsten, Demirgüç-Kunt, A., & Peria, M. S. M. (2008). Banking services for everyone? Barriers to bank access and use around the world. *World Bank Economic*

Review. https://doi.org/10.1093/wber/lhn020

Beck, Thorsten, Levine, R., & Levkov, A. (2010). Big Bad Banks? The Winners and Losers from Bank Deregulation in the United States. *Journal of Finance*, *65*(5), 1637–1667. Retrieved from http://www.jstor.org/stable/40864982

Bertrand, M., Mullainathan, S., & Shafir, E. (2004). A Behavioral-Economics View of Poverty. *The American Economic Review*, *94*(2), 419–423.

Birkenmaier, J., & Fu, Q. (2019). Does U.S. Household Financial Access Mediate the Relationship Between a Large Income Drop and Credit Record? *Journal of Consumer Policy*, *42*(2), 267–283. https://doi.org/10.1007/s10603-019-9407-6

Blank, R. M., & Barr, M. S. (2009). Savings, Assets, Credit, and Banking Among Low-Income Households: Introduction and Overview. In M. Blank & S. Barr (Eds.), *Insufficient Funds: Savings, Assets, Credit, and Banking Among Low-Income Households.* New York: Russell Sage Foundation, 2009. Project MUSE,. Retrieved from https://muse.jhu.edu/chapter/302494/pdf

Blinder, A. S. . (1973). Wage Discrimination : Reduced Form and Structural Estimates. *The Journal of Human Resources*, *8*(4), 436–455.

Borah, B. J., & Basu, A. (2013). Highlighting Differences Between Conditional and Unconditional Quantile Regression Approaches Through an Application to Assess Medication Adherence. *Health Economics*, *22*(9), 1052–1070. https://doi.org/10.1002/hec.2927

Bound, J., Jaeger, D. A., & Baker, R. M. (1995). Problems with Instrumental Variables Estimation When the Correlation Between the Instruments and the Endogeneous Explanatory Variable is Weak. *Journal of the American Statistical Association*, *90*(430), 443–450.

Bruhn, M., & Love, I. (2014). The Real Impact of Improved Access to Finance: Evidence from Mexico. *The Journal of Finance*, *69*(3), 1347–1376. https://doi.org/10.1111/jofi.12091

Buckland, J., Guenther, B., Boichev, G., Geddie, H., & Mutch, M. (2005). There Are No Banks Here: Financial and Insurance Exclusion Services in Winnipeg's North End. *Winnipeg Inner-City Research Alliance (WIRA). University of Winnipeg: Canada.*

Buddelmeyer, H., Jensen, P. H., Oguzoglu, U., & Webster, E. (2008). Fixed Effects Bias in Panel Data Estimators. *IZA Discussion Papers*, (3487). https://doi.org/10.1111/j.0042-7092.2007.00700.x

Burgess, R., & Pande, R. (2005). Can Rural Banks Reduce Poverty? Evidence from the Indian Social Banking Experiment. *American Economic Review, 95*(3), 780–795. Retrieved from http://econ.lse.ac.uk/staff/rburgess/wp/dobanksmatteraer_rrwp.pdf

Burgess, R., Wong, G., & Pande, R. (2005). Banking for the Poor: Evidence From India. *Journal of the European Economic Association*, *2*(2/3), 268–278. Retrieved from http://www.jstor.org/stable/40004970

Chaia, A., Dalal, A., Goland, T., Gonzalez, M. J., Morduch, J., & Schiff, R. (2013). Half the World Is Unbanked. In R. Cull, A. Demirgüç-Kunt, & J. Morduch (Eds.), *Banking the*

World: Empirical Foundations of Financial Inclusion (pp. 19–42).

Chernozhukov, V., & Hansen, C. (2005). An IV Model of Quantile Treatment Effects. *Econometrica*, *73*(1), 245–261. https://doi.org/10.1111/j.1468-0262.2005.00570.x

Cole, S., Sampson, T., & Zia, B. (2011). Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets? *The Journal of Finance*, *66*(6), 1933–1967. https://doi.org/10.1111/j.1540-6261.2011.01696.x

Collins, J. M. (2015). Paying for the Unexpected: Making the Case for a New Generation of Strategies to Boost Emergency Savings, Affording Contingencies, and Liquid Resources for Low-Income Families. In *A Fragile Balance* (pp. 1–15). New York: Palgrave Macmillan US. https://doi.org/10.1057/9781137482372_1

Demirgüç-Kunt, A., Beck, T., & Honohan, P. (2008). Household Access to Finance : Poverty Alleviation and Risk Mitigation. *Finance for All?: Policies and Pitfalls in Expanding Access*, 99–142.

Demirgüç-Kunt, A., & Klapper, L. (2013). Measuring financial inclusion: Explaining variation in use of financial services across and within countries. *Brookings Papers on Economic Activity*, (1), 279–340. https://doi.org/10.1353/eca.2013.0002

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Van Oudheuseden, P. (2015). The Global Findex Database 2014 Measuring Financial Inclusion around the World. *World Bank Policy Research Working Papers*, *WPS7255*(April).

Dougherty, C. (2007). *Introduction to Econometrics*. *Oxford* (3rd ed.). Addison-Wesley Series in Economics. https://doi.org/10.2307/2552778

Dunham, I. M. (2019). Landscapes of financial exclusion: Alternative financial service providers and the dual financial service delivery system. *Business and Society Review*, basr.12180. https://doi.org/10.1111/basr.12180

Dupas, P., Karlan, D., Robinson, J., & Ubfal, D. (2018). Banking the unbanked? Evidence from three countries. *American Economic Journal: Applied Economics*, *10*(2), 257–297. https://doi.org/10.1257/app.20160597

Dymski, G. A. (2005a). Discrimination in the Credit and Housing Markets: Findings and Challenges. In W. Rodgers (Ed.), *Handbook of Discrimination* (pp. 1–45). Edward Elgar.

Dymski, G. A. (2005b). Financial Globalization, Social Exclusion and Financial Crisis. *International Review of Applied Economics*, *19*(4), 439–457. https://doi.org/10.1080/02692170500213319

Dymski, G. A. (2009). The Global Financial Customer and the Spatiality of Exclusion After the ‘ End of Geography .’ *Cambridge Journal of Regions, Economy and Society*, *2*, 267–285. https://doi.org/10.1093/cjres/rsp011

Essama-Nssah, B., & Lambert, P. (2012). Influence Functions for Policy Impact Analysis. In John A. Bishop & Rafael Salas (Eds.), *Inequality, Mobility, and Segregation: Essays in Honor of Jacques Silber* (pp. 135–160). https://doi.org/10.1108/S1049-2585(2012)0000020009

Firpo, S., Fortin, N. M., & Lemieux, T. (2009). Unconditional Quantile Regressions. *Econometrica*, *77*(3), 953–973. https://doi.org/10.3982/ECTA6822

Fitzpatrick, K. (2015). Does “Banking the unbanked” Help families to save? Evidence from the United Kingdom. *Journal of Consumer Affairs*, *49*(1), 223–249. https://doi.org/10.1111/joca.12055

Fortin, N. M., Lemieux, T., & Firpo, S. (2011). Decomposition Methods in Economics. In O. Ashenfelter & D. Card (Eds.), *Handbook of Labor Economics* (Vol. 4, Part A, pp. 1–102). Elsevier. https://doi.org/10.1016/S0169-7218(11)00407-2

Frölich, M., & Melly, B. (2010). Estimation of quantile treatment effects with Stata. *The Stata Journal*, *10*(3), 423–457. Retrieved from http://www.stata-journal.com/sjpdf.html?articlenum=st0203

Frölich, M., & Melly, B. (2013). Unconditional Quantile Treatment Effects Under Endogeneity. *Journal of Business & Economic Statistics*, *31*(3), 346–357. https://doi.org/10.1080/07350015.2013.803869

Greene, W. H., Rhine, S. L. W., & Toussaint-Comeau, M. (2006). *The Importance of Check-cashing Businesses to the Unbanked*. *The Review of Economics and Statistics* (Vol. 88). Retrieved from http://books.google.com/books?id=0ZbzGAAACAAJ%7B&%7Ddq=inauthor:rhine+sherrie%7B&%7Dhl=%7B&%7Dcd=9%7B&%7Dsource=gbs_api

Grimes, P. W., Rogers, K. E., & Smith, R. C. (2010). High school economic education and access to financial services. *Journal of Consumer Affairs*, *44*(2), 317–335. https://doi.org/10.1111/j.1745-6606.2010.01171.x

GSMA. (2017). *The Mobile Economy Sub-Saharan Africa 2017*. https://doi.org/https://www.gsmaintelligence.com/research/?file=7bf3592e6d750144e58d9dcfac6adfab&download

Gwalani, H., & Parkhi, S. (2014). *Financial Inclusion – Building a Success Model in the Indian Context*. *Procedia - Social and Behavioral Sciences* (Vol. 133). Washington, DC: World Bank. https://doi.org/10.1016/j.sbspro.2014.04.203

Hall, A. R., Rudebusch, G. D., & Wilcox, D. W. (1996). Judging Instrument Relevance in Instrumental Variables Estimation. *International Economic Review*, *37*(2), 283–298.

