



International  
Growth Centre

# IGC research in Tanzania: Project summaries 2009-2018

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DIRECTED BY



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## Executive summary

This document summarises the research projects that the International Growth Centre (IGC) have supported since the country office's inception in 2008. The aim of this document is to provide an overview of the research the IGC has supported and its engagement with local and international academics, research institutions, and the Government of Tanzania. This work has been done in an effort to address key policy questions in Tanzania and to work to support policymaking to achieve sustainable growth in Tanzania. The projects are separated into six thematic areas: Cities, Firms, State Capacity, Energy, Macroeconomic Issues, and Agriculture.

## The International Growth Centre (IGC)

The IGC promotes sustainable growth by providing demand-led policy advice based on frontier research. We support work by leading academics, with a particular focus on the public policy areas of state effectiveness, firm capabilities, urbanisation, and energy. The IGC directs a global network of world-leading researchers and 12<sup>1</sup> in-country teams in South Asia and Sub-Saharan Africa. It works closely with partner governments to generate high quality research and policy advice on key local growth challenges. Based at the London School of Economics and Political Science (LSE) and co-directed by the University of Oxford, the IGC is majority funded by the UK Department for International Development (DFID).

The IGC model is based on the recognition that building effective growth policies in developing countries requires more than imported solutions; it is the mission of our country programmes to providing cutting edge policy advice that is tailored to the local reality and needs. Developing countries face a range of challenges that require new thinking, new evidence, and a flow of new ideas. The IGC uses an innovative 'co-generation' approach – enabling policymakers and researchers to jointly set research agendas and to work collaboratively as research progresses. Embedded country teams work with policymakers and local researchers to determine key growth challenges and identify country priorities. These demands form the backbone of the IGC's global research agenda, which focuses on four key drivers of growth: state effectiveness, productive firms, liveable cities, and reliable energy access.

Engaging policy stakeholders from the beginning ensures that demand-led research feeds directly into the policymaking agenda. Co-generation acknowledges the importance of local stakeholders not only as decision-makers and implementers, but as knowledge creators, making IGC policy advice more effective. This approach is guided by the principle that research can best inform policy decisions when it is conceived, developed, and embedded within local policy contexts.

## IGC Tanzania

IGC Tanzania was established in 2008 – the first in-country programme of the IGC – and is managed by Country Director Dr John Page (Brookings Institution), Lead Academic Professor Christopher Adam (University of Oxford), and Senior Country Research and Policy Fellow Dr Pantaleo Kessy (Bank of Tanzania). A small team of Country Economists based in Dar es Salaam works to help establish research projects, support academics in managing the projects, and ensure the funded research is speaking to key policy issues. IGC Tanzania's office is based at the Bank of Tanzania (BoT), reflecting the strong and continuing collaboration between the two institutions.

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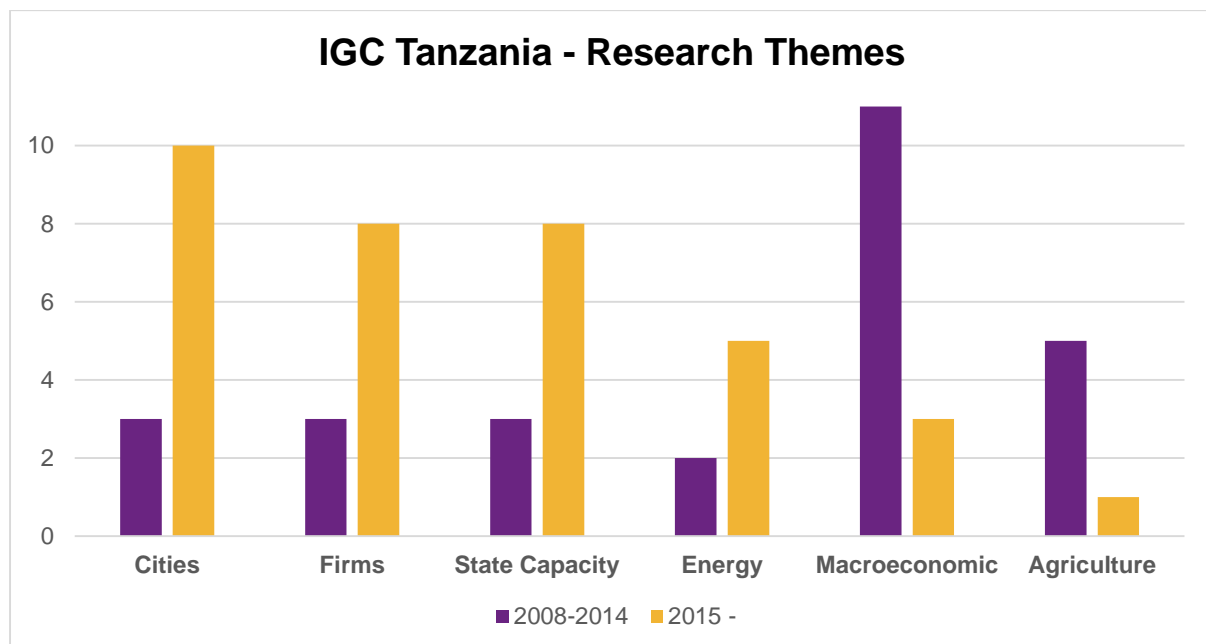
<sup>1</sup> As of May 2018

For the past ten years, IGC Tanzania has supported demand-driven, independent research by world-class economists – usually in partnership with local researchers – focused on overcoming some of the most critical constraints to Tanzania’s future growth. Together with government partners such as the President’s Office Planning Commission (POPC), the Ministry of Trade, Industry and Investment (MITI), BoT, the President’s Office Regional Administration and Local Government (PO-RALG), and also non-government partners such as local academics and research institutions, IGC Tanzania’s work has continued beyond research, helping to move from analysis to action.

### Portfolio of work

Since its inception, IGC Tanzania has led a broad range of projects across a number of growth-relevant thematic areas. This compendium summarises the 62 core projects commissioned since 2008, grouped into six categories: agriculture, firms, cities and urban issues, macroeconomic issues, state capacity, and energy.

The office portfolio has grown since the inception of the country programme; 34 of the listed projects were commissioned since 2015. In the period up to 2014, the two primary clusters of work were in agricultural and macroeconomic issues with 19% and 41%, respectively, of total projects occurring in these areas. As stakeholder demand has shifted, the composition of the work programme has shifted as well, expanding in areas such as urban issues, firms, and energy. The firms, cities, and state capacity sections of the portfolio now comprise 23%, 29%, and 23%, respectively, of the total portfolio. The macroeconomic management issues portfolio now makes up 9%. The main areas of the IGC Tanzania’s work are described below.



### Firms

Strong firms form the core of economic activity. For developing economies to grow and to generate employment, so must the opportunities for their businesses and entrepreneurs. In this light, IGC Tanzania has an established portfolio of work on firm-related issues. Initially, a large proportion of studies in this area focused on agriculture (page 12), covering a range of issues around agricultural productivity and input costs, but in recent years, the office has focused its firms work on issues of industrialisation, firms’ capacities, and structural transformation (page 8), which are also core priorities for the Government of Tanzania. Work

in this cluster has largely been done in collaboration with the Ministry of Industry, Trade and Investment and the parastatals reporting to the Ministry such as the Tanzanian Investment Centre (TIC), and the Small Industries Development Organisation (SIDO).

