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CAUSE AND EFFECT OF FINANCIAL ACCESS: CROSS-COUNTRY EVIDENCE FROM THE FINSCOPE SURVEYS

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Abstract

The Finscope surveys have greatly expanded data availability concerning the access of individuals to financial services in a range of African countries. We review the nature of the evidence that has been assembled and explore the potential of the data on a cross-country basis. The role of individual, policy and broader environmental characteristics in influencing use of financial services is confirmed and quantified. Evidence for a causal impact of financial access on income is assessed

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1. Introduction

Accumulating evidence at the national level on the household penetration of formal finance has enabled research to identify some of the main country characteristics that influence these penetration rates, and to obtain preliminary estimates of the magnitude of the effects (Honohan, 2008a,b). Mean income, the quality of national institutions, and indicators of geographical isolation such as population density or mobile phone penetration are strongly related to household financial penetration ratios, with additional factors such as age distribution also playing a role.

Such country-level modelling needs to be complemented by household level data to see if corresponding data at national, regional or individual level are also important, and to identify in addition what characteristics of individuals or households, or of their environment, help determine individual access to and usage of financial services. The limited availability of detailed surveys of household usage of financial services has slowed the accumulation of such evidence, especially at cross-country level (Beck and Demirgüç-Kunt, 2008).

Recently, however, the Finscope project,[2] has begun to make a sizable difference by carrying out a large number of financial access surveys, mainly in Africa. Although the Finscope surveys for different countries are not constructed on a common template, they have sufficient commonalities to allow the data collected to be pooled in order to obtain more precise and robust estimates (Porteous, 2007).

Moving from causes to effects of financial access, the most striking fact about the current state of knowledge is the disconnect between evidence on the effects of national financial depth (seen as an imperfect proxy for overall financial

[1] We are indebted to Darrell Beghin, Andrea van der Westhuizen and Dayo Forster for their generous assistance with the data and to David Porteous for valuable suggestions.

[2] Finscope is an initiative of the FinMark Trust, an independent trust, whose mission is "making financial markets work for the poor." We are indebted to FinMark Trust for facilitating this analysis of the output of the surveys that have been conducted under their auspices.

development) and the effects of household financial penetration (Beck, Demirgüç-Kunt and Levine, 2005; Beck, Demirgüç-Kunt and Honohan, 2009; Honohan, 2004; World Bank, 2008). Thus, although considerable evidence at both cross-country and sectoral level confirms a causal role for financial sector development in contributing to economic growth and economic welfare – a confirmation not overturned by the recent severe collapses, following over-extension, in the financial systems of most advanced economies – surprisingly little evidence has so far been obtained to confirm a robust link at the micro level between financial penetration and the welfare of individuals and households. Can the Finscope data help uncover a reliably causal link here?

This paper explores both issues using the Finscope data. We begin (Section 2) by discussing the output characteristics of this new data source. While the early Finscope surveys of South Africa and its neighbouring countries are relatively well-known, the roll-out to other countries is more recent and the findings from the new countries have been examined mainly at individual country level, and have not been as extensively considered on a cross-country basis by outsiders to the Finscope process (though see Porteous, 2007).

Section 3 outlines some of the broad findings of the surveys and how they differ from country to country. Section 4 re-examines the concept of financial access, and its policy relevance; we suggest that the currently fashionable "bucket" approach be superseded by a more conventional analytical approach. Section 5 models the influences on whether or not an individual uses financial services. Section 6 attempts to detect a microeconomic causal link between use of financial services and income. Section 7 concludes.

An overall finding of our work to date on these surveys is that, despite the common conceptual framework employed in each case, and despite the valuable work done by Porteous (2007), on which we have relied a lot, mapping the different questions asked in different countries into reliably consistent variables on a cross-country basis is difficult. The surveys can yield considerably greater riches when each country is considered in isolation.

2. Output Characteristics of the Finscope Surveys

The Finscope series of surveys has so far extended to eleven African countries[3] and also to Pakistan. These surveys, carried out between 2003 and 2008, represent an important step forward in the range and detail of information collected from a representative sample of individual users of financial services in these primarily low income countries.[4]

These surveys provide an unusual amount of detail on product and provider awareness and usage. Thus, for each country surveyed, information is collected on (i) the different types of financial product used; (ii) the types – and in some cases the identity – of financial service providers used; (iii) reasons for not using the different services (or for discontinuing use); (iv) awareness of different types of financial product and different providers. The questions asked are not exactly the same for each country, as is to some extent inevitable given the different product and provider ranges, but there is enough commonality between the surveys to allow quite a degree of cross-country comparison in regard to this dimension of the survey.

The Finscope surveys also provide a considerable amount of detail on characteristics of the respondent. In addition to age, level of education, sources of income and nature of occupation, and indicators of economic wellbeing (income, housing quality and tenure, deprivation), there are questions designed to determine financial literacy, attitudes to money, savings and investment, and psychological profile.

[3] Botswana (2004), Kenya (2006), Lesotho (Pilot 2003), Namibia (2004), Nigeria (2008), Rwanda (2008), South Africa (2004, 2005, 2006, 2007), Swaziland (Pilot 2003), Tanzania (2006), Uganda (2006) and Zambia (2005). Preparations are being made for surveys in Ghana, Malawi and Mozambique. For the current draft of the paper, full data from Botswana, Kenya, Namibia, Rwanda, South Africa (2006), Tanzania, Uganda and Zambia was available (though there is no income data for Kenya, hence it is not included in the analysis of Section 6). Full data for Nigeria are expected soon, and it is hoped to include these in a subsequent draft.

[4] The sample size varies from 1200 in Botswana and Namibia to 21000 in Nigeria. Only adults were surveyed. The exact sampling approach differed from country to country; most involved stratified mutli-stage random sampling. Other details of survey methodologies etc are well documented on the Finscope website http://www.finscope.co.za.

For some of the countries, quite a lot of detailed quantitative information is collected about the structure of expenditure and income.[5] However, compared with the other most widely used detailed household survey model in Africa – the LSMS – the Finscope surveys do not in general attempt to build a rounded profile of each household's economic activities. Instead, the focus is on the means used to effect borrowing, saving, insurance and payments.