Han, R., & Melecky, M. (2014). Financial Inclusion for Financial Stability: Access to Bank Deposits and the Growth of Deposits in the Global Financial Crisis. *Backgroung Paper to the 2014 World Development Report, World Bank*, *Background*(2014).

Honohan, P., & King, M. (2013). Cause and Effect of Financial Access: Cross-Country Evidence from the Finscope Surveys. In R. Cull, A. Demirgüç-kunt, & J. Morduch (Eds.), *Banking the World: Empirical Foundations of Financial Inclusion* (pp. 45-84.). USA: MIT Press, Cambridge, Massachussetts. https://doi.org/ttp://www.jstor.org/stable/j.ctt5vjqzp

Imbens, G. W., & Rubin, D. B. (1997). Bayesian Inference for Causal Effects in Randomized Experiments with Noncompliance. *The Annals of Statistics*, *25*(1), 305–327. Retrieved from http://www.jstor.org/stable/2242722

IMF. (2013a). Africa: Second Fastest-Growing Region in the World – IMF Blog. Retrieved June 5, 2017, from https://blogs.imf.org/2013/06/10/africa-second-fastest-growing-region-in-the-world/

IMF. (2013b). *Regional Economic Outlook: Sub-Saharan Africa*. *Publications of the IMF African Department*. Retrieved from http://works.bepress.com/cgi/viewcontent.cgi?article=1044&context=rodrigo_garciaverdu

Kendall, J., Mylenko, N., & Ponce, A. (2010). Measuring Financial Access around the World. *World Bank Policy Reserach Working Paper Series*, *WPS 5253*(March).

Khandker, S. R. (2005). Microfinance and poverty: Evidence using panel data from Bangladesh. *World Bank Economic Review*, *19*(2), 263–286. https://doi.org/10.1093/wber/lhi008

Koenker, R., & Bassett, G. (1978). Regression Quantiles'. *Econometrica*, *46*(1), 33–50.

Kolenikov, S., & Angeles, G. (2009). Socioeconomic status measurement with discrete proxy variables: Is principal component analysis a reliable answer? *Review of Income and Wealth*, *55*(1), 128–165. https://doi.org/10.1111/j.1475-4991.2008.00309.x

Kostov, P., Arun, T., & Annim, S. (2014). Banking the unbanked: the Mzansi intervention in South Africa. *Indian Growth and Development Review*, *7*(2), 118–141. https://doi.org/10.1108/IGDR-11-2012-0046

Kostov, P., Arun, T., & Annim, S. (2015). Access to financial services: The case of the "Mzansi" account in South Africa. *Review of Development Finance*, *5*(1), 34–42. https://doi.org/10.1016/j.rdf.2015.04.001

Kumar, N. (2012). An Empirical Analysis of Financial Inclusion Across Population Groups in India. *The IUP Journal of Bank Management*, *11*(1), 97–111.

Kuznets, S. (1955). Economic Growth and Income Inequality. *American Economic Review*, *45*(1), 1–28.

Maclean, J. C., Webber, D. A., & Marti, J. (2014). An Application of Unconditional Quantile Regression to Cigarette Taxes. *Journal of Policy Analysis and Management*, *33*(1), 188–210. https://doi.org/10.1002/pam.21724

Mader, P. (2018). Contesting Financial Inclusion. *Development and Change*, *49*(2), 461–483. https://doi.org/10.1111/dech.12368

McKenzie, D. J. (2005). Measuring inequality with asset indicators. *Journal of Population Economics*, *18*(2), 229–260. https://doi.org/10.1007/s00148-005-0224-7

Naiman, D. Q. (2007). *Quantile regression*. Cambridge university press.

Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review*, *14*(3), 693–709.

Okello, G., Bongomin, C., Ntayi, J. M., Munene, J. C., & Malinga, C. A. (2018). Mobile Money and Financial Inclusion in Sub-Saharan Africa: the Moderating Role of Social Networks. *Journal of African Business*, *19*(3), 361–384. https://doi.org/10.1080/15228916.2017.1416214

Osei-Assibey, E. (2009). Financial Exclusion: What Drives Supply and Demand for basic Financail services in Ghana? *Savings and Developement*, *33*(3), 207–238. Retrieved from http://www.jstor.org/stable/41406495

Pasquali, V. (2016). The Poorest Countries in the World | Global Finance Magazine. Retrieved from https://www.gfmag.com/global-data/economic-data/the-poorest-countries-in-the-world

Peachy, S., & Roe, A. (2004). Access to Finance- A study for the World Savings Banks Institute. *Oxford Policy Management*, (October).

Pitt, M. M., & Khandker, S. R. (1998). The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter? *Journal of Political Economy*, *106*(5), 958–996. Retrieved from http://www.journals.uchicago.edu.ezproxy.uct.ac.za/doi/pdfplus/10.1086/250037

Porter, S. R. (2015). Quantile Regression: Analyzing Changes in Distributions Instead of Means. In M. B. Paulsen (Ed.), *Higher Education: Handbook of Theory and Research* (Vol. 30, pp. 335–381). Springer International Publishing. https://doi.org/10.1007/978-90-481-8598-6

Sahn, D. E., & Stifel, D. (2003). Exploring alternative measures of welfare in the absence of expenditure data. *Review of Income and Wealth*, *49*(4), 463–489.

SESRTCIC. (2007). *Poverty in Sub-Saharan Africa: The Situation in OIC Member Countries*. Ankara, Turkey: Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRTCIC). Retrieved from http://www.sesrtcic.org/files/article/233.pdf

Simmons, K. (2015). Sub-Saharan Africa makes progress against poverty but has long way to go | Pew Research Center. Retrieved from http://www.pewresearch.org/fact-tank/2015/09/24/sub-saharan-africa-makes-progress-against-poverty-but-has-long-way-to-go/

Springford, J. (2011). Trust and Financial Markets. In J. Springford (Ed.), *A Confidence Crisis? Restoring Trsust in Financial Services* (pp. 20–25). London: The Social Market Foundation.

Stock, J. H., Wright, J. H., & Yogo, M. (2002). A Survey of Weak Instruments and Weak Identification in Generalized Method of Moments. *Journal of Business & Economic Statistics*, *20*(4), 518–529. https://doi.org/10.1198/073500102288618658

Tejerina, L., Boullion, C. P., & Demaestri, E. (2006). *Financial Services and Poverty Reduction in Latin America and the Caribbean*. (L. Tejerina, C. P. Bouillion, & E. Demaestri, Eds.), *Financial Services and Poverty Reduction in Latin America and the Caribbean*. Washington, D.C.: Inter-American Development Bank.

Triki, T., & Faye, I. (2013). Financial inclusion in Africa: an overview. *African Development Bank*.

van Rooij, M., Lusardi, A., & Alessie, R. J. M. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, *101*(2), 449–472. https://doi.org/10.1016/j.jfineco.2011.03.006

Vyas, S., & Kumaranayake, L. (2006). Constructing socio-economic status indices: How to use principal components analysis. *Health Policy and Planning*, *21*(6), 459–468. https://doi.org/10.1093/heapol/czl029

World Bank. (2013). *Global Financial Development Report 2014: Financial Inclusion* (2014th ed.). The World Bank; Washington;DC. https://doi.org/10.1596/978-0-8213-9985-9

World Bank. (2014). *Financial Inclusion*. Retrieved from http://documents.worldbank.org/curated/en/225251468330270218/pdf/Global-financial-development-report-2014-financial-inclusion.pdf

