Investigating the impact of access to financial services on household investment

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Executive summary

Key points:

- ODI research shows, for the first time, a clear link between access to financial services and the ability of households to invest in education or a business, that can contribute to economic growth in developing countries.
- Semi-formal and informal financial services are very important in providing access, but formal financial services tend to be used more for investment purposes.
- A range of barriers prevent people accessing formal financial services, and undertaking such investment.
- Policies to address these barriers would help promote investment and economic growth in poor countries.

The empirical relationship between access to financial services and growth is not well established, despite a range of theoretical literature hypothesising about the potential economic linkages. This is because of the lack of suitable data on access to financial services with which to examine the question until recently.

This report summarises the findings of research by the Overseas Development Institute (ODI) which utilises relatively recent FinScope survey data from Kenya (where it is called FinAccess) and Tanzania to examine this question by looking at the impact of access to financial services on household investment.

Growth depends on the stock of physical and human capital in the economy, as well as technological progress. Investment at the level of the individual or the firm can contribute directly to increasing these things. Thus by showing empirically that access to financial services enables households to make investments in education (which contributes to human capital), starting or expanding a business, or investing in agricultural inputs or new equipment (which contributes to physical capital and technological progress), the study has established one of the key potential linkages between access to financial services and growth, with important implications for policy.

Findings

1. Access to financial services enables households to invest in activities that are likely to contribute to higher future income and, therefore, to growth.

In Kenya, 44% of those surveyed had at some point used savings to undertake productivity-enhancing investment, and 24% had used a loan for this purpose. Education was the most common form of investment undertaken in Kenya, whereas in Tanzania it was starting a business.

The demographic breakdown showed that people borrow and save for a range of investment purposes in both countries, even in the poorest groups. As expected, rural inhabitants save and borrow more for agricultural investments, while urban inhabitants tend to save and borrow more for other purposes, such as starting a business. Individuals with a better education are more likely to borrow, save and invest than those with less education. In Kenya men and women exhibit very similar patterns of behaviour in terms of saving and borrowing for investment purposes, while in Tanzania men are more likely to save or borrow to invest than women.

2. There is a clear demand for financial services across the population, though semi-formal and informal financial services and mechanisms are used more commonly than formal financial services. Semi-formal services are used much more in Kenya than in Tanzania.

There are remarkably similar levels of saving and borrowing in Kenya and Tanzania, with just over 70% of the population saving and / or borrowing in both countries, despite significant differences in the availability of financial services in the two countries. Kenyans both borrow and save slightly more than Tanzanians. The results show the far greater usage of semi-formal financial services, (such as Savings and Credit Cooperatives (SACCOs), Rotating Savings and Credit Associations (ROSCAs), Accumulating Savings and Credit Associations (ASCAs), and local shop credit), in Kenya compared with Tanzania. They also show the much higher usage of informal mechanisms than formal financial services in both countries.

Kenya shows much higher usage of formal financial services than Tanzania, whereas Tanzania has much higher usage of informal financial mechanisms. These results tally with the greater degree of financial sector development expected in Kenya on the basis of other (supply side) indicators. It seems that where formal financial services are unavailable, unsuitable or expensive, people seek alternative, more accessible semi-formal or informal forms of provision. However, the survey shows that many people use a combination of formal, semi-formal and informal financial services, suggesting they are seen as complementary rather than substitutes.

While provision of formal financial services may remain the ultimate goal for policy, semi-formal financial services are clearly important in the overall landscape of financial access in countries like Kenya and Tanzania. This suggests that policy to promote financial access should look beyond formal financial services, to provide a supportive environment for other forms of provision, while also protecting consumers from fraud and financial instability.

3. Formal financial services are used more for investment purposes.

Econometric analysis using data from the 2009 Kenya FinAccess survey showed that people who borrow specifically to invest are 16 percentage points more likely to use formal financial services than people who borrow to consume, after taking other possible factors into account. Similarly, people who *save* to invest are 10 percentage points more likely to use formal financial services than people who save to consume.

This suggests that formal financial services are more suitable for investment purposes than other forms of provision. This may be because formal financial services enable people to access larger sums of money, or to save in a safer or more stable environment than semi-formal and informal mechanisms. It may also show that people with investment plans can access formal financial services more easily, perhaps because they are seen as a better credit risk.

4. Many people face barriers to accessing financial services, such as high charges and minimum balance requirements.

The most commonly cited reasons for not saving or borrowing reflect a lack of demand for financial services – people do not have the money to save, or do not need a loan. However, many people also cite supply side barriers to access, such as high charges, not knowing where or how to access a service, not having a nearby financial services facility, difficulty meeting qualifying requirements such as the need

for collateral, a guarantor, or an initial lump sum, or the lack of required documentation.

A higher proportion of non-borrowers in Kenya cite a lack of money as a reason for not borrowing than in Tanzania. As the usage (and availability) of formal and semi-formal financial services is greater in Kenya than in Tanzania, this suggests that demand side issues may be more of a binding constraint to borrowing than supply side barriers in Kenya, compared with Tanzania.

Kenyan non-borrowers are also more likely to claim that charges are too high, which is perhaps surprising given that interest rates appear to be lower, on average, in Kenya than Tanzania. However, this may again reflect a different binding constraint to access in Kenya, or it may be because of higher financial literacy in Kenya.

Tanzanian non-borrowers are more likely than Kenyan non-borrowers to complain that they don't know where to get a loan, or that there is nowhere nearby to get a loan – reflecting a greater supply side constraint in Tanzania than in Kenya and, perhaps, a lower level of financial literacy, although the lower population density in Tanzania may also be an important factor.

Men and women gave broadly similar answers on barriers to access, although men were less likely to save as a result of logistical factors (such as not being close to a bank, needing ID, or because of high charges), while women were more likely to be deterred by a lack of money, or by a lack of understanding about how to save or where to get a loan, perhaps suggesting a lower level of financial literacy amongst women.

Urban and rural inhabitants cited broadly similar barriers to access, though rural people in Kenya were more likely to say they do not understand how to save than urban inhabitants, suggesting a lack of financial literacy. They were also more likely than urban dwellers to say they didn't know where to get a loan. Similarly in Tanzania, rural inhabitants were more likely to cite the lack of nearby facilities in which to save.

5. Supply side barriers to accessing a bank account reduce household investment.

Econometric analysis (again using data from the 2009 Kenya FinAccess survey) shows that individuals who cite supply side barriers to accessing a bank account are 4 percentage points less likely to save for investment purposes than people who do not. They are also 6 - 8 percentage points less likely to *borrow* for investment purposes, which suggests that access to a bank account may play an important role in helping individuals to access credit. These results represent the first concrete, quantitative estimates of the negative impact of access barriers on household investment.

Conclusions

The results provide strong, new evidence of the importance of tackling supply side barriers to access, and particularly barriers to accessing formal financial services, in order to contribute to investment and growth.

This suggests the need for policy responses to tackle these barriers by:

- Reducing costs and increasing financial services provision where possible e.g. by supporting innovations such as mobile banking, cell phone banking, and e-banking, and the use of new distribution channels for financial services, such as local stores;

- Investing in financial literacy or marketing programmes to improve understanding of financial services and knowledge about their availability, particularly for women and rural people;

- Establishing credit bureaux and asset registries to make it easier for people to qualify for loans; and

- Supporting regulatory reform and capacity building to create the right environment and incentives for financial providers to expand access, balancing the need for wider access with the need to protect people against instability, fraud and money laundering.

By reducing barriers to financial services, such policies could help to stimulate household investment and thus contribute to growth and poverty reduction in developing countries.

1 Introduction

This report presents the findings of a research project which has used FinScope household survey data from Kenya (where the survey is called FinAccess) and Tanzania to examine the extent to which access to financial services facilitates household investment in productivity-enhancing activities[1]. Productivity-enhancing activities are defined as activities which may be expected to contribute to a higher income in future, such as education, starting a new business, or investment in agricultural inputs or equipment. It is posited that if better access to financial services can facilitate greater household level *investment* (as opposed to household *consumption*), this could contribute directly to income growth.

We define the term access to financial services as the ease with which an individual can use financial services if they want to. It is thus distinct from usage; an individual may have access to financial services but choose not to use them. It is also possible for an individual to face access constraints even if they are using a financial service. For example, an individual may have a bank account, but may face constraints to using it actively because the nearest bank branch or ATM is so far from their home.

In many studies, usage is used as a proxy for access, as it is easier to measure. However, in this study we are able to disentangle the two to some extent, as the FinScope survey data includes information on the reasons individuals give for not using financial services[2]. This enables us to ascertain whether an individual is not using financial services because of supply side constraints to access (e.g. distance to bank, cost of services, eligibility requirements etc.), which would imply they do face access barriers, or for demand side reasons (e.g. don't have enough money to save, don't want to borrow money etc.), which means they may have access to financial services, but are choosing not to use them.

The study utilises FinScope survey data from Kenya and Tanzania to examine saving and borrowing behaviour by individuals, the reasons for which they invest, the types of financial services they use, the barriers to access they face, and how this varies according to individual characteristics. These two countries were selected as it seemed likely they would generate some interesting comparisons without being too different in terms of their economic fundamentals, and because the survey questionnaires they used were very similar thus facilitating direct comparison.

The report is structured as follows:

- Section 2 of the report discusses the theoretical underpinnings for the hypothesis we are testing, and reviews the literature on this issue.

[1] For further information see www.FinScope.co.za In Kenya the survey is called FinAccess, although it has been implemented under the FinScope umbrella. For ease of exposition we refer to the surveys as FinScope throughout this report.

[2] However, it is impossible to specifically identify cases where individuals have access to financial services, but do not choose to use them. The most common reasons cited for not using financial services, as the study results show, relate to a lack of money, or to not needing a loan, so it is possible – perhaps likely - that individuals citing these responses have not tried to use financial services, so are not aware of supply side barriers to access they might face. Similarly, it is hard to separate out individuals who face access constraints (e.g. in terms of time taken to get to the bank or ATM for example) even if they are using a financial service (e.g. they have a bank account), because respondents in the survey are only asked about barriers to access if they are not currently using a financial service.

- Section 3 presents graphical results from the Kenya FinScope survey.

- Section 4 presents graphical results from the Tanzania FinScope survey.

- Section 5 compares the Kenyan and Tanzanian results and discusses possible supply side factors which may help to explain the differences.

- Section 6 presents econometric analysis to test the extent to which the lack of access to financial services constitutes a binding constraint to household investment, using Kenya FinScope survey results.

- Section 7 concludes and discusses policy implications.

- The three annexes discuss various aspects of the econometric analysis.

2 Theoretical underpinnings and literature review

2.1 The gap in the evidence base

The potential contribution that access to financial services can make to growth and poverty reduction is now widely accepted in academic and policy circles, and thus improving access has become an issue of increasing focus for developing country governments and donors. But the empirical link between access to financial services and growth has not been well established in the academic literature, despite a range of theoretical literature hypothesising about the potential economic linkages that may exist between the two. The availability of robust empirical evidence to support or disprove these theories has been limited to date, due to a lack of adequate data on access to financial services, which is now being remedied through data collection efforts by DFID, the World Bank and others (see Honohan (2004)).

There is a substantial literature, both theoretical and empirical, establishing the link between financial sector depth (measured by macro-level indicators such as total amount of bank deposits or private credit as a proportion of GDP) and growth, (see for example King & Levine (1993), Levine (1997), and Calderon & Liu (2003)). There are also a number of studies linking financial sector depth to poverty reduction (e.g. Jalilian & Kirkpatrick (2001) and Honohan (2004) - this literature was also reviewed in a DFID Working Paper (2004)).

These studies use measures of financial depth collected from financial institutions themselves, such as the total value of bank deposits, or private credit, which do not capture the distribution of these bank deposits or credit across the population. In many countries, household survey evidence shows that most bank deposits and loans are held by only a small proportion of the population with relatively high incomes, and that relatively few people have access to any kind of formal financial services. Many people rely instead on informal or semi-formal providers such as microfinance institutions or cooperatives etc. for which data is not usually available.

These traditional indicators of financial depth may not therefore be very strongly related to the level of access to financial services for the population as a whole. Thus there are hardly any empirical studies linking access to financial services, growth and poverty reduction, despite a range of theories as to why this relationship might exist.

But more recent data collection efforts by the World Bank / Consultative Group to Assist the Poor (CGAP), and others are beginning to remedy this gap. The World Bank has been collecting macro-level indicators of access to financial services in recent years, (such as number of accounts held, and number of bank branches or ATMs) from regulators and banks in a large cross-section of developing countries. They have started to use this data to explore the link between access to financial services and financial sector development, economic activity, firms' financing constraints, inequality and poverty (see Beck, Demirguc-Kunt & Martinez Peria (2007), Honohan (2007), and CGAP (2009)).

However, these indicators still only capture formal financial services providers for the most part, and it is clear that informal and semi-formal providers reach a much greater proportion of the population in many countries than banks. So developing a greater understanding of the role that access to and usage of financial services as a

whole (including formal, semi-formal and informal financial services) is thus an important, and currently under-researched area for investigation.

This study has begun to address this gap in the literature, by utilising more recently available FinScope household survey results (part-funded by DFID through their Financial Sector Development programmes in each country) on the usage of financial services in Kenya and Tanzania. This is an extremely rich dataset, which includes a great deal of information which is not available from any other source. The dataset includes nationally representative information about which financial services and financial services providers are being used, for what purposes, and what barriers to financial access are being faced. This can be broken down in many different ways using the detailed information that has been collected on individual characteristics (gender, wealth, family position, location, attitudes etc.). Despite the richness of this new dataset, it has been under-utilised for the purposes of economic research so far.

Broadly comparable data have been generated in each of the countries covered – although the ways in which questions are asked are not always identical, which can complicate matters when comparing results. One of the reasons why Kenya and Tanzania were chosen for this analysis was because the questions of interest for this study were asked in a very similar way in both countries, thus facilitating direct comparison.

2.2 The relationship between financial access and growth

The theoretical relationship between access to financial services and growth is not straightforward. According to the theoretical literature, there are several mechanisms through which the two may be related – and this also varies depending on which financial services we are talking about.

First, and the main hypothesis upon which this study is based, is the idea that access to financial services facilitates greater household level investment in productivity-enhancing assets, and that this increases household income in future.

Investment is the active redirection of resources by an economic entity (e.g. an individual or a firm) from being consumed today, to creating benefits in the future. The hope is that the investment will yield greater benefits in future than would be yielded by consuming those resources today. The investment may take the form of savings, of a financial instrument (e.g. an equity investment), of physical capital (e.g. a new tool or piece of equipment that improves productivity such as agricultural machinery), or of human capital (e.g. education).

According to growth theory (e.g. Solow (1956), and Romer (1990)), growth depends on the stock of human and physical capital in the economy, as well as technological progress. Investment at the level of the firm or the individual can contribute to all of these things, and thus plays an important role in facilitating long run economic growth.

In practical terms this means that the provision of a bank account that enables an individual to accumulate funds in a secure place over time more easily than they would otherwise have been able to, (perhaps because the money is safe from being stolen or plundered by other family members), or access to credit which enables them to borrow funds, can strengthen their productive assets. It does this by enabling them to invest in micro-enterprises, in productivity-enhancing new 'technologies' such as new and better tools, equipment, or fertilizers, or in education

and health, and thus facilitates greater capital accumulation and growth (DFID, 2004).

Savings and access to credit or insurance can also minimise the negative impacts that income shocks can sometimes have on longer term income prospects, if income-generating assets are sold at low prices out of necessity during a household crisis. Access to regular remittances (e.g. from relatives abroad) can also reduce risks for households, by diversifying their sources of income.

Eswaran and Kotwal (1990) argue that having access to credit may reduce household vulnerability to negative shocks by increasing their ability to smooth consumption during difficult times, and that availability of credit also allows households to undertake riskier investments as it will enable them to better deal with the consequences of poorly performing investments.

In addition, Deaton (1991) argues that by reducing the financial risks faced by households in this way, access to financial services may decrease the proportion of low-risk, low-return assets held by households for precautionary purposes (such as jewellery), and enable them to invest in potentially higher risk but higher return assets, (such as education or a rickshaw), with overall long-term income enhancing impacts.

Ghosh, Mookherjee & Ray (1999) argue that credit is essential in allowing capital investments among producers (such as farmers) who are not able to save, as well as giving households the ability to obtain money in an emergency. The availability of credit also increases risk taking with the adoption of new technologies or productivity enhancing investments for poorer households or producers, hence contributing to increases in production and income.

Galor & Zeira (1993) find that access to household credit can have a positive impact on growth through its impact on human capital accumulation, and that this is affected by the initial distribution of wealth; richer families are better able to invest in human capital accumulation leading to increased growth.

De Gregorio (1996) also argues that access to credit promotes human capital accumulation, as credit constraints will force students to work, which will reduce the time available for study. Dehejia & Gatti (2002), Beegle, Dehejia & Gatti (2003), and Jacoby (1994) also find that access to risk-reducing financial services increases investment in schooling.

A second channel through which access to financial services, (or more specifically, access to credit), may affect economic growth is by facilitating the entry of new firms (Klapper, Laeven and Rajan, 2004) and the Schumpeterian process of “creative destruction”. They argue that access to credit permits greater market entry by talented new entrants, who would otherwise be constrained by their lack of inherited wealth and absence of connections to the network of well-off incumbents. To the extent that access to credit is limited to only privileged groups, or preferred sectors, this will reduce the value of the investments undertaken, reducing growth. So wider access to credit for individuals as well as firms (given that small and micro-enterprises are often financed by individual borrowers), will increase the productivity returns to investment.

A third channel of impact relates to the effect of access to credit on savings, and this provides a more complicated story. The level of savings is an important determinant of the overall level of investment in an economy, and thus is directly linked to growth.

Given that savings may be considered less of a necessity when credit is available, Jappelli and Pagano (1994) argue that alleviating credit constraints on households reduces the savings rate, with negative repercussions for economic growth, and they provide empirical evidence to support this argument, based on a sample of middle and high income countries. Beck, Buyukkarabacak, Rioja & Valev (2008) also provide empirical evidence showing that while access to credit for enterprises does increase growth in GDP per capita, increasing access to credit for *households* does not have a positive impact on growth.

On the other hand, the impact of access to *savings facilities*, such as a bank account, will clearly help to increase savings. Aportela (1999) looked at the impact of increasing financial access in Mexico, arising from the expansion of a Mexican savings institute, on the savings of those on low incomes. They found that once low income people are given access to savings instruments, they often become prolific savers. Results suggest that increased access to savings increased saving rates by an average of 3%. The highest effect was seen in the poorest households, where the increase reached 7%.

Burgess and Pande (2004) studied the effects of bank expansion into rural India following government reforms which encouraged the move. Bank expansion into rural areas was followed by a reduction in rural poverty, which was also linked to an increase in savings mobilisation. The study finds that the increased number of bank branches allowed households to accumulate more capital and have access to longer term investment loans than previously possible. Bank branch openings thus helped increase total per capita output, especially for small scale manufacturing and services.

Thus while the theory is ambiguous on the overall impact of access to *credit* on growth (and this may also be true of other financial services which reduce risks and hence may reduce the need to save, such as insurance schemes and remittances), the impact of bank accounts or other savings facilities, appears from the existing theoretical literature at least, to be unambiguously positive.

2.3 The hypothesis being tested

This paper is focusing on just one channel of impact - the effect of access to financial services on household level investment. If better access to financial services can be shown to facilitate greater productivity-enhancing investment, we will have established for the first time one of the key potential linkages between access to financial services and growth[3]. We do not directly test the impact on growth, as there is inadequate data available to do that as yet. However, the links between investment and growth are well established in the theoretical literature, as discussed above.

The data is thus used to examine several questions:

- The extent to which financial services are used for investment purposes (rather than for consumption);

3 Of course given that savings itself contributes to growth, (by facilitating investment by others, through financial intermediaries), savings for consumption purposes can also be good for growth. However, we are not investigating that aspect of the relationship between financial access and growth in this paper.

- The types of financial services and financial providers (formal and informal) that are used and how this varies within different demographics;

- The extent to which barriers to access constrain the ability of households to undertake productivity-enhancing investments;

- how the results compare across the two countries;

- what the policy implications are in terms of how best to promote productivity-enhancing investment at the household level.

In sections 3 and 4 below we present selected data from Kenya and Tanzania respectively, in a graphical format, to shed light on the above questions. In section 5 we compare the results for Kenya and Tanzania. In section 6 we present the econometric results.

2.4 Survey data used

The analysis in this was undertaken using data from the FinScope / FinAccess Kenya 2006 & 2009 surveys, and the Tanzania 2006 survey. All the surveys are nationally representative. The Kenya 2006 survey was undertaken by 4214 respondents, the Kenya 2009 survey was undertaken by 6598 respondents, and the Tanzania 2006 survey was undertaken by 5434 respondents.

The results shown in sections 3 are based mainly on the Kenya 2006 Survey, to facilitate comparison with the Tanzania 2006 survey, which was the latest available dataset for Tanzania at the time of writing. However, some comparisons are made between the Kenya 2006 and 2009 results at the end of section 3. The econometric analysis is based on the Kenya results (using both 2006 and 2009 data). Significant gaps in the Tanzania dataset relating to demographics and the stated use of financial services precluded us from undertaking econometric analysis on the Tanzania dataset.

Both the Kenya 2006 and 2009 surveys use a very similar format (with negligible differences) whilst the Kenya and Tanzania surveys share the same basic structure as well as very similar questions. The close similarity between the Kenya and Tanzania surveys allows the results to be adequately comparable as the majority of relevant questions used for the purpose of this study are identical whilst the remainder have small differences (based mainly on differences in the local context rather than the actual question itself). Those questions where local context may lead to different meanings were clarified using the assistance of FinScope personnel in both Kenya and Tanzania in order to ensure appropriate comparisons have been made between the two surveys.

3 Results for Kenya

Summary findings

Many people save and borrow for household investment purposes: 44% of the sample had at some point used savings for at least one kind of productivity-enhancing investment, and 24% of people had at some point used a loan for this purpose.

The most common reasons given for saving and borrowing were for consumption purposes however, with meeting day to day expenses and providing for household needs given as the most important reasons.

But the second most common reason given by people for saving, (at 28% of the whole sample population), was to invest in education for themselves, their children, or others. Twelve percent save to purchase livestock, and 10% save to start a business.

Savings tend to be used more than borrowing for all purposes. However, patterns of usage when broken down into different purposes look very similar, suggesting that people may see savings and borrowing as substitutes for most purposes.

Men and women exhibit very similar patterns of behaviour in terms of saving and borrowing for investment purposes.

Rural inhabitants save and borrow more for agricultural investments, whereas urban inhabitants tend to save and borrow more for all other purposes, although the results are very similar between the two groups in relation to investment in education.

A substantial number of people even in the poorest groups borrow and save for a range of investment purposes; 26% percent of those in the lowest income groups save for educational purposes, and 13% save to purchase livestock. Individuals with a better education are more likely to borrow and save to invest than those with less education.