## Cities

IGC Tanzania has a growing portfolio of work dealing with urban issues, addressing challenges such as land governance in urban spaces and urban service delivery. With 13 projects in this cluster so far, ten of which started after 2014, it is one of the fastest growing areas of the IGC Tanzania's work (page 15).

In addition to directly supporting research work on these issues, IGC Tanzania works with the newly established IGC *Cities that Work* initiative, which seeks to build a network of urban managers and to collate and prepare practical policy advice across a range of urban issues in a set of IGC countries of activity.

## Macroeconomic issues

IGC Tanzania has an extensive portfolio of work on macroeconomic management, much of which emerging from our close collaboration with the BoT. The work has focused on issues of monetary policy, inflation forecasting, and exchange rate determination but includes important work on fiscal issues and long-term growth. In addition to working with the BoT, the IGC has a growing engagement with the East African Community (EAC) addressing macroeconomic issues at the regional level. This cluster of work has been and remains a key pillar of the IGC Tanzania's work, with ten key projects implemented in this area (page 22). However, as the office has broadened its scope of work in Tanzania, this cluster now comprises less than 10% of overall projects.

## State capacity

At the centre of poverty reduction efforts must be an able and reliable government. It is critical to increase the resources and effectiveness of these governments while encouraging both accountability and transparency. In addition to the macroeconomic work mentioned above, IGC Tanzania works on more general issues of state capacity such as tax revenue mobilisation, public infrastructure, international trade, and economic regulation. With currently eight projects, this portfolio is quickly gaining relevance (page 28).

## Energy

A key constraint for faster economic growth is an efficient and reliable electricity network provision – and increasingly so a clean one too. A relatively new but developing part of the IGC's work is the energy portfolio (page 33). Projects include work on off-grid and mini-grid electricity provision, clean energy, reliability of the electrical grid, and policy recommendations linked to the discovery of natural gas.

## Firms

### An enterprise map of Tanzania (2012)

**Academic(s):** John Sutton (LSE), Donath Olomi (Institute of Management and Entrepreneurship Development)

**Project Codes:** 40007/40105/40030

**Focus Area:** Firms – Firm Capabilities

**Abstract:** In the first decade of the new millennium, Tanzania's gross domestic product (GDP) doubled in real terms, making it one of the handful of sub-Saharan economies that have shown strong and sustained growth in recent years. This growth was, moreover, broad based, with manufacturing outputs growing slightly faster than the economy as a whole. To maintain this rate of growth over the next decade, Tanzania's industrial capabilities will need to advance in a quite substantial way. The foundations for this advance lie in the current capabilities of Tanzania's industrial companies. The purpose of this volume is to set out a detailed description, industry by industry, of those capabilities.

**Stakeholders:** Bank of Tanzania (BoT), IMED, Ministry of Industry, Trade and Investment (MITI), Tanzania Revenue Authority (TRA), Tanzania Investment Centre (TIC), Tanzania Mineral Audit Agency (TMAA), Contractors Registration Board (CRB), National Construction Council (NCC), Tanzania Trade Development Authority (Tantrade), Tanzania Cotton Board (TCB), Tanzania Sisal Board – Ministry of Agriculture (TSB), Tea Board of Tanzania (TBT), Tanzania Coffee Board, Sugar Board of Tanzania (SBT), Tanzania Tobacco Board (TTB).

**Book:** [An Enterprise Map of Tanzania](#); Sutton, Olomi; December, 2012.

**Presentation:** [“An Enterprise Map of Tanzania”](#); Sutton, Olomi; December 2012.

### Transportation costs, food markets, and structural transformation in Tanzania (2012)

**Academics:** Christopher Adam (IGC Tanzania, University of Oxford), David Bevan (University of Oxford), Douglas Gollin (IGC Ethiopia, University of Oxford), Beatrice Kalinda Mkenda (UDSM)

**Project Codes:** 5010

**Focus Area:** Firms

**Abstract:** This project describes the development of an applied general equilibrium model to explore in an analytical setting the effects of high domestic transaction costs on the spatial patterns of economic activity in Tanzania. The researchers consider to what extent the high transaction cost environment is causally related to the size of the quasi-subsistence agriculture sector, and conduct a series of stylised experiments to ask how the economy would respond to policy changes and to exogenous shocks such as changes in world food prices.

**Stakeholders:** POPC, Ministry of Transportation, Ministry of Agriculture.

**Working Paper:** [“Transportation Costs, Food Markets and Structural Transformation: The Case of Tanzania”](#); Adam, Bevan, Gollin, Mkenda; March, 2012.

**Academic Paper:** [“Rural–Urban Linkages, Public Investment and Transport Costs: The Case of Tanzania”](#). Adam, Christopher; Bevan, David; Gollin, Douglas. World Development, 2017.

**Policy Brief:** [“Transportation Costs, Food Markets and Structural Transformation in Tanzania”](#); Adam, Bevan, Gollin, Mkenda; March, 2012.



## Equity finance for SMEs (2015)

**Academic(s):** Donath Olomi (Institute of Management and Entrepreneurship Development), Neema Mori (Institute of Management and Entrepreneurship Development)

**Project Codes:** 40202/40604

**Focus Area:** Firms – Firm Capabilities

**Abstract:** Access to affordable long-term finance is one of the biggest barriers to development of small and medium enterprises. Debt finance is not only expensive and difficult to get, but also inconvenient given the relatively short maturities of loans. Equity finance offers an opportunity for SMEs to raise capital, share risks, complement knowledge and skills, etc. Yet, it is grossly underdeveloped and not fully understood. The objective of the study was to generate lessons on the experience, successes and challenges of equity investments in Tanzania. The study used an exploratory approach through literature review and repeated interviews with existing equity investors, SMEs that have sought and those which have received equity, and stakeholders involved in facilitating access to finance. In total 20 SMEs, three private equity firms and five individual investors were interviewed. Of these, ten cases were also documented.

**Stakeholders:** Institute of Management and Entrepreneurship (IMED); BoT; Ministry of Finance; Ministry of Industry, Trade and Investment; Dar es Salaam Stock Exchange.