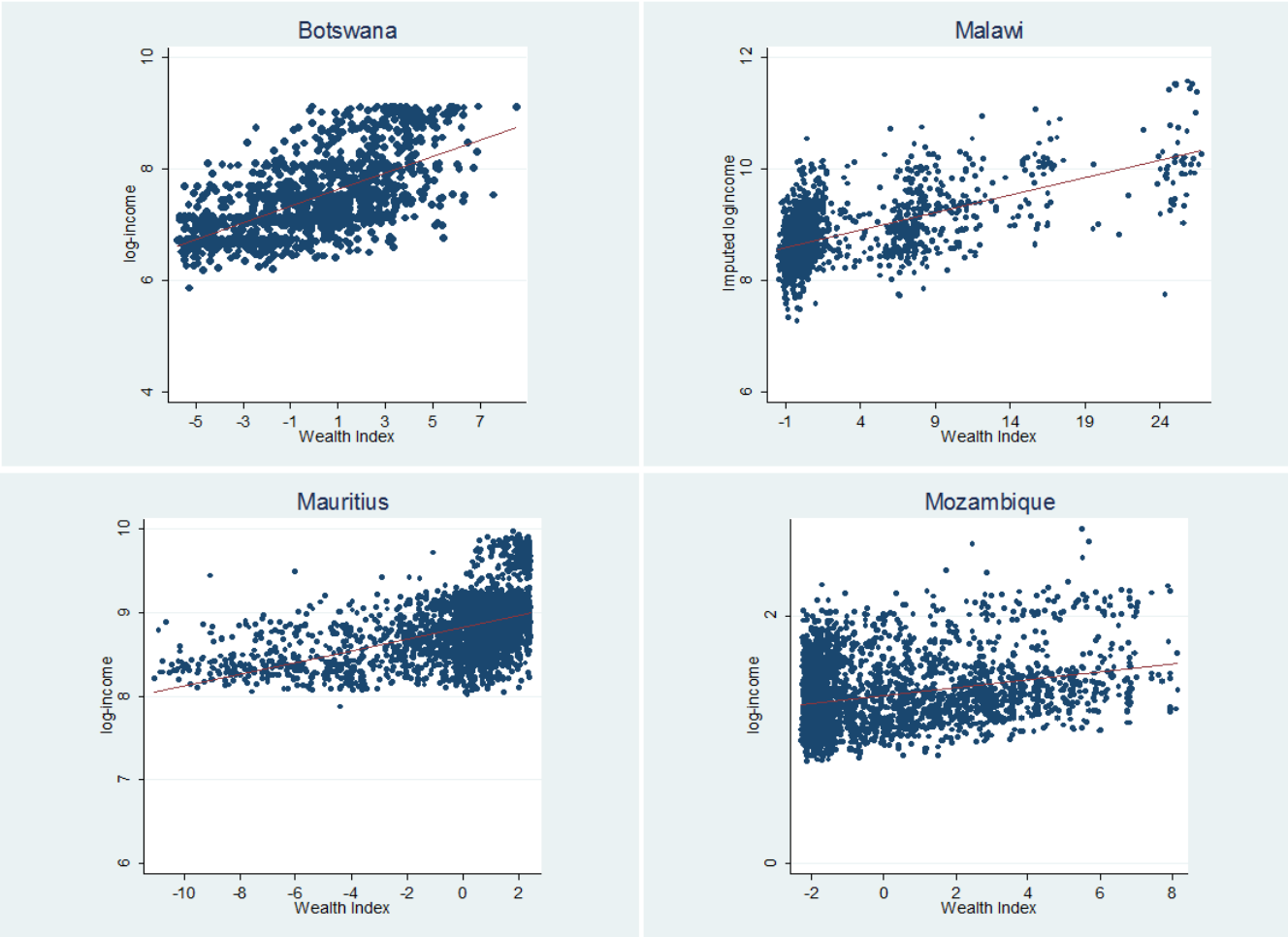
World Bank. (2017). Financial Inclusion Overview. Retrieved August 16, 2019, from https://www.worldbank.org/en/topic/financialinclusion/overview

World Bank. (2019). Are cell phones becoming more popular than toilets? Retrieved August 30, 2019, from https://blogs.worldbank.org/opendata/are-cell-phones-becoming-more-popular-toilets

Yakobe, P. (2015). Malawi The Poorest Country In Africa: What's The Problem? – Peter Yakobe. Retrieved from http://www.africanliberty.org/malawi-the-poorest-country-in-africa-whats-the-problem-peter-yakobe/

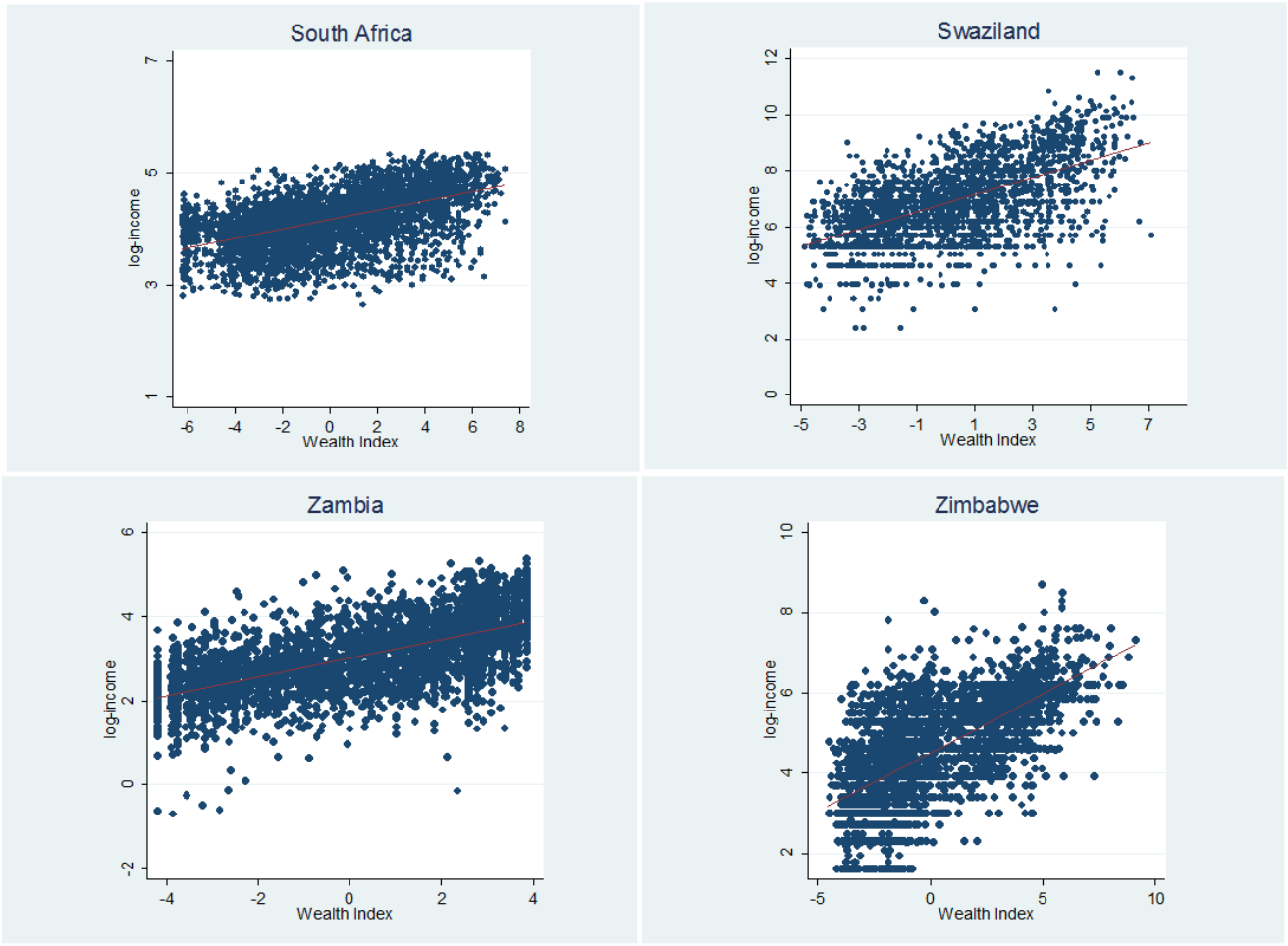
Appendix

Figure 4A: Correlation between Wealth Index and Household Income[14]



[14] Correlations for Malawi, Mozambique, South Africa and Zambia are based fitted values as income is reported in brackets. Correlation coefficients were as follows: Botswana 0.61, Malawi 0.58, Mauritius 0.47, Mozambique 0.30, South Africa 0.50, Swaziland 0.58, Zambia 0.66, and Zimbabwe 0.76

Figure 5B: Correlation between Wealth Index and Household Income



Source: Own calculations based on FinScope Survey Data

Appendix B: Unconditional Quantile Regression

Botswana

VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
Banked	0.902***	0.0885	1.044***	1.589***	0.882***	0.432
	(0.146)	(0.245)	(0.227)	(0.269)	(0.268)	(0.272)
Gender	0.0608	-0.392	-0.303	0.272	0.430**	0.554***
	(0.125)	(0.250)	(0.202)	(0.206)	(0.214)	(0.215)
Age of head	0.0511***	0.0377	-0.00315	0.00192	0.121***	0.129***
	(0.0186)	(0.0403)	(0.0304)	(0.0317)	(0.0297)	(0.0285)
Age of head square	-0.000426**	-0.000290	6.61e-05	-6.09e-05	-0.00103***	-0.00108***
	(0.000173)	(0.000388)	(0.000295)	(0.000298)	(0.000263)	(0.000254)
Financial literacy	0.206***	0.332***	0.272***	0.249***	0.107*	-0.0263
	(0.0330)	(0.0647)	(0.0525)	(0.0547)	(0.0564)	(0.0621)
Education	0.728***	0.327***	0.386***	0.802***	1.221***	1.047***
	(0.0535)	(0.0884)	(0.0757)	(0.0837)	(0.0971)	(0.121)
Area	2.170***	2.720***	3.228***	2.757***	1.301***	0.690***
	(0.121)	(0.267)	(0.225)	(0.215)	(0.190)	(0.192)
Source of income	-0.0641*	0.0261	0.0103	-0.0894	-0.134**	-0.210***
	(0.0333)	(0.0534)	(0.0489)	(0.0558)	(0.0620)	(0.0668)
Marita Status	-0.107*	0.0868	0.150	-0.139	-0.162	-0.206**
	(0.0646)	(0.132)	(0.112)	(0.110)	(0.103)	(0.103)
Constant	1.163**	-3.112***	-0.359	1.687*	2.047**	4.931***
	(0.526)	(1.156)	(0.836)	(0.871)	(0.886)	(0.901)
Observations	1,464	1,464	1,464	1,464	1,464	1,464
R-squared	0.501	0.157	0.314	0.398	0.292	0.164