Many people (42% of the sample) both save and borrow, suggesting they are seen as complements rather than substitutes. Almost 40% of survey respondents have used both semi formal and informal instruments, and almost 20% have used both formal and semi-formal instruments, which suggests that for a reasonable proportion of people, these different types of financial instruments are also considered complements rather than substitutes.

However, those who use financial services for investment purposes are more likely to use formal financial services, and those who use them for consumption purposes are more likely to use informal financial services.

The most common reasons for not borrowing or saving relate to a lack of money, but many supply side access barriers are also cited, such as high charges.

Results shown in this section are based mainly on the Kenya 2006 FinScope Survey, to facilitate comparison with the Tanzania 2006 survey in the next section. However, some comparisons with the 2009 results are also shown at the end of this section.

In section 3.1 we look at the extent to which financial services are used for investment purposes, (as opposed to consumption). In section 3.2 we look at the types of financial services and financial providers (formal and informal) that are used and how this varies dependent on demographics. In section 3.3 we look at the extent of supply side barriers to access identified which could potentially be constraining the ability of households to undertake productivity-enhancing investments.

3.1 Extent to which financial services are used for investment purposes

In the Kenya 2006 survey, almost 50% of people say they have borrowed money at some point in their lives, and around 70% say they have held some form of savings, either through a formal or semi-formal financial institution, or through more informal mechanisms, such as savings hidden in safe places, or loans from family and friends.

The survey asked respondents to specify the purpose for which they saved or borrowed. We used this information to categorise savers and borrowers according to whether they were saving for investment or consumption purposes. Reasons to borrow or save were classified as investment reasons if they could contribute to increasing the income of the household in the future through human or capital accumulation[4]. The categorisation of what we have deemed investment and consumption purposes are set out in Table 1 below.

Table 1: Investment vs. consumption reasons to save or borrow in Kenya

Consumption reasons to save or borrow	
For meeting household needs	For meeting day to day expenses
For an emergency	For old age
For social reasons	To pay off own debts
For personal reasons	To repay for someone else
To Improve a house	To buy a house for your family to live in
Acquire household goods	Purchase a building or house
To buy a car or motorbike	Personal purchases
To leave something to your children	Purchase land
Investment reasons to save or borrow	
Agricultural improvements	For education
Agricultural implements	Fishing equipment
Agricultural inputs	To purchase shares/stocks/bond/T Bills
To start a new business	To buy a building/house to rent out
To invest In someone else's business	Purchase livestock
To expand own business	

Where the purpose could be seen as either investment or consumption we have classified it according to what we considered to be the most probable use. For example, vehicles or land may have been bought for either personal or investment reasons (or indeed for both). They were classified as consumption choices as that was considered to be the most probable use in our assessment, and also avoids any apparent attempts to over-represent the extent of investment facilitated by financial services.

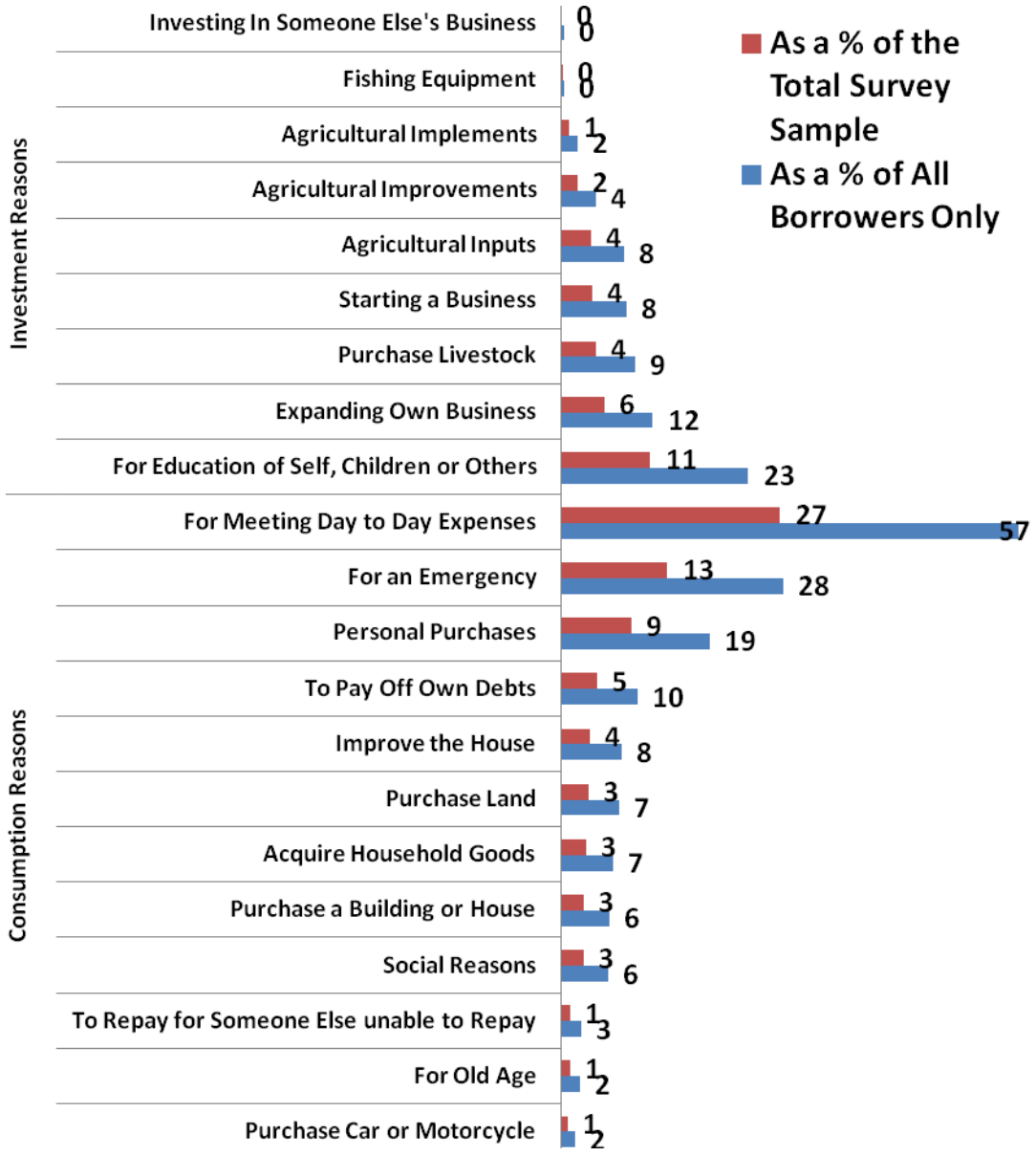
The data shows that many people save and borrow for household investment purposes. Forty-four percent of the sample had at some point used savings for at least one kind of productivity-enhancing investment, and 24% of people had at some point used a loan for investment purposes.

[4] This is a simplification, as one or two non-investment categories (i.e. to leave something to my children) are not really consumption, but they cannot be counted as investment either which is the main focus of this analysis, so we have simply used the term 'consumption' for ease of exposition.

The most common reasons given for saving and borrowing were for consumption purposes however, with meeting day to day expenses and providing for household needs given as the most important reasons. However, the second most common reason given by people for saving, (at 28% of the whole sample population), was to invest in education for themselves, their children, or others.

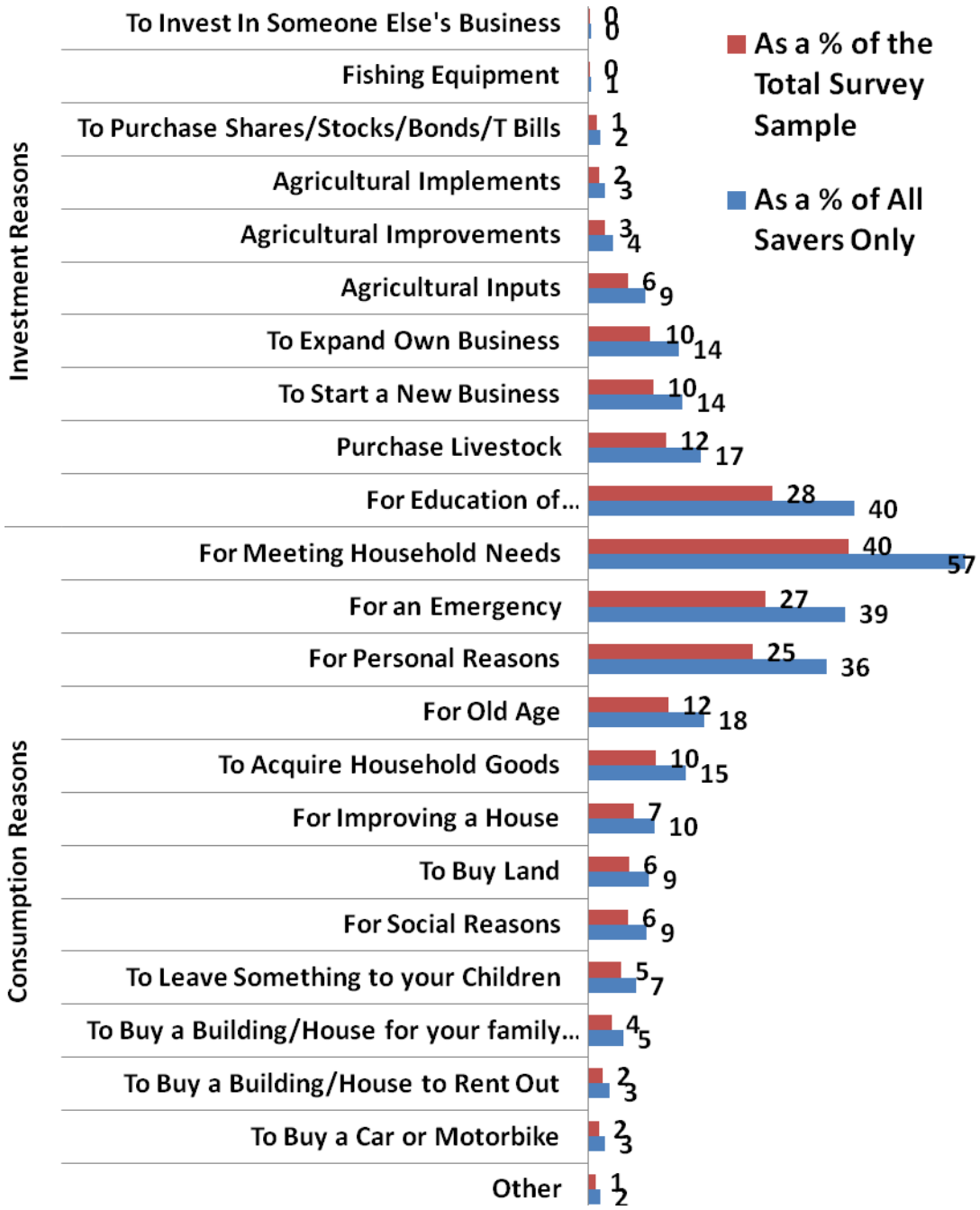
Chart 1 below shows reasons given for borrowing, and chart 2 shows reasons given for saving. The suggests that financial services play an important role in facilitating household investment in human and physical capital.

Chart 1: Reasons to borrow in Kenya[5]



[5] All the numbers shown in this and other charts have been rounded to the nearest whole number.

Chart 2: Reasons to save in Kenya



In terms of demographics, the results show that:

- Men and women exhibit very similar patterns of behaviour in terms of saving and borrowing for investment purposes;
- Rural inhabitants save and borrow more for agricultural investments, whereas urban inhabitants tend to save and borrow more for all other purposes;
- a substantial number of people even in the poorest groups borrow and save for a range of investment purposes. For example, 26% percent of those in the lowest income groups (defined here as the bottom 4 LSM categories[6]) save for educational purposes, and 13% save to purchase livestock;

[6] LSM is a Living Standards Measure, or proxy for income, that was provided in the Kenya survey results. It is based on the aggregation of a set of information about household

individuals with a better education are more likely to borrow and save to invest.

3.2 Types of financial services and informal mechanisms used

Table 2 below lists the financial services and mechanisms used by respondents in the survey, and shows how we have classified them into formal, semi formal, and informal categories. Formal financial services were defined as those provided by banks, building societies, government or employers. Semi-formal financial services were defined as those provided by organisations not fitting into any of those categories, or organised groups. Informal financial services were defined as those not fitting into either of the above categories.

Table 2: Financial instrument classification in Kenya

Informal
Savings in secret hiding place
Savings given to family
Savings with a group of friends
Loan from an informal Money Lender
Loan from family or friend
Semi Formal
Savings with a ROSCA (Rotating Savings and Credit Association)
Savings with an ASCA (Accumulating Savings and Credit Association)
Saving Account at SACCO (Savings and Credit Cooperative)
Savings at Microfinance Institution
Local Shop Credit for Products
Loan from a SACCO
Loan from a Microfinance Institution
Loan from an ASCA
Loan from a buyer of your products
Hire Purchase
Loyalty Cards
Formal
Loan to build a house or buy land from a Bank
Loan to build a house or buy land from a Building Society
Loan from a Bank
Loan given by the Government
Loan from a Government Institution
Loan from an Employer
Postbank Account
Savings Account at Bank
Current Account
Fixed Deposit Bank Account
Overdraft
ATM Card
Debit Card
Credit Card

characteristics, such as the type of dwelling the individual resides in. Low LSM values correspond to those with the poorest living standards, i.e. those in LSM 1-4 are deemed to be the poorest people in the sample, and LSM 9-12 are the richest.

Chart 3 shows the usage of formal, semi-formal and informal financial instruments. Sixty-one percent of the sample had used semi-formal instruments, whereas only 25% used formal financial services. But Chart 4 shows that many people use more than one kind of financial instrument, with as many as 38% of survey respondents saying they use both semi formal and informal instruments. This suggests they are to some degree complements rather than substitutes for each other.

Chart 3: Use of formal, semi formal & informal Financial Instruments in Kenya

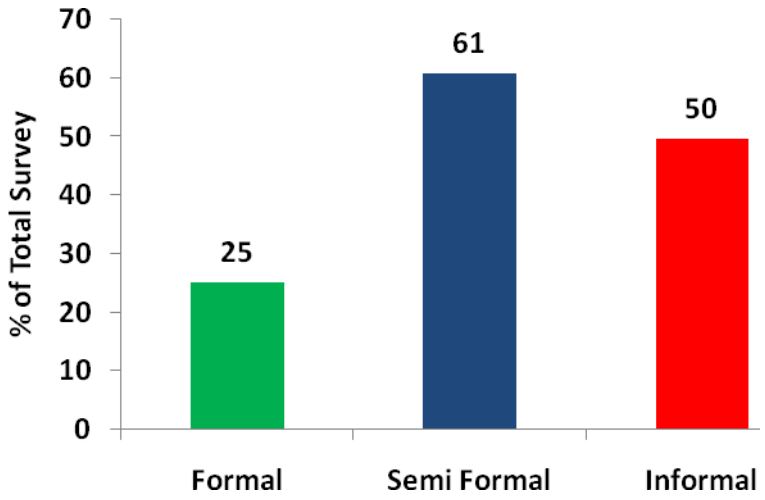


Chart 4: Use of multiple types of Financial Instruments in Kenya

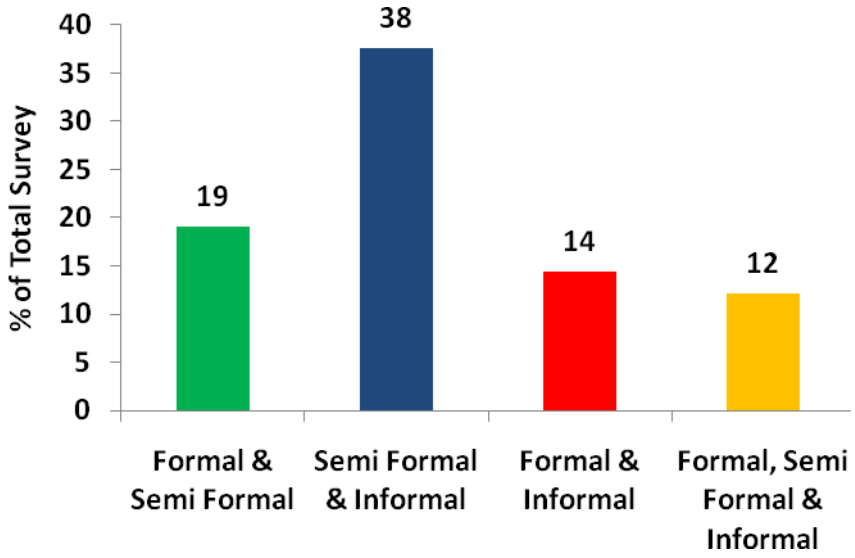
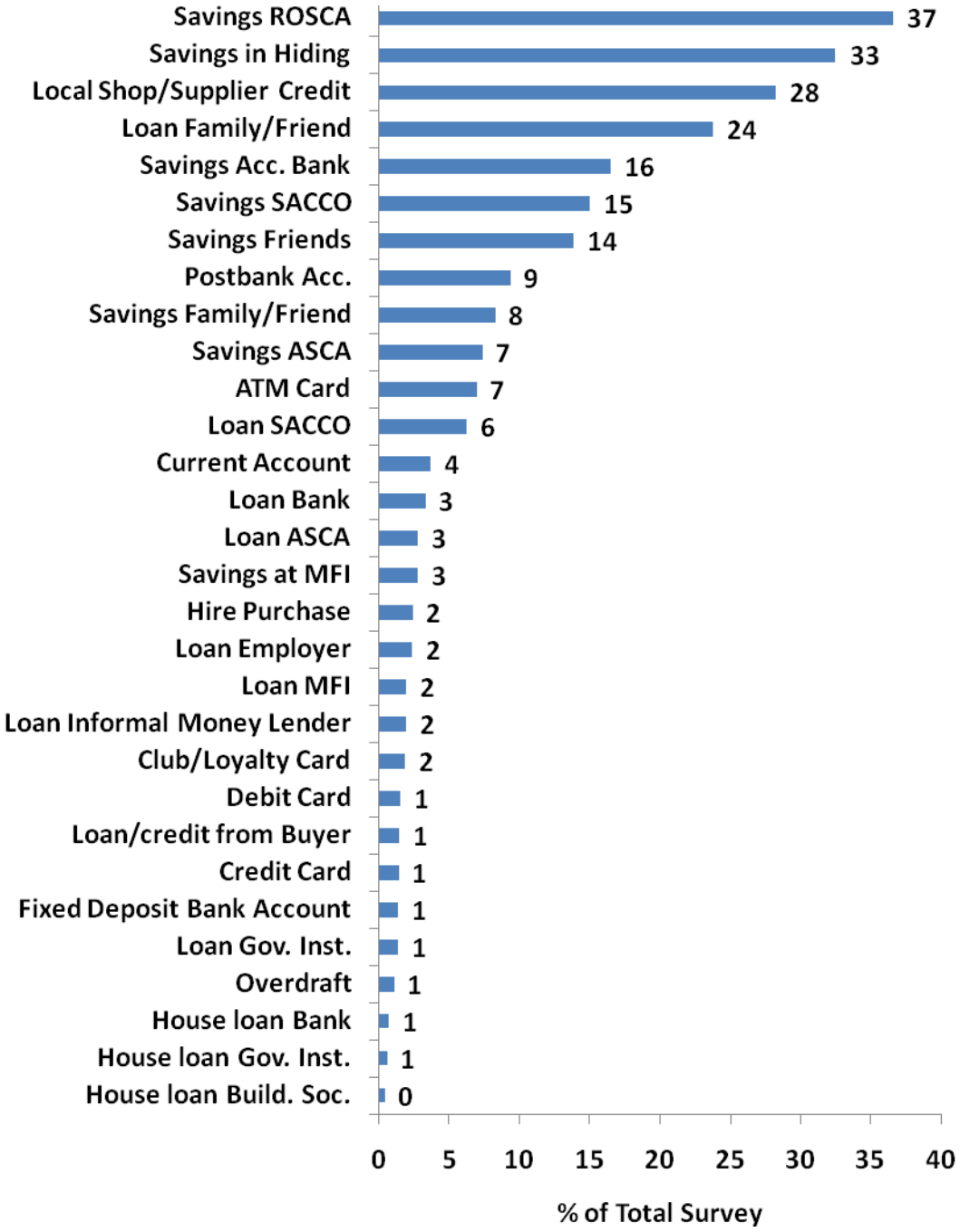


Chart 5 shows usage of the various financial instruments, (where SACCOs are Savings and Credit Cooperatives, ROSCAs are Rotating Savings and Credit Associations, ASCAs are Accumulating Savings and Credit Associations, and MFIs are microfinance institutions). It shows the predominance of informal and semi-formal instruments. ROSCAs were the most widely used financial service, with 37% of the population claiming to use them. Savings accounts were the most commonly used formal financial service.

Chart 5: Financial Instruments used by savers & borrowers in Kenya



In terms of demographic patterns, the data shows that:

- Men are much more likely to use formal financial services than women (32% of men, compared with 19% of women), and women are more likely to use semi-formal services than men (63% of women compared with 58% of men). Broadly equal numbers use informal services.

- Urban dwellers are much more likely to use formal financial services than those living in rural areas (39% compared with 19% respectively), though usage of semi-formal and informal services is quite similar.

- Usage of formal financial services is much higher in higher income groups (with 77% of people in the top 4 LSM groups using formal financial services, compared with only 19% of people in the bottom 4 LSM groups). Usage of informal and semi-formal financial services is broadly similar across LSM groups, with lower income groups only slightly less likely to be using them.