**Working Paper:** [“Lessons from Equity Financing: Experience of Tanzanian SMEs”](#); Olomi, Mori; June, 2015.

## From the bottom up: Firm Capabilities and the 'in between' sector in Tanzania (2016)

**Academic(s):** Margaret McMillan (Tufts University), Hazel Gray (University of Edinburgh)

**Project Codes:** 40302

**Focus Area:** Firms – Firm Capabilities

**Abstract:** Research involved both quantitative and qualitative analysis to enhance our understanding of the MSME sector in Tanzania. The first part of the project involved using existing (new) data including (i) the Central Registry of Establishments (CRE); (ii) Population Census Data; (iii) Labour Force Surveys; (iv) National Panel Surveys; (v) the Micro Small and Medium Sized Enterprise Survey; (vi) the World Bank Enterprise Surveys and; (vii) the Annual Survey of Industrial Production (ASIP). Research involved using state of the art econometric techniques to explore data from the FSDT. Following data analysis, the results were used to strengthen the conceptual framework used to examine the relationship between SMEs, economic growth and job creation. The second part of the project involved qualitative interviews with policy stakeholders and larger and small manufacturers in the metals sector in Tanzania. Interviews were held with five out of the 11 large metal and fabricated metals producers. The researchers also undertook in-depth case study interviews with six small informal businesses in the metal sector and 1 medium sized metal fabrication enterprise.

**Stakeholders:** BoT, MITI.

**Final Report:** [“From the bottom-up: Firm capabilities and the “in-between” sector in Tanzania”](#); Margaret McMillan and Hazel Gray; July, 2016.

**Associated working paper:** [“Economic Transformation in Africa from the Bottom Up: Evidence from Tanzania”](#). National Bureau of Economic Research (NBER) Working Paper; Diao, Xinshen. Kweka, Josaphat and McMillan, Margaret. (2016)

### **SIDO impact evaluation: Scoping study (2016)**

**Academic(s):** Margaret McMillan (Tufts University), Joshua Chipman (IGC Tanzania), Jed Silver (International Food Policy Research Institute)

**Project Codes:** 40406

**Focus Area:** Firms – Firm Capabilities

**Abstract:** The project seeks to contribute to the design of an evaluation of SIDO's impact on SMEs. The researchers travelled to 16 regions, interviewing over 100 firms. In the course of the visits they observed the full range of SIDO's projects. The researchers also prepared a report on SIDO's activities for SIDO management.

**Stakeholders:** MITI; SIDO.

**Working Paper:** [“Report and comments on the IGC-SIDO impact evaluation scoping visit”](#). Chipman, Joshua. Silver, Jed. 2016

### **Mobile payment services in developing countries: Firm capabilities and financial development (2017)**

**Academics:** Saul Estrin (LSE), Adeline Pelletier (Institute of Management Studies, Goldsmiths – University of London), Susanna Khavul (University of Texas-Arlington)

**Project Codes:** 89319

**Focus Area:** Firms – Firm Capabilities

**Abstract:** Mobile payment services (MPS) have the potential to promote sustainable economic growth in developing economies with barriers to financial service access, through a reduction of transaction costs and facilitation of the allocation of funds in an economy. The study is set at the firm level. Building on their previous research, researchers analyse the impact of three different types of MPS providers (banks, telecoms and "third party providers"), on the reduction in transaction costs, the increase in the frequency of transactions, and the facilitation of the allocation of resources. Particular attention is paid to the organisational structure the firms put in place to support their mobile payment services, and the interaction between the headquarters and the agents' network. The aim is to understand firm capabilities to provide MPS, the relationship between MPS uptake and the velocity of money in an economy, and the institutional arrangements supportive of MPS. Data for this project was collected in Bangladesh and Tanzania.

**Policy Brief:** [“Mobile payment services in developing countries - Information, trust, and training: The ingredients for retail agents' success”](#); Pelletier, Khavul, Estrin; November, 2014.

### **IGC panel at the REPOA annual research conference ("Institutions and Industrialization") (2017)**

**Academic(s):** John Sutton (LSE), Eric Verhoogen (Columbia University), Benno Ndulu (Bank of Tanzania)

**Project Codes:** 40413

**Focus Area:** Firms – Firm Capabilities

**Abstract:** The IGC hosted a panel discussion at the Research on Poverty Alleviation (REPOA) annual research conference in March 2017. The overall theme of the conference was “Institutions and Industrialization”. The Tanzanian Prime Minister was the guest of honour and

policymakers, politicians, research donor partners and other senior civil servants were also present. IGC was represented by John Sutton (LSE), Eric Verhoogen (Columbia University) and Benno Ndulu (outgoing Governor of the BoT).

**Stakeholders:** BoT, Ministry of Finance, REPOA.

**Event page:** [“IGC panel – REPOA annual research conference”](#); Sutton, Verhoogen, Ndulu; March, 2017.

### **EAC local content policy (2017)**

**Academic(s):** John Sutton (LSE)

**Project Codes:** 47401/40201

**Focus Area:** Firms – Firm Capabilities

**Abstract:** The committee of Finance Ministers of the East African Community (EAC) has asked the IGC to propose a framework for a Common Policy for Local Content in Resource-Based Industries across its member countries. This request was made in a letter to the Executive Director of IGC from the Secretariat of the EAC. The report, which was delivered in 2017, presents how the EAC member states might adopt a common set of policies and practices in respect of Local Content. Any consideration of a common approach across EAC member countries needs to be grounded, not only in the harmonisation of legislation and regulations, but in the harmonisation of practices.

**Stakeholders:** Secretariat of the EAC, BoT, Uongozi Institute.

### **Financing the in-between sector: Designing and evaluating targeted SME lending in Tanzania (2018) (research in progress)**

**Academic(s):** Margaret McMillan (Tufts University), Josaphat Kweka (Talanta International)

**Project Codes:** 40414

**Focus Area:** Firms – Firm Capabilities

**Abstract:** As in many African countries, micro and small firms in Tanzania are making increasingly significant contributions to employment and productivity growth. Previous research suggests that much of this growth is driven by a small number of highly productive firms, who behave similarly to large formal firms, hence earning the name “the in-between sector.” This project aims to assess whether loan products targeted to such firms can help them overcome their financial constraints and fulfil their potential to contribute to national economic growth. Specifically, the targeted lending product uses novel information about a firm’s past performance to enable them to access reduced-collateral loans from a leading Tanzanian bank. Studying whether such products attract more “in-between” firms, enable them to access larger loans, and how they perform will provide evidence on whether access to finance is indeed a binding constraint for small firms and if so, whether targeted lending is an effective way of overcoming it. If the loan product is successful, the research team intends to conduct a larger-scale study that tracks the impact of the loan product firms’ productivity and employment growth, and assess to what extent targeted lending products can unleash the potential of the “in-between” sector.

**Stakeholders:** MITI; Small Industries Development Organization (SIDO); National Microfinance Bank (NMB).

**Project Page:** [“Financing the in-between sector: Designing and evaluating targeted SME lending in Tanzania”](#).

## Firms - Agriculture

### Agricultural productivity and rural-urban migration in Tanzania (2011)

**Academic(s):** Martina Kirchberger (Columbia University-University of Oxford), Fulgence Mishili (Sokoine University of Agriculture), Stefan Dercon (University of Oxford)

**Project Codes:** 40005

**Focus Area:** Firms – Agriculture

**Abstract:** The role of agriculture in economic growth and the wider structural transformation of Tanzania is a key concern for policymakers. Understanding whether the main driver of rural income growth lies in productivity growth within agriculture itself or through the growth of off-farm activities is particularly important in countries like Tanzania, where 80% of its residents depend on agriculture for their livelihood and 70% reside in rural areas. This paper looks at agricultural productivity growth in the Kagera region of Tanzania between 1991 and 2004, providing a decomposition in terms of the returns to various inputs such as land and labour, and measures the adoption of modern inputs. The key finding is that farms have become smaller and more labour intensive, and therefore less productive. Increases in consumption were attributed principally to the growth in off-farm activities. The findings of this study were presented in a dissemination workshop held in Dar es Salaam in November 2011.