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

	Malawi					
VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
Banked	2.837***	0.0811*	0.222***	0.608***	12.76**	5.382***
	(0.256)	(0.0427)	(0.0536)	(0.0885)	(6.287)	(1.287)
Gender	-0.765***	0.0367	0.0513	0.0125	-3.366	-1.064**
	(0.167)	(0.0449)	(0.0455)	(0.0530)	(2.167)	(0.457)
Age of head	0.0456*	0.00862	0.00978	0.00882	0.143	0.0720
	(0.0248)	(0.00700)	(0.00674)	(0.00879)	(0.192)	(0.0597)
Age of head square	-0.000378	-9.97e-05	-0.000115	-9.08e-05	-0.000489	-0.000824
	(0.000266)	(7.54e-05)	(7.25e-05)	(9.63e-05)	(0.00200)	(0.000596)
Area	5.638***	0.151***	0.298***	0.704***	22.34**	10.00***
	(0.269)	(0.0458)	(0.0548)	(0.0843)	(10.79)	(1.942)
Financial literacy	0.124***	0.0263***	0.0278***	0.0396***	0.541**	0.222***
	(0.0290)	(0.00662)	(0.00887)	(0.0109)	(0.275)	(0.0816)
Household size	0.482***	0.0762***	0.102***	0.131***	2.080*	0.791***
	(0.0627)	(0.0150)	(0.0172)	(0.0235)	(1.206)	(0.211)
Education1	0.446**	0.174***	0.210***	0.345***	4.062*	-0.224
	(0.193)	(0.0531)	(0.0589)	(0.0755)	(2.372)	(0.408)
_Ieduc_2	2.989***	0.203***	0.384***	0.684***	14.07**	5.364***
	(0.256)	(0.0617)	(0.0673)	(0.101)	(6.647)	(1.196)
_Ieduc_3	6.298***	0.182***	0.383***	0.792***	20.17*	12.61***
	(0.762)	(0.0668)	(0.0780)	(0.156)	(10.60)	(4.465)
_Ieduc_4	11.32***	0.0731	0.219**	0.419**	22.88*	15.32***
	(0.975)	(0.0705)	(0.100)	(0.166)	(12.34)	(4.722)
_Iprov_2	0.705***	0.195***	0.299***	0.412***	4.324	1.971***
	(0.246)	(0.0603)	(0.0717)	(0.0886)	(2.841)	(0.719)
_Iprov_3	0.461***	0.0300	0.219***	0.277***	3.323	0.391
	(0.175)	(0.0489)	(0.0575)	(0.0645)	(2.161)	(0.391)
_Isourceofi_1	-0.453	-0.0303	-0.00302	-0.0673	-2.501	-1.483
	(0.340)	(0.0703)	(0.0781)	(0.100)	(2.453)	(1.151)
_Isourceofi_2	-1.894***	0.0797	-0.0167	-0.107	-10.09**	-3.816***
	(0.284)	(0.0634)	(0.0755)	(0.0905)	(5.113)	(0.944)
_Isourceofi_3	0.682	-0.00609	0.0198	-0.151	11.10	2.540
	(1.464)	(0.146)	(0.213)	(0.384)	(11.51)	(7.792)
_Isourceofi_4	-0.356	0.0451	0.163	0.126	-0.511	-0.659
	(0.492)	(0.109)	(0.106)	(0.147)	(4.364)	(1.618)
_Isourceofi_5	-1.971***	-0.162***	-0.228***	-0.389***	-11.73**	-3.433***
	(0.263)	(0.0625)	(0.0728)	(0.0848)	(5.532)	(0.878)
Constant	0.898	0.113	0.320*	0.631***	-8.816	5.728***
	(0.584)	(0.160)	(0.164)	(0.209)	(7.554)	(1.931)
Observations	2,599	2,599	2,599	2,599	2,599	2,599

R-squared	0.464	0.059	0.118	0.221	0.291	0.343

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Mauritius

VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
Banked	0.869***	2.373***	1.146***	0.450***	0.359***	0.0859***
	(0.0849)	(0.535)	(0.146)	(0.0580)	(0.0525)	(0.0290)
Gender	0.456***	1.148**	0.442***	0.191***	0.141**	0.0945**
	(0.0872)	(0.457)	(0.135)	(0.0617)	(0.0671)	(0.0385)
Age of head	0.106***	0.299***	0.147***	0.0735***	0.0674***	0.0189***
	(0.0140)	(0.0844)	(0.0230)	(0.00977)	(0.0105)	(0.00692)
Age of head square	-0.000688***	-0.00172**	-0.000987***	-0.000530***	-0.000546***	-0.000163**
	(0.000136)	(0.000813)	(0.000225)	(9.55e-05)	(9.90e-05)	(6.53e-05)
Financial literacy	0.213***	0.740***	0.215***	0.0765***	0.0740***	0.0340***
	(0.0232)	(0.126)	(0.0357)	(0.0165)	(0.0180)	(0.0113)
Area	0.173	-0.0306	0.478	0.0624	0.0285	-0.0358
	(0.226)	(1.179)	(0.367)	(0.155)	(0.165)	(0.0859)
Household size	-0.0904***	-0.412***	-0.119***	-0.0143	0.0274*	0.0171*
	(0.0201)	(0.108)	(0.0311)	(0.0143)	(0.0155)	(0.00960)
1.educ	0.401***	1.901***	0.344**	0.200***	-0.0467	-0.0440*
	(0.0908)	(0.534)	(0.153)	(0.0654)	(0.0555)	(0.0258)
2.educ	1.113***	2.435***	1.328***	0.826***	0.793***	0.288***
	(0.0782)	(0.427)	(0.126)	(0.0565)	(0.0572)	(0.0290)
3.educ	1.758***	2.386***	1.759***	1.500***	2.215***	1.229***
	(0.124)	(0.467)	(0.139)	(0.0715)	(0.106)	(0.0966)
2.prov	-0.200	-0.628	-0.221	-0.162	-0.198	-0.245***
	(0.229)	(1.135)	(0.388)	(0.161)	(0.170)	(0.0894)
3.prov	0.283	0.159	0.637	0.292	0.112	-0.189
	(0.266)	(1.261)	(0.420)	(0.188)	(0.206)	(0.115)
4.prov	0.223	0.484	0.430	0.172	0.00345	-0.171
	(0.271)	(1.281)	(0.433)	(0.191)	(0.207)	(0.119)
5.prov	0.290	0.602	0.699*	0.307	0.0783	-0.0255
	(0.267)	(1.275)	(0.424)	(0.188)	(0.206)	(0.119)
6.prov	0.0727	-0.603	0.183	0.258	0.211	0.0241
	(0.272)	(1.366)	(0.432)	(0.192)	(0.208)	(0.122)
7.prov	0.343	0.210	0.865**	0.320*	0.0945	-0.0774
	(0.270)	(1.283)	(0.424)	(0.192)	(0.209)	(0.119)
8.prov	-0.158	-1.194	0.365	-0.122	-0.271	-0.262**
	(0.284)	(1.409)	(0.452)	(0.203)	(0.215)	(0.122)
9.prov	0.155	-0.120	0.302*	0.317***	0.207**	0.0410

	(0.119)	(0.400)	(0.174)	(0.0892)	(0.103)	(0.0698)
10.prov	-2.486***	-12.53***	-1.799***	-0.489***	-0.381**	-0.224**
	(0.258)	(1.407)	(0.421)	(0.179)	(0.191)	(0.105)
1.marital_status	-0.575***	-2.002***	-0.412**	-0.0228	-0.0316	-0.101**
	(0.107)	(0.625)	(0.166)	(0.0763)	(0.0862)	(0.0501)
2.marital_status	-0.810***	-2.819***	-1.146***	-0.423***	-0.301***	-0.131**
	(0.135)	(0.843)	(0.216)	(0.0878)	(0.0901)	(0.0526)
3.marital_status	0.0742	0.653	-0.178	-0.213**	-0.146*	-0.0678
	(0.117)	(0.588)	(0.181)	(0.0840)	(0.0836)	(0.0467)
1.sourceofincome	0.00142	-0.193	-0.0725	0.107	-0.0311	-0.0851
	(0.100)	(0.404)	(0.146)	(0.0734)	(0.0903)	(0.0564)
2.sourceofincome	-1.140***	-5.270***	-1.218***	-0.294***	-0.246***	-0.131***
	(0.176)	(1.565)	(0.281)	(0.101)	(0.0920)	(0.0465)
3.sourceofincome	-0.685***	-2.812***	-0.412***	-0.185***	-0.246***	-0.0947**
	(0.0955)	(0.502)	(0.143)	(0.0677)	(0.0740)	(0.0461)
4.sourceofincome	0.143	0.249	0.292**	0.121**	0.0386	-0.0767
	(0.0869)	(0.415)	(0.125)	(0.0615)	(0.0742)	(0.0489)
5.sourceofincome	-1.342***	-6.469***	-0.945**	-0.0122	-0.0253	0.0904
	(0.259)	(1.930)	(0.409)	(0.158)	(0.191)	(0.137)
Constant	6.361***	-4.833*	4.125***	8.675***	10.06***	12.83***
	(0.457)	(2.585)	(0.737)	(0.306)	(0.348)	(0.215)
Observations	4,000	4,000	4,000	4,000	4,000	4,000
R-squared	0.505	0.362	0.334	0.302	0.261	0.159