The Core Financial Access Question

In particular, the Finscope surveys do allow us to get an answer to the core question: does the surveyed individual have an account at a formal or semi-formal financial institution? If only one question can be asked, this should be it. Of course we are interested also in whether it is a savings or deposit account, or a loan account or an insurance policy, but we also know that each of these performs consumption smoothing and risk-pooling functions. Furthermore having an account at an intermediary can help open the door to a range of products.

Actually, although (at the time of the enhanced effort to collect access information towards the beginning of the Year of Microcredit) it was widely discussed among practitioners (cf. Honohan, 2005), this question remains without a widely agreed precise definition, especially in regard to *what is a semi-formal financial institution?* and to a lesser extent, around the question of *what is "an account"?*

The question of formality arises because we know that wholly informal financial arrangements are pervasive in developing countries, but they do not offer the low cost and broad risk-pooling of modern financial technologies. But what do we mean by "formal"?[6] One approach is to consider as a formal financial institution only those which are subject to prudential regulation by a financial regulator.

[5] For example in Rwanda, where budget shares are elicited by the – somewhat patronizing but nevertheless plausible – technique of asking respondents to assign 17 smooth sticks into 12 heaps representing different spending items.

[6] By informality in this context, observers may be referring to any of several dimensions such as: no proper accounts being maintained, whether in terms of a ledger of receipts and payments, or any balance sheet or profit and loss account; no clear separation between the finances of the promoter or leading figure and that of the financial intermediary *per se*; the financial intermediary not a distinct legal entity; transactions not reported to the tax authorities; not subject to official prudential regulation.

But NGOs and other donors offering credit but not deposit services, and also non-financial firms such as supermarkets, may also provide financial services that pertain to modern finance to the same extent as banks, but are not prudentially supervised as financial institutions.

Furthermore, there is another vague boundary when it comes to financial cooperatives which might be subject to some lightly-enforced reporting requirements to a Ministry of Cooperatives, but are, in some aspects their operations, closer to an informal rotating savings and credit association.

In practice, Finscope has resolved this issue of the formal-informal boundary on a country-by-country basis, defining different named intermediaries or locally-understood categories of financial intermediary as above or below the line, or even (as in the case of Tanzania) asking a series of probing questions concerning the operations and governance of informal or semi-formal institutions with which the respondent has a relationship.[7] The collection of detailed information allows the analyst to experiment with alternative classifications of intermediary.[8]

Regarding the issue of deciding what an account is, Finscope finesse this question by substituting the closely-related issue of whether the respondent is currently making use of any of a set of defined products.[9]

Finscope assigns significance to use of informal services through ROSCAs, moneylenders and the like.[10] Only if a respondent reports no use of these informal

[7] For example: Does the savings group to which you belong have…" a receipt book for any money received"; "a treasury/finance official who is not also the chairman"; "more than one signatory on the cheque book"; "A money box with more than one key"?

[8] The classification used by Porteous (2007) are generally followed here. As he points out, they do not always correspond to that used in the original country reports. Full details of the classification used are in the separate Data Appendix (available from the authors).

[9] For Nigeria, these products are: "ATM card, debit card, valu card, credit card, savings account, current account, fixed deposit account, mortgage loan, overdraft, Islamic loan or Islamic financing investment, pension scheme, shares on the stock exchange." In practice, 92 per cent of those reporting any of these (with a bank) have a savings account.

[10] The definition in Nigeria is "savings clubs/pools, Esusu, Ajoo, moneylenders". For Uganda, a semi-formal category includes SACCOs and MFIs, whereas ROSCAs, ASCAs and VSLAs are treated as informal. Registered micro-lenders are included as formal in Zambia, whereas unregistered micro-lenders, e.g. Kaloba, Savings Clubs/Chilimba are treated as informal. In Kenya, the names of 25 SACCOs are listed, but in most of the other countries at most a few specific informal entities are identified by name.

providers is it treated as financially excluded. As against this it can be argued that the "financially excluded" category is a less clearly-defined concept, with no very persuasive demarcation between it and the category of those served informally. Even those that are so excluded likely use bank notes, and many would likely be able to source funds from an illegal moneylender, even if they are not doing so at present. So we will not further consider the financially excluded category, concentrating instead on whether or not respondents use a formally service provider (and to a lesser extent on whether they are "banked").

There is also the question of whether we should be thinking of the access of a household, or the access of an individual. The issue here is how decisionmaking and financial arrangements are organized within the household. If the household is effectively a unitary economic actor, but the chosen respondent is not the individual in the household who actually conducts the financial transactions, then the response may greatly underestimate the degree to which individuals do have the benefit of financial access (Lundberg and Pollak, 1996). On the other hand, if decisionmaking and resource-sharing in the household is partly based on individuals' independent decisions, asking questions about the household's activities as if they were unitary may also mislead. Finscope has gone for the individual approach, though in some countries respondents have also been asked whether they have indirect access to certain services through other household members.

Reliability of responses

Some of the questions asked in Finscope surveys are intrusive, to say the least. This is to some extent inevitable if one is to uncover facts and attitudes relating to finance. But, as a result, reliability of the responses might be questioned.

For example, in relation to the questions on income,[11] fully 39 per cent of the Nigerian sample either reported no income or declined to answer a question on income. On the other hand, in Rwanda, the interviewers may have been more persistent: fewer than 2 per cent declined the question, there were 3 per cent "Don't Know's" and fewer than 1 per cent reporting zero income. The Nigerian reticence

[11] No such questions were asked in Kenya.

hampers statistical analysis, but the accuracy of the Rwanda responses are not known either.

The psychographic questions are also intrusive or at least surprising in a way that might hamper reasonable responses. For example, to be asked (as in Kenya) whether you "avoid taking risks with your money or resources" might be an unproblematic question to be faced with, though "You are satisfied with the little you have and focus on how to use it properly" sounds like hard to disagree with. But "you often don't feel in control of your finances" (also Kenya), seems definitely moving into the realm that one might be reluctant to discuss honestly with the survey team, and "I feel I am a failure", "I feel anxious, tense and a sense of panic; I am constantly worried and unsettled", "I don't feel I really belong - I want to be more accepted" and "I don't really have a close relationship with anyone" seem very intrusive. All of these from the Tanzania survey. Similarly intrusive questions were asked in Rwanda: "I feel like my life is emotionally empty", "I experience feelings of depression or hopelessness". Nevertheless, interviewers received a full set of responses to these questions – no refusals, no "Don't Know's."

