ESRC Research Report
Finance and Formalisation as Mechanisms for Poverty Reduction in Africa
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Outline of Report

1   Background

The objective of the DFID/ESRC research funding is to establish how poverty in Africa and Asia can be reduced. In this project we have asked that question of two countries in Africa, Ghana and Tanzania. Their patterns of poverty reduction have been very different. In Ghana poverty has halved since 1991 while change in Tanzania has been very modest. What policy lessons can be learnt from these outcomes? How can research throw light on the causes of these differences and investigate how replicable is any success and how reversible any failure? Understanding economic policy outcomes in Ghana seems particularly relevant for these broad questions as it has very successfully reversed decades of economic failure. In the period from 1970 Ghana experienced a sustained collapse in its economy such that by 1983 its level of real GDP per person had fallen by some 40 per cent, its currency was worthless and the third attempt at democratic government ended by its fourth military coup in fifteen years. In the period since 1983 growth has been more or less continuous, exports and trade have recovered and poverty fallen. This policy success is not only relative to Tanzania but relative to Africa as a whole. A paper using some of the results of this research in a comparison of Ghana and Côte d'Ivoire can be found in Markus Eberhardt and Francis Teal "Ghana and Côte d'Ivoire: Changing places" (forthcoming, see section 7 below).

In this research we have sought to throw light on some of the underlying causes of these successes and failure by drawing on two different research methodologies. One based on panel survey methods, the second influenced by the focus on randomised methods in evaluating policy outcomes. We proposed to build on a three year panel of workers in the urban areas of both Ghana and Tanzania to provide inputs into the evaluation of how access to micro-finance in Ghana and processes of formalisation in Tanzania can impact on poverty in both countries. As we report below only the evaluation in Ghana proved possible. However due to our ability to raise supplementary funding we have been able to extend the Ghana survey to a six year panel.

A common factor across the activities of the poor whether it be those who own micro firms, those who work on farms or the self-employed is the problems they face in being able to increase the scale of their activities. One possible method by which the scale of the enterprises in which they work can be increased is to improve access to micro-credit and potentially set in motion processes of formalisation enabling the scope of such enterprises to be expanded. That this was the main mechanism at work among the urban self-employed in both Ghana and Tanzania was a central premise of the original proposal. As work on the project progressed in Ghana it became clear this premise was false at least for Ghana's recent period of rapid poverty reduction. Urban self employment had contracted rapidly and wage employment in small firms was by far the most important change in the labour market over the period from 1998 to 2005   (see Nicholas Nsowah-Nuamah, Francis Teal, Moses Awoonor-Williams. *Jobs, Skills and Incomes in Ghana: How was poverty halved? CSAE Working Paper* WPS/2010-01 referenced in section 7 below). This finding let us to refocus our research for both the surveys and the interventions on the question as to how wage employment compared with self-employment and the implications for poverty reduction of changes in occupational structure.

2   Objectives

We proposed to investigate two policies designed to reduce poverty. The first was a microfinance programme providing poor people with direct access to credit in Ghana. The second was an institutional reform to encourage business formalisation and, in turn, access to formal credit markets in Tanzania. These policies were to be researched using a methodology which builds policy experiments into longitudinal household surveys in both Ghana and Tanzania. Using this research methodology, we proposed to shed light on the general question of finance and poverty reduction by answering two specific questions:

1.   Incidence: Who are the recipients of microfinance? Who participates in business registration and formalization programmes?

2.   Impact: What is the causal impact of these policies on recipient incomes and poverty status?

We have met the objective of carrying out the surveys and using them to investigate the relationship between microfinance, employment and poverty reduction. For logistical reasons it did not prove possible to carry out the study of formalisation in Tanzania.

3   Research Methods: Longitudinal Household Surveys

The survey instrument we used was a quantitative questionnaire focusing on individual incomes, educational background, health, fertility, social empowerment and other personal characteristics, as well as detailed household information on assets, housing, and consumption. For the three years 2004-2006 this survey had been administered to a random, cluster-based sample of approximately 1,000 urban households spanning eleven regions of Ghana and Tanzania. The survey had been conducted with the cooperation of the Ghana Statistical Service, the Tanzania National Bureau of Statistics and the Centre for Environmental Economics and Development Research in Dar es Salaam. Data collection had been carried out under the supervision of CSAE researchers in the field.