**Stakeholders:** Ministry of Agriculture; Ministry of Livestock and Fisheries.

**Working Paper:** "[Agricultural Productivity Growth in Kagera between 1991 and 2004](#)"; Kirchberger, Martina; Mishili, Fulgence; April 2011.

### Agricultural productivity trends in Tanzania: A view from national household and farm survey data (2011)

**Academic(s):** Justin Sandefur (Center for Global Development), Razack Lokina (UDSM), Måns Nerman (University of Gothenburg), Stefan Dercon (University of Oxford)

**Project Codes:** 40006

**Focus Area:** Firms – Agriculture

**Abstract:** Looking at the role of agriculture in economic growth, and the wider structural transformation of Tanzania is a key concern for policy-makers. This paper seeks to understand time trends in agricultural productivity in Tanzania. The main finding is that the most important source of consumption growth between 1991 and 2007 has been structural change, i.e. people moving out of agriculture. Within the smallholder agricultural sector, yields of the most important crop – maize – have been declining during the 2000's, and total factor productivity and adoption of technologies such as improved seeds and inorganic fertilizer have been stagnant at best.

**Stakeholders:** Ministry of Agriculture; Ministry of Livestock and Fisheries.

**Working Paper:** "[Poverty and Productivity: Small-Scale Farming in Tanzania, 1991-2007](#)"; Lokina, Razack; Nerman, Måns; Sandefur, Justin; April, 2011.

### The capacity and uptake of agricultural research in Tanzania (2011)

**Academic(s):** Andrew Coulson (University of Birmingham), Bitrina Diyamett (J-PAL)

**Project Codes:** 40009/40020/40017

**Focus Area:** Firms – Agriculture

**Abstract:** This study makes recommendations on how more use can be made of research to increase agricultural production and growth in Tanzania. To exploit the full potential, more coordination is needed with the extension services, other parts of value chains, the wider research community, and those actors promoting large scale farming. The findings of this study were presented in a dissemination workshop held in Dar es Salaam in May 2012.

**Stakeholders:** BoT, Ministry of Agriculture; Ministry of Livestock and Fisheries.

**Working Paper:** [“Improving the Contribution of Agricultural Research to Economic Growth: Policy Implications of a Scoping Study in Tanzania”](#); Coulson, Diyamett; April, 2012.

**Policy Brief:** [“Improving the Contribution of Agricultural Research to Economic Growth”](#); Coulson, Andrew; Diyamett, Bitrina; April, 2012.

### Spatial price dispersion and transactions costs in agricultural commodities in Tanzania – (2011)

**Academic(s):** Bjorn van Campenhout (International Food Policy Research Institute), Beatrice Kalinda Mkenda (UDSM)

**Project Codes:** 40004

**Focus Area:** Firms – Agriculture

**Abstract:** Tanzania’s current efforts to modernise and commercialise its large agricultural sector is unlikely to reach full potential if it does not, at the same time, tackle inefficiencies in the supply chain, linking producers in rural areas to consumers in urban areas. The objective of this project is to document and estimate the transaction costs involved in the supply chain, in other words getting agricultural commodities from the farm gate to the consumer. Tanzania covers a vast area with relatively low population density and scattered villages, where the majority of low-income households reside. Combined with the low density of the often poor road network, connecting producers with consumers in the growing urban centres is a challenge. The analysis concluded that while market information on quality and standards appears to be relatively good, the estimated transaction costs are substantial.

**Stakeholders:** Ministry of Agriculture; Ministry of Livestock and Fisheries.

**Working Paper:** [“Estimating Transaction Costs in Tanzanian Supply Chains”](#); Campenhout, Bjorn van; Mkenda, Beatrice; April, 2011.

### Expanding agricultural research in Tanzania (2012)

**Academic(s):** Vincent Leyaro (UDSM), Oliver Morrissey (University of Nottingham)

**Project Codes:** 40022/40110

**Focus Area:** Firms - Agriculture

**Abstract:** As agriculture accounts for a large share of employment (70%), export earnings and GDP (24%) in Tanzania, the sector is seen as a main vehicle part of any national economic strategy to combat poverty and enhancing agricultural productivity is crucial to realize this objective. Although the geographical area under cultivation is continually increasing, this doesn’t translate to agricultural productivity. At the same time, there are no comprehensive studies of agricultural production and productivity using farm-level data in Tanzania. The National Panel Surveys (NPS) of 2008/09 and 2010/11 provide extensive data on some 3,280 farm households sampled throughout the country, including information on

area planted, quantity and value of harvest and input use (purchased and household) for a wide variety of crops. Analysis of these panels offers the potential to provide insight on the determinants of productivity and supply response, in particular to identify factors amenable to policy influence that can provide effective incentives for farmers to increase production and efficiency. After analysing the data by describing and summarising the information, this study investigated the price and non-price factors determining production and how responsive farmers are to these factors.

**Stakeholders:** POPC; Ministry of Agriculture; Ministry of Livestock and Fisheries.

**Working Paper:** [“Expanding Agricultural Production in Tanzania: Scoping Study for IGC Tanzania on the National Panel Surveys”](#); Leyaro, Morrissey; April, 2013.

### Transport costs and fertilizer adoption in Tanzania (2017)

**Academics:** Alan Spearot (University of California, Santa Cruz), Brian Glera (University of California, Santa Cruz), Jonathan Robinson (University of California, Santa Barbara), Shilpa Aggarwal (Indian School of Business)

**Project Codes:** 89307

**Focus Area:** Firms – Firm Capabilities

**Abstract:** Poor transportation infrastructure is believed to limit adoption of productivity enhancing technologies like chemical fertiliser, but there is little research which quantifies the effects of remoteness on market access, especially for agricultural inputs. This study provides novel evidence on market access for smallholder farmers using self-collected data on the supply chain for chemical fertiliser and for maize in each of the 570 villages in the Kilimanjaro region of Northern Tanzania. The data includes (1) surveys with farmers in 110 randomly selected villages; (2) surveys with all agro-retailers, or “agrovets,” in the region; (3) the collection of information on road quality, travel times, and travel costs; (4) driving times and distances pulled from Google Maps API; and (5) interviews with maize-buying agents and distributors. Reduced form results show that doubling transport costs to the primary regional market is associated with a \$1.7 increase (8%) in the delivered price for chemical fertiliser, and a reduction in adoption of this technology by 14 percentage points (25%). These effects are further quantified using a spatial model of agro-retailers, and evaluate the impact of supply chain shocks on adoption.