Understanding of the questions might also be questioned. In the Zambia survey, a rather over-comprehensive list of products was offered to respondents. Not surprisingly, 99.8 per cent of respondents admitted they had never heard of real-time gross settlement (RTGS). Amusingly, the other 0.2 per cent claimed to have formerly used this product (which in fact is only available to commercial banks). Another product in this list was "Swift transfer", referring to electronic money transfer using the services of the Society for Worldwide Interbank Financial Telecommunication. This is a product which could be used indirectly by bank customers, so it is not surprising that 0.6 per cent of the sample said they have used this, but perhaps a little surprising that 2.3 per cent said they had used it in the past but not now. Likely they misunderstood the term to mean simply a fast or speedy method of sending money.

Market research/market development

A significant part of the Finscope agenda seems to be driven by a market research and market development perspective. Thus the questions are designed to see what characteristics distinguish existing from potential customers, and in particular what

reasons do non-users give for the fact that they do not use available products. Is it something that could be fixed with action from providers (e.g. location, relevance of products, quality of service provision) or policy (e.g. documentation requirements, financial literacy)? Is it because potential customers are unaware of the usefulness of the products to them, or because they have cultural or religious issues with using them, or is it simply because they don't need the product.

Note that this approach is similar but not identical to the alternative break-down of causes presented in *Finance for All* (World Bank, 2008) where "involuntary exclusion" was broken down into (a) insufficient income or high risk; (b) discrimination; (c) contractual / information framework or (d) price and product features.

The difference lies in the perspective. The *Finance for All* perspective is an analytical one coming from outside the bank-customer relationship. Finscope is asking about how the customer perceives this relationship. But weaknesses in the contractual/information framework will not be visible to the customer and will leave few traces that can be reliably detected by the customer. It is not evident that the Finscope questions have been chosen to uncover hidden traces of such systemic factors from subtle indicators that might be detectible by the potential customer, albeit uninterpreted as such. For example, only indirectly will the customer be aware of discrimination *as such*; instead they may detect rudeness on the part of staff, and an inability to communicate in the customer's language. Questions of this type are posed, though probably with the perspective of a bank's head office in mind, rather than with a view to detecting discrimination that is sanctioned by the bank.

Potential customers may also not be aware of the perceived risk they present to the supplier, nor of the extent to which price and product characteristics could be modified and hence could be adapted to the needs of the customer. For example, the customer might say the bank branch is too far away from where they live and work. Could the bank provide a closer point of service at a reasonable cost? Or is this an irreducible cost element? We do not know. There is only so much that can be uncovered with a household survey on its own. Combining this information with supplier information to get to grips with what barriers can easily be overcome is

likely to be easiest for the service provider. Accordingly, the Finscope responses can be of great help to a financial services provider contemplating how the market can be developed and how market share can be built. Hence the impression that the Finscope approach has much of the market survey about it.

3. Main characteristics revealed

The surveyed countries include some of the poorest in the world.[12] It is not surprising that they also display very low penetration of financial services. Previous survey estimates have put usage of formal financial services as low as 5 per cent in Tanzania, foe example (Finscope's more probing interviews lift this number somewhat).

On the other hand, three of the countries in Southern Africa: Botswana, Namibia and South Africa, are middle-income countries with some of the highest mean incomes in Sub-Saharan Africa; they are also countries with exceptionally high levels of inequality.

Overall the penetration percentages are low, with a simple average of 29 per cent banked across the aggregate sample. This ranges from 15 per cent in Rwanda to 62 per cent in South Africa (Table 1). There is a clear positive correlation between mean income and penetration (Figure 1).

Looking at sub-categories the patterns are mostly predictable, though with some surprises. Thus:

- Urban penetration rates are considerably higher than those in rural areas, notably in Nigeria, where urban penetration at 39 per cent is almost three times rural penetration at 14 per cent.

- There is greater penetration among men than women, with the highest gap in Nigeria (27 per cent against 15). But for several countries the gap is not wide,

[12] For an overview of financial sector issues in Sib-Saharan African countries, see Honohan and Beck (2007).

and in Zambia, exceptionally, a higher proportion of women than men report usage.

- Education is a clear predictor of usage, with the highest education category having penetration rates between three and sixteen times that of the lowest – the only exception being Uganda where the ratio is only twice.

- The middle-aged tend to have slightly more usage than the youngest and oldest age categories, but the differences here are rather slight.

- Most surprisingly, although there is lower penetration among the poorest (less than $1 a day) in Southern Africa, this is *not* the case in Tanzania, Uganda and Zambia. This is a surprising finding, especially since penetration overall is low in these countries, so it could hardly be attributed to exceptional outreach efforts by the microfinance, post office or cooperative sectors. Perhaps it casts some doubt on the reliability of reported income data at the low end.

4. Access and usage

Determinants of access

At the end of the day, the concept of access as commonly used is one that sits uneasily with economic analysis. Non-economists tend to employ this term in a way which implies that universal usage is the unquestioned goal regardless of cost. Thus they may use the philosophical language of Rights rather than the economics language of Welfare. Universal usage of financial services is not an impossible long-term policy goal After all, virtually all adults in densely populated advanced economies such as the Netherlands already have an account at an intermediary today.

There has been much discussion of voluntary exclusion. This is clearly important for specific products, such as credit, at a certain point of time and even throughout the life-cycle depending on the household's endowments, consumption patterns and occupation. (There are also some who self-exclude for religious or ethical reasons). But for access to *any* financial service, self-exclusion by well-informed households or

individuals is unlikely. From this point of view, and the distinction between access and usage or penetration (of formal financial services in general) does not seem as central an issue as it is for credit. This is just as well, given the ambiguity of the concept of access.

It has become customary in policy discussion of financial exclusion to go beyond the classification of the excluded into voluntary and involuntary, to propose a further partition into the different reasons that explain a particular individual's exclusion (cf. Claessens, 1996, World Bank, 2008). However, this "buckets" approach seems artificial and unduly constraining for analytical and quantitative purposes. More conventionally we can think of there being a number of influences on whether a given individual uses formal financial services or not, and the effect of these influences can (as is customary) be modelled as a continuous function.[13]

So how do advanced economies achieve such high penetration rates without direct subsidy? Presumably, this can be attributed to a combination of (i) excellent social, legal and regulatory institutions lowering the cost to intermediaries of providing services; (ii) excellent organizational and technological efficiency of financial service providers and a suite of services well-adapted to customer needs (and little or no discrimination); (iii) high population density and excellent transport infrastructures which mean that physical distance to points of service (or electronic access) is low and hence the non-price costs to the customer of using the services are low; (iv) high income of even relatively poor people in such countries.