3.3 Barriers to access

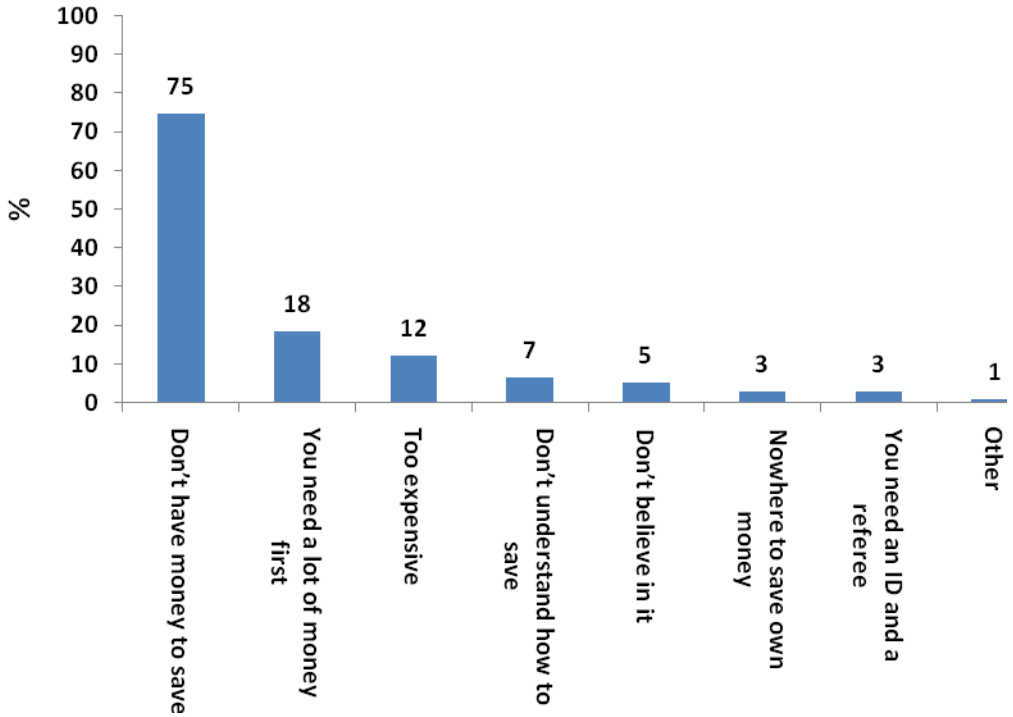
The survey results show that 31% of respondents have never had savings, whilst 52% never borrowed money. Chart 6 shows the main reasons given by respondents for not saving (where respondents were able to give more than one reason). The most common response by far, given by 75% of people who did not save any money, was that it was because they did not have money to save. This is not a barrier to access as such – it is a demand side constraint, reflecting a limited need or demand for a savings facility.

The fact that the most common reason given for not saving relates to lack of demand for financial services may suggest that a lack of access to financial services is *not* the binding constraint to usage of financial services and that it is instead the lack of money which is the binding constraint.

However, this doesn't necessarily imply that supply side barriers are not a problem. Just because many people have cited demand side constraints as the main problem, doesn't necessarily mean they would have access to financial services if they wanted it. It could be the case that these people have not even tried to use financial services (because they don't have enough money) and hence do not yet know whether they would be able to access them.

Indeed, supply side barriers to access were also identified by many people, and account for 3 of the top 4 reasons given for not saving. The second most important reason, (after not having the money to save), given by 18% of those who did not save, was that you need a lot of money first, which might be related to minimum balances that are required for certain savings products, though that was not specified in the question. Twelve percent of respondents said that savings products were too expensive, which presumably relates to bank charges and similar, and 7% stated that they did not understand how to save money, implying a lack of financial literacy.

Chart 6: Main savings barriers identified in Kenya



In terms of demographics, the data show that:

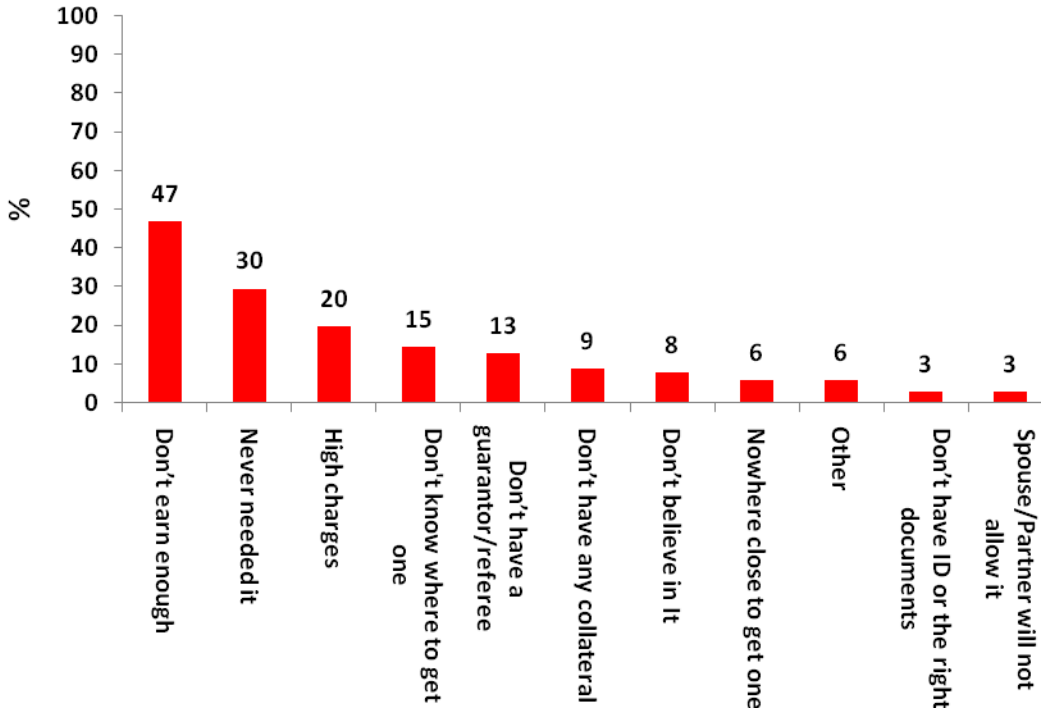
- Men have a slightly greater tendency not to save for presumed logistical reasons (such as not being close to a bank or needing ID), whereas women have a greater tendency not to save due to a lack of money, or because they don't understand how to save.

- Urban and rural inhabitants cite broadly similar barriers to access. The main area of difference is that rural inhabitants are twice as likely to say they do not understand how to save than urban inhabitants.

Chart 7 below shows the main reasons given for not borrowing money. The top reason respondents gave for not borrowing was that they did not earn enough (at 47%). This could be taken as either a supply side or a demand side barrier, as it is not clear whether it means they do not earn enough to qualify for a loan or if it simply means they don't earn enough to want to borrow money, perhaps because they fear they will be unable to pay it back.

Thirty percent of non-borrowers said that they had never needed a loan implying they did not necessarily face access barriers (although they may have found that they did if they had tried to get a loan), but did not want or need a loan. However, most of the other reasons given were supply side barriers, including high charges, not knowing where to get a loan, and not having a guarantor or referee.

Chart 7: Main barriers to borrowing in Kenya



In terms of the demographics:

- there were similar patterns in responses for men and women, though a higher percentage of men than women gave high charges as a reason for not taking a loan out, whilst a marginally higher proportion of women than men stated that they did not know where to get a loan or did not earn enough money to qualify for a loan.

- barriers to borrowing cited by urban and rural inhabitants were broadly similar, though urban people were slightly more likely to say they had never needed to borrow, while rural people were slightly more likely to say that they didn't earn enough, or know where to get a loan.

3.4 Comparing Kenya in 2006 and 2009

While most of the analysis in this section so far has focused on the 2006 results (to allow comparison with the Tanzania results contained in the next section), the availability of the Kenya 2009 FinScope results facilitates comparison over time.

Chart 8 shows the change in usage of different financial products and services in Kenya between 2006 and 2009. Overall usage of financial services is higher for most formal instruments in 2009 than in 2006, especially for transactions bank accounts and debit card usage, perhaps reflecting the substantial increases in access provided by Equity Bank and the increased competition it has generated in the market. The increase in transactions accounts also reflects the introduction of legislation prohibiting the charging of fees on savings accounts.

Informal and semi formal instrument usage has also mainly increased, most notably people saving their money in secret hiding places (which has almost doubled,

perhaps because of fears about financial instability and bank solvency in the wake of the international financial crisis) as well as a very fast uptake of the M-PESA money transfer service (which was launched since the 2006 survey).

Chart 8: Comparison of Financial Products used, as a % of the whole population, in Kenya between 2006 and 2009

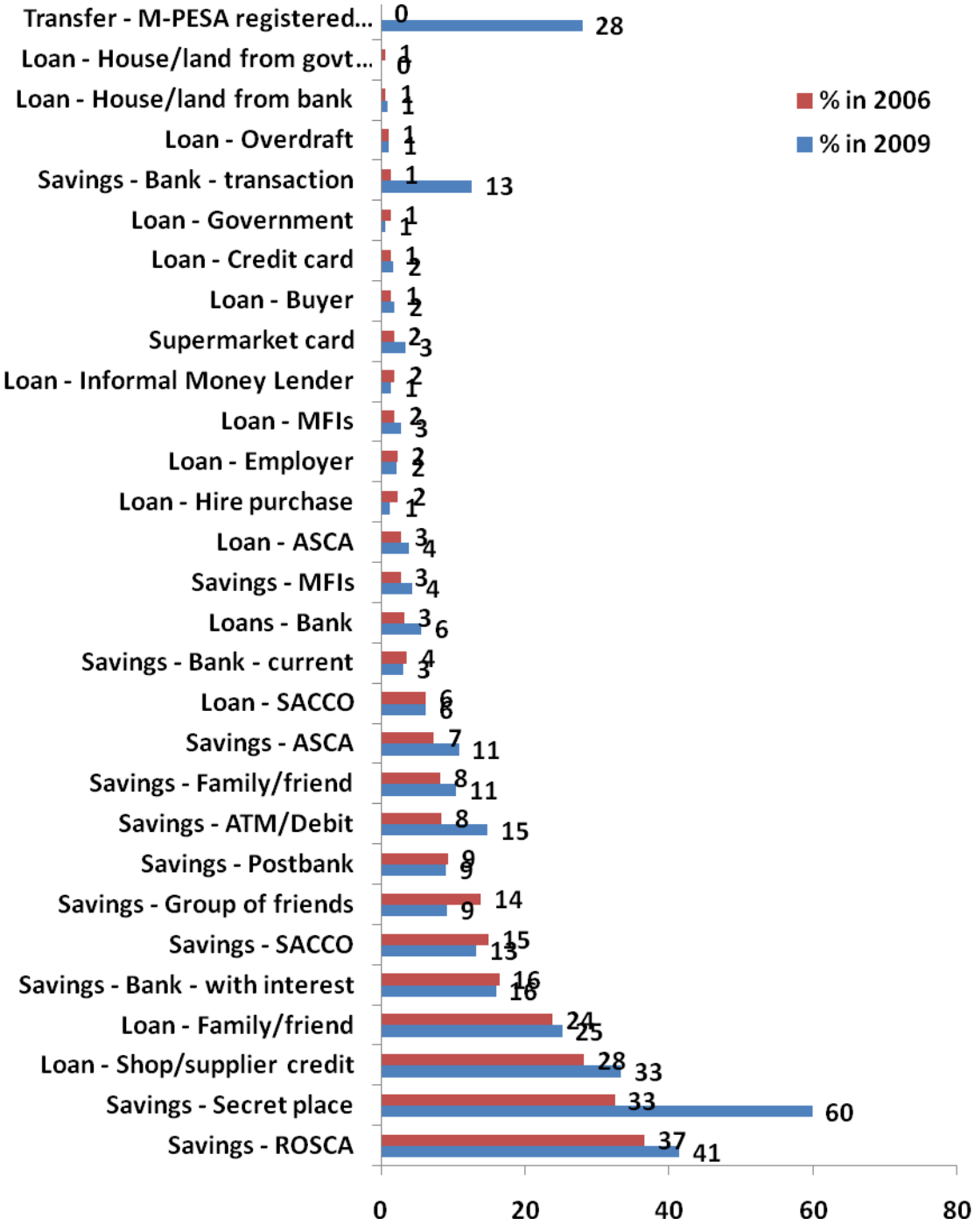


Chart 9 shows that the percentage of people saving for many purposes, particularly investment purposes, has fallen slightly, though it has increased a lot for other purposes, notably for ordinary household needs, for emergencies, and for old age. Overall, there has been a significant increase in the percentage of the population with some kind of savings, from 69% in 2006 to 83% in 2009.

Chart 9: Comparison of saving reasons, as % of the whole population, in Kenya between 2006 and 2009

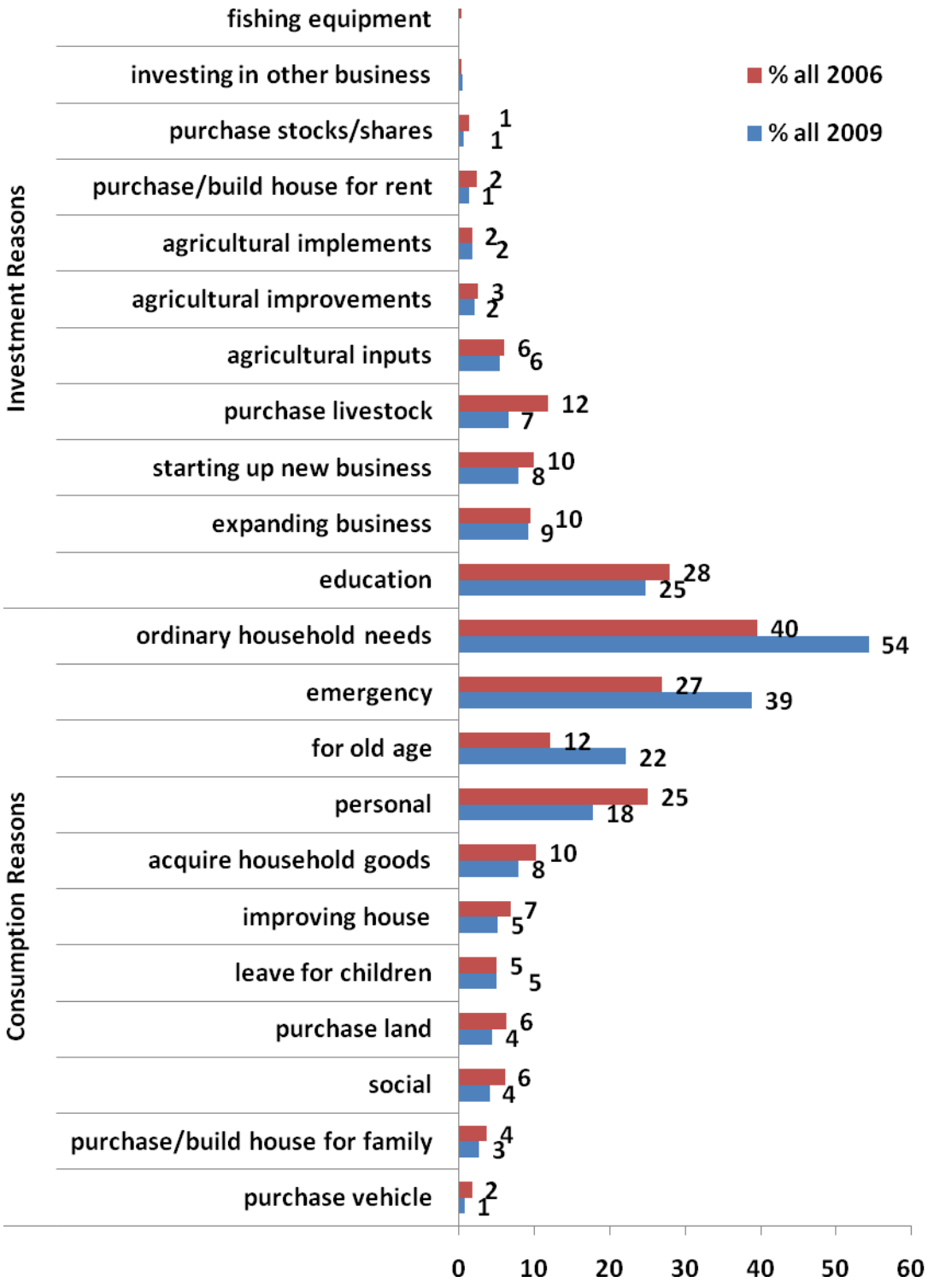


Chart 10 shows that there has been a marked decrease in loans for most reasons, perhaps in part reflecting the impact of the global economic downturn.

Chart 10: Comparison of borrowing reasons, as % of the whole population, in Kenya between 2006 and 2009

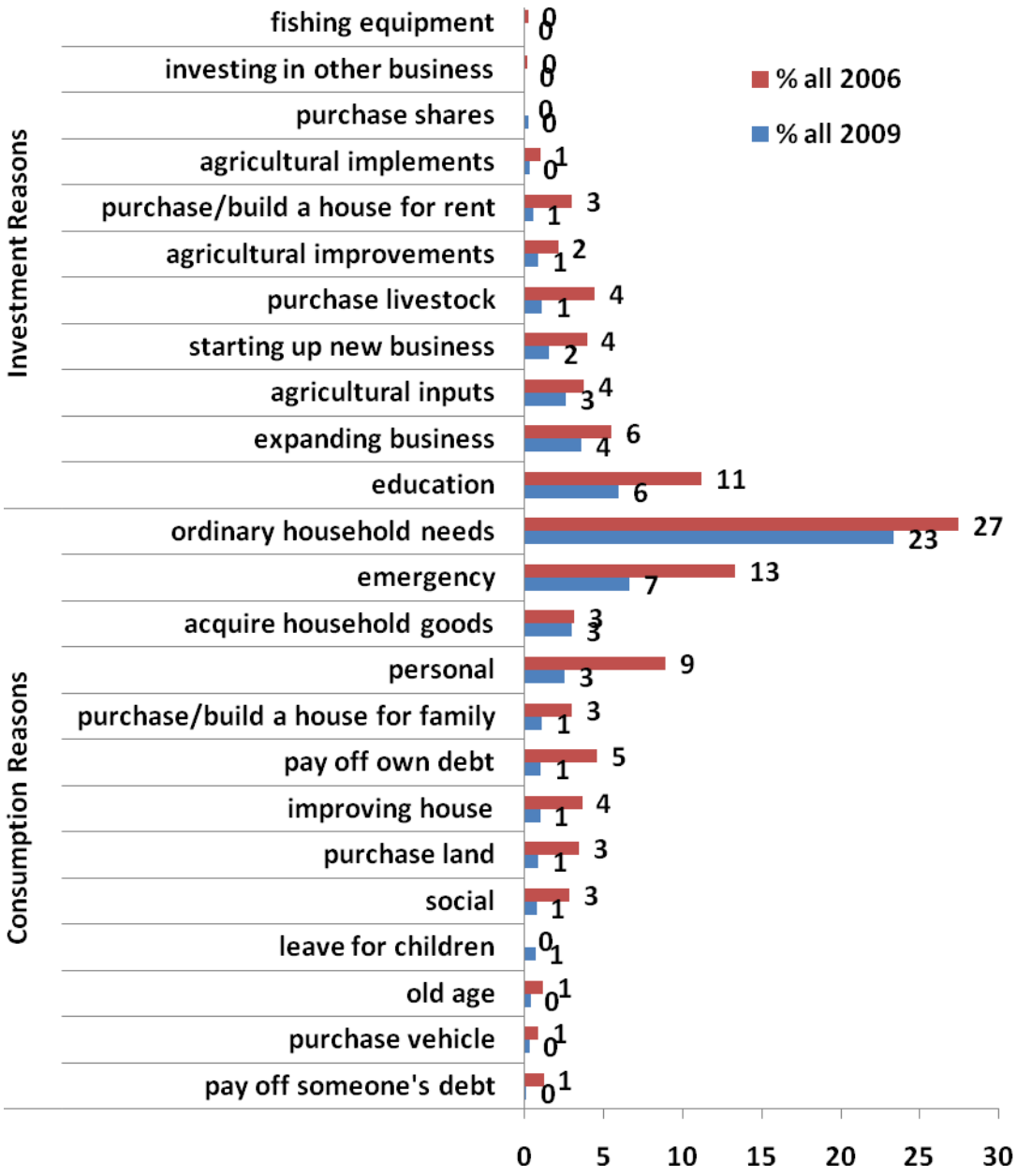


Table 3: Banks used in Kenya in 2006 and 2009

Bank Name	2006 % of population	Position	2009 % of population	Position	Percentage point Difference
Equity Bank	3.42	*2*	11.90	*1*	8.48
Co-Op Bank	2.95	*3*	2.08	*2*	-0.87
Kenya Commercial Bank	3.55	*1*	2.02	*3*	-1.53
Barclays	1.76	*4*	1.83	*4*	0.07
National Bank	0.58	*6*	0.80	*5*	0.22
KRep Bank	0.25	*7*	0.59	*6*	0.35
Standard Chartered	1.05	*5*	0.44	*7*	-0.61
Stanbic	0.25	*7*	0.11	*8*	-0.14
CBA	0.20	*9*	0.06	*9*	-0.14
Bank of Baroda	0.22	*8*	0.03	*10*	-0.19
Other	5.47	N/A	4.52	N/A	-0.95
Total	19.69	N/A	24.37	N/A	4.68

Table 3 shows which banks are being used in Kenya in 2006 and 2009 as a percentage of total respondents. The significant growth in accounts held at Equity Bank is clear, as the proportion of the population using Equity Bank has increased by 8.38 percentage points over the period 2006 – 2009. Of course some of these new accounts could be held by people who already had bank accounts elsewhere, and who may continue to hold two or more bank accounts in different banks. Nonetheless, this information in combination with the results shown in Chart 8 suggests Equity Bank has made a major contribution to improving access to financial services over the period.

4 Results for Tanzania

Summary Findings:

Seventy-one percent of survey respondents say that at some point in their lives they have either borrowed or saved money, using formal, semi-formal, or informal financial services.

Many people save and borrow for investment purposes. Starting a new business is the most commonly given reason for borrowing money (cited by 46% of those who gave a reason for borrowing), and education is the second most common investment purpose cited, at 32% of those who gave a reason for borrowing.

Men are more likely to save or borrow to invest than women.

Rural inhabitants save and borrow more for agricultural investments, whereas urban inhabitants tend to save and borrow more for all other purposes.

While those in the poorest groups are relatively unlikely to save or borrow for investment purposes, 10% even in the lowest income group save to invest in education.

Individuals with a better education are more likely to borrow and save to invest than those with less education.

Around 33% of survey respondents have used both semi formal and informal instruments, and around 13% have used both formal and semi-formal instruments, which suggests that for a reasonable proportion of people, these different types of financial instruments are not substitutes for each other, but complements.

Informal financial services are most commonly used, and formal financial services are the least commonly used.

The most common reasons for not borrowing or saving relate to a lack of money, but many supply side access barriers are also cited, such as not having the necessary lump sum to start with

The Tanzania 2006 FinScope survey has a total survey size of 5453 respondents, and provides a representative sample. However, the survey gives age and gender for only around half the sample, hence any charts which show age or gender are based only on those respondents whose gender and age information is available. In addition, only 24% of all borrowers gave a reason as to why they had borrowed, which reduces the reliability of the results examining the usage of loans.

We follow the same format as for the Kenya results: in section 4.1 we look at the extent to which financial services are used for investment purposes, (as opposed to consumption). In section 4.2 we look at the types of financial services and financial providers (formal and informal) that are used and how this varies dependent on demographics. In section 4.3 we look at the extent of supply side barriers to access identified, which could potentially be constraining households from undertaking productivity-enhancing investments.

4.1 Extent to which financial services are used for investment purposes

Seventy-one percent of the Tanzanian sample said they had either borrowed or saved money currently or at some point in their lives (through either formal, semi-formal, or informal mechanisms). Forty-three percent had both saved and borrowed.