These surveys are designed to allow comparison of the incomes of urban wage earners and self-employed in both countries. From them we had already learned about factors determining these earnings. By extending this sample to incorporate beneficiaries of randomized interventions, we have created a unique opportunity to answer one of the questions set out above. First, with regard to identifying the beneficiaries of these flows (incidence), we can provide a profile of recipients and estimate the responsiveness of these financial flows to economic shocks. Second, by extending the panel to integrate an experimental design, we can measure the economic effects (impact) of microfinance relative to a baseline for each individual.

Our proposal was to extend these surveys for an additional round. This was carried out in 2008 and with the help of supplementary funding in Ghana in 2009. As these samples are representative of the urban population, they provide an ideal context in which to investigate who gets micro-credits (incidence). In addition, the panel nature of the surveys allows us to rigorously evaluate the impacts of micro-credit by tracking randomly assigned 'treatment' and 'control' groups over time.

We proposed to work in association with a local partner NGO to conduct randomized evaluations. In 2006, the CSAE launched a collaborative venture with an NGO based in Accra – the Adventist Development and Relief Agency (ADRA) which has been involved in microfinance since 2001. The programme targets primarily low-income, self-employed women using a 'village banking' model consisting of group lending, frequent repayment instalments, and close monitoring by credit officers. A pilot of this research project was carried out in 2006. During the 2006 wave of data collection, we identified 48 clusters from our survey sample (approximately 10 households each) which were located in the regions where ADRA was working (Accra, Tema and Kumasi). These clusters were randomly divided into 'treatment' and 'control' groups. As a means of evaluating its programme activities, ADRA agreed to form new micro-credit groups in each of the 24 randomly selected treatment areas. ADRA credit officers accompanied the survey enumerators to the respondent households and all qualifying survey respondents in these clusters (self employed and over 18 yrs) were personally invited to join the programme. Those who chose to join are currently going through ADRA's standard loan screening

process and, if approved, will receive loans between US$ 50 and $200 for an initial term of four months at a 4% nominal monthly interest rate.

4   Results

An Overview of the Results

The results from the research are in five parts.

4.1   We have produced two working papers reporting on the panel survey implementation and results with respect to how incomes from wage and self-employment compare and the factors that affect differing incomes across sectors (these are our nominated outputs from the project).

4.2   We have carried out a comparison of the results from these panel surveys with data from the cross-section surveys in Ghana to provide background to the factors underlying the halving of poverty in Ghana. We have produced a working paper on this which is documented in section 7.

4.3   The data on which the research has been based has been collated and made available both on the web and in a more processed form to researchers in the World Bank (see Section 5 below). This is being prepared for submission to the ESRC data archive.

4.4   We have carried out an initial assessment of the microfinance programme in Ghana and are in the process of preparing the results for presentation to the NGO. This is due to occur late in February 2010 and is an essential preliminary to making the results more widely available as the NGO has been extremely helpful and co-operative in the research. For this part of the project we are in the process of preparing three outputs. The first a report to the NGO should be ready by the end of February 2010; the second a paper comparing the results of microfinance access within self-employment; the third a paper using the results of the microfinance intervention to assess the result on incomes of expansion of self-employment relative to switching to wage employment. (The importance of this question having become apparent during the course of the research where we have compared the results of the panel data with the nationally representative cross-section household surveys from Ghana which show that poverty declines have been associated with a massive rise in wage employment and a fall in urban self-employment).

4.5   We are in the process of preparing papers drawing on the risk games which have been carried out as part of the project designed to elicit the role of risk preferences in the decision both to enter self-employment and to take out a loan when one is possible and the implications of attitudes towards risk for the design of micro finance schemes.