Inclusion of (iii) and (iv) in this list alerts us to an obvious fact that needs to be borne in mind. Achieving universal penetration of financial services is a task which, if unsubsidized, must await the achievement of much higher levels -- and a reasonable distribution -- of national income. Yet, pending achievement of higher income (a goal to which many policies, including financial policies, contribute), there are specific policy measures – to be taken by governments or benevolent financial service providers – which can help expand access. The search for such policies is a major motivation for financial access surveys.

[13] This also now seems preferable to the "barriers" approach discussed in Honohan (2005).

In fact, the financial access policy agenda relates only to the institutions and policies of public (i) and private (ii) agents. Even if these aspects are brought to the highest possible standard, a country not so well-endowed under the broader economic and environmental headings (iii) and (iv) will not reach anything like universal access without specific subsidies.[14]

Assessing a country's overall financial access achievement should thus be conditioned on the non-financial determinants (iii) and (iv). This has been attempted (Honohan, 2008a) and the performance of the countries under review is reported in Table 2 (based on equation 3.4 in Honohan (2008a). As far as the countries with Finscope surveys are concerned, it seems that Lesotho, Tanzania, Ghana, Pakistan, South Africa and Kenya are the countries with the poorest performance of the access agenda, whereas Uganda, Nigeria, Malawi, Swaziland and especially Rwanda are the most overperforming. (This uses Honohan, 2008a, penetration percentages).

In this way, aggregate cross-country regressions can help isolate access under-performance or over-performance conditioned on country characteristics that can hardly be affected by financial access policy. Moving to the individual micro level, equations explaining individual usage on the basis of national, regional and individual characteristics can equally allow us to isolate those factors that can reasonably come under the influence of financial access policy. Estimating such an equation is the topic of Section 5.

Consequences of access

Financial access for households is not an end in itself. It is sought with a view to improving the welfare of the households themselves and may also achieve spillover effects on the economic and social prosperity of whole communities. But does it do so? Evidence from studies of the beneficiaries of microfinance schemes show some positive effects, but are hampered by econometric problems of endogeneity and sample selection bias. As mentioned above, if attention is confined to studies of

[14] Should there be specific subsidies for financial access? This of course needs to be balanced with other competing claims on public funds. Much of the recent financial access agenda is primarily concerned with non-subsidy ways of achieving progress.

contexts in which these econometric problems have been satisfactorily addressed, the findings are surprisingly inconclusive (Honohan, 2004, World Bank, 2008).

To be sure, the dimensions of welfare impact and the channels through which they operate are multiple. The effects may take a long time to show up.[15] So a failure to find clear results does not mean that there is no impact.

Using the national household financial penetration rates, Honohan (2008a) searched for evidence that poverty headcount percentage was lower in countries with high penetration. Simple correlations point in that direction, but regression analysis showed that when controls for average national income and overall financial depth are included, no robust effect for penetration rates is found. Can an effect be detected at the individual level? This question is addressed in Section 6.

5. Modelling the determinants of financial penetration

The simplest interesting model the probability of a household or individual *h* in country *i* having an account (*Use*=*YES*) would be

$$\Pr\{Use = YES\} = f(X_{i,h}, Y_{i,h}, Z_i^f, Z_i^{nf}) \quad (1)$$

where $X_{i,h}$ are characteristics of the individual household, $Y_{i,h}$ are characteristics of that household's local environment including characteristics of the various financial service providers that are present locally, Z_i^f are country characteristics which are thought of as being subject to the influence of financial access policy, and Z_i^{nf} are other country characteristics.

An aggregation of such equations for the individuals in a given country would yield a national level penetration rate as a function of the *Z*'s and also of the average (and possibly other moments) of the distribution of the individual characteristics.

Table 3 of Honohan (2008) shows estimated versions of such an equation based on cross-sectional penetration data for about 150 countries. Income per capita, and the overall quality of institutions index of Kaufman et al. (1999) are rather consistently

[15] Increased schools attendance, for example, will take years to show up in household income.

significant in alternative specifications of the cross-country determinants of average financial penetration in over 100 countries.[16] Age dependency, density of population and mobile phone penetration (arguably a better proxy than population density for how close most of the population is to modern infrastructure) services, are among the other determinants that emerge as significant. The preferred equation (3.4), re-used above to construct Table 2, includes all of these except population density.

Working backwards from the aggregate regression, can a satisfactory microeconomic equation (1) be fitted to cross-country household level data from the Finscope surveys?

Nine explanatory variables are employed.[17] In addition to age, gender, education[18] and income[19]—variables which tend to have pervasive effects on economic behaviour, and which we may regard here as nuisance variables because not subject to direct influence of financial sector policy—we employed three location variables (travel time to the nearest store,[20] use of a mobile phone, and whether urban or rural) and three finance-specific individual characteristics: a financial knowledge index, a measure of trust in banks and a measure of risk aversion.[21] Location dimensions might be subject to policy influence, and some of the financial specific variables might also be susceptible to policy influence (for example financial literacy

[16] Other financial sector infrastructures could be included, such as those for which data has been assembled by Beck, Demirgüç-Kunt and Martinez Peria (2007). However, that would have reduces the sample size considerably.

[17] Details of the variables used are provided in the separate Data Appendix. We drew heavily on the work of Porteous (2007) in coding some of these variables.

[18] Education is scored on a common eight-point scale from "no formal eduation" (=1) to university completed (=8). The intermediate steps are: some primary; primary completed; some secondary; secondary completed; professional qualification or equivalent; some university.

[19] Income is in current US dollars. An alternative set of results using PPP dollars will be presented in a later version of the paper.

[20] At present, a country-specific scales is used for Time to Store.