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Mozambique

VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile
Banked	0.0337	0.113***	0.389***	2.581***	2.912***
	(0.0234)	(0.0423)	(0.0937)	(0.410)	(0.555)
Gender	-0.0104	0.00942	0.0111	-0.168	-0.260
	(0.0279)	(0.0368)	(0.0543)	(0.162)	(0.176)
Age of head	0.00275	0.000312	0.00514	-0.0170	-0.0210
	(0.00299)	(0.00398)	(0.00643)	(0.0176)	(0.0195)
Age of head squared	-1.58e-05	-7.56e-06	-6.71e-05	7.09e-05	0.000174
	(2.64e-05)	(3.57e-05)	(5.91e-05)	(0.000162)	(0.000180)
Area	0.153***	0.413***	1.314***	3.367***	1.670***
	(0.0244)	(0.0455)	(0.134)	(0.274)	(0.192)
Household size	0.00356	0.0368***	0.0393***	0.110***	0.0624*
	(0.00464)	(0.00648)	(0.0124)	(0.0379)	(0.0356)

Financial literacy	0.0159	0.137***	0.537***	2.922***	3.223***
	(0.0229)	(0.0403)	(0.0950)	(0.384)	(0.449)
_Imarital_s_1	0.0214	0.0132	0.116*	0.00719	0.361
	(0.0290)	(0.0443)	(0.0664)	(0.216)	(0.225)
_Imarital_s_2	-0.0618	-0.184**	-0.181	-0.466	-0.561
	(0.0655)	(0.0845)	(0.136)	(0.363)	(0.354)
_Imarital_s_3	-0.0668	-0.373***	-0.308**	0.0664	-0.352
	(0.0697)	(0.0777)	(0.123)	(0.336)	(0.298)
_Ieduc_1	0.120***	0.143***	0.205**	0.345	-0.497**
	(0.0412)	(0.0511)	(0.0800)	(0.212)	(0.219)
_Ieduc_2	0.168***	0.325***	0.576***	1.874***	0.480
	(0.0413)	(0.0576)	(0.101)	(0.361)	(0.369)
_Ieduc_3	0.0950*	0.320***	0.469***	3.368***	4.177***
	(0.0494)	(0.0752)	(0.128)	(0.600)	(1.055)
_Iprov_2	0.325***	0.575***	0.107	0.390	0.655**
	(0.0750)	(0.0845)	(0.145)	(0.326)	(0.307)
_Iprov_3	0.412***	0.380***	0.608***	1.392***	1.606***
	(0.0711)	(0.0916)	(0.144)	(0.341)	(0.386)
_Iprov_4	0.181**	0.126	-0.122	-0.0757	-0.309
	(0.0841)	(0.0883)	(0.138)	(0.324)	(0.271)
_Iprov_5	0.135	-0.266**	-0.441***	0.111	0.505
	(0.0906)	(0.106)	(0.133)	(0.358)	(0.363)
_Iprov_6	0.251***	0.114	-0.0977	0.325	-0.0390
	(0.0833)	(0.101)	(0.136)	(0.355)	(0.296)
_Iprov_7	0.344***	0.299***	0.205	0.200	-0.277
	(0.0664)	(0.0992)	(0.137)	(0.389)	(0.348)
_Iprov_8	0.357***	0.388***	0.363**	-0.442	-0.304
	(0.0748)	(0.0982)	(0.164)	(0.368)	(0.352)
_Iprov_9	0.258***	0.482***	0.730***	1.505***	0.625*
	(0.0799)	(0.0945)	(0.169)	(0.443)	(0.377)
_Iprov_10	0.377***	0.631***	0.854***	2.401***	0.782*
	(0.0652)	(0.0795)	(0.136)	(0.524)	(0.455)
_Iprov_11	0.302***	0.501***	0.725***	3.266***	1.833***
	(0.0611)	(0.0766)	(0.142)	(0.537)	(0.570)
_Isourceofi_1	-0.00529	0.0342	-0.0348	0.187	0.457
	(0.0266)	(0.0444)	(0.108)	(0.451)	(0.535)
_Isourceofi_2	-0.127***	-0.409***	-0.919***	-1.106***	0.455
	(0.0351)	(0.0602)	(0.128)	(0.417)	(0.506)
_Isourceofi_3	0.0550*	0.0321	0.0527	-0.149	0.261
	(0.0301)	(0.0936)	(0.225)	(0.919)	(0.991)
_Isourceofi_4	-0.0259	-0.0633	-0.159*	0.349	1.153**
	(0.0277)	(0.0485)	(0.0897)	(0.433)	(0.534)
_Isourceofi_5	-0.0440	-0.103*	-0.391***	-0.868*	0.437
	(0.0318)	(0.0558)	(0.116)	(0.451)	(0.541)

_Isourceofi_6	0.0827	-0.343**	-0.310	-0.0226	0.496
	(0.0997)	(0.164)	(0.214)	(0.781)	(0.791)
Constant	-0.122	-0.191	-0.0573	0.156	3.506***
	(0.109)	(0.139)	(0.246)	(0.813)	(0.793)
Observations	3,296	3,296	3,296	3,296	3,296
R-squared	0.072	0.242	0.435	0.453	0.299

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

South Africa

VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
Banked	0.461***	0.255	0.492***	0.511***	0.602***	0.269*
	(0.104)	(0.195)	(0.177)	(0.187)	(0.172)	(0.150)
Gender	-0.194**	-0.131	-0.208*	-0.129	-0.232	-0.327**
	(0.0758)	(0.120)	(0.113)	(0.128)	(0.143)	(0.144)
Age of head	-0.0777***	-0.0302	-0.0707***	-0.115***	-0.115***	-0.0782***
	(0.0127)	(0.0222)	(0.0197)	(0.0223)	(0.0236)	(0.0221)
Age of head square	0.00122***	0.000503**	0.00113***	0.00180***	0.00168***	0.00110***
	(0.000137)	(0.000240)	(0.000209)	(0.000241)	(0.000258)	(0.000245)
Financial Literacy	0.309***	0.260***	0.230***	0.398***	0.364***	0.253***
	(0.0304)	(0.0511)	(0.0480)	(0.0532)	(0.0552)	(0.0533)
Area	1.354***	1.765***	1.773***	1.348***	1.076***	1.116***
	(0.100)	(0.144)	(0.135)	(0.174)	(0.194)	(0.199)
Household size	0.0349**	0.117***	0.0865***	0.0639**	-0.0872***	-0.0363
	(0.0174)	(0.0329)	(0.0280)	(0.0297)	(0.0279)	(0.0239)
1.educ	1.349***	2.114***	1.990***	1.808***	0.848***	0.211
	(0.126)	(0.304)	(0.219)	(0.195)	(0.161)	(0.149)
2.educ	2.803***	3.008***	3.338***	3.912***	2.635***	1.068***
	(0.135)	(0.299)	(0.223)	(0.217)	(0.206)	(0.194)
3.educ	4.301***	3.164***	3.920***	5.465***	5.767***	3.428***
	(0.169)	(0.305)	(0.236)	(0.252)	(0.322)	(0.372)
4.educ	4.899***	2.916***	3.512***	5.448***	7.672***	5.349***
	(0.215)	(0.305)	(0.254)	(0.273)	(0.367)	(0.605)
2.prov	-1.232***	-1.339***	-1.584***	-1.749***	-0.500**	-0.247
	(0.143)	(0.252)	(0.208)	(0.235)	(0.248)	(0.276)
3.prov	-0.510***	0.539*	-0.636**	-1.366***	-0.0782	-0.0594
	(0.177)	(0.297)	(0.279)	(0.294)	(0.305)	(0.310)
4.prov	-0.824***	0.421**	-0.401*	-1.616***	-0.742***	-1.291***
	(0.152)	(0.194)	(0.211)	(0.259)	(0.285)	(0.274)