Results from the Panel Surveys

Abstract of: Paolo Falco, Andrew Kerr, Neil Rankin, Justin Sandefur, Francis Teal. *The returns to formality and informality in urban Africa. CSAE Working Paper* WPS/2010-03

We have used panel data from Ghana and Tanzania to address a question that has been central to how their urban labour markets work since the seminal model of Harris and Todaro (1970) on the links between formal wages and employment. A development of this framework by Fields (1975) postulated the importance, within the urban economy, of a distinction between a low income "murky" and a high income formal sector. By exploiting two sets of individual based panel data we have sought to adapt the

framework provided by Abowd, Kramarz and Margolis (1999) to show the importance of sectoral effects relative to the unobserved aspects of ability in determining these differences in incomes. We have then extended their procedure by instrumenting the variables using the estimators developed by Arellano and Bond (1991) and Blundell and Bond (1998).

Our results using the FE estimator and the IV point in opposite directions as to the signs of the bias in the OLS. Confining attention to our largest sample which is the Ghana five year panel the use of either FE or FD reduces, in some cases substantially, the point estimates for both the private wage (negative) premium and the size effect. In contrast the IV estimates increase both in absolute size. This latter result is consistent with the argument advanced by Heckman, Lochner and Todd (2009) that endogenous sorting is a key feature of these markets. If this is correct then the focus of Harris and Todaro (1970) and Fields (1975) on sectoral differences in income misses the quantitative importance of sorting by type within these markets. A result which is common across both the FE and the IV estimators is that the size effect cannot be explained by time invariant skill unobservables. If the IV estimates have captured a key element of how dimension of firm size do impact on earnings then these effects are very large and suggest new insights into what drives the heterogeneity in labour incomes in these economies.

Abstract: Neil Rankin, Justin Sandefur, Francis Teal. *Learning & earning in Africa: Where are the returns to education high?* CSAE Working Paper WPS/2010-02

This paper investigates the role of learning - through formal schooling and time spent in the labour market - in explaining labor market outcomes of urban workers in Ghana and Tanzania. We investigate these issues using a new data set measuring incomes of both formal sector wage workers and the self-employed in the informal sector. In both countries we find significant, convex returns to education and large earnings differentials between sectors when we pool the data and do not control for selection.

In Ghana there is a particularly steep age-earnings profile. We investigate how far a Harris-Todaro model of market segmentation or a Roy model of selection can explain the patterns observed in the data. We find highly significant differences across occupations and important effects from selection in both countries. The data is consistent with a pattern by which higher ability individuals queue for the high wage formal sector jobs such that the age earnings profile is convex for the self-employed in Ghana once we control for selection. The returns to education are far higher in the large firm sector than in others and in this sector they are linear not convex. In both countries there is clear evidence of convexity in the returns to education for the self-employed and here the average returns are low.

Comparative Results from Household Surveys

Abstract of paper: Nicholas Nsowah-Nuamah, Francis Teal, Moses Awoonor-Williams. *Jobs, Skills and Incomes in Ghana: How was poverty halved? CSAE Working Paper* WPS/2010-01.

Poverty has halved in Ghana over the period from 1991 to 2005. Our objective in this paper is to assess how far this fall was linked to the creation of better paying jobs and the increase in education. We find that earnings rose rapidly in the period from 1998 to 2005, by 64% for men and by 55% for women. While education, particularly at the post secondary level, is associated with far higher earnings there is no evidence that the increase in earnings that occurred over the period from1998 to 2005 is due to increased returns to education or increased levels of education. In contrast there is very strong evidence, for all levels of education, that the probability of having a public sector job approximately halved over the period from 1991 while the probability of having a job in a small firm increased very substantially. In 1991/92 a male worker with secondary education had a 7 per cent probability of being employed in a small firm, by 2005/06 this had increased to 20 per cent which was higher than the probability of being employed by the public sector.

Employment in small firms, which is the low paying occupation within the urban sector, increased from 2.7 to 6.7 percent of the population, an increase from 225,000 to 886,000 employees. Jobs in total have been increasing in line with the population but the proportion of relatively low paying ones increased markedly from 1998/99 to 2005/06. The rises in income that occurred over this period were due almost entirely to increases in earnings rates, for given levels of education, across all job types particularly among the unskilled. Why unskilled earnings rates rose so rapidly is unclear.

Risks and Microfinance

Two papers are currently under preparation.