[21] The trust in banks variable *Bank Trust* is based on the answeres to broadly comparable questions across the different surveys. Responses such as 'I trust banks' (Botswana, Namibia South Africa and Zambia), 'I trust banks with my money' (Rwanda and Tanzania) and the slight variation 'I agree that financial institutions are trustworthy' (Uganda) are coded as 1. Otherwise zero. There is no related question in the Kenyan dataset.

Risk Aversion is calculated using the respondents' answer to the question: Do you agree: 'To get ahead in life, one needs to take some risks'. A negative response to this question is coded as 1. Otherwise zero. The corresponding question in the Kenyan dataset is slightly different; 'You avoid taking risks with your money or resources'.

Financial Sector Knowledge is computed by giving one point for every product the respondent claims to know (from a list provided). Each country's scale is normalized to a range from zero to ten.

programmes, or the nature of regulation) – though later we will suggest that risk aversion may be an inherent characteristic not readily subject to financial sector influence. The income, location and age variables can be thought of as counterparts to the variables found to be significant in the cross-country regressions. As outlined in the data appendix, it was possible to obtain broadly comparable series on all of these variables for seven of the countries (i.e. those noted above less Kenya, for which there is no income data).

Representative results of such an exercise are reported in Table 3. Probit and OLS estimates are both shown.[22] Only the gender variable is not statistically significant at a very high level – and it may be significant if the time-to-store variable is excluded. Most of the variables have the expected sign.

- Up to about 45 years, the older you get, the more likely to be banked; the opposite for ages above 45.
- An increase of education by one unit (for example going from complete primary school to some secondary education) represents an increase of more than 0.1[23] in the probability of being banked.
- Having a mobile phone (an indicator of access to other services) strongly predicts being banked (increase of 0.25 in the probability of being banked).
- Conditional on having a mobile phone, the impact of being an urban dweller or being able to reach the grocery store more quickly is not very robustly estimated.
- Trust in banks is a strong predictor of currently banked. Gaining trust in banks represents about an 0.25 increase in the probability of being banked.
- Curiously, in equations without country fixed effects, the financial sector knowledge variable has the "wrong" sign—the more you know about the financial system, the less likely you are to be banked. Inclusion of the country fixed effects here result in a significant coefficient with the "right sign".

[22] We imposed a residual covariance matrix clustered by country.
[23] The point estimates are from the Probit results in Table 3(a). Point estimates in Table 3(b) which employs country fixed effects are about a fifth lower.

And although *Risk Aversion* sometimes has the "right" sign, more risk averse means more likely banked, the effect is small and significant only at the 5 per cent level.

The equations confirm the potential role of trust and knowledge, and of broader economic infrastructures, in increasing the likelihood of being banked.

6. Effects of financial penetration

Although financial access may have a slow-burning effect on the household's welfare, nevertheless, it may be possible to detect such an effect in cross-sectional data, if access changes only gradually. Then current usage may be a reasonable proxy for the household's average access in the past. So can we detect any such impact?

For welfare, lets go straight to the bottom line, namely income. For most of the Finscope countries there is a question about income that can be coded in a broadly cross-country comparable way.[24] The most natural question to ask is: does financial access improve an individual's access, all other things being equal?

As soon as this question is asked, one realizes the difficulty in getting a reasonable answer to it. A key issue is reverse causality. Obviously, higher income makes formal financial services more affordable. Unless finance is an inferior good (in the sense of consumer theory) higher income will thus drive higher usage of finance. In order to detect a causal impact the other way around, we need an instrumental variable: one that is correlated with use of finance but not otherwise with income.

More generally, when income is the dependent variable, finding plausible instruments variables for most key explanatory variables is problematic. Income is such a pervasive influence on most economic behaviour that finding a valid instrument is a challenge.

[24] Mid points of the survey ranges were used.

Close examination of the Finscope questionnaires yields very few plausible candidate variables for this role, at least among the variables that are available for most of the countries. Variables measuring economic circumstances of the individual fail the second criterion for instruments, namely lack of correlation with the dependent variable. The psychographic variables are somewhat more promising.

One possibility is to use the risk aversion question as the instrument. Risk aversion is a characteristic that is often thought of as innate and variable as between individuals even at similar incomes or economic circumstances. However, not only could there be a systematic causal link between income and risk aversion, but more damagingly, we found only a comparatively weak link between risk aversion and use of finance in the microeconomic regressions of Section 5 above.

Trust is also a characteristic that is often thought of as innate and variable between people. The trust in banking variable mentioned above has a strong correlation with use of finance, as shown in Section 5 above. The validity of this as an instrument might be questioned if income levels influence knowledge about banks on which trust might be built (or, latterly, destroyed!). However, we believe that this reverse causality is likely to be relatively weak.

Financial sector knowledge and distance from store are other potential instruments which we will use. In both cases an independent channel of causation from these variables to income seems less likely. Later drafts will explore the validity and strength of these instruments more thoroughly.

So, to see whether cross-country micro-level regressions can identify a robust causal link from use of finance to income, we have used an instrumental variables estimator with *Bank Trust* and *F S Knowledge* as instruments for use of finance. (In some regressions we have also instrumented for education, this time adding *Time to Store* as the instrument.)

The results are shown in Table 4. There is a sharp distinction between the results with and without country fixed effects, and also between the results where *Education* is treated as exogenous and where it is instrumented.

Ordinary least squares regressions (with or without country dummies) indicate a strong positive effect of being banked on income. There is some difference depending on whether *Risk Aversion* is included or not, because including it narrows the number of countries available to four.

Turning to the IV estimates and beginning with the results *not* including country dummies, we still find a strong positive impact. However, in the larger sample made available when *Risk Aversion* is excluded (regression 5(a)4) the coefficient on *Banked* changes sign (and the centered R-squared statistic also turns strongly negative suggesting a very poor fit) – this equation needs further study. With *Education* endogenous (regression 5(a)6), the pathological sign changes do not occur.

Inclusion of country fixed effects overturn all of these results however. *Banked* is now never both positive and significant, suggesting that all of the correlation found in the regressions of Table 4(a) were attributable to cross-country effects and not to within country effects.

Overall, then, the microdata does not yet confirm a robust causal relationship between financial access and income.

7. Conclusion

The Finscope surveys greatly expand the information available on the use of financial services by individuals in different economic circumstances and with different psychographic profiles, as well as about their views on financial services and financial service providers.