**Stakeholders:** Ministry of Agriculture; Ministry of Livestock and Fisheries; NGO and IO agricultural community.

**Final Report:** [“Market linkages, trade costs, and technology adoption in rural Tanzania: Preliminary evidence from a pilot in Kilimanjaro Region”](#); Aggarwal, Giera, Jeong, Olobo, Robinson, Spearot; July, 2017.

Also available on Innovations for Poverty Action’s website as [“Market Learning and Transport Costs Among Fertilizers Retailers in Tanzania”](#).

## Cities

### Impact of property rights in urban Tanzania: The role of infrastructure (2012)

**Academics:** Stefan Dercon (University of Oxford), Andrew Zeitlin (Georgetown University), Klaus Deininger (World Bank)

**Project Codes:** 2005

**Focus Area:** Cities

**Abstract:** This paper seeks to understand the relationship between the provision of public infrastructure and the demand for formal property rights in the unplanned urban settlements of Dar es Salaam, Tanzania. The researchers analyse take-up patterns in two adjacent settlements where residents were offered the opportunity to purchase formal land titles at subsidised prices. Detailed plans for proposed infrastructure investments were drawn up for both settlements, but these infrastructure investments were only implemented in one of the two locations. The research team exploits this quasi-experiment to show that proximity to actual, but not hypothetical, infrastructure investment significantly increases demand for property rights, and this effect appears to be driven by both increased property values and a dramatically higher perceived risk of expropriation.

**Stakeholders:** Ministry of Lands, Housing and Human Settlements; POPC.

**Working Paper:** "[Slum-Upgrading in Tanzania: Public Infrastructure and Private Property Rights](#)"; Collin, Dercon, Lombardini, Sandefur, Zeitlin; December, 2012.

**Policy Brief:** "[Is Land Titling Feasible in Tanzania's Low-Income Urban Areas?](#)"; Ayelew, Collin, Deininger, Dercon, Sandefur, Zeitlin; December, 2012.

### Economic impact of urban property rights in Tanzania: The role of infrastructure (2012)

**Academics:** Christopher Adam (University of Oxford), Matthew Collin (Center for Global Development), Klaus Deininger (World Bank), Andrew Zeitlin (Georgetown University), Stefan Dercon (University of Oxford), Justin Sandefur (Center for Global Development), Daniel Ali Alayew (World Bank)

**Project Codes:** 6020

**Focus Area:** Cities

**Abstract:** While multiple studies have shown that a woman's control over land is positively associated with bargaining power outcomes, few have succeeded in highlighting successful methods for increasing this control. This project reports on a policy experiment in an unplanned settlement in Dar es Salaam, Tanzania, that provided access to formal land titles to informal settlers at randomised prices, with additional price discounts conditional on designating a woman as owner or co-owner of the land in question. Results show that the households are highly responsive to price incentives, as households offered a small conditional discount are roughly 30% more likely to co-title their land. Despite these large differences, households offered conditional discounts are just as likely to purchase a formal land title as those offered general discounts. The researchers discuss the implications of these results for the expected bargaining power impacts of the intervention.

**Stakeholders:** Ministry of Lands, Housing and Urban Development, The Urban Institute.

**Working Paper:** "[The Price of Empowerment: Land Titling and Female Inclusion in Urban](#)

[Tanzania](#)"; Ali, Collin, Deininger, Dercon, Sandefur, Zeitlin; March, 2012.

**Policy Brief:** "[The Price of Empowerment: Can Land Titling Programmes be Gender Inclusive?](#)"; Ayelew, Collin, Deininger, Dercon, Sandefur, Zeitlin; March, 2012.

## **Population growth, urbanisation and internal migration in Tanzania, phases I and II (2014)**

**Academics:** Hugh Wenban-Smith (Independent Researcher), Steve Gibbons (LSE)

**Project Codes:** 40104/40211

**Focus Area:** Cities

**Abstract:** The objective of this project is to update and analyse the data from the 2012 Census to provide some basic evidence on the evolving pattern of urbanisation in Tanzania. A secondary objective is to explore and develop links to other on-going IGC projects and to develop new policy-relevant research on demographic change and urbanisation, ideally in collaboration with local researchers or policymakers. The second phase of this project made use of the migration and urbanisation propensities obtained during the first phase to shed light on what is driving migration and urbanisation in Tanzania, thereby providing a stronger evidential basis for policies affecting internal migration and urbanisation. Specifically, Phase II investigated how regions with high rural out-migration differ from those with low rural out-migration, appealing to as much relevant information at regional level as can be found; similarly, it investigated how regions with high urban in-migration differ from those with low urban in-migration, again by reference to supporting data. These investigations were carried out for each inter-censal period and considered how far these differences can be linked to national developments such as villagisation (1970s), SAP policies (1980s) and mining (1990s).

**Stakeholders:** PO-RALG.

**Working Papers:** "[Urbanisation in Tanzania – Population Growth, Internal Migration and Urbanisation in Tanzania 1967-2012: A Census-Based Regional Analysis – Tanzania’s Urban Population, 1967-2012 – A Density-Based Measure of ‘Urban’ for Tanzania? A Feasibility Study Using Dodoma Region](#)"; Wenban-Smith; Gibbons; April, 2014.

"[Population Growth, Internal Migration and Urbanization in Tanzania, 1967-2012](#)"; Wenban-Smith; September, 2015.

## **Urbanisation and displacement: Assessing the levels of vulnerability of the refugee and urban slum populations in Dar es Salaam, Tanzania (2015)**

**Academic:** Aisling O’Loughlen (Heriot-Watt University)

**Project Codes:** 40113

**Focus Area:** Cities

**Abstract:** The nexus between rapid urbanisation and forced migration has in recent years manifested in a growing urban refugee phenomenon. The need for integrating the greater mobility of displaced populations with urban development is a humanitarian challenge as governments struggle to develop coherent policies to adequately meet the needs of both indigenous and refugee populations in urban areas. Understanding these needs and the livelihood strategies adopted by the refugee population are therefore of great importance. This paper examines the livelihood strategies and asset vulnerability of the urban refugees of Dar es Salaam through Moser’s (1998) asset vulnerability framework, while expanding on the



concept of the Right to the City as a form of political asset, and one which is crucial for the creation of sustainable livelihoods for these forced migrants.

**Stakeholders:** Ministry of Lands, Housing, and Human Settlements Development

**Working Paper:** [“The nexus of displacement and urbanisation: Assessing the asset vulnerability and livelihood strategies of urban refugees in Dar es Salaam, Tanzania”](#); O’Loghlen; October, 2015.

**Academic Paper:** [“The nexus of displacement, asset vulnerability and the Right to the City: the case of the refugees and urban poor of Dar es Salaam, Tanzania”](#). O’Loghlen, Aisling; McWilliams, Christopher (2017). International Journal of Urban Sustainable Development, 9 (1). pp. 21-45.

**Policy Brief:** [“Displacement and urbanisation: Assessing the levels of vulnerability of the refugee and urban slum populations in Dar Es Salaam, Tanzania”](#); O’Loghlen; October, 2015.