5.prov	-1.122***	-1.135***	-1.653***	-1.134***	-0.511**	-0.629**
	(0.131)	(0.201)	(0.184)	(0.224)	(0.251)	(0.273)
6.prov	-0.652***	0.242	-0.742***	-0.978***	-0.316	-0.855***
	(0.162)	(0.261)	(0.252)	(0.280)	(0.309)	(0.276)
7.prov	-0.884***	-1.077***	-1.242***	-0.943***	-0.204	-0.607*
	(0.137)	(0.165)	(0.166)	(0.229)	(0.276)	(0.326)
8.prov	-0.616***	0.0339	-1.013***	-1.193***	-0.0856	-0.573*
	(0.163)	(0.271)	(0.248)	(0.275)	(0.300)	(0.299)
9.prov	-1.137***	0.387	-1.418***	-2.094***	-1.159***	-0.525*
	(0.168)	(0.271)	(0.278)	(0.291)	(0.290)	(0.293)
1.marital_status	-0.669***	-0.242	-0.387***	-0.805***	-1.265***	-0.855***
	(0.0898)	(0.155)	(0.142)	(0.152)	(0.159)	(0.152)
2.marital_status	-0.171	0.498**	0.303	0.316	-1.070**	-1.336***
	(0.211)	(0.227)	(0.273)	(0.347)	(0.421)	(0.392)
3.marital_status	-0.505***	0.149	-0.0934	-0.838***	-1.145***	-0.452
	(0.145)	(0.249)	(0.215)	(0.226)	(0.249)	(0.276)
1.sourceofincome	0.808***	0.169	0.0590	0.451*	1.495***	2.506***
	(0.180)	(0.209)	(0.219)	(0.274)	(0.383)	(0.523)
2.sourceofincome	-0.990***	-0.208	-1.140***	-1.485***	-1.200***	-1.080***
	(0.116)	(0.206)	(0.189)	(0.195)	(0.182)	(0.177)
3.sourceofincome	0.396***	0.609***	0.438**	0.255	0.614***	-0.00594
	(0.113)	(0.178)	(0.173)	(0.203)	(0.227)	(0.218)
4.sourceofincome	-0.572***	-0.359	-0.777***	-1.255***	-0.353*	-0.0898
	(0.131)	(0.256)	(0.219)	(0.222)	(0.212)	(0.209)
Constant	4.736***	-0.908	1.926***	4.504***	7.957***	10.92***
	(0.365)	(0.675)	(0.580)	(0.627)	(0.638)	(0.613)
Observations	3,893	3,893	3,893	3,893	3,893	3,893
R-squared	0.495	0.158	0.271	0.369	0.350	0.213

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Swaziland- Unconditional

VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
Banked	1.077***	0.727***	1.021***	1.614***	0.957***	0.789***
	(0.0832)	(0.0892)	(0.121)	(0.158)	(0.150)	(0.152)
Gender	0.140*	0.160*	-0.0459	0.103	0.261**	0.335**
	(0.0726)	(0.0896)	(0.103)	(0.124)	(0.126)	(0.145)
Age of head	0.0361***	0.00916	0.00836	0.0186	0.0836***	0.0721***
	(0.0128)	(0.0191)	(0.0197)	(0.0216)	(0.0201)	(0.0216)
Age of head square	-0.000326***	-6.34e-05	-9.10e-05	-0.000167	-0.000771***	-0.000643***
	(0.000122)	(0.000189)	(0.000191)	(0.000202)	(0.000182)	(0.000191)
Financial literacy	0.0992***	0.109***	0.162***	0.0892*	0.0604	0.0551
	(0.0264)	(0.0344)	(0.0389)	(0.0459)	(0.0458)	(0.0518)
Area	1.452***	0.493***	0.978***	1.486***	2.122***	1.983***
	(0.0833)	(0.0642)	(0.0949)	(0.143)	(0.180)	(0.228)
Household size	0.0220	0.00207	0.0137	0.0265	0.0247	0.0411
	(0.0134)	(0.0179)	(0.0206)	(0.0233)	(0.0222)	(0.0257)
1.educ	0.337***	1.051***	0.723***	0.184	-0.144	-0.196
	(0.114)	(0.208)	(0.197)	(0.185)	(0.148)	(0.147)
2.educ	0.799***	1.376***	1.373***	0.912***	0.115	-0.00165
	(0.119)	(0.200)	(0.198)	(0.206)	(0.176)	(0.186)
3.educ	1.525***	1.524***	1.921***	2.267***	1.155***	0.385*
	(0.124)	(0.191)	(0.191)	(0.214)	(0.208)	(0.222)
4.educ	2.491***	1.286***	1.896***	2.900***	2.958***	2.751***
	(0.155)	(0.197)	(0.193)	(0.232)	(0.291)	(0.417)
5.educ	3.196***	1.322***	1.724***	3.093***	3.365***	6.310***
	(0.254)	(0.199)	(0.232)	(0.269)	(0.472)	(0.837)
2.prov	-0.0502	-0.0628	0.189	0.210	-0.109	-0.668***
	(0.0898)	(0.0912)	(0.122)	(0.156)	(0.169)	(0.200)
3.prov	-0.454***	-0.416***	-0.353**	-0.645***	-0.654***	-0.394**
	(0.0962)	(0.123)	(0.144)	(0.163)	(0.160)	(0.190)
4.prov	-0.204**	-0.812***	-0.390***	-0.153	0.0929	0.205
	(0.0970)	(0.133)	(0.142)	(0.163)	(0.167)	(0.218)
1.marital_status	-0.285***	-0.109	-0.252**	-0.260	-0.491***	-0.560***
	(0.0945)	(0.115)	(0.128)	(0.159)	(0.174)	(0.206)
2.marital_status	-0.0174	-0.746*	-0.0384	-0.470	0.153	0.696
	(0.253)	(0.413)	(0.368)	(0.420)	(0.411)	(0.577)
3.marital_status	-0.188*	-0.0310	-0.378**	-0.336*	-0.0179	-0.0466
	(0.112)	(0.169)	(0.180)	(0.186)	(0.171)	(0.185)
1.sourceofincome	0.0224	0.152	-0.0441	-0.346	0.211	-0.147
	(0.229)	(0.151)	(0.265)	(0.374)	(0.486)	(0.689)

2.sourceofincome	-0.937***	-0.0358	-0.382	-1.428***	-1.578***	-1.425***
	(0.193)	(0.270)	(0.314)	(0.341)	(0.288)	(0.302)
3.sourceofincome	-1.021***	-0.662***	-0.750***	-1.232***	-1.434***	-1.251***
	(0.160)	(0.227)	(0.231)	(0.265)	(0.267)	(0.333)
4.sourceofincome	-0.515***	0.0714	-0.0418	-0.694***	-1.023***	-1.004***
	(0.110)	(0.0942)	(0.130)	(0.187)	(0.225)	(0.275)
5.sourceofincome	-1.049***	-0.281***	-0.780***	-1.446***	-1.471***	-1.257***
	(0.108)	(0.0989)	(0.134)	(0.187)	(0.219)	(0.264)
6.sourceofincome	-1.235***	-0.923	-0.740	-1.919***	-1.681***	-1.513***
	(0.368)	(0.704)	(0.663)	(0.572)	(0.485)	(0.289)
Constant	2.313***	-0.346	0.310	2.447***	3.575***	6.049***
	(0.385)	(0.514)	(0.564)	(0.650)	(0.645)	(0.718)
Observations	3,154	3,154	3,154	3,154	3,154	3,154
R-squared	0.483	0.150	0.239	0.352	0.324	0.235

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Swaziland- IVQTE

VARIABLES	(1) q10	(2) q25	(3) q50	(4) q75	(5) q90
banked1	1.688**	2.265***	2.715***	2.970***	3.106***
	(0.719)	(0.672)	(0.724)	(0.852)	(1.056)
ageofhead	0.0131	-0.00762	-0.0168	-0.0393	-0.0542
	(0.137)	(0.0784)	(0.0745)	(0.130)	(0.291)
ageofhead2	-0.000102	0.000118	0.000158	0.000342	0.000424
	(0.00136)	(0.000726)	(0.000737)	(0.00120)	(0.00279)
finlit	0.0580	0.0791	0.0997	0.107	0.110
	(0.200)	(0.215)	(0.264)	(0.466)	(0.882)
hhsize	-0.0163	-0.0250	-0.0451	-0.0160	-0.0212
	(0.0603)	(0.0666)	(0.0959)	(0.184)	(0.342)
area	1.215**	1.065	1.126	1.047	1.127
	(0.529)	(0.788)	(1.258)	(1.123)	(1.835)
gender	0.0777	0.157	0.246	0.335	0.703

	(0.441)	(0.485)	(0.686)	(0.990)	(1.980)
educ2	0.299	0.111	-0.00137	-0.122	-0.562
	(0.709)	(0.714)	(0.953)	(1.597)	(2.952)
educ3	0.507	0.489	0.488	0.447	0.201
	(0.373)	(0.636)	(0.809)	(1.524)	(2.577)
educ4	1.086**	1.020	1.202	1.627	1.086
	(0.530)	(0.641)	(0.802)	(1.489)	(2.222)
educ5	1.171	2.074**	2.080	2.272	2.144
	(1.402)	(0.985)	(1.934)	(1.876)	(5.176)
educ6	4.460	5.049	6.069***	5.444***	4.056*
	(3.704)	(7.006)	(0.701)	(1.353)	(2.136)
marital_status2	-0.110	-0.0399	-0.158	-0.200	-0.148
	(0.529)	(0.591)	(0.752)	(1.114)	(1.776)
marital_status3	-0.273	-0.129	-0.127	0.504	0.952
	(1.025)	(1.060)	(0.744)	(1.520)	(2.165)
marital_status4	-0.152	-0.180	-0.133	-0.367	-0.368
	(1.310)	(0.829)	(0.961)	(1.526)	(3.192)
Constant	0.0129	1.023	2.140	3.527	5.277
	(2.387)	(2.210)	(2.279)	(4.052)	(5.487)
Observations	3,232	3,232	3,232	3,232	3,232