Although the psychographic and information questions asked could be used to flesh out the concept of "access" as distinct from "usage", we argue that this is not as central a question for overall financial access as it is sometimes presented. Rather than considering policy in terms of buckets marked "inclusion" or "exclusion", a more traditional econometric analysis of the determinants of usage is favoured.

This paper has explored some of what we can learn from the micro data for the full range of countries about the causes and consequences of usage. We confirm and quantify the role of income and convenience/proximity for individual household use of financial services that was already found in aggregate studies. Information and attitudes are also found to be important.

Using a novel instrument, we have sought to identify a causal role for use of financial services by individuals in influencing household income. However, it appears that such an effect is dominated by cross-country average differences, rather than differences between individuals in the same country.

There is more to be learned from the cross-country pooled dataset, notably on the use of different financial products, and on attitudes. But it needs to be borne in mind that, in order to do justice to the complexity of the financial, economic and social systems in the different countries, and responding to a variety of stakeholders, the surveys display considerable variation in detail from country to country. This will limit the questions that can easily be asked of this data on a cross-country basis, hence limiting potential cross-country use of the data. On the other hand, researchers can mine a rich seam in the individual country datasets.

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Table 1: *Formal financial service penetration for individuals with various characteristics (% of surveyed adults in each category)*

	Botswana	Kenya	Namibia	Nigeria	Rwanda	South Africa	Tanzania	Uganda	Zambia
Total	44.2	18.5	44.8	21	15.0	62.3	16.1	39.2	15.7
Region									
Urban	55.2	31.0	62.0	39	23.1	74.3	21.3	49.1	28.2
Rural	38.8	12.6	34.4	14	12.2	54.4	9.5	35.2	9.8
Gender									
Female	42.9	14.8	45.3	15	13.4	61.7	11.8	36.7	18.2
Male	45.5	23.2	44.2	27	17.9	63.0	19.8	42.0	13.1
Education									
More than completed secondary school	66.5	46.6	75.2		52.6	85.3	29.7	45.1	45.5
Did not complete primary	22.8	5.6	19.5		4.0	26.8	4.8	29.8	2.8
Income									
Under $1 per day	32.9	N/A	37.4		14.8	53.0	16.7	44.5	16.0
Above $1 per day	72.1	N/A	67.7		18.8	91.4	14.7	37.9	14.6
Age									
60 +	39.8	13.5	39.5		8.8	62.9	15.0	27.2	13.0
50-59	42.3	23.4	47.5		15.0	66.8	17.4	33.3	24.6
40-49	46.0	23.1	48.4		19.5	63.9	21.5	42.3	25.6
30-49	54.9	23.8	56.5		21.8	69.8	17.1	45.9	23.9
16-29	40.0	13.6	37.9		10.8	53.4	13.5	38.9	10.3

Table 2: *Penetration Rates: Estimated and Warranted*

	Mark IIIe estimate[a]	Warranted[b]	Over-performance[c]	Finscope banked	Finscope formally served
Botswana	47.0	46.8	0.1	44.2	52.7
Ghana	16.2	26.0	-9.8		
Kenya	10.0	14.8	-4.8	18.5	20.9
Lesotho	17.0	29.7	-12.7		
Malawi	21.1	15.0	6.2		
Namibia	28.4	38.5	-10.2	44.8	46.0
Nigeria	14.8	11.0	3.8	21	23
Pakistan	12.2	21.3	-9.1	11	12
Rwanda	22.9	11.7	11.1	13.8	16..0
South Africa	46.0	51.1	-5.1	62.3	68.7
Swaziland	35.3	27.9	7.4		
Tanzania	5.0	16.3	-11.3	16.1	18.6
Uganda	20.2	17.7	2.6	39.2	39.9
Zambia	15.4	17.2	-1.8	15.7	19.2

[a] Honohan (2008)

[b]Fitted value from equation 3.4 in Honohan (2008a) showing expected penetration percentage for a country with the same GDP per capita, age dependency, ownership of mobile phones and quality of institutions index.

[c]Estimate minus warranted.

Table 3: *Determinants of being banked*
(a) No country fixed effects

Dependent Variable: Banked								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Probit	Probit	Probit	Probit	OLS	OLS	OLS	OLS
Bank Trust	0.68***	0.60***	0.59***	0.22***	0.20***	0.19***	0.18***	0.07***
	(0.04)	(0.04)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
	(0.04)	(0.08)	(0.11)	(0.21)	(0.02)	(0.02)	(0.04)	(0.06)
Risk Aversion	0.05	-0.00	-0.00		0.01	0.00	0.00	
	(0.04)	(0.04)	(0.04)		(0.01)	(0.01)	(0.01)	
	(0.15)	(0.12)	(0.14)		(0.04)	(0.03)	(0.04)	
F S Knowledge	-0.03***	-0.01			-0.01**	-0.00		
	(0.01)	(0.01)			(0.00)	(0.00)		
	(0.08)	(0.07)			(0.02)	(0.02)		
Mobile	0.68***	0.70***	0.71***	0.63***	0.22***	0.23***	0.23***	0.20***
	(0.04)	(0.04)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
	(0.13)	(0.12)	(0.11)	(0.11)	(0.04)	(0.04)	(0.04)	(0.04)
Time to Store	-0.05***				-0.01**			
	(0.01)				(0.00)			
	(0.04)				(0.01)			
Urban	0.10*	0.08*	0.07	-0.08**	0.03**	0.03*	0.03*	-0.03**
	(0.04)	(0.04)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
	(0.08)	(0.09)	(0.11)	(0.06)	(0.03)	(0.03)	(0.04)	(0.02)
Income (log)	0.12***	0.11***	0.11***	0.16***	0.03***	0.03***	0.03***	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
	(0.11)	(0.10)	(0.09)	(0.12)	(0.03)	(0.03)	(0.02)	(0.03)
Education	0.36***	0.31***	0.30***	0.34***	0.09***	0.09***	0.08***	0.10***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
	(0.06)	(0.06)	(0.04)	(0.03)	(0.03)	(0.02)	(0.01)	(0.01)
Age/100	5.47***	5.35***	5.33***	4.59***	1.49***	1.52***	1.52***	1.25***
	(0.70)	(0.64)	(0.63)	(0.46)	(0.19)	(0.18)	(0.18)	(0.12)
	(0.63)	(0.67)	(0.52)	(0.92)	(0.15)	(0.20)	(0.17)	(0.23)
Age/100 Squared	-3.73***	-3.93***	-3.87***	-3.35***	-1.05***	-1.13***	-1.12***	-0.90***
	(0.79)	(0.71)	(0.70)	(0.52)	(0.21)	(0.20)	(0.20)	(0.13)
	(0.46)	(0.64)	(0.61)	(0.91)	(0.14)	(0.20)	(0.20)	(0.21)
Gender	-0.05	-0.06	-0.06	0.01	-0.01	-0.02	-0.02	0.01
	(0.04)	(0.04)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
	(0.08)	(0.08)	(0.06)	(0.07)	(0.03)	(0.03)	(0.02)	(0.02)
Constant	-3.87***	-3.70***	-3.68***	-3.83***	-0.58***	-0.57***	-0.57***	-0.59***
	(0.18)	(0.15)	(0.15)	(0.11)	(0.04)	(0.04)	(0.04)	(0.02)
	(0.32)	(0.39)	(0.37)	(0.37)	(0.07)	(0.07)	(0.07)	(0.07)
Observations	5444	5961	6153	11711	5444	5961	6153	11711
Countries	BA, NA, SA, ZA	BA, NA, SA, UG, ZA	BA, NA, SA, UG, ZA	BA, NA, RW, SA, TZ, UG, ZA	BA, NA, SA, ZA	BA, NA, SA, UG, ZA	BA, NA, SA, UG, ZA	BA, NA, RW, SA, TZ, UG, ZA
R-squared	.	.	.	.	0.36	0.34	0.34	0.32
Adj. R-squared	.	.	.	.	0.36	0.34	0.34	0.32