### **Dynamic cities: What role do urban local governments play in improving urban service delivery performance in Africa and Asia? (2016)**

**Academics:** Jamie Boex (Duke University), Ammar Malik (Urban Institute), Devane Brookins (MIT), Benjamin Edwards (Urban Institute)

**Project Codes:** 89227

**Focus Area:** Cities

**Abstract:** This comparative study of urban local governments and public service delivery systems attempts to better understand how the institutional arrangements within which cities operate either constrain or enable urban service outcomes. Concretely, the researchers explore the roles, discretion and accountability mechanisms faced by urban local governments in 42 cities across 14 countries in Africa and Asia as they seek to provide (or support the provision of) three key urban services—solid waste management, water supply and sanitation services. In each country, the project team selected three cities across the urban spectrum (typically including one small, one medium and one large urban jurisdiction), giving us a diverse selection of urban jurisdictions.

**Stakeholders:** Ministry of Lands, Housing and Urban Development, The Urban Institute.

**Working Paper:** [“Dynamic cities? The role of urban local governments in improving urban service delivery performance in Africa and Asia”](#); Boex, Malik, Brookins, Edwards; March, 2016.

### **Tanzania: Impact of low-cost urban land tenure formalisation (2016)**

**Academics:** Klaus Deninger (World Bank), Daniel Ayalew Ali (World Bank), Justin Sandefur (Center for Global Development)

**Project Codes:** 89230

**Focus Area:** Cities

**Abstract:** The project aimed to rigorously evaluate the short-term impact of issuing Certificates of Right of Occupancy (CROs; 99 year leases that are in most respects equivalent to titles elsewhere) using innovative low-cost methods in three secondary cities in Tanzania (Mtwara, Mbeya, and Arusha).

**Stakeholders:** POPC; Ministry for Lands, Housing, and Human Settlements Development.

**Outputs:** Pending clearance with the authors.

## Urbanisation, growth and poverty reduction: the role of secondary towns (2016)

**Academics:** Joachim de Weerd (University of Antwerp), Luc Christiaensen (World Bank)

**Project Codes:** 40300/40605/40408

**Focus Area:** Cities

**Abstract:** This project employed a mixed methods approach using data from the Kagera Health and Development Survey which detailed data over a long period of time for a large sample of people. This was matched with detailed interviews with migrants. The primary contribution of this project was in understanding how the nature of urbanisation affects growth and poverty through its effect on rural-urban migration. In particular, while migration to large urban centres may come with faster income growth for those who make it, many do not make it and larger contributions to poverty reduction may come from migration off the farm, to other rural areas, or to towns. We asked what determines the choice of destination for a migrant, in particular as it pertains to choosing between rural areas, towns, or cities. The researchers find that secondary towns are better at reducing poverty than mega cities and believe this is a result of their closer proximity to the rural poor. Secondly, that the push to middle-income status, which Tanzania aspires to, cannot be driven purely by concentrating on growth engines in the largest cities. Finally, the researchers suggest that carefully thought-through secondary town development can become an important policy vehicle for inclusive growth. On January 26<sup>th</sup>, 2017, a workshop was jointly organised with the Bank of Tanzania to present the paper on urbanisation in secondary towns, as requested by the BoT's Governor and as part of the BoT's ongoing research dissemination series.

**Stakeholders:** BoT; POPC; PO-RALG.

**Final Report:** "[Urbanisation, growth and poverty reduction: The role of secondary towns](#)"; De Weerd, Christiaensen; February, 2017

**Working Paper:** "[Why secondary towns can be important for poverty reduction: A migrant's perspective](#)"; De Weerd, Christiaensen, Ingelaere, Kanbur; July, 2017

**Working Paper:** "[Where to create jobs to reduce poverty: Cities or towns?](#)"; De Weerd, Christiaensen, Kanbur; April, 2017

**Policy Brief:** "Secondary Towns and Poverty Reduction" Christiaensen, Luc. De Weerd, Joachim, and Kanbur, Ravi. 2017 (English version [here](#) and Kiswahili version [here](#)).

## Urban land governance in Tanzania - actors, processes and local governance (2017)

**Academics:** Amelia Kuch (University of Edinburgh), Stina Wolff (Aarhus University), Joshua Chipman (IGC Tanzania)

**Project Codes:** 40412

**Focus Area:** Cities

**Abstract:** This proposal seeks to address two knowledge gaps in the current literature on Dar es Salaam, pertaining to: a) urban land governance, and b) local governance systems. With respect to urban land governance, in urban Tanzania and in Dar es Salaam, in particular, land governance practices are poorly understood by many outside observers. Parallel practices exist with regards to ways of obtaining land ownership, transferring land titles and land zoning processes, and practices seem also to vary across the ever-expanding urban area. Furthermore, processes of land acquisition and planning often differ in practice from

prescriptions found in formal legal frameworks. With respect to local governance and authority in Dar es Salaam, the system consists of a range of smaller, administrative institutions, but is at the same time highly centralised with administrative units operating under the president's office, and with a variety of national and local government organs whose functions are overlapping.

**Stakeholders:** Tanzania Cities Network (TACINE); President's Office: Regional Administration and Local Government (PO-RALG).

**Working Paper:** "[Urban land governance in Dar es Salaam Actors, Processes and Ownership Documentation](#)" Wolff, Stine M. Kuch, Amelia. Chipman, Joshua. 2018.

### **Cholera outbreaks and floods: An empirical analysis through the lens of urban patterns in Dar es Salaam (2017)**

**Academics:** Nathalie Picarelli (LSE), Ying Chen (LSE), Pascal Jaupart (LSE)

**Project Codes:** 40404/40420

**Focus Area:** Cities

**Abstract:** Climate change is making extreme weather events more frequent around the world and urban residents in developing countries are more vulnerable to health shocks due to poor sanitation and infrastructure. This project empirically measures the relationship between weather and health shocks in Dar es Salaam using unique high-frequency datasets of weekly cholera cases and accumulated precipitation in the same wards. The researchers find solid evidence that extreme rainfall has a significant positive impact on weekly cholera incidence. The effect is larger in wards that are more prone to flooding, have higher shares of informal housing and unpaved roads. There was an event held in Dar es Salaam in August, 2017, to disseminate the main findings of this research.

**Stakeholders:** Ministry of Health; Ministry of Lands, Housing and Human Settlements; The Dar es Salaam City Council.

**Working Paper:** "[Cholera in times of floods: Weather shocks and health in Dar es Salaam](#)"; Picarelli, Jaupart, Chen; July, 2017.

**Policy Brief:** "[Weather shocks and health in Dar es Salaam](#)"; Picarelli, Jaupart, Chen; August, 2017.

### **Assessing the economic benefits of transit trade: The case of Tanzania (2018) (research in progress)**

**Academics:** Josaphat Kweka (Talanta International), Solomon Michael (Talanta International)

**Project Codes:** 40411/40417

**Focus Area:** Cities

**Abstract:** This study assesses the economic benefits of transit trade to a transit country, using a case study of Tanzania. A well-functioning transit regime plays a key role in facilitating economic transformation and regional trade. Growth of transit trade enhances growth of business across the various sub-sectors of the logistics industry, and generates pressure for the country to improve her trade facilitation regime, such that the gained efficiency benefits the wider economy. Apparently, proximity to transit infrastructure provides transport services and access to markets that are key in unlocking the economic potential of those areas. These activities accelerate growth of townships, and can encourage local Government to provide

adequate public services.