The reasons for saving and borrowing given in the Tanzania survey were slightly different to those given in the Kenya survey, and are listed in Table 4 below, which also shows how we categorised them. The same caveats apply with respect to categorisation choices.

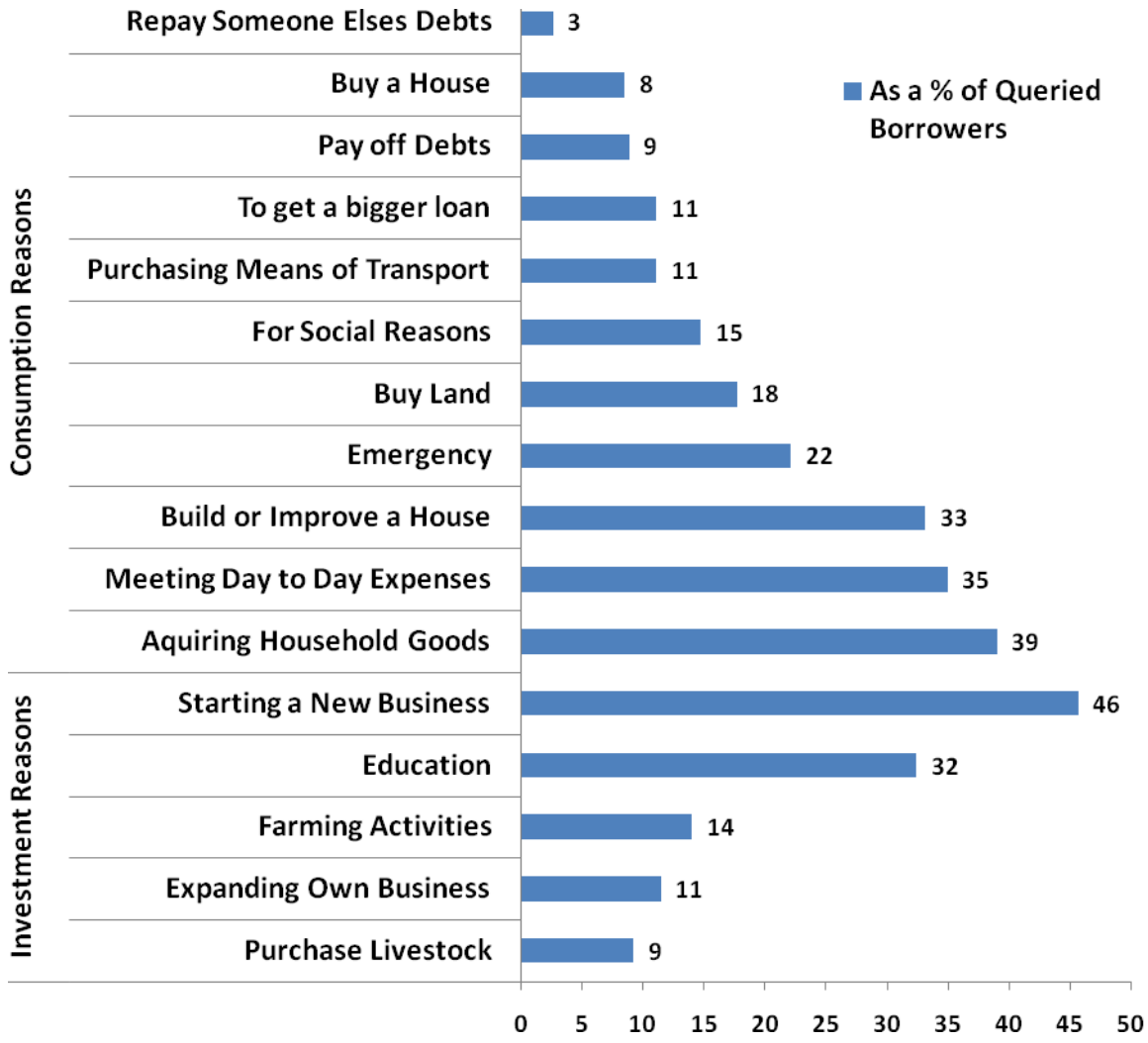
Table 4: Investment and consumption reasons to save or borrow in Tanzania

Consumption Reasons to Save or Borrow	
Improve a house	Pay off debts faster
Acquire household goods	Purchase a car or motorcycle
Purchase land	Purchase a house to live in
For old age	Leave something to your children
Meeting household needs	For emergencies
For social reasons	To buy jewellery
To repay someone else's debts	To increase bank balance to get bigger loans
Investment Reasons to Save or Borrow	
Purchase or build a house to rent out	Purchase shares/stocks/bonds
Buy agricultural inputs	Buy agricultural implements
Buy fishing equipment	Expand own business
Start up own business	Invest in someone else's business
Education	For Farming Activities
To buy livestock	-

Chart 11 below shows the breakdown of reasons to borrow and is compiled from survey respondents who stated that they had borrowed money and also gave at least one reason why (noting that only 24% of borrowers answered that question).

The chart shows that starting a new business is the main reason given for borrowing money[7]. Education was another key investment related objective given for borrowing money.

Chart 11: Reasons to borrow in Tanzania

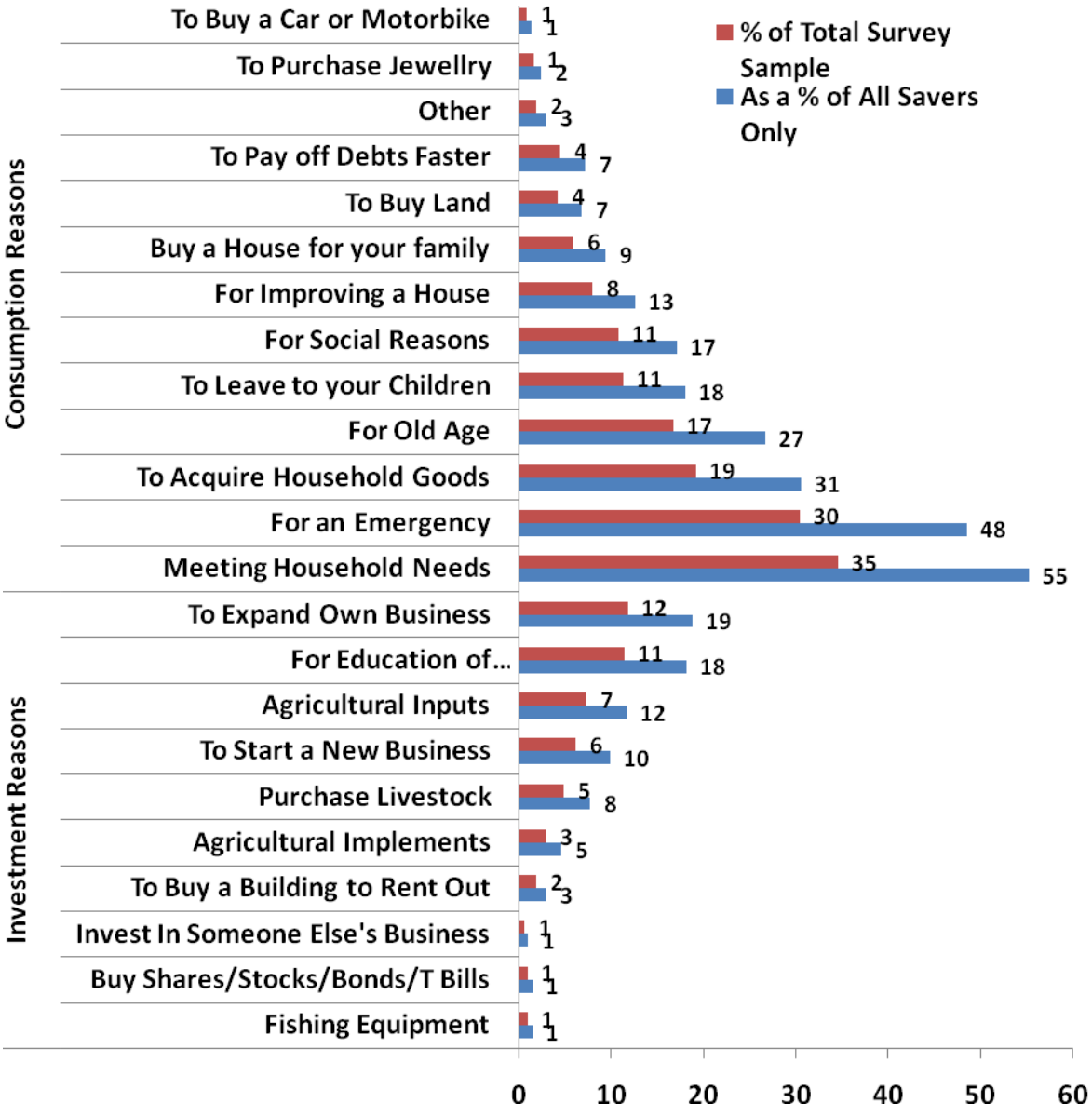


[7] However, as we have already noted, only 24% of borrowers in Tanzania gave a reason for borrowing, and it may be that those who chose not to answer the question were more likely to be people who borrowed to make ends meet, rather than for what are perceived to be more justifiable reasons such as starting a business, which would explain this high score for investment purposes. If true, this may imply that Tanzania has a culture in which indebtedness is less socially acceptable than in Kenya.

Chart 12 below repeats the same exercise for saving reasons, though all the respondents who said they had saved also gave the reason why, so the chart also shows responses as a percentage of the total survey sample.

The chart shows that the top five saving reasons all fall into the consumption category, with meeting household need as the main saving reason, followed by emergencies. The top investment reasons to save are to expand own business, for education and to purchase agricultural inputs, coming in at close to 10% of the total sample in each case. Thus, as in Kenya, it is clear that access to financial services is underpinning a reasonable degree of household investment, although more people borrow and save for consumption purposes.

Chart 12: Reasons to save in Tanzania



Comparing the results from Charts 11 and 12 suggests that people who want to start their own business tend to prefer borrowing over saving, whilst those who already have a business tend to save rather than borrow. This is an interesting finding as it may be expected that access to loan finance would be easier for somebody in business than for a new start-up. It may reflect the increased availability of money to

save for those who are already in business, but if both options are available to people in business, this would imply a preference for savings-based investment rather than loan financed investment, perhaps due to the risks and costs involved in borrowing.

In terms of demographic determinants of saving or borrowing to invest, the headline results show that:

- Though women are more likely overall to save than men, men are more likely to save and borrow for investment purposes specifically, than women;

- Urban inhabitants are more likely to save and borrow for most investment purposes than rural inhabitants, except for the purchase of livestock;

- Those in higher income brackets are more likely to borrow and save in order to finance investment than those in lower income brackets, except for investments in education where those in the lowest income bracket are more likely to save than those in middle income groups. For all investment reasons, those in the lowest income bracket do not take any loans at all, indicating possible exclusion from access to loans for those who do not earn enough money.

- The higher the level of education the more likely you are to borrow or save for investment purposes. People who have some form of tertiary education are much more likely to both borrow and save, particularly for investment in education; 97% of people with tertiary education have saved money in order to invest in education. The results show that the higher the level of education achieved, the more importance is placed on investing in human capital accumulation.

4.2 Types of financial services and informal mechanisms used

Table 5 below lists the financial services and mechanisms used by respondents in the survey, and shows how we have classified them into formal, semi formal, and informal categories. We used the same definition as for Kenya, but also included savings through insurance schemes, and compulsory savings, (neither of which were included in the Kenyan survey), in the formal category.

Table 5: Financial Instrument Classification in Tanzania

Informal
Loan from family or from a friend
Loan from an informal money lender
Loan in kind
Savings with a group at my workplace
Savings given to family or friends
Savings kept in a secret hiding place
Savings in kind
Semi Formal
Loan from a SACCO
Loan from a microfinance institution
Loam from an ASCA
Hire Purchase
Credit from a kiosk
Credit from a hospital or school
Saving account at a SACCO
Savings at a microfinance institution
Savings with an ASCA
Savings with a merry-go-round
Formal
Personal loan from a Bank
Loan from a government institution
Loan from an employer
Education loan
Car purchase loan
Business loan
Loan to buy a house from a bank
Loan to buy land from a bank
Loan to buy a house from a financial institution
Employer saving schemes
Savings through insurance schemes
Compulsory savings e.g. NSSF/ZSSF
ATM card
Debit card
Postbank account
Current account
Savings account
Fixed deposit

Chart 13 tells us that the majority of the sample population use informal financial mechanisms, (62%), whilst formal instruments are used by only 20% of the whole survey sample. Chart 14 shows that many people use more than one kind of financial instrument.

Chart 13: Use of formal, semi formal & informal Financial Instruments in Tanzania

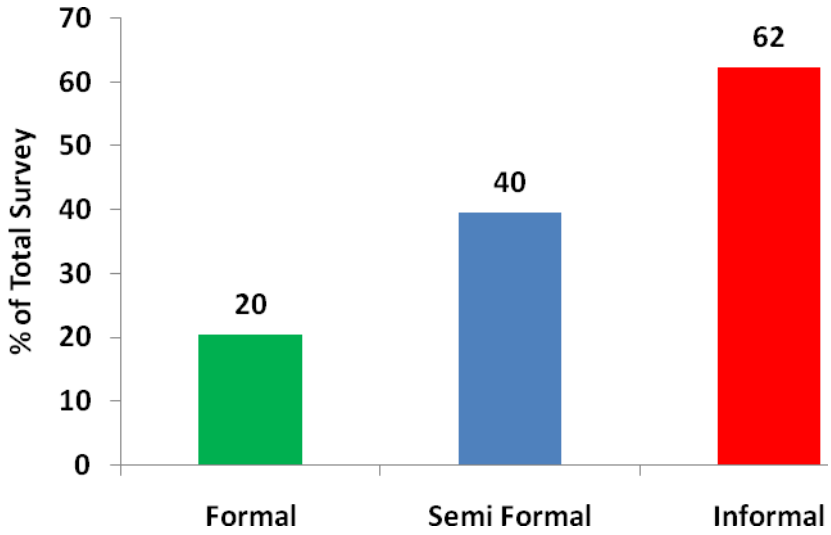


Chart 14: Use of multiple types of Financial Instruments in Tanzania

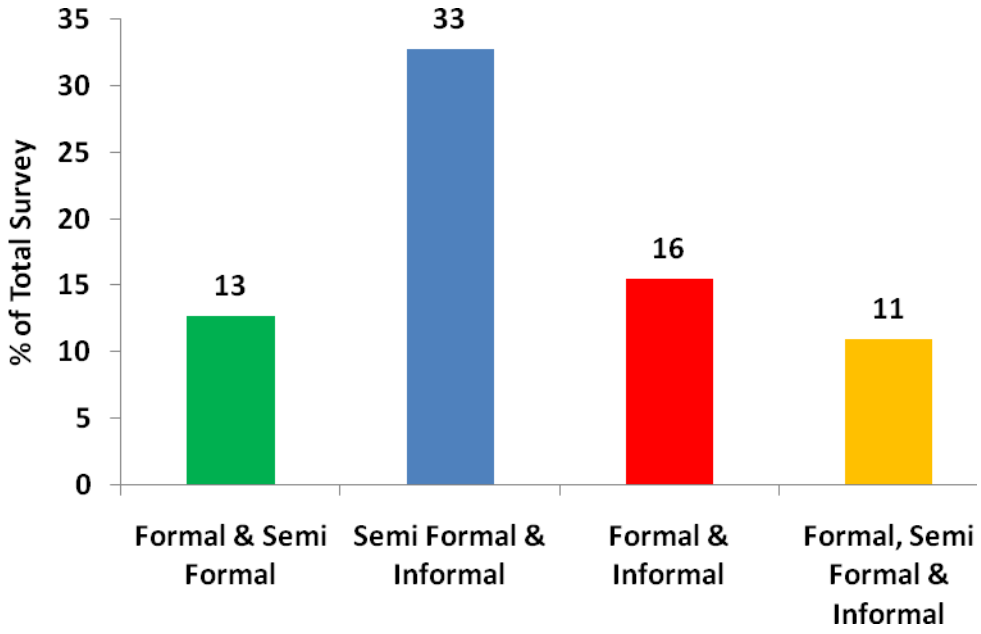
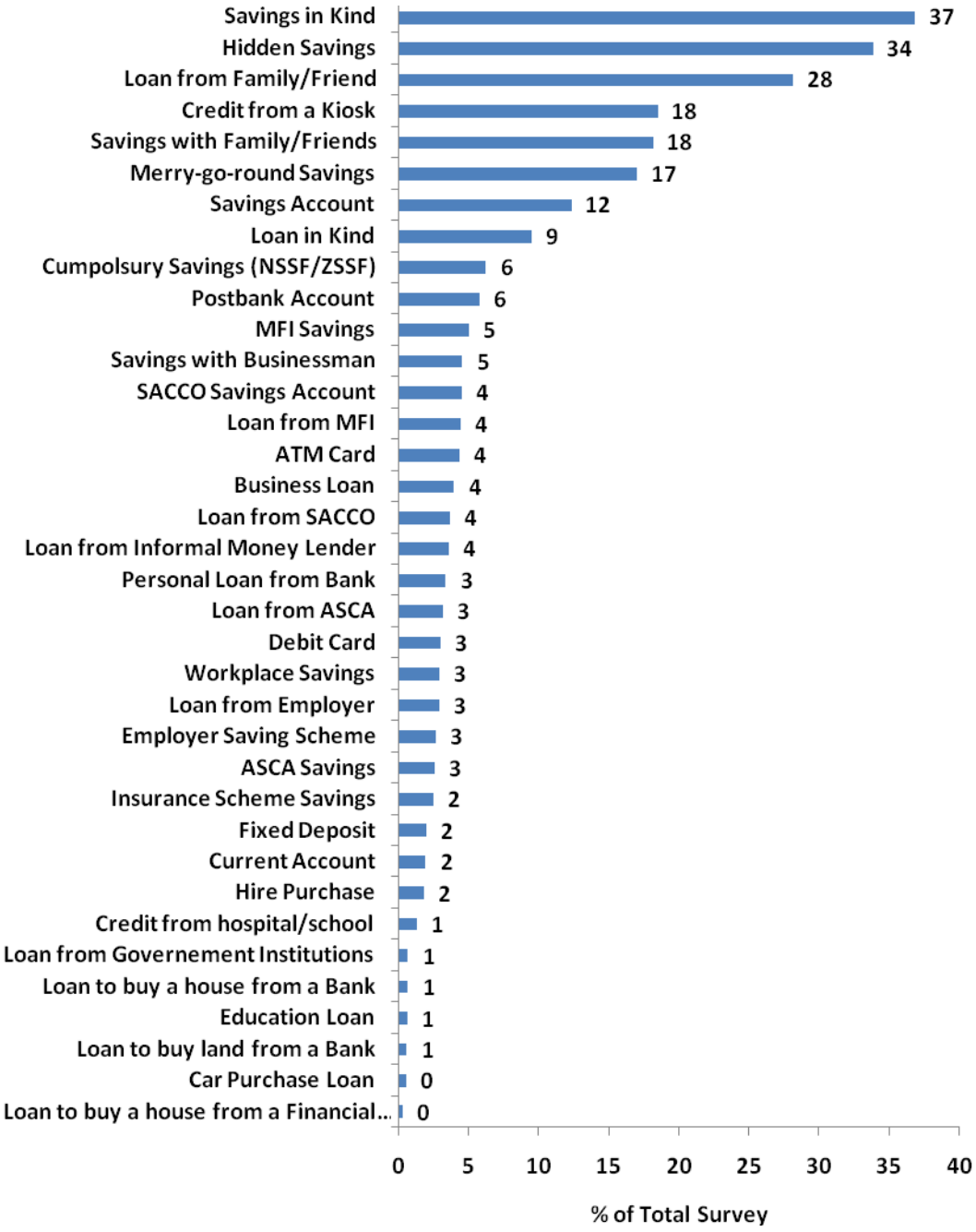


Chart 15 shows all the financial services used by savers and borrowers in Tanzania. It shows that informal financial services are the most commonly used by quite some margin. Savings in kind and hidden savings are the most common form of savings used in Tanzania, whilst loans from friends and family and from kiosks are the most common type of loans used. The most commonly used formal financial service is a savings account, and the most common semi-formal instruments are credit from a kiosk, and merry go round savings.

Chart 15: Financial services used by savers & borrowers in Tanzania



In terms of demographics the headline findings are that:

- Men are more likely to use formal and informal financial services than women, but women are more likely to use semi-formal financial services than men, perhaps because of their high usage of group lending schemes, such as merry go round savings schemes;

- Urban inhabitants are more likely to use formal and semi-formal financial services, while rural inhabitants are more likely to use informal financial services;

- People in high income brackets are more likely to use formal, informal and semi-formal financial services, but this is more pronounced in relation to formal financial services;

- People with more education are more likely to use formal, informal and semi-formal financial services, but this is more pronounced in relation to formal financial services;

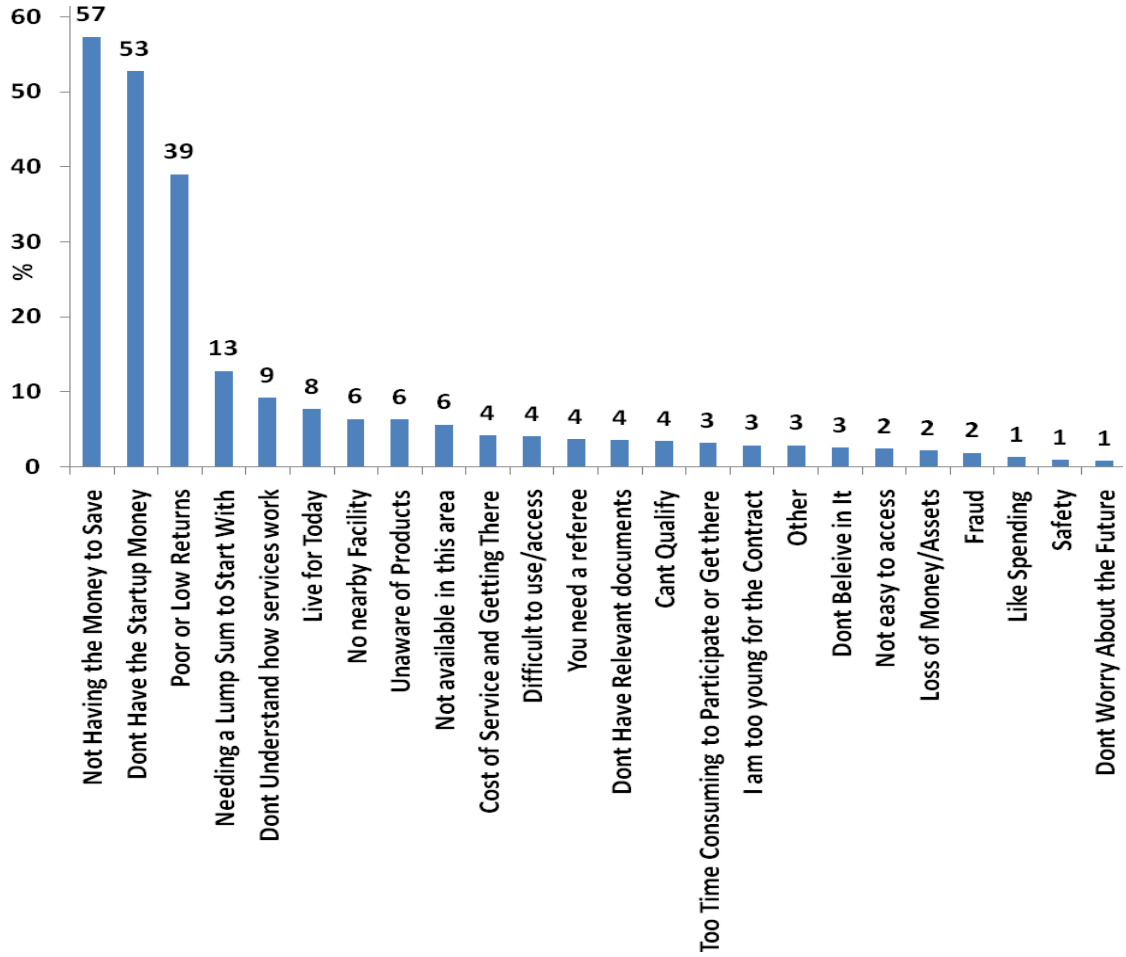
4.3 Barriers to access

The results show that 29% of the survey sample has never used any form of borrowing or saving instruments. Chart 16 shows the main reasons given for not saving. The majority of people who have not saved (57%) have stated (multiple answers were allowed in the questionnaire) that it was due to not having or earning enough money to be able to save. Thus as with Kenya, it seems that demand side barriers are the most common binding constraint to savings identified by survey respondents. However, almost as many people – at 53% - said that they did not have the required start-up capital in order to open a savings account, and the third most common reason given for not saving – at 39% - were the low returns from saving, implying that interest rates on savings are deemed too low. Thus supply side factors do appear to be an important constraint on usage of financial services.