Robust standard errors (first row) and clustered by country standard errors (second row) in parentheses
*** p<0.001, ** p<0.01, * p<0.05 (using robust standard errors).
Age is measured in years; *Risk Aversion*, *Bank Trust*, *Gender*, *Mobile* and *Urban* are zero-one dummies (risk averse=1; trust=1; female=1; have mobile phone=1, urban=1); *Education* is coded from 1 to 6 depending on number of years/level of education reached. *Time to Store* is also coded from 1 up depending on the time taken (country specific scale).
F S Knowledge is coded from zero to ten depending on the proportion of products of which the respondent has knowledge.

Table 3(b) With country fixed effects

Dependent Variable: Formally Banked								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Probit	Probit	Probit	Probit	OLS	OLS	OLS	OLS
Bank Trust	0.55***	0.52***	0.55***	0.54***	0.15***	0.15***	0.16***	0.15***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)
Risk Aversion	0.01	0.00	-0.03		-0.00	-0.00	-0.01	
	(0.05)	(0.04)	(0.04)		(0.01)	(0.01)	(0.01)	
F S Knowledge	0.11***	0.09***			0.02***	0.02***		
	(0.01)	(0.01)			(0.00)	(0.00)		
Mobile	0.46***	0.47***	0.51***	0.51***	0.14***	0.15***	0.16***	0.15***
	(0.05)	(0.04)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Time to Store	-0.02				-0.00			
	(0.01)				(0.00)			
Urban	0.07	0.10*	0.14***	0.16***	0.02*	0.02*	0.04**	0.03***
	(0.05)	(0.04)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Income (log)	0.07***	0.07***	0.06***	0.10***	0.02***	0.02***	0.02***	0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Education	0.35***	0.36***	0.40***	0.36***	0.08***	0.08***	0.10***	0.09***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Age/100	6.06***	5.84***	5.97***	5.04***	1.38***	1.37***	1.42***	1.15***
	(0.75)	(0.68)	(0.67)	(0.50)	(0.18)	(0.17)	(0.17)	(0.11)
Age/100 squared	-4.94***	-4.84***	-4.91***	-4.18***	-1.17***	-1.18***	-1.21***	-0.96***
	(0.85)	(0.77)	(0.75)	(0.56)	(0.20)	(0.19)	(0.19)	(0.12)
Gender	0.00	0.01	-0.01	-0.04	0.00	0.00	-0.00	-0.01
	(0.04)	(0.04)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Botswana	-0.07	-0.09	-0.12	-0.15*	-0.04*	-0.04*	-0.05**	-0.06***
	(0.07)	(0.06)	(0.06)	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)
Namibia	-0.03	-0.03	-0.06	-0.11*	-0.03	-0.03	-0.04*	-0.06***
	(0.07)	(0.06)	(0.06)	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)
Rwanda				-0.81***	0.00	0.00	0.00	-0.25***
				(0.05)	(0.00)	(0.00)	(0.00)	(0.01)
Uganda		0.09	0.25**	0.28***	0.00	-0.01	0.03	0.03
		(0.09)	(0.08)	(0.07)	(0.00)	(0.02)	(0.02)	(0.02)
Tanzania				-1.30***	0.00	0.00	0.00	-0.38***
				(0.05)	(0.00)	(0.00)	(0.00)	(0.01)
Zambia	-1.56***	-1.47***	-1.23***	-1.12***	-0.36***	-0.35***	-0.31***	-0.30***
	(0.08)	(0.07)	(0.05)	(0.05)	(0.01)	(0.01)	(0.01)	(0.01)
Constant	-3.69***	-3.63***	-3.58***	-3.33***	-0.37***	-0.36***	-0.37***	-0.30***
	(0.20)	(0.17)	(0.17)	(0.13)	(0.04)	(0.04)	(0.04)	(0.03)
Observations	5444	5961	6153	11711	5444	5961	6153	11711
Countries	BA, NA, SA, ZA	BA, NA, SA, UG, ZA	BA, NA, SA, UG, ZA	BA, NA, RW, SA, TZ, UG, ZA	BA, NA, SA, ZA	BA, NA, SA, UG, ZA	BA, NA, SA, UG, ZA	BA, NA, RW, SA, TZ, UG, ZA
R-squared	.	.	.	.	0.43	0.41	0.41	0.40
Adj. R-squared	.	.	.	.	0.43	0.41	0.40	0.40

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

Table 4: *Income and use of bank services*

(a) Without country fixed effects

Dependent variable: Personal income (log)