The first paper will contain a comparison of three different methods that can be embedded within a survey to collect incentive compatible data on risk attitudes. The risk attitude measures resulting from each method will be incorporated in a model and then put through a number of tests, most importantly some multiple imputation tests aimed at exploring the implications of the risk attitude measures either being intervals rather than points or being point estimates with corresponding standard errors. The aim is to find out which method works best when one is principally interested in risk attitudes under the assumptions of expected utility theory. With more and more researchers embedding risk-attitude-eliciting tasks in surveys, a comparison of methods such as this is very timely. It is also apposite for the current project as risk is clearly an important and pervasive factor in developing countries and especially in the informal sector.

Extended abstract for the second paper:
With poverty comes vulnerability: the consequences of any given negative income shock or positive consumption shock are greatest for families closest to the absolute poverty line and, sadly, such families seem also to suffer the greatest incidence of shocks. Mindful of this, organizations experienced in offering microcredit have started to turn their attention towards micro-insurance. A wide array of micro-insurance products is currently being tried out in the field. However, progress in developing these products has been slow, in part, because the take-up of many micro-insurance products has been very limited. In this paper we explore one possible reason for low take-up, namely that the product designs are based on the wrong assumptions about individuals' risk attitudes. If individual behaviour conforms to expected utility theory and people are risk averse, there should be a demand for insurance. However, there is a growing body of evidence that many people's behaviour does not conform to expected utility theory. Instead, it corresponds to prospect theory under which individuals may be risk averse when assessing gains and risk loving when assessing losses. In addition, they may be loss averse and may apply non-linear weights to either probabilities or outcomes when making decisions. Previous work in developing countries shows that, when considering gains, individuals are on average risk averse but may also apply weights that are consistent with optimism. However, very little work has been done on how people in developing countries respond to risks relating to losses and this, of course, is what matters when we are trying to understand the demand (or lack thereof) for insurance.

We have designed a set of incentivized tasks that would generate data on how individuals respond to risk in both the gain and the loss domain. These tasks were embedded into the Ghanaian Labour Force Survey in 2007 and, thus, yielded risk attitude data for just over 280 individuals. (Similar data was also collected in 2008. However, due to the implementation problems suffered that year we decided to focus on the 2007 data.) We are now analysing this data using structural modelling techniques and have some preliminary findings the most important of which is that, when contemplating possible losses, the average individual in our sample places considerable weight on the status quo and under weights all possible losses. This is consistent with thinking along the lines of "I won't worry about the bad things until they happen." This average individual finds big risks in which the maintenance of the status quo is a

possible outcome more attractive than smaller risks in which even the best outcome involves a small loss. Such an individual may not incur the cost of insurance even if it is designed to cover catastrophic losses.

5   Activities

Work in data collection

As set out in the proposal we have sought to design the questionnaires so that the data can be comparative across the two countries, Ghana and Tanzania, and links with earlier surveys so that a longer run panel dataset can be built. With this in mind we have built on a survey conducted by the CSAE in 2004 and 2005 of urban workers in both Tanzania and Ghana. The fieldwork was undertaken from July to November 2008 in Ghana. Work was completed in Tanzania in October 2008.

We found during the course of the fieldwork in Tanzania that the sample would be too small so with the assistance of the National Bureau of Statistics in Tanzania we have extended our sample there by using as a basis for a new sample the Integrated Labour Force Survey (ILFS) which was undertaken in 2006. While this implies a shorter panel than planned it nevertheless will allow us to address the key questions posed in the research proposal. Work in Tanzania has encountered another problem in that the progress made on the Urban Land Titling Program has been slower than planned. This Program was to be the basis for an evaluation of the effects of formalisation by assessing if Certificates of Right of Occupancy registered in Dar es Salaam has an effect on business outcomes. In the long run this remains an option we are pursuing but it will not be possible to obtain the results in the time frame for this project. With that in mind we have re-focused this part of the proposal to address issues of formalisation by using controls from the panel rather than using an experimental design.

In the fieldwork in Ghana it did prove possible to set up the planned collaboration with an NGO involved in the delivery of micro-credit. It also proved possible to re-survey most of the panel. How large is the rate of attrition is something we need to establish. We are linking this research with parallel work being undertaken with the Ghana Statistical Office of employment in the formal sector. We are on track to answer both the specific questions as to how micro-finance impacts on employment outcomes and how these outcomes compare across the formal and informal sector.