In terms of demographic differences:

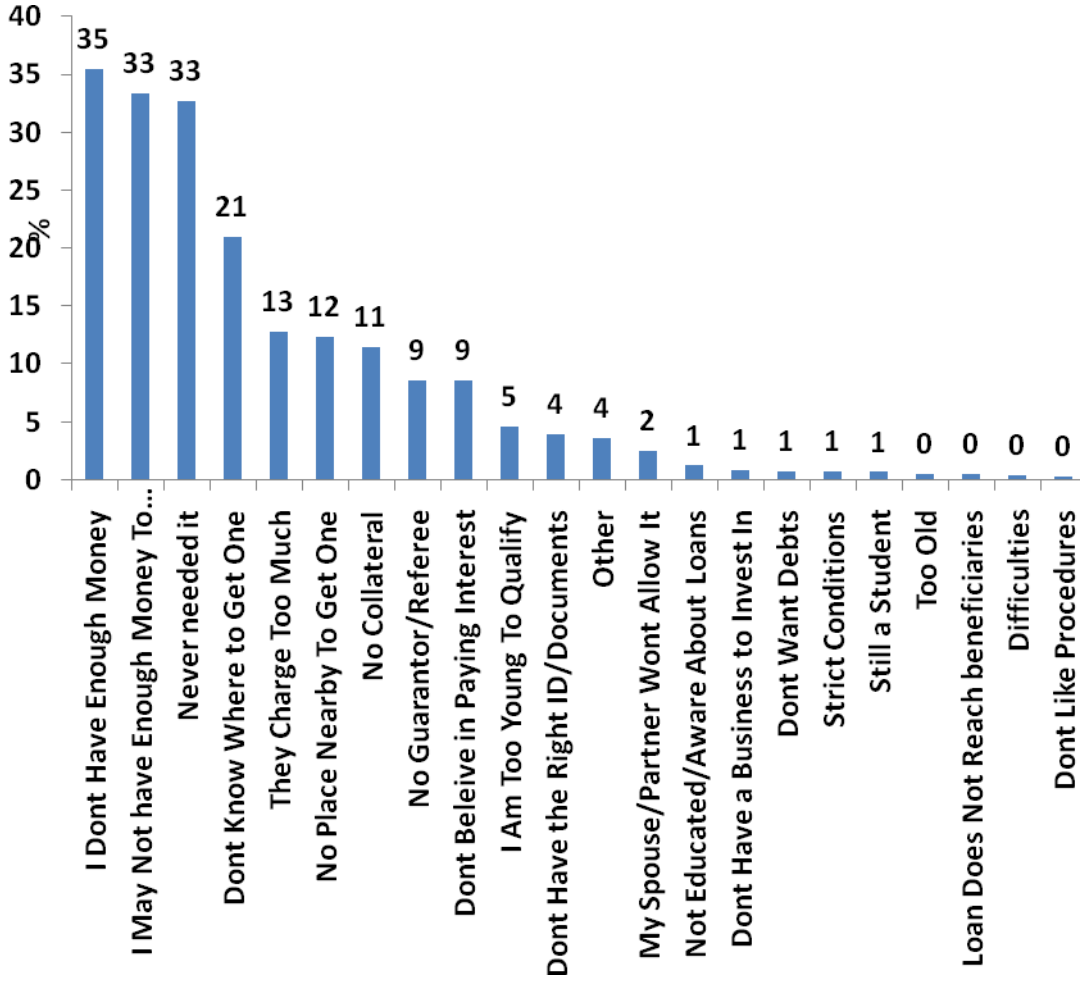
- Male and female non savers show similar reasons for not saving, though not having enough money is cited by a higher percentage of women than men.
- Whereas more rural than urban inhabitants state that the main reason not to save is due to a lack of money to save, urban inhabitants give a lack of start-up capital, and poor returns to savings as more important reasons than rural inhabitants. Rural inhabitants place more importance on the lack of nearby facilities in which to save.

Chart 16: Main reasons not to save in Tanzania



The main reasons given for not borrowing money are shown in chart 17 below. As with people who did not save, the most important reason for not borrowing is a lack of money, either not earning enough (35%) or not having enough money to repay debts (33%). A third of respondents (33%) also stated that they never took a loan because they had never needed one. However, several supply side barriers to access were also cited, such as not knowing where to get a loan (21%), or charges that were too high (13%).

Chart 17: Main reasons not to borrow in Tanzania



With regard to demographic differences:

- Men and women give similar answers with regard to reasons for not borrowing.

- Over thirty percent or both urban and rural inhabitants cited not needing a loan as the main reason for not borrowing, but rural inhabitants were much less likely to cite all other reasons for not borrowing than urban inhabitants, perhaps because their demand for, and expectations of access to loans is much less.

5 Financial access comparison between Kenya and Tanzania

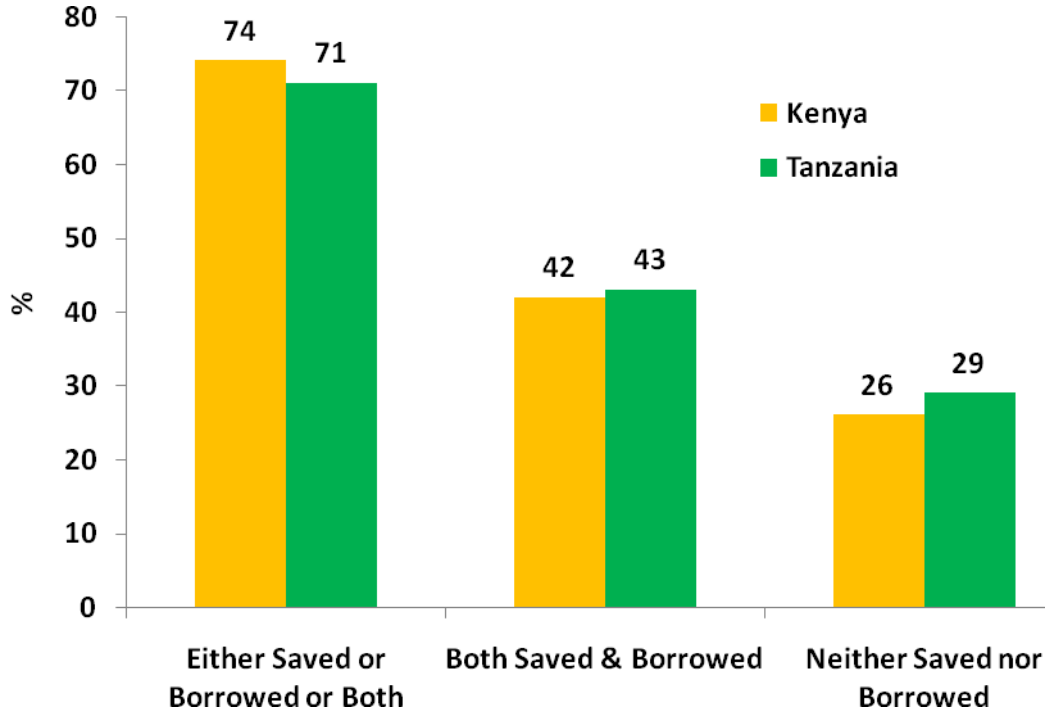
Summary of key findings

- There are remarkably similar levels of saving and borrowing in Kenya and Tanzania, with just over 70% of the population saving and / or borrowing in both countries. Despite significant differences in the availability of financial services in the two countries, Kenyans borrow and save only slightly more than Tanzanians.
- However, the financial instruments and providers they use are quite different. Usage of semi formal financial providers is considerably higher in Kenya than Tanzania, while use of informal providers is higher in Tanzania.
- This appears to be explained to a large degree by the greater usage of ROSCAs, SACCOs and ASCAs in Kenya. MFIs are more important in Tanzania than Kenya, but the numbers served by MFIs are much lower in both countries than the other semi formal instruments such as ROSCAs.
- There are some surprising differences between Kenya and Tanzania in relation to the reasons given for savings and borrowing. There is a higher level of borrowing in Kenya for most purposes, and particularly for consumption purposes such as day to day expenses and emergencies. However, Tanzanians are much more likely to borrow to start a business than Kenyans. In contrast, Tanzanians are less likely than Kenyans to *save* to start a new business, though they are more likely to save to expand a business. Kenyans are much more likely to save for education than Tanzanians.
- Tanzania appears to suffer slightly more from supply side barriers (such as 'lack of collateral', or 'no place nearby to get it'), whereas Kenyans were more likely to cite demand side constraints, (such as 'I don't have enough money'), perhaps reflecting a different binding constraint in Kenya, which enjoys better overall financial services provision.
- However, Kenyans complain more about high costs than Tanzanians, which is suprising, given that interest rates in Kenya tend to be lower, but may again reflect a different binding constraint, or perhaps a greater degree of financial literacy.
- Understanding of financial services appears to be more of a problem in Tanzania, as more people cite 'don't know where to get one' and 'don't understand how services work' as reasons for not using financial services.

5.1 Comparing Kenya and Tanzania FinScope results

Chart 18 below demonstrates that Tanzania and Kenya show fairly similar levels of borrowing and saving as a proportion of the population. Sixty-nine percent of the Kenyan sample had some form of savings, compared with 63% of the Tanzanian sample, and 48% of Kenyans borrowed, compared with 43% of Tanzanians. Thus Kenyans both borrow and save slightly more than Tanzanians, which is perhaps unsurprising given that Kenya is relatively advanced in terms of financial sector development, and enjoys better performance indicators along a number of dimensions (see section 5.2 below).

Chart 18: Comparison of combined saving & borrowing behaviour in Kenya and Tanzania



However, Chart 19 shows that Kenya has much higher usage of semi-formal financial services, and also formal financial services (though to a lesser extent), whereas Tanzania has higher usage of informal financial services. This is in line with the higher degree of financial sector development observed in Kenya.

Chart 19: Use of formal, semi formal and informal Instruments by Savers & Borrowers in Kenya and Tanzania

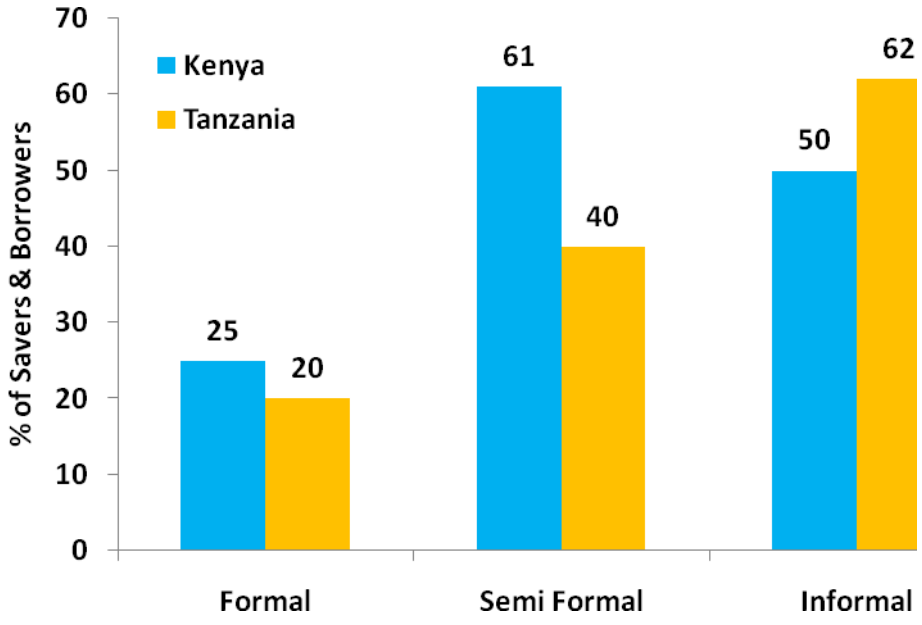


Chart 20 compares the usage of specific types of financial services in Kenya and Tanzania. It highlights the far greater usage of semi-formal financial services such as Savings and Credit Cooperatives (SACCOs), Rotating Savings and Credit Associations (ROSCAs), Accumulating Savings and Credit Associations (ASCAs), and local shop credit in Kenya compared with Tanzania. It also shows the higher usage of informal financial mechanisms in Tanzania, such as loans and savings with family and friends. Savings and loans in kind were also very commonly used in Tanzania, but no equivalent question was asked in Kenya, so direct comparison is impossible.

Chart 20: Financial services used in Kenya and Tanzania

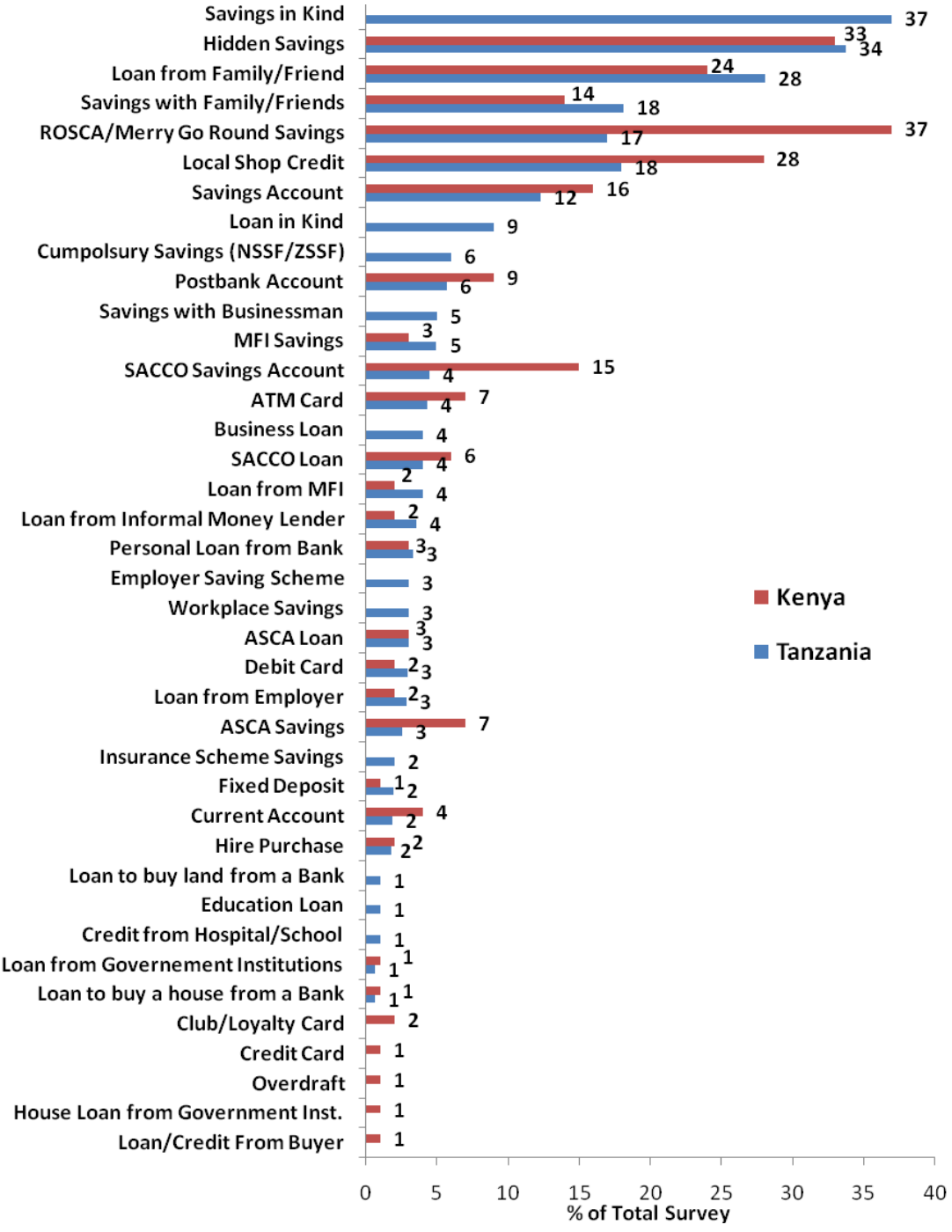


Chart 21 compares the reasons given for borrowing in Kenya and Tanzania. It shows a higher level of borrowing in Kenya for most purposes, and particularly for consumption purposes such as day to day expenses and emergencies. Interestingly however, Tanzanians are much more likely to borrow to start a business than Kenyans – indeed it is the most popular reason for borrowing given by Tanzanians altogether. However, as only 24% of borrowers in Tanzania gave a reason for borrowing, it may be that those who chose not to answer the question were more likely to be people who borrowed to make ends meet, rather than for what are perceived to be more justifiable reasons such as starting a business, which would explain why this scored so highly. If true, this may imply that Tanzania has a culture in which indebtedness is less socially acceptable than in Kenya.

Chart 21: Country comparison for borrowing reasons in Kenya and Tanzania

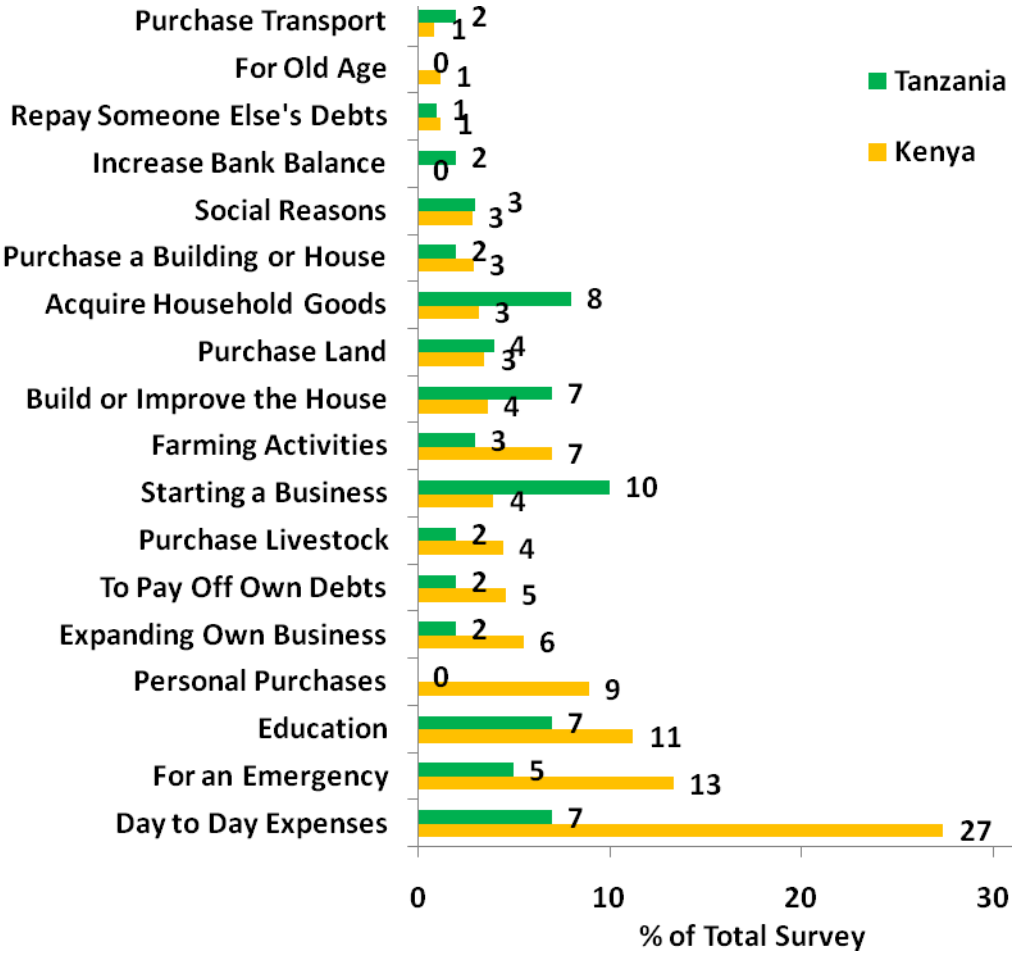
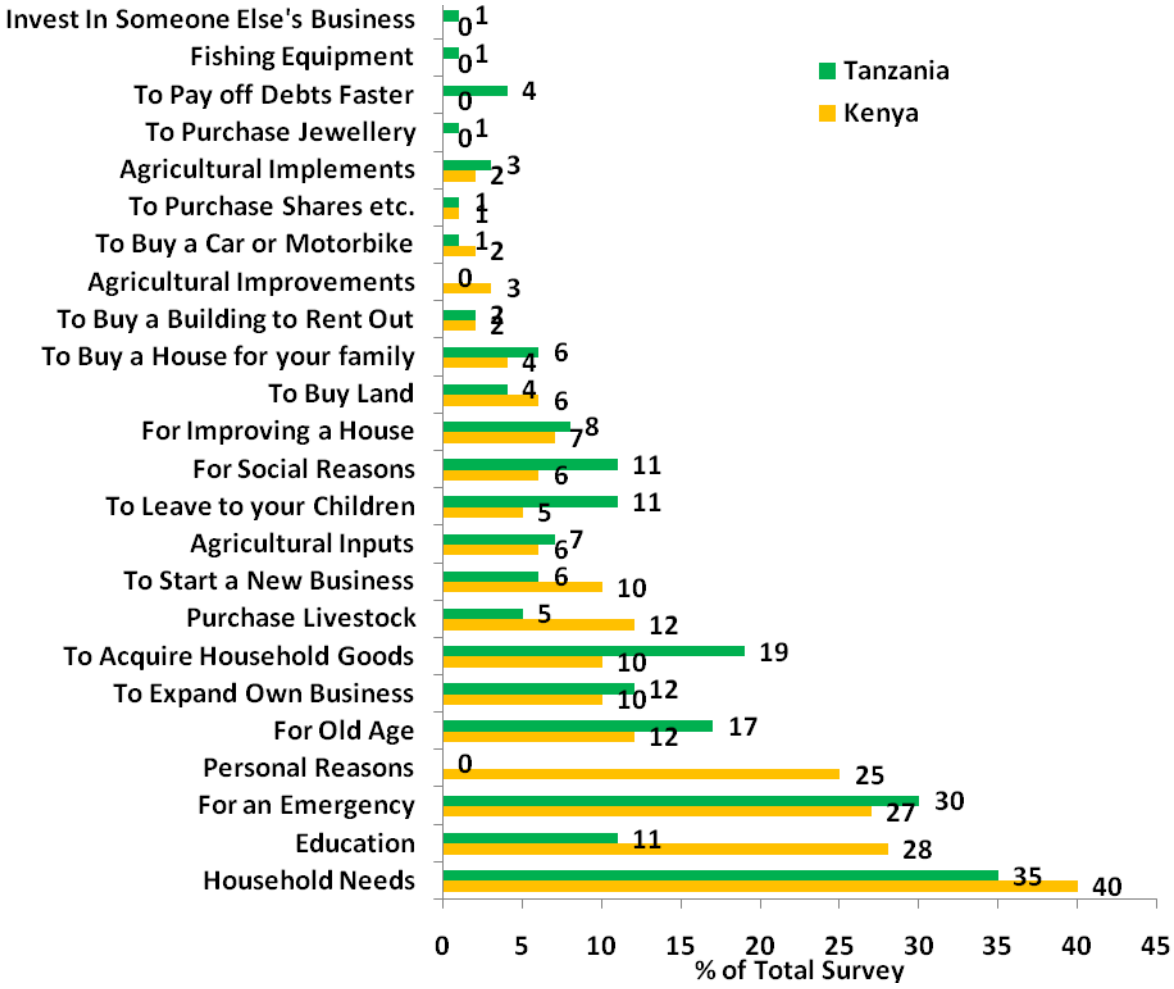


Chart 22 compares the reasons given for saving across Kenyans and Tanzanians. It shows a mixed picture. In contrast to borrowing, Tanzanians are less likely than Kenyans to save to start a new business, though they are more likely to save to expand a business. Kenyans are much more likely to save for education than Tanzanians.