	(1) OLS	(2) OLS	(3) IV-2SLS Educ exo	(4) IV-2SLS Educ exo	(5) IV-2SLS Educ endo	(6) IV-2SLS Educ endo
Banked	0.85***	1.01***	1.03***	-7.71***	1.81***	0.69
	(0.06)	(0.04)	(0.25)	(1.41)	(0.25)	(0.36)
	(0.17)	(0.32)	(0.36)	(10.49)	(0.84)	(1.00)
Risk Aversion	0.23***		0.23***		0.15*	
	(0.05)		(0.06)		(0.06)	
	(0.24)		(0.20)		(0.19)	
Time to Store	-0.09***		-0.09***			
	(0.02)		(0.02)			
	(0.04)		(0.03)			
Urban	-0.16*		-0.17**		0.05	
	(0.06)		(0.06)		(0.07)	
	(0.29)		(0.29)		(0.15)	
Education	0.01	0.18***	-0.01	1.37***	-0.31***	-0.13
	(0.03)	(0.02)	(0.04)	(0.19)	(0.06)	(0.07)
	(0.20)	(0.15)	(0.24)	(1.42)	(0.48)	(0.33)
Age/100	3.23***	3.33***	3.10**	17.76***	2.42*	4.25***
	(0.79)	(0.51)	(1.07)	(2.63)	(1.10)	(0.88)
	(2.72)	(1.61)	(3.02)	(17.17)	(2.40)	(1.37)
Age/100 squared	-3.12***	-3.13***	-3.11**	-14.68***	-3.34**	-5.05***
	(0.84)	(0.56)	(1.15)	(2.33)	(1.18)	(0.88)
	(2.36)	(1.33)	(2.39)	(14.57)	(1.46)	(1.26)
Gender	-0.29***	-0.36***	-0.31***	-0.54***	-0.29***	-0.45***
	(0.05)	(0.03)	(0.06)	(0.08)	(0.06)	(0.04)
	(0.15)	(0.09)	(0.13)	(0.20)	(0.19)	(0.16)
Constant	3.42***	1.85***	3.50***	-2.79***	4.21***	3.23***
	(0.23)	(0.13)	(0.25)	(0.79)	(0.29)	(0.28)
	(1.41)	(0.95)	(1.45)	(5.76)	(2.16)	(1.40)
Observations	5633	11711	5444	11512	5444	9701
Countries	BA, NA, SA, ZA	BA, NA, RW, SA, TZ, UG, ZA	BA, NA, SA, ZA	BA, NA, RW, SA, TZ, UG, ZA	BA, NA, SA, ZA	BA, NA, RW, SA, TZ, UG, ZA
R-squared	0.06	0.14	0.07	-3.33	0.00	0.05
Adj. R-squared	0.06	0.14	0.06	-3.33	0.00	0.05

The "Educ exo" regressions treat "Banked" as endogenous and use "F S Knowledge" and "Bank Trust" as instruments.

The "Educ endo" regressions also treat "Educ" as endogenous and also include "Time to Store" as an instrument.

Robust standard errors (first row) and clustered by country standard errors (second row) in parentheses

*** p<0.001, ** p<0.01, * p<0.05 (using robust standard errors)

See Table 3 for notes on the variables.

Table 4(b) With country fixed effects

	(1) OLS	(2) OLS	(3) IV-2SLS Educ exo	(4) IV-2SLS Educ exo	(5) IV-2SLS Educ endo	(6) IV-2SLS Educ endo
Banked	0.38***	0.56***	0.06	0.18	-0.71	-2.03***
	(0.07)	(0.04)	(0.32)	(0.24)	(0.48)	(0.57)
Risk Aversion	0.03		0.02		0.02	
	(0.05)		(0.06)		(0.06)	
Time to Store	-0.06**		-0.06***			
	(0.02)		(0.02)			
Urban	-0.13*		-0.11		-0.17*	
	(0.06)		(0.06)		(0.07)	
Education	0.07**	0.11***	0.11*	0.15***	0.38***	0.80***
	(0.02)	(0.01)	(0.04)	(0.03)	(0.11)	(0.13)
Age/100	3.64***	4.04***	4.18***	4.57***	4.95***	5.76***
	(0.79)	(0.46)	(1.07)	(0.62)	(1.16)	(0.96)
Age/100 squared	-4.05***	-4.50***	-4.54***	-4.98***	-4.58***	-4.58***
	(0.83)	(0.49)	(1.15)	(0.66)	(1.18)	(0.89)
Gender	-0.25***	-0.33***	-0.26***	-0.34***	-0.29***	-0.33***
	(0.05)	(0.03)	(0.05)	(0.03)	(0.06)	(0.04)
Botswana	0.41***	0.46***	0.39***	0.44***	0.36***	0.37***
	(0.06)	(0.04)	(0.09)	(0.07)	(0.09)	(0.09)
Namibia	0.08	0.18***	0.05	0.14*	0.18*	0.16
	(0.06)	(0.04)	(0.10)	(0.07)	(0.09)	(0.09)
Rwanda		-1.86***		-1.97***		-1.97***
		(0.05)		(0.09)		(0.10)
Tanzania		-1.18***		-1.31***		-1.33***
		(0.04)		(0.10)		(0.14)
Uganda		-1.44***		-1.45***		
		(0.06)		(0.08)		
Zambia	-1.03***	-0.95***	-1.16***	-1.10***	-1.48***	-1.95***
	(0.09)	(0.08)	(0.14)	(0.11)	(0.20)	(0.22)
Constant	3.63***	3.01***	3.56***	2.94***	2.43***	1.11**
	(0.25)	(0.14)	(0.23)	(0.13)	(0.37)	(0.40)
Observations	5633	11711	5633	11711	5444	9701
Countries	BA, NA, SA, ZA	BA, NA, RW, SA, TZ, UG, ZA	BA, NA, SA, ZA	BA, NA, RW, SA, TZ, UG, ZA	BA, NA, SA, ZA	BA, NA, RW, SA, TZ, UG, ZA
R-squared	0.12	0.26	0.11	0.25	0.06	-0.07
Adj. R-squared	0.11	0.26	0.11	0.25	0.06	-0.07

The "Educ exo" regressions treat "Banked" as endogenous and use "F S Knowledge" and "Bank Trust" as instruments.

The "Educ endo" regressions also treat "Educ" as endogenous and also include "Time to Store" as an instrument.

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

Figure 1: *Mean income and % with bank account in Finscope surveys*