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Zimbabwe IVQTE

	(1)	(2)	(3)	(4)	(5)
VARIABLES	q10	q25	q50	q75	q90
banked1	1.659***	2.073***	2.340***	2.707***	3.301***
	(0.260)	(0.197)	(0.248)	(0.382)	(0.575)
ageofhead	0.00523	0.0141	0.0250	0.0274	0.0378
	(0.0353)	(0.0422)	(0.0436)	(0.0927)	(0.118)
ageofhead2	-4.80e-05	-0.000110	-0.000198	-0.000191	-0.000316
	(0.000377)	(0.000385)	(0.000450)	(0.000931)	(0.00122)
finlit	0.0413	0.0309	0.0502	0.0243	0.0127
	(0.0406)	(0.0318)	(0.0457)	(0.0715)	(0.116)
hhsize	-0.0464	-0.0459	-0.0358	-0.0371	-0.0592
	(0.0649)	(0.0498)	(0.0621)	(0.111)	(0.201)
area	2.154***	2.950***	3.243***	3.384***	3.100***
	(0.327)	(0.360)	(0.395)	(0.461)	(0.649)
gender	-0.256	-0.336	-0.319	-0.376	-0.369
	(0.301)	(0.254)	(0.283)	(0.713)	(0.740)
educ2	-0.0379	-0.168	-0.180	-0.0198	-0.106

	(0.523)	(0.361)	(0.513)	(0.934)	(1.583)
educ3	0.331	0.143	0.242	0.520	0.460
	(0.540)	(0.362)	(0.507)	(0.970)	(1.533)
educ4	0.882	1.043*	1.161	1.709	1.609
	(0.751)	(0.600)	(0.787)	(1.271)	(1.549)
educ5	2.031	2.194**	3.501*	4.412*	3.903**
	(1.268)	(0.990)	(2.070)	(2.597)	(1.869)
marital_status2	0.281	0.117	0.249	0.246	-0.130
	(0.315)	(0.423)	(0.444)	(1.030)	(0.836)
marital_status3	-0.183	-0.606	-0.357	-0.369	0.0518
	(0.498)	(0.421)	(0.406)	(1.163)	(1.391)
marital_status4	-0.142	-0.289	-0.303	-0.236	-0.127
	(0.314)	(0.349)	(0.362)	(0.795)	(0.855)
sourceofincome 2	-0.360	-0.446	-0.594	-0.585	-0.582
	(0.247)	(0.364)	(0.382)	(0.579)	(0.748)
sourceofincome 3	-1.062***	-1.014***	-1.258***	-1.517**	-1.649**
	(0.248)	(0.353)	(0.404)	(0.655)	(0.813)
sourceofincome 4	-1.051	-0.668	-0.541	-0.732	-0.670
	(0.949)	(0.571)	(0.758)	(1.003)	(2.290)
sourceofincome 5	-0.626	-0.858	-0.872	-1.129	-1.241
	(0.425)	(0.545)	(0.774)	(1.019)	(0.985)
sourceofincome 6	-0.785***	-0.930**	-1.015*	-1.398**	-1.436
	(0.297)	(0.407)	(0.573)	(0.661)	(1.052)
Constant	1.384	1.824*	2.016*	2.805	3.659
	(0.905)	(1.033)	(1.101)	(2.373)	(3.401)
Observations	3,985	3,985	3,985	3,985	3,985

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Zambia

VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
banked1	1.038***	0.251***	0.719***	1.659***	1.085***	0.540***
	(0.0473)	(0.0308)	(0.0676)	(0.103)	(0.0803)	(0.0703)
gender	0.0781***	0.0336**	0.0699***	0.108***	0.0893***	0.0708***
	(0.0132)	(0.0152)	(0.0239)	(0.0286)	(0.0187)	(0.0158)
ageofhead	0.0256***	0.00476	0.0149	0.0384***	0.0391***	0.0151**

	(0.00613)	(0.00864)	(0.0120)	(0.0135)	(0.00778)	(0.00629)
ageofhead2	-0.000270***	-2.41e-05	-0.000114	-0.000421***	-0.000403***	-0.000257***
	(6.18e-05)	(8.84e-05)	(0.000123)	(0.000135)	(7.67e-05)	(6.05e-05)
finlit	0.0107	0.0637***	0.0710***	-0.00151	-0.00527	-0.00156
	(0.0136)	(0.0173)	(0.0258)	(0.0290)	(0.0182)	(0.0155)
area	2.003***	1.013***	2.745***	3.207***	1.028***	0.365***
	(0.0398)	(0.0490)	(0.0841)	(0.0998)	(0.0508)	(0.0387)
hhsize	0.0499***	0.0381***	0.0642***	0.0688***	0.0447***	0.00165
	(0.00691)	(0.00841)	(0.0133)	(0.0152)	(0.00921)	(0.00705)
_lmarital_s_1	0.0554	0.0944	0.225**	0.0228	0.0333	-0.0361
	(0.0608)	(0.0657)	(0.0980)	(0.132)	(0.0905)	(0.0845)
_lmarital_s_2	-0.0794	-0.0571	-0.00965	-0.0651	-0.108	-0.0893
	(0.0624)	(0.0785)	(0.116)	(0.138)	(0.0818)	(0.0626)
_lmarital_s_3	0.0184	-0.000618	0.00826	-0.0536	0.0712	-0.0247
	(0.0577)	(0.0721)	(0.108)	(0.128)	(0.0789)	(0.0601)
_leduc_1	-0.0770	0.823***	1.170***	0.703***	0.0632	-0.0684**
	(0.0511)	(0.0868)	(0.114)	(0.106)	(0.0498)	(0.0287)
_leduc_2	0.231***	1.051***	1.919***	2.447***	0.923***	0.345***
	(0.0726)	(0.0858)	(0.123)	(0.138)	(0.0790)	(0.0556)
_leduc_3	0.404***	1.030***	2.064***	3.571***	2.327***	1.227***
	(0.0989)	(0.0850)	(0.123)	(0.146)	(0.107)	(0.0964)
_lprov_code_2	0.874***	0.0532	0.524***	1.443***	0.797***	0.364***
	(0.0670)	(0.0666)	(0.124)	(0.165)	(0.104)	(0.0843)
_lprov_code_3	-0.132*	-0.791***	-0.853***	-0.193	0.0721	0.111
	(0.0703)	(0.110)	(0.157)	(0.174)	(0.0967)	(0.0758)
_lprov_code_4	-0.0458	0.180**	-0.295*	-0.981***	-0.00530	0.134*
	(0.0700)	(0.0866)	(0.164)	(0.180)	(0.0963)	(0.0755)
_lprov_code_5	1.449***	0.0544	0.424***	1.779***	1.222***	0.528***
	(0.0588)	(0.0625)	(0.118)	(0.161)	(0.106)	(0.0892)
_lprov_code_6	0.326***	-0.415***	-0.606***	-0.150	0.185*	0.150*
	(0.0741)	(0.105)	(0.165)	(0.194)	(0.108)	(0.0852)
_lprov_code_7	0.272***	-0.169*	-0.551***	-0.760***	-0.0710	0.0433
	(0.0753)	(0.102)	(0.173)	(0.195)	(0.107)	(0.0830)
_lprov_code_8	0.402***	-0.507***	-0.616***	-0.532***	0.0895	0.0780
	(0.0757)	(0.107)	(0.163)	(0.185)	(0.0986)	(0.0764)
_lprov_code_9	1.253***	0.104	0.104	0.643***	0.488***	0.384***
	(0.0751)	(0.0823)	(0.149)	(0.176)	(0.105)	(0.0896)
_lincome_so_1	-0.225***	0.0633	-0.0783	-0.433***	-0.132	-0.0905
	(0.0593)	(0.0495)	(0.0883)	(0.132)	(0.0937)	(0.0858)
_lincome_so_2	-0.908***	-0.0291	-0.903***	-1.746***	-0.382***	-0.211***
	(0.0623)	(0.0750)	(0.121)	(0.134)	(0.0822)	(0.0710)
_lincome_so_3	-0.338***	-0.192***	-0.436***	-0.594***	-0.0234	-0.0548
	(0.0515)	(0.0426)	(0.0741)	(0.112)	(0.0829)	(0.0760)
_leduc_4		0.999***	1.942***	3.740***	3.040***	1.914***