Chart 22: Country comparison for saving reasons in Kenya and Tanzania



Charts 23 compares the reasons given by respondents for not borrowing. It shows that a higher proportion of non-borrowers in Kenya cite a lack of money as a reason for not borrowing, which perhaps reflects the increased availability of financial services which means that demand side issues become more of a binding constraint to borrowing than supply side barriers.

Kenyan non-borrowers are also more likely to claim that charges are too high, which is perhaps surprising given that interest rates appear to be lower in Kenya than Tanzania on average. However, this may again reflect a different binding constraint to access in Kenya, or it may be because of higher financial literacy in Kenya compared with Tanzania.

Tanzanian non-borrowers are more likely than Kenyan non-borrowers to complain that they don't know where to get a loan, or that there is no place nearby to get a loan, potentially reflecting more limited financial provision in Tanzania than Kenya, and possibly a lower level of financial literacy.

Chart 23: Comparable reasons not to borrow in Kenya and Tanzania

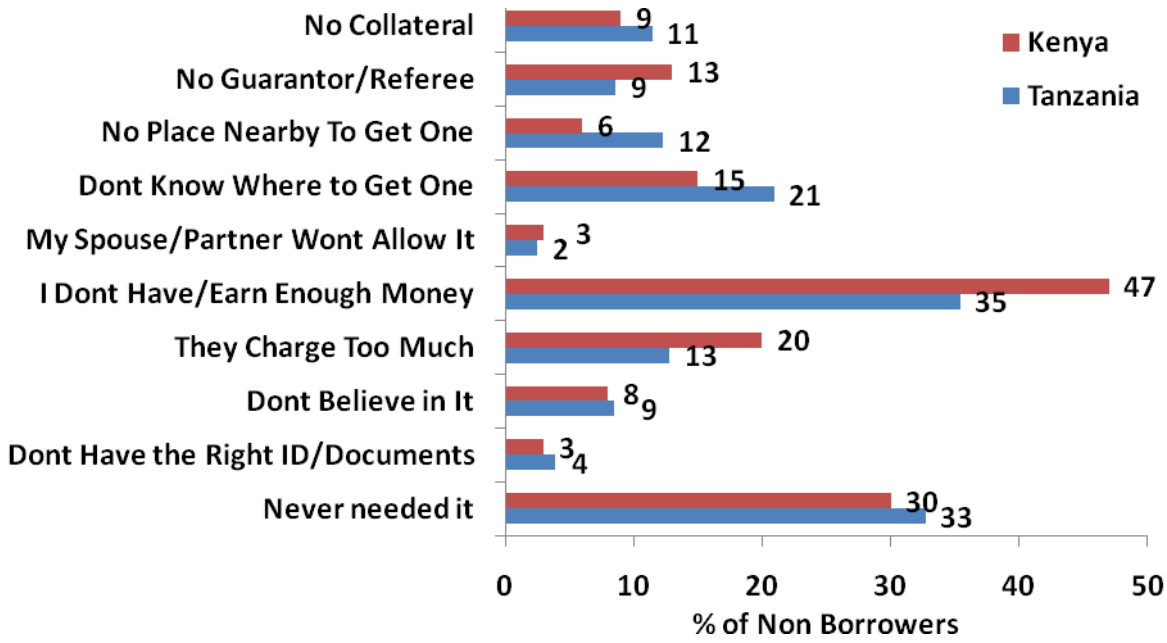
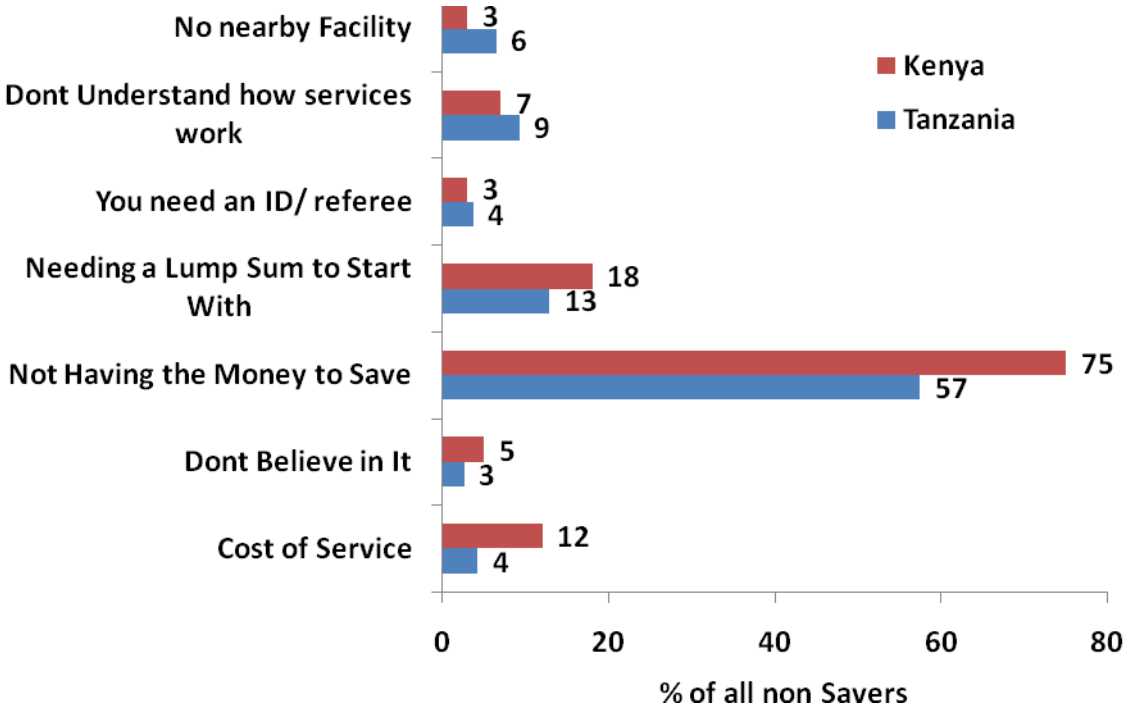


Chart 24 compares the reasons given by respondents for not saving. It shows a similar pattern to Chart 23 with a higher proportion of Kenyan non-savers saying they do not have the money to save, and that the cost of the service is too high, while a higher proportion of Tanzanian non-savers say they don't understand how services work, or that there is no nearby savings facility.

Chart 24: Comparable reasons not to save in Kenya and Tanzania



5.2 Possible supply side factors affecting provision

It is not straightforward to draw conclusions about the determinants of overall access to financial services. It is not clear to what extent it is dependent on the financial sector policy framework, or whether it simply reflects the overall level of development and other country specific factors such as population density. As more cross-country data on access to financial services becomes available going forward, it should facilitate more in-depth analysis of these determinants.

The financial sector appears to be more developed in Kenya than in Tanzania, as evidenced by Tables 6 and 7 below. The data shows that Kenya has more financial institutions of various kinds, and that it performs better on a range of indicators. For example, it shows higher levels of both credit and deposits relative to GDP in Kenya, and although banking sector concentration is higher (as measured by ownership of assets at least), the data suggests that the sector is nonetheless more efficient, with a lower cost to income ratio.

Table 6: Financial services providers in Kenya and Tanzania

Financial services providers:	Kenya*	Tanzania**
Commercial banks	39 (10 of which are foreign owned)	25 (16 of which are foreign owned)
SACCOs	5000+	3500+
MFIs	100+	60+

* Source: Central Bank of Kenya, 2008
** Source: Bank of Tanzania, 2009

Table 7: Comparison of banking sector indicators in Kenya & Tanzania

Measure	Kenya (%)	Tanzania (%)
Private Credit by Deposit Money Banks / GDP	22	12
Bank Deposits / GDP	31	21
Bank Credit / Bank Deposits	71	62
Net Interest Margin	7	6
Bank Concentration*	78	49
% total retail bank clients served by top 3 banks	59	77
Bank Return on Assets	3	2
Bank Return on Equity	20	25
Bank Cost to Income Ratio	56	78

* Defined as the ratio of the three largest bank assets to total banking sector assets
Source: WB (2008)

Table 8 shows that the interest rate spread is also lower in Kenya than Tanzania, with lending rates slightly lower and savings rates higher.

Table 8: Comparison of interest rates in Kenya & Tanzania

	Kenya* (as of June 2008)	Tanzania** (average for 2008)
Savings deposit rates	4.48%	2.66%
Short term lending rates	14.06%	15.01%
Spread between lending and savings rates	9.58%	12.35%

* Source: Central Bank of Kenya, 2008
** Source: Bank of Tanzania, 2009

There has been significant expansion in accounts opened in Kenya in recent years, through financial institutions such as Equity Bank, and this has created greater competition in the market for retail customers, which bodes well for overall levels of access to formal financial services. However, the ability of formal financial institutions to provide cost effective services to the poorest people in the country is still fairly limited, and reliance on semi-formal and informal providers remains high. Thus semi-formal providers such as SACCOs, local shops, and ROSCAs, remain a key plank of financial services provision in Kenya.

Appropriate regulation for semi-formal providers such as these is important to underpin a more inclusive financial sector, but represents a tricky balance between providing better depositor protection from fraud and instability, and not over-burdening the sector with regulation in a way that thwarts its growth and development. Expert opinion suggests that Kenya may have greater regulatory capacity than Tanzania, but that neither has a perfect regulatory model.

In Tanzania, MFIs operate under the Banking and Financial Institutions Act (BAFIA) of 1991, the Bank of Tanzania Act of 1995 (BOT), the Cooperative Societies Act of 1991 and the Public Finance Act. Revisions to the BAFIA of 1991 include[8]:

- a licensing framework for MFIs;
- the introduction of Financial Cooperative Societies[9] (FICOS) licensed and supervised by the Bank of Tanzania;
- the establishment of a Client Identification and Client Reference system (operated by private credit reference institutions);
- a revision of accounting standards to incorporate MFIs;
- the introduction of fair lending and collection practices;
- requirements to publish financial information; and
- allowing banks and MFIs to use correspondence contracts, which can be completed, signed and approved by mail.

MFIs are regulated with a view to ensuring a level playing field across all institutions (Rubambey, 2005). However, microfinance institutions that do not take deposits are not subject to financial regulation and supervision. MFIs with multiple branches and FICOS have a minimum core capital requirement of US$ 800,000 whilst single branch MFIs need US$ 200,000;

[8] Rubambey, 2005.
[9] SACCOS with recorded deposits equal to or greater than the minimum requirements for MFIs.

SACCOS operate under the Cooperative Societies Act of 1991 and the BAFIA of 1991; however small SACCOS (with a core capital below US$ 200,000) are not supervised by the Bank of Tanzania, though they are still subject to prudential supervision (Ministry of Finance of Tanzania, 2000).

In Kenya, deposit taking non-NGO MFIs are regulated by the Central Bank of Kenya under the Microfinance Act of 2006. NGO MFIs operate under the NGO Coordination Act and are, in principle at least, self regulated. A large number of NGO MFIs work under the Association of Micro-Finance Institutions (AMFI), which has a code of standards, although it is not clear to what extent this is monitored or enforced by AMFI .

SACCOS previously operated under the Cooperative Societies Act of 2004, but there is a new SACCO Societies Act (2008) although that has yet to come into force. New regulations have been developed, but have not yet been gazetted, and the SACCO Societies Regulatory Authority (SASRA) is not yet operational. Meeting the new requirements has been challenging for many SACCOs. In addition, SACCOS must have a minimum of just ten members, and some argue this is too low to be sustainable.

In broad terms the views of in-country experts suggest that Kenya has had a more stable, liberal financial sector policy over the years, while policy in Tanzania has been more unpredictable and often more interventionist. It is argued that this can help to explain the higher degree of financial sector development in Kenya, as the policy framework created a more conducive environment for the growth of private financial institutions, whereas in Tanzania the policy framework appears to have sometimes undermined financial sector development.

A recent example of this is provided by developments affecting SACCOs in Tanzania. There has been a sharp increase in the number of SACCOs in Tanzania in recent years, as a result of the Government's decision to establish a 'National Empowerment Fund' with the aim of improving access to finance. Under this policy, the Government said it would make 21 billion Tanzanian Shillings available in credit, which would be disbursed through SACCOs.

This led many people to establish new SACCOs specifically in order to take advantage of this initiative, and SACCOs now have average membership of only about 160 people, which some deem to be unsustainable. It has been argued that people viewed this money as a handout rather than a loan, and as a result SACCOs saw a huge rise in non-performing loans, which has contributed to a culture of non-payment, significantly weakening the SACCO sector.

Comparing the experience with financial sector development in Kenya and Tanzania suggests that a liberal, predictable, and non-interventionist approach may be the best way to support financial sector development.

6 Econometric results for Kenya

In this section we present the results of econometric analysis undertaken using the Kenya 2006 and 2009 survey results. Unfortunately significant data gaps in the Tanzania dataset relating to demographics and the stated use of financial services, have precluded us from undertaking similar analysis on the Tanzania dataset.

We first present results of a regression which investigates whether the probability of using formal[10] rather than informal financial services is related to whether an individual is using financial services for investment or consumption purposes. We then examine whether supply side barriers to access are related to the probability that an individual undertakes borrowing or saving for investment purposes.

First, we undertake a regression using a linear probability model[11] of the form:

$$P_{ihd} = \alpha_d + \mathrm{B}_1 F + \mathrm{B}_2 X_{ihd} + \mathrm{B}_3 H_{hd} + \varepsilon_{ihd} \qquad (1)$$

using a sample of all those people who have borrowed, where P_{ihd} is a discrete variable equal to 1 if the person i in household h and district d uses formal borrowing or loan facilities, and a value of 0 if they use informal borrowing or loan facilities. (For a discussion of the rationale for using a linear probability model please see Annex 2.)

We regress this variable against a dummy variable F with a value of 1 if that individual has borrowed for investment purposes, or equal to 0 if the person has only borrowed for consumption purposes.

We also include a range of other explanatory factors (for further discussion see Annex 3):

- individual characteristics (X_{ihd}) includes a set of dummies for main occupation, another for language used to answer the questionnaire, the age, gender and marital status of the respondent, and, finally the educational attainment.

- Household characteristics (H_{hd}) includes variables capturing whether the household is located in a rural or urban area, whether it receives remittances from within Kenya or from other countries, and a set of variables capturing housing conditions (i.e. type of dwelling, whether owned, quality of building, source of lighting, source of water and sanitation etc.).

[10] Where formal savings products are defined as: a current account, savings account, fixed deposit bank account, Postbank account or savings at a microfinance institution, and where formal credit products are defined as: a personal or business loan from a bank, loan from a microfinance institution, loan from a government institution, loan to buy / build a house or buy land from a bank, building society, or government institution, an overdraft, or a credit card.

[11] A major risk associated with the use of a linear probability model is that predicted values might take values outside the 0-1 range. However, in the regressions presented here, around 95% of predicted values are within range. Additionally, as opposed to Probit models, this model lends itself well to fixed effect estimations of the kind presented here. For further discussion see Annex 2.

We also include district fixed effects (α_d), in all equations, meaning that we control for district characteristics that affects all district residents equally. It also implies that we exploit within district variation. For example, we are comparing rural and urban households within a district and not just comparing districts that are mostly rural versus urban districts.

We weight observations to obtain results that are representative at the country level. We also correct for the presence of heteroskedasticity by using robust standard errors and we cluster standard errors at the sub-district level to allow for correlation of errors across households, within sub-districts.

We then run a regression of the same form for savings, i.e. using a sample of all those people who have saved, where P_{ihd} is a discrete variable equal to 1 if the person i in household h and district d uses formal savings facilities, and a value of 0 if they use informal savings facilities, and then regressing this variable against a dummy variable F with a value of 1 if that individual has saved for investment purposes, and equal to 0 if the person has saved only for consumption purposes. The results are shown in Table 9 and 10 below.

Table 9: Relationship between usage of formal financial services and investment using Kenya 2006 survey results.

	If use formal loans	If use formal savings
Use of loan to invest	**0.16 (0.02)*** **	
Use of savings to invest		**0.09 (0.02)*** **
Controls incl.	Yes	Yes
Observations	1875	2811

Standard errors are in ( ); *** significant at 1%, ** at 5%, * at 10%.

Table 10: Relationship between usage of formal financial services and investment using Kenya 2009 survey results.

	If use formal loans	If use formal savings
Use of loan to invest	**0.16 (0.02)*** **	
Use of savings to invest		**0.10 (0.01)*** **
Controls incl.	Yes	Yes
Observations	3487	5741

Standard errors are in ( ); *** significant at 1%, ** at 5%, * at 10%.

The results from running the regression using the 2009 survey show there is a positive relationship between using loans to invest and using formal financial services. People that use loans to invest are 16 percentage points more likely to use formal financial services than people who take loans to consume, even after controlling for individual and household characteristics. This is a significant result at the 1% level.

The results for saving show that people who use savings to invest are 10 percentage points more likely to use formal financial services than people who use savings to consume, after controlling for individual and household characteristics. This is again significant at the 1% level. The result is similar in magnitude for both survey years.

These are strong results, showing an important relationship between saving / borrowing for investment purposes, and the use of formal financial services, that is independent of individual characteristics that might also affect investment decisions.

However, these regressions do not tell you the direction of causation. Thus it could be that using formal financial services encourages or enables an individual to invest, in a way they might not otherwise be able to do (because informal or semi-formal financial services are unavailable or unsuitable perhaps). And / or it could be because a desire to invest encourages or enables individuals to use formal financial services – perhaps because having a specific investment purpose in mind (which should provide a positive return in future), helps people to access formal financial services because they appear to be a better credit risk, or a potentially more profitable customer.

Either way it establishes a link between access to formal financial services and investment, and hence growth, and shows that formal financial services are more suitable for investment purposes than other forms of provision, perhaps because they enable people to access larger sums of money, or to save in a safer or more stable environment than semi-formal and informal mechanisms. However, in order to understand the direction of causation better, we need to investigate the extent of barriers to access faced.

We now try to establish whether supply side barriers to access are related to the probability that an individual undertakes borrowing or saving for investment purposes.

The questionnaire asks the reason why respondents do not hold a bank account. Some of these can be considered supply side barriers to access (e.g. “it’s expensive” or “the branch is too far”), while others reflect a lack of demand for financial services (e.g. “I prefer dealing in cash” or “I don’t need a bank account”). We categorise these as either supply or demand side constraints as set out in Table 11 below[12]. We construct our indicator of barriers to access from this data, including only those we have categorised as supply side constraints, as barriers to access.

[12] noting that some of these could be categorised as either. For example, ‘you do not have a job’ could be a supply side constraint if it meant that employment was an eligibility requirement for opening a bank account, or it could be a demand side constraint if the survey respondent simply meant that they did not have a monthly pay packet to save in an account.

Table 11: Reasons why people are not banked, as listed in Q.A16a of the Kenya 2006 survey

Supply side barriers	Demand side constraints
You don't want to pay service fees	You don't have money to save
You have to keep a minimum balance in the bank	You don't have a regular income
It's expensive to have a bank account	You prefer dealing in cash
You can't afford to	You prefer to use other options rather than a bank
The bank is too far from where you live	It's cheaper to use someone else's account
It takes too long to get your money	You use someone else's bank account
You do not have a job	You can't read or write
You don't have a national id	You earn too little to make it worthwhile
You don't have a referee	You don't need a bank account
You don't qualify to open an account	You don't trust banks
You are too young to have a bank account	Someone you know has lost money they kept at a bank
You don't know how to open a bank account	
They can't speak your language	
You are not allowed to open an account by your partner / spouse	

We then run a regression in which a discrete variable capturing whether an individual saves to invest (through any kind of savings mechanism including informal ones) is regressed against a dummy variable indicating whether or not an individual has cited any supply side barriers to holding a bank account, plus the usual set of control variables. (Note all individuals who do hold a bank account are assumed not to face supply side barriers to holding a bank account. This seems a reasonable assumption, but in any case there is no other option, given that the question about barriers to access in the survey was only asked of people who did not hold a bank account.)