**Stakeholders:** BoT, Ministry of Finance – President’s Office: Planning Commission (POPC).

**Project Page:** [“Assessing the economic benefits of transit trade: The case of Tanzania”](#); Kweka, Michael; December, 2017.

### **Evaluating the impacts of the Dar es Salaam BRT system (2018) (research in progress)**

**Academics:** Gharad Bryan (LSE), Bilal Siddiqi (World Bank), Melanie Morten (Stanford University)

**Project Codes:** 40309/40405

**Focus Area:** Cities

**Abstract:** The Government of Tanzania is building a bus rapid transit to improve public transportation in Dar es Salaam. Currently, public transport is provided by privately-owned buses and traffic congestion is severe. The Dar Rapid Transit (DART) system is being introduced with the aim and ambition to provide a better, more modern and more efficient public transport service to the residents of Dar es Salaam. The BRT project consists of six phases. Phase 1 consists of 20.9km of bus ways, 5 terminals, 2 depots and 27 bus stations located at the central median. The corridor traverses from the high income central business district towards middle- and low-income residential areas in the West. This project evaluates the economic impacts of phase 1 of the Bus Rapid Transit (BRT), as well as laying the groundwork to understand complementary interventions and to allow for rigorous evaluation of the later phases. It also seeks to undertake an impact evaluation of the DART system to measure the impact of improved public transportation on labour market mobility. This evaluation is associated with the World Bank project “Second Central Transport Corridor Project” (P103633), which is comprised of a USD 226m loan to the DART to implement the BRT system.

**Stakeholders:** DART, and Ministry of Lands, Housing and Urban Settlements.

**Project Page:** [“Evaluating the impacts of the Dar es Salaam Bus Rapid Transit \(BRT\) system”](#); Bryan, Siddiqi, Morten; August, 2016.

### **Monitoring emerging small towns in Tanzania: A ‘proof of concept’ (2018) (research in progress)**

**Academics:** Neil Chalmers (University of Edinburgh), Joachim De Weerd (University of Antwerp) and Hanne Van Cappellen (University of Antwerp)

**Project Codes:** 40422

**Focus Area:** Cities

**Abstract:** Tanzania’s President’s Office Regional Administration and Local Government (PO-RALG) is concerned by the fact that many Emerging Small Towns (ESTs) in the country are still officially recognised as rural locations. Estimates indicate that there may be as many as 800 ESTs. PO-RALG has identified the lack of accurate and timely information on ESTs as a major obstacle to sound policy making and urban planning. This project is driven by the desire of PO-RALG to collect better data on ESTs. The first objective of this project is to assist PO-RALG to collect better data on which to base their policy decisions. A second objective is to construct a high quality dataset on ESTs to conduct research on issues related to secondary

towns.

**Stakeholders:** PO-RALG.

**Project Page:** "[Monitoring emerging small towns in Tanzania: A 'proof of concept'](#)"; Chalmers, De Weerd, van Cappellen; February, 2018.

**Maternal mortality in urban and rural Tanzania: The burdens of urban living, social Determinants and urban health system efficiency (2018) (research in progress)**

**Academics:** Dr. Godfrey Mbaruku, Josephine Shabani, Gemma Todd, Dr. Anna Nswilla

**Project Codes:** 40424

**Focus Area:** Cities

**Abstract:** Maternal mortality in Tanzania has risen (URT, 2016) and is now increasingly urban (Bell et al, 2016; Levira and Todd, 2016). This proposal calls for the analysis of secondary data, using the nationally-represented Tanzania Demographic Health Survey (TDHS) conducted in 2015-2016 (NBS, 2016). The analysis will explore in greater depth the reasons for the persistence and deterioration of maternal mortality outcomes, as well as the geographic inequities observed despite the introduction of several interventions at the community and at the facility levels. If cities are argued to be hubs of economic development, innovation, and growth (see WDR, 2009), why is service delivery failing in these urban spaces and the social life of cities not reflecting improved wellbeing? These service delivery failures affect individual's economic productivity and are emphasizing a negative unequitable side of urbanisation and development. The overall aim of the research is to examine the social determinants of maternal mortality outcomes and health system utilisation in Tanzania. This analysis and focus on public service provision and social determinants of health, has yet to be conducted at a national or urban scale (see Illah et al, 2013 for a rural example).

**Stakeholders:** Ifakara Health Institute, PO-RALG, MoH.

**Project Page:** "[Maternal Mortality in Urban and Rural Tanzania](#)"; Mbaruku, Shabani, Todd, Nswilla; January, 2018.

## Macroeconomic policy

### Regional technical workshop on stability of demand for money/money multiplier (2011)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), Pantaleo Kessy (IGC Tanzania)

**Project Codes:** 40015

**Focus Area:** Macroeconomics

**Abstract:** This project developed an econometric model of the demand for money (M2) in Tanzania, using quarterly data from 1998 to the present. The continuous decline in the velocity of money since the late 1990s is associated with a technological transformation of economic activity that has cumulatively increased the monetary intensity of GDP. Portfolio behaviour also responds to expected inflation and to exchange rate depreciation, with weaker effects from interest rates. The components of M2 respond to opportunity costs as expected, with currency more sensitive to expected inflation and deposits more sensitive to the interest rate on government securities. The researchers discuss the policy implications of our results, including their relevance to the velocity-forecasting exercise that plays a key role in the BoT's policy framework.

**Stakeholders:** BoT; EAC Secretariat.

**Working Paper:** "[The Demand for Money in Tanzania](#)". Adam, Christopher. Kessy, Pantaleo. Nyella, Johnson. O'Connell, Stephen; IGC Working Paper No. 11\_0336; May 2011.

**Academic Paper:** "The Demand for Money in Tanzania". Adam, Christopher. Kessy, Pantaleo. Nyella, Johnson. O'Connell, Stephen; Tanzanian Economic Review, Vol. 2, No. 1, pp. 1-38 (2012).

### Financial architecture and the transmission mechanism (2011)

**Academics:** Peter Montiel (Williams College), Christopher Adam (University of Oxford, IGC Tanzania), Stephen O'Connell (Swarthmore College)

**Project Codes:** 40003

**Focus Area:** Macroeconomics

**Abstract:** The objective of this paper is to develop a systematic approach to the investigation of the effectiveness of monetary transmission in low-income countries that can be applied specifically to the five EAC countries. In the vast majority of low-income countries, financing and political constraints have traditionally impaired the usefulness of fiscal policy as a short-run stabilization device. While fiscal dominance has also impaired the effectiveness of monetary policy, this situation has been changing, as many low-income countries have increased the independence of their central banks. The ability of central banks to carry out this stabilization function, however, depends on the strength and reliability of the links between the policy instruments that they control and aggregate demand – i.e., on the effectiveness of monetary transmission. Unfortunately, this effectiveness cannot be taken for granted. Using Tanzania as a case study, the researchers undertake a systematic exploration of this issue.