		(0.0926)	(0.158)	(0.203)	(0.193)	(0.250)
_Iprov_code_10		-1.042***	-1.503***	-1.396***	-0.217**	-0.0515
		(0.121)	(0.167)	(0.186)	(0.0998)	(0.0744)
Constant	1.542***	-0.785***	-1.603***	0.338	4.171***	6.922***
	(0.167)	(0.227)	(0.320)	(0.362)	(0.208)	(0.171)
Observations	8,359	8,359	8,359	8,359	8,359	8,359
R-squared	0.657	0.194	0.387	0.521	0.384	0.176

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Zimbabwe

VARIABLES	(1) OLS	(2) 10th Quantile	(3) 25th Quantile	(4) 50th Quantile	(5) 75th Quantile	(6) 90th Quantile
banked1	0.768***	0.149***	0.319***	0.747***	1.399***	0.940***
	(0.0718)	(0.0559)	(0.0755)	(0.114)	(0.194)	(0.189)
gender	-0.217***	-0.243***	-0.358***	-0.343***	-0.0805	0.199
	(0.0777)	(0.0894)	(0.101)	(0.123)	(0.184)	(0.160)
ageofhead	0.00309	0.00896	0.00719	0.00681	-0.0140	-0.00402
	(0.00791)	(0.0100)	(0.0107)	(0.0116)	(0.0189)	(0.0174)
ageofhead2	3.48e-05	7.07e-06	4.90e-05	-4.96e-05	0.000194	8.32e-05
	(8.06e-05)	(0.000107)	(0.000114)	(0.000122)	(0.000180)	(0.000163)
finlit	0.0820***	0.0433***	0.0798***	0.0807***	0.0834***	0.107***
	(0.0102)	(0.0115)	(0.0132)	(0.0168)	(0.0234)	(0.0212)
area	3.140***	0.325***	1.045***	3.319***	5.463***	2.196***
	(0.0812)	(0.0600)	(0.0779)	(0.134)	(0.257)	(0.220)
hhsize	-0.00367	-0.0230	-0.0247	-0.0303	0.0502*	0.0738***
	(0.0134)	(0.0169)	(0.0183)	(0.0224)	(0.0305)	(0.0272)
_Imarital_s_1	-0.0393	0.103	0.250**	-0.131	-0.612**	-0.00111
	(0.113)	(0.105)	(0.127)	(0.166)	(0.311)	(0.289)
_Imarital_s_2	-0.0662	-0.0757	0.0665	-0.00813	-0.625**	0.225
	(0.113)	(0.122)	(0.135)	(0.181)	(0.274)	(0.239)
_Imarital_s_3	-0.173*	-0.292**	-0.311**	-0.397***	0.00400	0.279
	(0.0943)	(0.123)	(0.133)	(0.152)	(0.206)	(0.180)
_Ieduc_1	0.0978	0.747***	0.366*	0.0653	-0.257	-0.264*
	(0.131)	(0.238)	(0.213)	(0.202)	(0.207)	(0.152)
_Ieduc_2	0.748***	1.219***	1.046***	0.720***	0.613***	0.168
	(0.134)	(0.236)	(0.215)	(0.212)	(0.225)	(0.175)
_Ieduc_3	1.574***	1.278***	1.115***	1.232***	2.054***	1.861***
	(0.169)	(0.238)	(0.232)	(0.267)	(0.367)	(0.371)
_Ieduc_4	2.631***	1.185***	1.077***	1.463***	2.927***	4.572***
	(0.208)	(0.237)	(0.236)	(0.309)	(0.541)	(0.595)
_Iprov_1	-0.225**	0.316***	0.382***	-0.398**	-0.301	-0.285

	(0.111)	(0.0833)	(0.106)	(0.166)	(0.332)	(0.293)
_Iprov_2	-0.300**	-0.386**	-0.521***	-0.489**	0.217	0.00781
	(0.128)	(0.153)	(0.160)	(0.197)	(0.339)	(0.293)
_Iprov_3	-0.121	0.241***	0.255**	-0.232	-0.282	-0.0156
	(0.118)	(0.0934)	(0.125)	(0.187)	(0.333)	(0.301)
_Iprov_4	0.00110	-0.0299	-0.0824	-0.157	0.461	0.103
	(0.112)	(0.0939)	(0.111)	(0.159)	(0.340)	(0.306)
_Iprov_5	-1.018***	-0.914***	-1.794***	-1.466***	-0.287	0.0548
	(0.142)	(0.197)	(0.178)	(0.188)	(0.352)	(0.320)
_Iprov_6	-0.964***	-0.285*	-0.614***	-1.879***	-0.486	-0.210
	(0.142)	(0.159)	(0.186)	(0.209)	(0.346)	(0.316)
_Iprov_7	-0.588***	-0.184**	-0.472***	-1.002***	-0.319	-0.138
	(0.109)	(0.0886)	(0.105)	(0.149)	(0.333)	(0.304)
_Iprov_8	-0.794***	-0.549***	-0.621***	-1.285***	-0.592*	-0.286
	(0.117)	(0.122)	(0.132)	(0.175)	(0.328)	(0.286)
_Iprov_9	0.575***	-0.0356	-0.0836	0.0322	1.997***	0.775*
	(0.127)	(0.0510)	(0.0665)	(0.113)	(0.393)	(0.420)
_Isourceofi_1	-0.520***	-0.147**	-0.232***	-0.558***	-0.915***	-0.533**
	(0.0806)	(0.0611)	(0.0788)	(0.127)	(0.232)	(0.212)
_Isourceofi_2	-1.670***	-0.789***	-1.321***	-2.596***	-1.731***	-0.608***
	(0.0800)	(0.0931)	(0.110)	(0.143)	(0.183)	(0.153)
_Isourceofi_3	-0.763***	-0.418**	-0.494***	-0.970***	-1.214***	-0.556
	(0.155)	(0.164)	(0.180)	(0.243)	(0.410)	(0.378)
_Isourceofi_4	-0.954***	-0.278**	-0.516***	-1.398***	-0.982***	-0.715***
	(0.111)	(0.112)	(0.136)	(0.179)	(0.283)	(0.236)
_Isourceofi_5	-1.153***	-0.555***	-1.065***	-1.501***	-1.360***	-0.687***
	(0.0923)	(0.103)	(0.121)	(0.153)	(0.236)	(0.190)
Constant	3.228***	0.154	1.137***	3.272***	5.118***	6.726***
	(0.265)	(0.349)	(0.357)	(0.388)	(0.632)	(0.562)
Observations	3,985	3,985	3,985	3,985	3,985	3,985
R-squared	0.701	0.133	0.285	0.563	0.492	0.247

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix B: Unconditional Instrumental Variable Quantile

Mauritius IVQTE

VARIABLES	(1) 10th Quantile	(2) 25th Quantile	(3) 50th Quantile	(4) 75th Quantile	(5) 90th Quantile
Banked	5.002**	3.497**	2.107**	1.403*	1.080
	(2.058)	(1.458)	(1.005)	(0.787)	(0.682)
Age of head	0.0489	0.329***	0.446***	0.193***	0.116***
	(0.101)	(0.0878)	(0.118)	(0.0436)	(0.0333)
Age of head square	0.000366	-0.00201**	-0.00347***	-0.00151***	-0.00100***
	(0.000997)	(0.000980)	(0.00105)	(0.000421)	(0.000306)
Financial literacy	0.439***	0.428*	0.132	0.0187	-0.00886
	(0.0948)	(0.251)	(0.118)	(0.0437)	(0.0518)
Household size	0.0975*	-0.215***	-0.0801	0.00386	0.0275
	(0.0552)	(0.0770)	(0.257)	(0.0319)	(0.0533)
Area	0.345	-0.118	0.0598	-0.115	-0.247
	(1.368)	(1.292)	(0.499)	(0.268)	(0.237)
Gender	3.622***	3.226***	1.513***	0.380	-0.248
	(0.611)	(0.540)	(0.565)	(0.500)	(0.429)
educ2	0.418	1.820***	0.656	0.152	-0.0241
	(0.845)	(0.501)	(0.440)	(0.205)	(0.216)
educ3	2.913***	2.969***	1.772***	1.016***	0.414**
	(0.493)	(0.693)	(0.581)	(0.222)	(0.198)
educ4	0.954*	2.442	2.573**	1.716***	1.117***
	(0.560)	(1.644)	(1.235)	(0.320)	(0.229)
marital_status2	0.243	0.0701	0.325	0.137	0.230
	(0.785)	(0.652)	(0.799)	(0.169)	(0.195)
marital_status3	2.042***	-0.614	-1.268	-0.210	-0.494**
	(0.599)	(0.811)	(1.607)	(0.276)	(0.214)
marital_status4	2.111***	1.319	0.204	-0.359	-0.721**
	(0.667)	(1.224)	(0.313)	(0.349)	(0.291)
Constant	-4.556**	-8.085***	-4.822	5.538***	9.612***
	(2.135)	(1.726)	(3.496)	(1.158)	(0.965)
Observations	4,000	4,000	4,000	4,000	4,000

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1