Work in data analysis

The work has covered two broad areas which are intended as inputs into the research questions posed in the proposal. The first has been an attempt to understand why the economic returns from low levels of education are so low. The second area has been a detailed quantitative investigation into the effects of skill formation on earnings in Ghana.

Dissemination

While carrying out the research we have sought to disseminate the results and we have put in place mechanisms by which the results which are now merging will be presented to a wide range of users. At the beginning of the project the CSAE entered into a collaboration with the University of the Witwatersrand in South Africa, funded by the IDRC in Canada, to participate in a programme of work entitled: "Improving Labour Market Outcomes for the Poor in sub-Saharan Africa". This programme ran until December 2009. Funding from this project is being used as part of our engagement strategy and the links within this project enable us to work not only with other researchers in Ghana and

Tanzania but also to link to the other projects included in this wider study. These include both Madagascar and South Africa.

Work from the earlier surveys on jobs and the returns to education was presented at a workshop at the University of Witwatersrand on the 19 February 2008. The presentation was by Francis Teal and was entitled "Issues in firm-level research in Africa: from investment to jobs". A paper from this presentation entitled "Using Firm Surveys for Policy Analysis in Low Income Countries" has appeared in a South African policy journal later this year. Also at this workshop there were presentations from the Ghanaian collaborators. Anthony Krakah addressed the general issues of how micro data can be used in policy while a presentation by Moses Awoonor-Williams addressed the issues of how skills and education impact on labour market outcomes using the GLSS data.

A version of the presentation on this aspect of the work entitled "Education, Incomes and Job Opportunities in Africa: From Investment to Jobs" was given by Francis Teal at the University of Ghana, Legon on 28 March 2008.

A follow-up to this paper now entitled "Jobs in Ghana: What types of jobs have been created and where?" was presented at a Workshop in Accra, Ghana, 17 September 2008 jointly by Nicholas Nsowah-Nuamah of the Ghana Statistical Service and Francis Teal.

Versions of this paper have been presented at the United Kingdom Forum for International Education and Training (UKFIET) September 2009 Conference held at Oxford and at the an AMERU/IDRC Workshop held in Johannesburg October 2009

During the summer of 2009 two DPhil students from the Centre, Andrew Kerr and Paolo Falco, who have been working on the data were employed by the World Bank to present the data from this project in a manner that fed into the work programmes being developed by the World Bank to impact on job creation in poor countries. A report for use is being prepared by the World Bank focusing on the following questions:
What are the determinants of earnings?
What are the determinants of earnings growth?
What are the drivers of transitions between low-pay and high-pay?
While these questions go beyond those posed in this project, they show the uses to which the data collected can be, and is being, put.

Over the next six months there are plans already in place to disseminate the research further. A seminar is planned at DFID on 22 February 2010 with the following outline: "Avoiding civil wars and reducing poverty by half: Some lessons from economic policies in Ghana and Côte d'Ivoire".

The next two outlets for the paper which is one of our nominated outputs "The Returns to Formality and Informality in Urban Africa" will be the March 2010 CSAE Oxford conference and the IZA/World Bank meeting in Cape Town in May 2010.

As part of the general dissemination activities of the CSAE we have both a newsletter and a policy briefing series. It is envisaged that the work on this project will feature prominently in these publications over the next six months.

6   Impact

In the original proposal we identified four principal beneficiaries from the project. The first is NGOs and those offering financial services to the poor. The second is the departments within African governments who are responsible for the development of the private sector and for job creation. The third is the UK government and in particular the departments responsible for development and business. The fourth is international organisations responsible for work in the area of interventions to alleviate poverty and create jobs, specifically the ILO and the World Bank.

During the course of the research we have interacted with all these potential beneficiaries. The NGO with which we have been working, ADRA in Accra, has been briefed on the progress of the research while it has been in the field and has been very helpful in co-operating with us to enable the field work to proceed. ADRA has been changing its methods of operation over the course of the research and we hope to be able to assist it in the design of its new programmes as a result of the research results we will be reporting to them in late February 2010.

Our work with African governments has taken the form of collaboration with the Ghana Statistical Office where the Deputy Government Statistician has worked with us on the papers that have been produced as part of this project.