Thus we undertake a regression of the same form as in equation (1) above, but this time where P_{ihd} is a discrete variable equal to 1 if the person i in household h and district d saves to invest, and a value of 0 if they don't, and where the dummy variable F takes a value of 1 if that individual has cited supply side constraints to holding a bank account, and equal to 0 if they haven't.

We then also rerun the regression looking at the relationship between access barriers and whether an individual *borrows* to invest, using the same barriers measure as in the previous regression (e.g. supply side constraints to holding a bank account). It would have been better to use a variable capturing barriers to *credit* for this purpose, but in the survey the question about barriers to credit was only asked of individuals who had never borrowed money, so this was not possible. We also try regressions which include the demand side constraints to using a bank account as a separate explanatory variable. The results are presented in Tables 12 and 13 below:

Table 12: Bank-constrained individuals and investment from Kenya 2006 survey

	Use of savings to Invest	Use of savings to Invest	Use of loan to Invest	Use of loan to Invest
Supply side barriers	**-0.10 (0.02)*** **	**-0.08 (0.02)*** **	**-0.03 (0.01)** **	**-0.02 (0.01)***
Demand side constraints		**-0.18 (0.02)*** **		**-0.11 (0.02)*** **
Controls incl.	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Observations	3951	3951	3951	3951

Table 13: Bank-constrained individuals and investment from Kenya 2009 survey

	Use of savings to Invest	Use of savings to Invest	Use of loan to Invest	Use of loan to Invest
Supply side barriers	**-0.04 (0.01)*** **	**-0.04 (0.01)*** **	**-0.08 (0.02)*** **	**-0.06 (0.01)*** **
Demand side constraints		**0.11 (0.02)*** **		**0.0003 (0.01)**
Controls incl.	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Observations	6598	6598	6598	6598

The 2009 survey results show that individuals who cite supply side barriers to accessing a bank account are 4 percentage points less likely to use savings to invest than people who do not, after controlling for individual, household and district characteristics. This is significant at the 1% level.

However, the relationship with demand side constraints is positive implying that individuals who cite demand side constraints to having a bank account are 11 percentage points *more* likely to use savings to invest. That is not consistent with the 2006 results shown in Table 12 however, which suggest a negative relationship. But in both cases, the inclusion of the demand side constraints variable has little effect on the size or significance of the supply side barriers variable, which helps to strengthen the conclusion that supply side access barriers are independently and negatively related to people's ability to save to invest.

People who cite supply side barriers to accessing a bank account are also 6 - 8 percentage points less likely to *borrow* to invest than people who do not. This is significant, and larger than the relationship with savings based investment, and suggests that access to a bank account can also help individuals to access credit.

Once again, the regression does not establish causation however. So it is possible that causation goes the other way to some extent - i.e. that saving or borrowing to invest itself reduces supply side barriers to access because it improves the perceived creditworthiness or potential profitability of the individual.

In addition, there may be problems of endogeneity in this analysis, given that individual investment decisions and access barriers are likely to be interrelated, and perhaps similarly affected by individual characteristics. So in order to test the results and shed more light on the direction of causation, we have undertaken instrumental variable analysis – whereby regressions are carried out using an exogenous variable which can explain some of the variation in the access barriers variable without affecting the decision to invest in any other way. So for example, one of the instrumental variables we have used is the number of bank branches in an area.

This helps us to unpick causality as investment decisions are unlikely to affect the number of bank branches in an area. Overall the results, which are presented in the Annex 1, suggest that causation does run in the expected direction (although bi-directional causality remains a possibility), and thus confirm that supply constraints do affect the ability of individuals to undertake productivity-enhancing investments.

Thus in sum, we can conclude that these results support our hypothesis that individuals facing supply side barriers to access are less likely to invest, and suggest that lifting barriers to access to formal financial services might increase the proportion of individuals carrying out productivity-enhancing investments.

Finally, the effect of location (urban / rural) and gender does not show a consistent pattern across years or across financial instruments; there is not enough evidence to suggest any empirical regularity relating to urban or gender bias. In 2006, there was no significant difference in the use of formal loans or in the use of loans to invest between rural and urban households or between male and female. Even though urban households were around 4% more likely to use formal savings than rural households and males were 3% more likely than females, there were no significant differences in the use of savings for investment purposes. In 2009, a small urban/rural gap shows with respect to loans: urban households were 4% more likely to use formal loans and 4% more likely to use loans for investment than rural households. However, there is no difference in the use of savings. Women were 3% more likely to save formally, whereas men were 4% more likely to save for investment purposes.

7 Conclusions and policy implications

Our analysis of the FinScope survey data shows that there is a clear demand for financial services across all sections of the population. Individuals use financial services for a range of purposes, from day to day needs, to productivity enhancing investments – in activities such as education, starting a business, or purchasing livestock or agricultural inputs - which are likely to contribute to higher future income and hence growth. This implies that improving access to financial services can contribute to higher economic growth.

Semi-formal and informal financial services are very important in the overall landscape of financial access, and are much more widely used in Kenya and Tanzania than formal financial services. Semi-formal forms of provision are used much more in Kenya than in Tanzania, where informal provision dominates. These results are in line with the higher degree of financial sector development expected in Kenya on the basis of other (supply side) indicators.

Yet despite significant differences in the profile of financial services provision between the two countries, levels of saving and borrowing are remarkably similar. It seems that where formal financial services are unavailable, unsuitable or expensive, people seek alternative, more accessible semi-formal or informal forms of provision.

However, the survey results show that people do not always confine themselves to one form of provision, and some use a combination of formal, semi-formal and informal financial services, implying that the different types of financial services and mechanisms are to some extent complements rather than substitutes.

This suggests that, while the provision of formal financial services is likely to remain the ultimate goal for policy, efforts to promote financial access should also provide a supportive environment for these other forms of provision to flourish, whilst balancing that objective with the need to maintain adequate levels of consumer protection from fraud and financial instability. Indeed, it seems possible that increased financial inclusion may most easily be achieved by widening access to such semi-formal forms of provision

However, our econometric analysis shows that *formal* financial services tend to be used more for investment purposes; people who borrow specifically to invest are 16 percentage points more likely to use formal financial services than people who borrow to consume, after taking other possible explanatory factors into account. And people who save to invest are 10 percentage points more likely to use formal financial services than people who save to consume.

This suggests that using formal financial services encourages or enables an individual to invest, in a way they might not otherwise be able to do (because informal or semi-formal financial services are unavailable or unsuitable perhaps). It could also be because a desire to invest encourages or enables individuals to use formal financial services – perhaps because having a specific investment purpose in mind (which should provide a positive return in future), helps people to access formal financial services because they appear to be a better credit risk, or a potentially more profitable customer.

Either way, it establishes a link between access to formal financial services and investment - and hence growth - and shows that formal financial services are more

suitable for investment purposes than other forms of provision, perhaps because they enable people to access larger sums of money, or to save in a safer or more stable environment than semi-formal and informal mechanisms.

Thus it seems that while the goal of financial inclusion may be promoted through *semi-formal* financial services, growth can best be promoted by improving access to *formal* financial services.

Barriers to access are a significant problem however. Although the most commonly cited reasons for not borrowing or saving reflect a lack of demand for financial services (i.e. because people do not have the money to save, or do not need a loan), which suggests that the binding constraint to usage is often on the demand side rather than the supply side, many people also cite supply side barriers to access e.g. high charges, a lack of collateral, or the fact that there is nowhere nearby that provides a savings or credit facility.

The results suggest that there are greater supply side barriers to access in Tanzania, whereas demand side constraints to borrowing and saving are more of a binding constraint in Kenya. These findings are backed up by other indicators which show that Kenya is more financially developed than Tanzania. The main supply side barriers to access identified by survey respondents in both countries relate to:

- high charges - which was more commonly cited as a problem in Kenya;
- a lack of financial literacy i.e. not knowing where to access a service, or how services work, which seems to be more of a problem in Tanzania, and amongst women and rural inhabitants in Kenya;
- not having a nearby financial services facility, which was most commonly cited as a problem in Tanzania, especially amongst rural inhabitants;
- difficulty meeting qualifying requirements such as the need to have collateral, a guarantor, or an initial lump sum; and
- the lack of required documentation.

Our econometric analysis shows that supply side barriers to accessing a bank account can reduce a household's ability to invest. Individuals who cite supply side barriers to accessing a bank account are 4 percentage points less likely to save for investment purposes than people who do not. They are also 6 - 8 percentage points less likely to borrow for investment purposes, which suggests that access to a bank account may play an important role in helping individuals to access credit. These are strong results, and provide the first quantitative estimates of the negative impact of access barriers on household investment.

These results thus provide new evidence of the importance of promoting financial inclusion and tackling barriers to accessing formal financial services, in order to contribute to investment and growth. They are also consistent with other studies; for example, a recent World Bank (2008) growth diagnostic analysis of Kenya concludes that investment by smaller businesses could be constrained because of poor and costly access to finance, and that improving access to finance for small and rural entrepreneurs is a priority.

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The kinds of policies and interventions that have been used to tackle the most commonly cited access barriers identified in this study include:

- efforts to reduce costs and increase geographical availability by supporting the development and roll-out of innovative cost saving technologies and business models such as mobile banking, cell phone banking, and e-banking, and the use of new distribution channels for financial services, such as local stores;

- investment in financial literacy or marketing programmes to improve understanding of financial services and knowledge about their availability, particularly for women and inhabitants of rural areas whom our findings suggest have lower levels of financial literacy on average;

- assistance in the establishment of credit bureaux and asset registries to make it easier for people to qualify for loans; and

- provision of support for regulatory reform and capacity building to create the right environment and incentives for financial providers to expand access, which appropriately balances the need to protect against instability, fraud and money laundering, with the need to encourage wider access to financial services.

Thus in sum, this study provides the first concrete, quantitative estimates of the potential impact of access barriers on household investment. The findings suggest that barriers to access could have potentially significant implications for growth, as access to financial services can underpin the investment that is crucial to enable households to build up the physical and human capital that contributes to higher income going forward.

These results thus provide strong, new evidence of the importance of tackling barriers to access. Policies and interventions designed to reduce barriers to access could help to stimulate higher levels of household investment, thus making an important contribution to growth and poverty reduction in developing countries.

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Annex 1: The use of instrumental variables to solve the possible endogeneity problem

The regressions presented in Tables 12 and 13 show that households that face supply-side barriers to access of formal financial instruments tend to be less likely to seek funds for investment. These results cannot be interpreted as causal because alternative stories could be driving both phenomena or because the effect goes in the opposite direction, i.e. the low levels of investments reduce the attractiveness for banks to cater for these households. It is important to note that the use of district fixed effects and household and individual characteristics control for many of these alternative explanations, but cannot reduce concerns about other sources of household heterogeneity that are unobserved.

In other words, there may well be problems of endogeneity in the econometric analysis contained in this report, which may bias the results, given that individual investment decisions and access barriers are likely to be interrelated, and perhaps similarly affected by individual characteristics. We have thus tried several instrumental variables in order to test the results.

To do this we needed to find a source of exogenous variation i.e. a phenomenon that can explain some of the variation in the access barriers variable without affecting the decision to invest in any other way. A natural candidate would be the supply of bank branches – though one should be careful about the validity of this as an instrument, since the location of banks is not random, but should be endogenous to the presence of entrepreneurship talents or the potential for profitable ventures in the area. However, if we assume that all phenomena that attract banks to set up branches are determined at the district level, then within a district, people that are closely located to banks would be less constrained[13]. We therefore use such a measure as an instrumental variable.

As a first approximation, we utilise the interaction between the number of bank branches per kilometre squared at the district level and a dummy equal to 1 if the individual has reported that the nearest bank branch is far or very far.

We present results in Table A1.1 for 2006, with and without individual controls and using only the “far from branch” dummy, always controlling for district fixed effects. Note that the term “bank branches” is absorbed by the fixed effect when not interacted. In the first four columns we present the specification where we use the interaction between the number of bank branches and how far away individuals are to predict their probability of being supplied constrained. The first stage regressions in columns (1) and (3) show that individuals far from a branch tend to be supply constrained. Surprisingly, the coefficient on the interaction term shows that individuals in districts with more bank branches are even more constrained than those in districts with less formal banking.

[13] Also note that "far from bank" is a self-reported measure. That means that if someone is very entrepreneurial their characterisation of a given distance would differ from that of a less active person. This difference in types would certainly have a direct effect on decisions to invest, reducing the validity of the instrument.

Table A14: Save-to-invest decision when using branch location as an instrument for Bank constraints (2006)

Dependent:	Supply constrained	Save to Invest	Supply constrained	Save to Invest	Save to Invest	Save to Invest	Save to Invest
	(first stage)		(first stage)		(second stage only)		
Supply constrained		-0.32 (0.15)**		-0.61 (0.21)***	-0.57 (0.30)**		
Far from branch	0.06 (0.03)**		0.11 (0.02)***				
Far * Bank branches in the district	0.02 (0.01)*						
No bank account						-0.55 (0.29)*	
No demand							-0.67 (0.35)*
Controls	No	No	No	No	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3951	3951	3951	3951	3951	3951	3951
First Stage F-test	20.50		29.09		12.08	22.38	5.26

The first stage F-test statistics are sufficiently large, showing a strong correlation between the instruments and the instrumented variable. The second stage shows a negative and significant effect of supply constraints on the decision of saving for investment purposes[14]. The effect is larger than the one obtained in the previous table, suggesting the instrument addresses a source of negative bias in the least squares estimation. The last two columns use two other measures of being constrained (not having a bank account and reporting not to demand banking services).

In both cases, the effects remain negative and significant. Note that in the demand regression, the first stage statistic is much lower. As we expect, that suggests that being far away in a district with more or less branches is a worse predictor of the behaviour of individuals that do not seem constrained, because they do not demand bank services. Overall, the results suggest that people that are not banked are less likely to invest. More importantly, this effect is not only present for people who do not demand banking services (and would be less prone to invest anyway) but also for respondents who identify themselves as constrained by the location or workings of the banking sector. This therefore supports the previous findings, that supply side barriers to access do affect the decision or ability to invest.

For the instrument to be valid, we would need that these households' investment decisions are affected only in the following way:

(1) Whether the household is far from a branch → (2) Supply constraints → (3) Investment

Table A1.1 above shows that the first arrow in the scheme holds, i.e. that those households far from branches tend to be significantly more supply-constrained than

[14] Over-identification tests are run in the presence of more than one instrument to check whether the instruments are correctly excluded from the main regression. The test passes in all regressions.

households close to a bank branch. There is evidence for the second arrow as well: the explained variation of constraints to supply provided by the first arrow is negatively correlated with investment activities.

The main concern is that there should not be an arrow independently linking (1) and (3). An example would be if bank branches are located closer to other markets (e.g. input markets). That could mean that investments are lower, not because being far from a bank reduces a household's access to credit, but because it is costly to get access to inputs. An alternative story could be one of security of property rights: if being far from a bank branch is also associated with low levels of policing in the area, maybe investments are lower because of concerns about buying capital goods that could be stolen. Unfortunately, given the data constraints, we cannot deal with these alternative mechanisms other than by controlling for district, household and household head individual characteristics. The validity of the strategy relies on the assumption that distance to a bank branch is not affecting investment decisions in any other way.

The 2009 survey provides a more precise measure of distance: the time it takes to get to the nearest bank branch (we use a dummy equal to 1 if it takes more than 30 minutes) and the cost of getting there (we use a dummy equal to 1 if it costs more than 50 Ksh). Table A1.2 shows the results when we use these measures as instruments.

Table A1.2: Save-to-invest decision when using branch location and cost of transport as an instrument for bank constraints (2006)

Dependent:	Supply constrained	Save to Invest	Supply constrained	Save to Invest	Supply constrained	Save to Invest	Save to Invest
	(first stage)		(first stage)		(first stage)		(second stage only)
Supply constrained		-0.87 (0.28)***		-0.62 (0.25)**		-0.47 (0.27)*	-0.59 (0.15)***
Far from branch	0.07 (0.02)***		0.01 (0.02)*				
Far * Bank branches in the district			0.48 (0.21)**				
Travel cost expensive					0.06 (0.02)***		
No bank account							
Controls	No	No	No	No	No	No	No
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6598	6598	6232	6232	6598	6598	6598
First Stage F-test	19.38		8.86		15.36		45.05

Results in columns (1), (3) and (5) report the first stage of the IV regression and show that people living far from bank branches (in terms of travel time or cost) are more likely to be supply constrained. The remaining columns show that the variation in supply constraints explained by these instruments is associated to a lower probability of an individual saving to invest.

In sum, Tables A1.1 and A1.2 suggest that being far from bank branches reduces the possibility of being formally banked (even if there is demand for it) and that subsequently, investment is lower on average. These results therefore support the initial results, that supply constraints do affect the ability of individuals to undertake productivity-enhancing investments.

Another set of instruments was proposed by Honohan and King (2009) involving psychographic measures from the FinScope surveys, such as trust and knowledge of financial sector. To be a good instrument, these measures must be assumed not to affect the decision to "save to invest" through any other channel. Though this assumption might be somewhat strong, since individual characteristics such as entrepreneurship could drive both learning about financial matters and the intention to invest, this exercise might shed some light on the interaction between an individual's perception of the financial sector and their market behaviour and financial decisions. Thus we use a dummy equal to 1 for individuals who have in the survey responded that people ask them about financial matters (question I2.1 in 2006 and D9 for 2009). For 2006, we also use individuals who simultaneously do not believe that banks take advantage of poor people (question I2.17, not available in 2009). Table A1.3 shows a reduced form regression of the explained variable on the instrument: individuals that trust and know about banks are more likely to save to invest.

Table 15: Save-to-invest decision when using psychographic measures as an instrument for bank constraints (2006)

Dependent:	Save to Invest	Supply constrained	Save to Invest	Save to Invest	Save to Invest	Save to Invest
		(first stage)		(second stage only)		
Supply constrained			-1.41 (0.38)***	-1.61 (0.74)**		
Knows and trusts banks	0.08 (0.02)***	-0.91 (0.02)***				
No bank account					-1.53 (0.51)***	
No demand						-2.49 (1.45)*
Controls	Yes	No	No	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3951	3951	3951	3951	3951	3951
First Stage F-test	n/a	19.07		6.81	13.54	3.40

The instrumental variable results are shown in the remaining columns. In column (2) we see that the instrument is a good predictor of not being supply-constrained. The second stage in column (3) shows that, after being instrumented, being supply-constrained still reduces the likelihood of saving to invest. The following columns show that the strategy, even though weaker, still works when controlling for individual characteristics and for other measures of banking. In particular, the instrument is a good predictor of the individual not being banked. It works less well in predicting demand side constraints to access however: the F-statistic of the first stage suggests that knowledge and trust are not such good predictors of lower demand for banking. Overall, the results confirm that constraints to formal banking are associated with less investment.

For 2009, we only use information on self-reported knowledge about banks and we find similar results, reported in Table A1.4. Individuals that declare to be a source of financial information to others are less likely to be supply constrained and, subsequently, more likely to invest. Note that knowledge is a good predictor of being banked or not being supply-constrained. However, as we can see in the last column, knowledge is not a good predictor for individuals that do not demand banking products. That means that, once again, there is no consistent evidence that people that do not demand banking products tend to invest less, probably because they choose optimally to use alternative instruments that are better suited for their needs or preferences. On the other hand, there is a consistent picture of individuals that are supply constrained being less likely to invest, suggesting that lifting barriers to access to formal financial instruments might increase the proportion of individuals carrying out investment projects.

Table A1.4: Save-to-invest decision when using psychographic measures as an instrument for bank constraints (2009)

Dependent:	Save to Invest	Supply constrained	Save to Invest	Save to Invest	Save to Invest	Save to Invest
		(first stage)		(second stage only)		
Supply constrained			-1.04 (0.12)***	-1.26 (0.34)***		
Knowledge	0.08 (0.02)***	-0.15 (0.02)***				
No bank account					-0.76 (0.15)***	
No demand						-4.59 (2.99)
Controls	Yes	No	No	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6598	6598	6598	6598	6598	6598
First Stage F-test	n/a	122.47		19.62	72.24	2.59

Overall therefore, the instrumental variable estimation we have tried provides support for the key conclusion that supply side barriers are related to the probability to invest, and suggests there may be a causal link.

Annex 2: Rationale for using the linear probability model

The linear probability model (LPM) was chosen for the econometric analysis because the data provided by the questionnaire is mostly categorical and variables have to be transformed into dummies. This has implications for the interpretation of the coefficients and in the technicalities of the estimation. In particular, the interpretation of coefficients is straightforward because the linear model gives the conditional average effect of moving from a value 0 to a value 1 in a given category (e.g. the conditional average difference in formal savings between households with a female head and households with a male head). In non-linear models such as probit and logit, the coefficients are assumed to change at different points in the distribution, making the estimates harder to interpret when the explanatory variables are discrete. Similarly, when using interaction terms, the LPM allows for a clear interpretation of the coefficients, that is not possible in probit or logit.

In addition, a probit model cannot be used because of the 'incidental parameter problem', that would generate biased estimates. As noted in Stata:

"there is no command for a conditional probit fixed-effects model, as there does not exist a sufficient statistic allowing the fixed effects to be conditioned out of the likelihood. Unconditional fixed-effects probit models may be estimated with the probit command with indicator variables for the panels. However, unconditional fixed fixed-effect estimates are biased".

In any case, the regressions have been rerun using both probit and logit and the results remain qualitatively similar.

The only potential concerns with using the linear probability model are that of heteroskedasticity (which can easily be solved within Stata) and that the predicted values are not constrained to be between 0 and 1. However this has been checked, and in 95% of cases the predicted value of the regression is within the bounds, meaning that the model is behaving quite well for our purposes.

Another issue relates to the focus in the econometrics on only two categories of financial services – formal and informal. An alternative approach would have been to use a multinomial logit approach to examine what happens when individuals choose over many possible outcomes. However, this would have reduced the number of observations substantially, because we would have needed to separate into many groups (e.g. "only formal", "formal and semi", "only semi", "semi and informal", "informal", "no credit" etc.). In addition, the multinomial logit approach has some problems (e.g. the relative probability of two options does not depend on the characteristics of the third option at all, something that cannot be assumed in this scenario). As we are only dividing the choices into formal and informal in the analysis, we do not need to use a strategy that allows for more than two options.

Annex 3: Descriptive statistics and control variables

Table A3.1 shows descriptive statistics for both 2006 and 2009 survey samples. Note that the number of observations has increased substantially in the second survey, going from 3591 to 6598. In the 2006 sample, 1875 respondents out of 3951 (47.5%) have had a loan at some point and 2811 out of 3591 have saved in some way (71%). Both ratios have increased significantly in 2009, around 5 percentage points in the incidence of loan taking and around 16 percentage points in the proportion of savers.