We have collaborated with the World Bank by making our data available as an input into their advice to developing countries as to how jobs can be created. We are at present preparing some of the research for a presentation to be made at DFID on 22 February 2010 which will draw out the implications for labour market polices in fragile states.

In terms of a wider impact on this field Francis Teal is part of the scientific committee for the IZA/World Bank Labour Conference to be held in Cape Town in May 2010 which will feature the work from this project. He is responsible for organising a special session at the conference on the role of primary data collection for policy analysis in Africa. Again this session will draw on the work on this project.

Francis Teal has also been working on data analysis with the World Bank using the techniques of data analysis developed as part of this project. This work on labour markets in Nigeria is appearing as two chapters in a book to be published by the World Bank as follows:

World Bank Report: NIGERIA: Employment and Growth Study Africa Region. Chapter 2 Employment, Unemployment, Joblessness and Incomes in Nigeria, 1999-2006. (Luke Haywood and Francis Teal); Chapter 3 Growth, Employment and Industry in Nigeria (Markus Eberhardt and Francis Teal)

7   Output

Three outputs are already in the public domain as working papers:

Paolo Falco, Andrew Kerr, Neil Rankin, Justin Sandefur, Francis Teal. *The returns to formality and informality in urban Africa. CSAE Working Paper* WPS/2010-03

Nicholas Nsowah-Nuamah, Francis Teal, Moses Awoonor-Williams. *Jobs, Skills and Incomes in Ghana: How was poverty halved? CSAE Working Paper* WPS/2010-01

Neil Rankin, Justin Sandefur, Francis Teal. *Learning & earning in Africa: Where are the returns to education high?* CSAE Working Paper WPS/2010-02

In collaboration with the Ghana Statistical Service and the Tanzanian Bureau of Statistics the household surveys which provide the background to this project have been made publicly available at http://www.csae.ox.ac.uk/datasets/Ghana-Tanz-UHPS/default.html.

Two papers both accepted for publication which draw on the research from this project are;

Paper for *Development Policy Yearbook*:
 "Ghana and Côte d'Ivoire: Changing places" (with Markus Eberhardt) to be published by Institut de hautes études internationales et du développement, Graduate Institute of International and Development Studies, Geneva.

Paper for the *Oxford Companion to the Economics of Africa*: "Labour and Employment", Francis Teal. To be published by Oxford University Press.

Other planned output from the project which is not yet in the public domain is detailed above in Section 4 on the Results of the Project.

8 Capacity Building

Capacity building has been a strong focus throughout this project. Teams of enumerators and officers in Ghana and Tanzania have been trained to use sophisticated data collection instruments during the surveys. In addition, we have worked closely with staff from the Ghana Statistical Office providing training in data analysis.
We have collaborated with colleagues at AMERU and IDRC to establish dissemination events and training workshops in Accra (September 2008) and in Johannesburg (October 2009). We have also worked on the development of data resources and their analysis which have fed into both World Bank and DFID studies.

We have provided substantial in-house training to MSc, MPhil and DPhil students being supervised by Francis Teal as part of the graduate programme at Oxford. Over the course of the project two MSc, three MPhils and two DPhil students have worked on the data as part of their theses. As noted above two of these students, Andrew Kerr and Paolo Falco, worked at the World Bank on this project data during the summer of 2009. The data has also formed part of the training undertaken as part of the course in Quantitative Methods for the MSc in Economics for Development for which Francis Teal is responsible at Oxford.

9 Future Research Priorities

The work carried out on this project has generated interest from the IDRC in Canada; from DFID in the UK, which is seeking advice from Francis Teal on the implications of the results for job creation in fragile states (see outline of proposed talk there given above); and from the World Bank interested in policies for job creation. It is hoped that all these organisations will be interested in funding extensions to the work.

While the central result from the research is in one sense a rediscovery of what Sen (1975) argued many decades ago, that understanding poverty requires us to understand the price for unskilled labour, the fact that this very old insight underlies understanding the most dramatic policy success in sub-Saharan Africa suggests that better policy, informed by research, can improve the lives of millions of poor people. The

fact that we now know the mechanism but not the cause strongly suggests how future research in this area needs to be directed.

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