As credit is a promise for future payment, sources of income might be extremely important in determining access to loans, so data is also presented on the main source of income. Respondents for who the main source of income was transfers increased considerably between 2006 and 2009. In 2006, 17% of respondents had received transfers from within Kenya, (only 3% received transfers from abroad). This changed dramatically in 2009, where the proportion of respondents receiving some kind of transfers from other parts of Kenya was 52%. This probably reflects at least in part the introduction and growth of M-Pesa as a money transfer service.

Since the main source of income by activity is measured through a set of dummies for occupation, in the regressions we leave an omitted category out, to which all others are compared. We chose people whose main income are transfers from friends and family, since they represent around 14% of the sample in 2006 and are among the largest 'occupations' with the least proportion of loan takers (around 35%).

In terms of location, around 70% of households are rural. In 2006, the main language spoken is Swahili (48%), followed by Kikuyu (12%) and English (9.5%), (which we used as our omitted category for the regressions). In the 2009 survey this changes slightly, with responses in Swahili and English increasing to 71.4% and 12.1%, respectively and Kikuyu dropping to 6.8%. In the regressions we use these variables to help capture cultural variation in the approach to credit and savings (e.g. reluctance to take credit or issues related to the provision of loans through social networks) and to help reveal any constraints (e.g. if banking is done exclusively in English).

The mean respondent is around 37.5 years old; with significant variation (standard deviation is around 15.2 years) for 2006. For 2009 information on the exact age is not available. However, we do have age brackets that show a similar distribution across surveys. For example, around 55% of the respondents are between 18 and 39 years old in both samples. Since loans and savings might follow a life-cycle pattern, in 2006 we include age squared, to capture a correlation between age and loans/savings that might be non-linear. In both samples, more than 55% of respondents are female and more than 60% are married or live with a partner. Educational attainment is also similarly distributed in both samples and is proxied using a set of dummies for those who finished primary education (around a third of respondents), finished secondary education (more than 15%), and have tertiary or university education (less than 10%). The omitted category to which all these are compared in the regressions is those who have received none or incomplete primary education. Around 43% of respondents are in the "no education" group.

Table A3.1: Descriptive statistics (all variables are dummies except age)

	Mean	
Year	2006	2009
Variable		
Loan	47.5%	52.8%
Savings	71%	87%
Transfers from Kenya	16.7%	52%
Transfers from abroad	2.9%	5%
Main source of income: transfers (pensions; family and friends)	15%	21.2%
Main source of income: farming (agriculture, cattle, fish)	36.2%	34.1%
Main source of income: employed (in farms, government, private sector)	24.4%	22.4%
Main source of income: own business (manufactures, services, landlords)	21.7%	20.9%
Rural	68.1%	71.4%
Speak Swahili	47.9%	64.9%
Age (between 18 and 39)	56.1%	55%
Gender (female)	56%	58%
Married or living with partner	63.9%	60.1%
No education	43.7%	43.5%
Observations	3591	6598

Results from the linear probability regressions for the control variables are presented in Tables A3.2 and Table A3.3 for 2006 and Tables A3.4 and A3.5 for 2009, where loan-takers and savers are characterised, respectively[15]. We start by looking at the characteristics of people that have obtained a loan, whether from informal or formal sources.

(Agents can seek loans for consumption or investment purposes. We might expect that individuals with formal and reliable sources of income would be more likely to obtain loans. The district fixed effects imply that we are not just capturing the variation across districts but also how different characteristics are associated to different financial activity within districts as well.)

In column (1) in Tables A3.2 and A3.3 we look at all loan takers. The picture in terms of sources of income seems to be somewhat irregular. For example, remittances seem to matter for people to access loans. In 2006, people reporting they receive remittances originated in Kenya are 6.6 percentage points (henceforth, pp) more likely to obtain a loan than people with no remittances, but the same does not hold for people receiving international remittances. But in 2009, people receiving remittances are more likely to get a loan, regardless of the source.

In terms of occupation, all results are relative to people whose main source of income is transfers from friends or family and the differences in probability of obtaining a loan are expressed in percentage points. So for example, those receiving a pension as the main source of income are 30.3 percentage points (pp) more likely to obtain a loan than those whose main source of income is transfers from friends or family – a result that is statistically significant at the 1% level.

In 2006, it seems that individuals that may have a more reliable flow of income are more likely to obtain a loan (e.g. those receiving a pension, at 30pp, landlords, 17 to 25 pp) and/or wages above average (government employees, 27 pp; employed in

[15] Standard errors: *** significant at 1%, ** at 5%, * at 10%.

medium or big firms, more than 20 pp). For people in charge of productive activities, only those who sell cash or food crops (6-7 pp) and people running their own business in the trading sector (around 10 pp) are more likely to obtain a loan. Other productive activities, such as manufacturing or services sectors, do not seem to have a relationship with obtaining loans.

In 2009 the picture changes: most occupational activities linked to production are associated with more loan-taking than individuals living on transfers, irrespective of whether the respondent is an employee, a farmer or a businessperson. (An important note is that these results should be read as correlations and not as causal, since unobserved individual characteristics, such as personal or family connections or idiosyncratic ability, might be a source of bias. For example, they might determine simultaneously the access to loans and occupational choice, such as working for the government or for a big firm.)

Location, (rural or urban) doesn't seem to significantly affect the probability of having a loan, although urban individuals are more likely to have an investment loan. In 2006 cultural traits picked up by language do not seem to be related to obtaining a loan in most cases, but the results are different in 2009, where English speakers, the omitted category, take on average more loans than Swahili speakers, but less than Kikuyu.

In terms of demographics, age follows a quadratic function, in line with a life-cycle argument without consumption smoothing, where younger and older people borrow less, probably because they earn less (this can only be done for 2006). Surprisingly, more educated people do not seem to be substantially more likely to take loans than non-educated. Only people with tertiary studies in 2009 take more loans than non-educated respondents. The lack of a clear link between education and borrowing can be explained by the composition of loans, rather than by its access. Education is strongly associated with formality and with loans for investment purposes. People with no education might borrow in the same proportion as more educated respondents, but from informal channels and for consumption purposes.

There is no apparent difference in loan-taking by gender and, for 2009, where respondents are not necessarily the head of household, we don't find any difference between being head of household or not. Among household characteristics, couples seem to be borrowing more than single people. This could be because those households have more than one source of income and that makes them more attractive borrowers or because they have different consumption or investment needs.

Apart from access to electricity which is positively correlated with the probability of having a loan, characteristics of the dwelling explain little variation in loan taking so have not been included.

Column (2) in Tables A3.2 and A3.3 looks only at the probability of obtaining a loan from formal sources, conditional on having obtained a loan and column (3) looks at who takes loans to invest. Formal sources are banks (using different instruments, such as loans, credit cards or overdrafts), building societies, micro-finance institutions and government. Investment includes agricultural inputs, implements and improvements, starting or expanding business or expenditures in education.

Results for sources of income are consistent with producers seeking formal credit and investing: farming and livestock activities and owners of trade and services businesses are significantly more likely to go formal and to take loans to invest,

among those who have or have had a loan. Government employees and pensioners are also more likely to go formal, but only the former, along with employees from big and medium firms are more likely to take loans to invest, probably in education. This link between formality and pensioners and government employees might reflect that these individuals have a stable and reliable source of income that gives them access to formal suppliers, more than people living on family transfers.

Even though there was no consistent link between language and borrowing across surveys, there is in terms of formality: English speakers are more likely to go formal than Swahili and Kikuyu, among other groups. This contrasts with the previous result and suggests that, controlling for individual and household characteristics, the composition of loans seems to be tilted towards informal sources for non-English speakers and vice versa, even though the proportion of people taking loans changes across groups. That could be a consequence of formal sources of credit operating mainly in English.

As noted above, a similar result is observed for more educated people: even though the proportion of highly educated people that had a loan was similar to people with lower levels of education, the former tend to go significantly more (between 15 and 30 pp) for formal sources and to take loans to invest.

In brief, results in Tables A3.2 and A3.3 help to characterize the average borrower in Kenya. In particular, columns (2) and (3) show that differences not only come from different levels of borrowing but also in their composition. Formal and stable sources of income seem to be associated with credit formality and investment. Conditional on income-related and other characteristics, so does education. That means that if we compare two people working in the same sector, educated people are more likely to invest and to go for formal sources of credit.

Tables A3.4 and A3.5 show a similar pattern of results for 2009. The important message again comes not just from the average proportion of savers but from which characteristics are associated with formality and investment. For example, even though there are not big differences in the probability of savings across language groups, English speakers are more likely than most to go for formal sources, suggesting again that English might be the language of preference for formal institutions. Finally, note that education is associated with a greater probability of saving (between 5 and 10 pp) but the likelihood of using formal savings accounts is much larger, especially for those with secondary and tertiary education (25 and 37 pp, respectively).

Table A3.2: Characteristics of loan takers, 2006

	Loans		Formal Loans (if loans = 1)		Loans to invest (if loans = 1)	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Sources of income						
Transfers from Kenya	0.066	0.03**	0.028	0.03	-0.021	0.04
Transfers from abroad	0.034	0.07	0.004	0.07	-0.071	0.06
Pensions	0.303	0.082***	0.206	0.12*	-0.015	0.13
Sell cash crops	0.072	0.04*	0.145	0.06**	0.160	0.05***
Sell food crops	0.057	0.032*	0.078	0.03***	0.163	0.04***
Sell products from livestock	0.007	0.04	0.105	0.05**	0.212	0.06***
Sell livestock	0.033	0.05	0.084	0.05*	0.223	0.08***
Fish farming or fishing	0.074	0.09	0.092	0.08	0.419	0.09***
Employed in farms (full-time)	0.049	0.05	0.058	0.03*	-0.018	0.06
Employed in farms (seasonal)	-0.017	0.05	0.042	0.03	0.085	0.06
Domestic employee	-0.102	0.05*	-0.070	0.04	-0.049	0.07
Government employee	0.269	0.05***	0.254	0.06***	0.353	0.07***
Employed in big firm	0.214	0.06***	0.038	0.06	0.152	0.07**
Employed in medium firm	0.254	0.06***	0.070	0.05	0.156	0.07**
Employed in small firm	0.061	0.06	0.011	0.05	0.043	0.08
Own business (manufactures)	0.036	0.09	0.089	0.06	0.195	0.11*
Own business (trade)	0.092	0.04**	0.094	0.03***	0.255	0.04***
Own business (services)	0.073	0.05	0.083	0.05*	0.384	0.07***
Land letting	0.247	0.06***	0.307	0.27	0.699	0.10***
House letting	0.171	0.10*	0.186	0.17	0.168	0.18
Investor	0.181	0.16	0.244	0.27	0.163	0.28
Location and language						
Rural	0.020	0.04	0.008	0.03	-0.041	0.04*
Speak Swahili	-0.053	0.04	-0.145	0.06**	-0.093	0.06
Speak Kikuyu	0.086	0.07	-0.151	0.06***	-0.042	0.07
Speak Luo	0.002	0.08	-0.200	0.07***	0.057	0.09
Speak Meru	0.094	0.10	-0.136	0.09	0.092	0.10
Speak Kisii	0.221	0.11**	-0.104	0.05*	-0.238	0.15
Speak Luhya	-0.037	0.08	0.079	0.09	-0.017	0.12
Speak Kalenjin	-0.090	0.06	-0.144	0.08*	0.027	0.08
Speak Kamba	0.001	0.07	-0.213	0.15	-0.109	0.18
Speak Somali	-0.049	0.13	-0.029	0.07	-0.231	0.10**
Demographics and schooling						
Age	0.010	0.003***	0.0002	0.00	0.003	0.005
Age sq	-0.0001	0.00003***	0.00003	0.00	-0.00002	0.00005
Female	0.008	0.02	0.007	0.02	-0.019	0.03
Primary complete	0.024	0.02	0.05184	0.02***	0.075	0.03**
Secondary complete	0.007	0.03	0.025	0.03	0.057	0.04
Tertiary/University	0.056	0.04	0.299	0.05***	0.179	0.06***
Divorced	-0.040	0.06	-0.031	0.06	-0.036	0.09
Widower	0.017	0.04	-0.023	0.04	-0.048	0.06
Married/living with partner	0.067	0.03**	0.040	0.03	0.018	0.04

Table A3.3: Characteristics of savers, 2006

	Savings		Formal Savings (if savings = 1)		Save to invest (if savings = 1)	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Sources of income						
Transfers from Kenya	0.109	0.02***	-0.29	0.24	-0.01	0.03
Transfers from abroad	0.138	0.04***	-0.070	0.06	-0.04	0.08
Pensions	0.322	0.06***	0.497	0.08***	0.11	0.12
Sell cash crops	0.276	0.04***	0.147	0.05***	0.24	0.05***
Sell food crops	0.121	0.03***	0.135	0.04***	0.20	0.04***
Sell products from livestock	0.166	0.04***	0.156	0.05***	0.25	0.06***
Sell livestock	0.143	0.04***	0.093	0.07	0.28	0.07***
Fish farming or fishing	0.137	0.08*	0.027	0.09	0.50	0.11***
Employed in farms (full-time)	0.061	0.07	0.079	0.05*	-0.002	0.06
Employed in farms (seasonal)	0.074	0.04*	0.095	0.05*	0.18	0.06***
Domestic employee	0.035	0.06	0.024	0.06	0.07	0.10
Government employee	0.255	0.04***	0.318	0.05***	0.36	0.06***
Employed in big firm	0.266	0.04***	0.288	0.07***	0.14	0.07**
Employed in medium firm	0.296	0.04***	0.180	0.06***	0.27	0.07***
Employed in small firm	0.139	0.06**	0.236	0.07***	0.12	0.08
Own business (manufactures)	0.139	0.07*	0.169	0.11	0.22	0.09*
Own business (trade)	0.226	0.04***	0.204	0.04***	0.30	0.04***
Own business (services)	0.141	0.04***	0.184	0.05***	0.32	0.07***
Land letting	0.306	0.07***	0.071	0.22	0.38	0.20*
House letting	0.227	0.05***	0.331	0.10***	0.27	0.15*
Investor	0.616	0.09***	0.265	0.26	0.53	0.24**
Location and language						
Rural	0.013	0.03	-0.059	0.03*	0.001	0.04
Speak Swahili	-0.065	0.03*	-0.111	0.04***	-0.07	0.05
Speak Kikuyu	0.083	0.05*	-0.089	0.06	-0.09	0.08
Speak Luo	-0.187	0.06	-0.225	0.07***	-0.09	0.08
Speak Meru	0.046	0.06	-0.123	0.08	-0.10	0.13
Speak Kisii	0.018	0.08	-0.210	0.09**	-0.29	0.07***
Speak Luhya	-0.005	0.06	-0.259	0.07***	-0.04	0.11
Speak Kalenjin	-0.295	0.06***	-0.109	0.07	-0.23	0.08***
Speak Kamba	-0.117	0.05**	-0.213	0.10**	-0.21	0.10**
Speak Somali	-0.057	0.11	0.315	0.15**	0.28	0.25
Demographics and schooling						
Age	0.007	0.003***	0.013	0.003***	0.011	0.004***
Age sq	-0.0001	0.00003**	-0.00009	0.00004**	-0.0001	0.00005***
Female	0.046	0.02***	-0.054	0.02***	-0.011	0.02
Primary complete	0.066	0.02***	0.072	0.02***	0.015	0.03
Secondary complete	0.098	0.02***	0.257	0.03***	0.062	0.036*
Tertiary/University	0.098	0.03***	0.368	0.04***	0.039	0.05
Divorced	0.140	0.05***	0.042	0.07	-0.099	0.07
Widower	0.063	0.03*	0.005	0.04	-0.005	0.05
Married/living with partner	0.086	0.02***	0.026	0.03	0.037	0.03

Table A3.4: Characteristics of loan takers, 2009

	Loans		Formal Loans (if loans = 1)		Loans to invest (if loans = 1)	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Sources of income						
Transfers from Kenya	0.096	0.015***	0.006	0.01	-0.036	0.018**
Transfers from abroad	0.083	0.029***	0.041	0.04	0.054	0.038
Pensions	-0.056	0.090	0.355	0.11***	-0.128	0.088
Sell cash crops	0.100	0.033***	0.047	0.03	0.118	0.044***
Sell food crops	0.069	0.024***	0.034	0.02*	0.106	0.029***
Sell products from livestock	0.100	0.032***	0.093	0.03***	0.122	0.040***
Sell livestock	0.077	0.041**	0.003	0.03	0.088	0.050*
Fish farming or fishing	0.118	0.072	0.002	0.06	0.168	0.092*
Employed in farms	0.082	0.029***	-0.008	0.02	0.016	0.034
Domestic employee	0.016	0.046	0.041	0.05	0.060	0.043
Government employee	0.267	0.043***	0.388	0.05***	0.283	0.058***
Employed in big or medium firm	0.176	0.043***	0.189	0.05***	0.098	0.040**
Employed in small firm	0.115	0.049**	0.112	0.05**	0.131	0.056**
Employed in micro firm	0.093	0.046**	0.074	0.05	0.015	0.061
Own business (manufactures)	0.086	0.045*	0.094	0.05*	0.192	0.059***
Own business (trade)	0.114	0.023***	0.127	0.03***	0.229	0.031***
Own business (services)	0.120	0.035***	0.082	0.04**	0.090	0.040**
Land letting	0.150	0.125	0.064	0.08	-0.004	0.126
House letting	0.114	0.085	0.150	0.10	0.020	0.094
Investor	0.350	0.084***	0.491	0.12***	0.201	0.199
Location and language						
Rural	0.014	0.026	0.044	0.029	-0.095	0.032***
Speak Swahili	-0.06	0.03**	-0.080	0.032**	-0.05	0.03
Speak Kikuyu	0.19	0.04***	-0.068	0.052	-0.01	0.06
Speak Luo	0.02	0.04	-0.138	0.057**	-0.03	0.06
Speak Meru	0.11	0.06*	-0.097	0.043**	-0.08	0.08
Speak Kisii	-0.16	0.06***	-0.145	0.052***	0.02	0.07
Speak Luhya	-0.20	0.06***	-0.117	0.049**	-0.01	0.09
Speak Kalenjin	-0.02	0.07	-0.024	0.076	0.00	0.09
Speak Kamba	-0.25	0.06***	-0.075	0.047	-0.05	0.09
Speak Somali	0.27	0.06***	-0.160	0.096*	-0.28	0.14*
Speak Turkana	-0.48	0.09***	n/a		n/a	
Speak Maasai	-0.51	0.07***	n/a		n/a	
Demographics and schooling						
Head of household	0.015	0.017	0.005	0.017	-0.021	0.023
Age 18-39	0.090	0.038**	-0.010	0.026	0.060	0.045
Age 40-59	0.111	0.041***	0.082	0.031***	0.168	0.049***
Age 60+	0.036	0.044	0.079	0.033**	0.076	0.055
Female	-0.006	0.016	-0.017	0.016	-0.012	0.021
Primary complete	0.021	0.018	0.085	0.016***	0.052	0.023**
Secondary complete	0.040	0.024*	0.154	0.027***	0.109	0.030***
Tertiary/University	0.094	0.035***	0.281	0.040***	0.136	0.043***
Marital status	0.040	0.01***	0.033	0.006***	0.017	0.07**

Table A3.5: Characteristics of savers, 2009

	Savings		Formal Savings (if savings = 1)		Save to invest (if savings = 1)	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Sources of income						
Transfers from Kenya	0.074	0.010***	0.075	0.013***	0.017	0.015
Transfers from abroad	0.029	0.015*	0.025	0.032	0.011	0.037
Pensions	0.173	0.022***	0.452	0.056***	0.115	0.095
Sell cash crops	0.162	0.022***	0.139	0.030***	0.210	0.036***
Sell food crops	0.124	0.019***	0.090	0.021***	0.169	0.027***
Sell products from livestock	0.153	0.021***	0.113	0.029***	0.197	0.034***
Sell livestock	0.179	0.032***	0.057	0.034	0.157	0.047***
Fish farming or fishing	0.103	0.059*	0.098	0.077	0.254	0.083***
Employed in farms	0.083	0.024***	-0.001	0.023	0.099	0.033***
Domestic employee	0.083	0.034**	-0.021	0.037	0.125	0.056**
Government employee	0.156	0.020***	0.346	0.043***	0.280	0.058***
Employed in big or medium firm	0.168	0.025***	0.302	0.038***	0.185	0.042***
Employed in small firm	0.121	0.027***	0.249	0.054***	0.192	0.053***
Employed in micro firm	0.159	0.029***	0.100	0.047**	0.074	0.058
Own business (manufactures)	0.151	0.028***	0.176	0.049***	0.334	0.052***
Own business (trade)	0.158	0.017***	0.161	0.023***	0.277	0.025***
Own business (services)	0.153	0.022***	0.156	0.035***	0.257	0.045***
Land letting	0.180	0.067***	0.336	0.137**	-0.055	0.121
House letting	0.200	0.025***	0.176	0.075**	0.168	0.100*
Investor	0.155	0.026***	0.355	0.041***	-0.004	0.163
Location and language						
Rural	0.001	0.019	0.018	0.025	-0.020	0.030
Speak Swahili	-0.019	0.015	-0.058	0.026**	-0.031	0.030
Speak Kikuyu	-0.012	0.023	-0.014	0.046	0.012	0.050
Speak Luo	-0.004	0.034	-0.099	0.046**	0.105	0.064
Speak Meru	0.075	0.048	-0.193	0.051***	0.041	0.059
Speak Kisii	-0.034	0.048	-0.178	0.053***	0.008	0.070
Speak Luhya	-0.095	0.041**	-0.121	0.048**	-0.012	0.063
Speak Kalenjin	0.097	0.039**	-0.080	0.052	0.158	0.074**
Speak Kamba	-0.069	0.038*	-0.123	0.042***	0.071	0.065
Speak Somali	0.026	0.065	-0.054	0.054	-0.472	0.058***
Speak Turkana	0.295	0.047***	-0.013	0.096	0.440	0.112***
Speak Maasai	0.055	0.147	-0.285	0.071***	0.393	0.168**
Demographics and schooling						
Head of household	0.036	0.012***	0.087	0.015***	0.039	0.019**
Age 18-39	0.130	0.038***	0.034	0.025	-0.048	0.048
Age 40-59	0.136	0.040***	0.116	0.029***	-0.043	0.052
Age 60+	0.124	0.043***	0.135	0.032***	-0.165	0.054***
Female	-0.024	0.011**	0.023	0.015	-0.038	0.019**
Primary complete	0.051	0.011***	0.074	0.016***	0.082	0.021***
Secondary complete	0.071	0.014***	0.264	0.024***	0.144	0.025***
Tertiary/University	0.062	0.017***	0.339	0.032***	0.118	0.037***
Marital status	0.022	0.004***	0.036	0.006***	0.029	0.007***