**Stakeholders:** BoT, Monetary Affairs Committee of the EAC.

**Working Paper:** "[Financial Architecture and the Monetary Transmission Mechanism in Tanzania](#)"; Montiel, Adam, Mbowe, O'Connell; March, 2012.

## Food prices and inflation dynamics in Tanzania (2011)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), David Kwimbere (Bank of Tanzania), Wilfred Mbowe (Bank of Tanzania), Stephen O'Connell (Swarthmore College)

**Project Codes:** 40001/40011

**Focus Area:** Macroeconomics

**Abstract:** The research team on this project have developed an empirical model of inflation in Tanzania for the decade from 2001, estimating 'multiple determinant' single-equation models for month-on-month headline inflation and its principal components (food, energy and core inflation). The results suggest that while supply-side factors, including yield variability and international price arbitrage pressures, play a major role in determining domestic food and fuel inflation (which together account for almost 60 percent of the total CPI basket), demand-side factors amenable to policy intervention by the monetary authorities anchor core inflation. The models are constructed around high frequency and timely data allowing this work to support the development of an inflation-forecasting capability by the Bank of Tanzania. The paper concludes by discussing a number of concerns about data quality and identifying areas for further research required to achieve this objective. This paper was presented to the BoT Monetary Policy Committee in August 2011.

**Stakeholders:** BoT, Ministry of Finance.

**Working Paper:** "[Food Prices and Inflation in Tanzania](#)"; Adam, Kwimbere, Mbowe, O'Connell; January, 2012.

**Academic Paper:** "[Food Prices and Inflation in Tanzania](#)"; Adam, Kwimbere, Mbowe, O'Connell; 2016; Journal of African Development, African Finance and Economic Association, vol. 18(2), pages 19-40.

## Rapid response on natural resource management and macroeconomics topics (2012)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania)

**Project Codes:** 40016

**Focus Area:** Macroeconomics

**Abstract:** This note identified ten key policy messages for the Government of Tanzania emerging from the POPC-BoT-IGC-MEM (Ministry of Energy and Minerals) seminar and meeting on "Harnessing the Gains from Natural Gas" held in Dar es Salaam and Zanzibar on December 12<sup>th</sup> and 14<sup>th</sup>, respectively. The main objective of this project was to recommend policies for the exploration of the opportunities emerging from the on-shore and off-shore natural gas reserves.

**Outputs:** "Harnessing the Gains from Natural Gas: Opportunities and Challenges for Tanzania"; Adam, Christopher (2012).

## Exchange rate arrangements in the transition to East African Monetary Union (2012)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), Pantaleo Kessy (IGC Tanzania), Camillus Kombe (Bank of Tanzania), Stephen O'Connell (Swarthmore College)

**Project Codes:** 40002/40012/40019

**Focus Area:** Macroeconomics

**Abstract:** The paper is the outcome of research collaboration between staff of the Department of Economic Research and Policy at the BoT and the IGC. This project considers alternative exchange rate arrangements for EAC countries in the transition to a monetary union. It makes several observations, including that while existing exchange rate policies differ in some important ways across the EAC, the Partner States have expressed a desire to achieve a common exchange rate policy during the transition to union. Second, since the transition period is of uncertain duration, the exchange rate arrangements adopted during the transition should be consistent with macroeconomic stability and financial development on a country-by-country basis. Third, the exchange rates at which national currencies are converted to the new union-wide currency should be consistent with macroeconomic stability, both in the final run-up to union and in the first few years of union. Finally, the transition period should be long enough to lay the institutional groundwork for a successful and durable monetary union. The transition to a union is conceptualised as a two phase process. In an initial convergence phase, the Partner States work to achieve a set of preconditions designed to limit the union's exposure to internal economic strains. When the preconditions have been satisfied, the partners may choose to enter the final, conversion phase, marked by the announcement of a predetermined date for union. This paper suggests that the appropriate exchange rate policies for EAC countries differ across the two phases of the transition. The project was presented in February 2012 to the BoT Monetary Policy Committee.

**Stakeholders:** BoT, Monetary Affairs Committee of the EAC.

**Working Paper:** "[Exchange Rate Arrangements in the Transition to East African Monetary Union](#)"; Adam, Kessy, Kombe, O'Connell; February, 2012.

A version of this paper appears as Chapter 8 in the following [International Monetary Fund book](#): "The Quest for Regional Integration in the East African Community".

## **Fiscal policy and fiscal rules in Tanzania (2012)**

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), David Bevan (University of Oxford)

**Project Codes:** 40018/40026

**Focus Area:** Macroeconomics

**Abstract:** In the fiscal arena, Tanzania has performed well over much of the past decade, as was noted by the IMF in its 2011 discussion of revenue mobilization in developing countries, where it gave Tanzania (along with El Salvador and Vietnam) as one of its three examples of "strong performers". Revenue performance, measured by the ratio of revenue to GDP, improved rapidly; and a combination of prudent macroeconomic policy and debt relief ensured that the country had some fiscal room for manoeuvre, or in the modern jargon, "fiscal space" or a "fiscal buffer". With the advent of the global financial crisis in 2008, some of this space was used up, partly as a consequence of automatic impacts, for example on revenue collections, and partly as a consequence of deliberate policy choices, such as the "rescue plan" announced in the budget speech of 2009. Subsequently, after the peak of the crisis had passed, revenue performance seemed to have flattened out, raising concerns as to whether this was temporary or marked a fundamental change. More recently, revenue growth (relative to GDP) has resumed, and it is expected that that will continue, though at a more modest pace than hitherto. There was also a sharp increase in the budgeted deficit, raising concerns about



the sustainability of fiscal policy, though steps have been taken to address this. Over the longer run, Tanzania faces substantial challenges in finding ways to finance large infrastructure programmes, as well as large social sector programmes, in ways that do not threaten future fiscal sustainability. This paper finds that domestic revenues are likely to continue to grow relative to GDP, albeit at a slower rate than in the mid-2000's. The future of concessional financing is unclear, but it seems highly likely that it will continue to taper off relative to GDP, with the uncertainty being about how fast this tapering will be.

**Stakeholders:** BoT, Ministry of Finance.

**Working Paper:** "[Fiscal Challenges Facing Tanzania](#)"; Bevan; March, 2012.

### Support to the Monetary Affairs Committee (MAC) of the EAC: 2 (2012)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), Pantaleo Kessy (IGC Tanzania)

**Project Codes:** 40021

**Focus Area:** Macroeconomics

**Abstract:** This paper was commissioned by the Economic Affairs sub-committee of the East African Community Monetary Affairs Committee. It offers a template for Partner State central banks to employ in developing common operational and analytical approaches to understanding the evolution and behaviour of the money multiplier in the context of reserve money-based monetary programmes.

**Stakeholders:** BoT, Monetary Affairs Committee of the EAC.

**Working Paper:** "[Assessing the Stability and Predictability of the Money Multiplier in the EAC: The Case of Tanzania](#)"; Adam, Kessy; May, 2011.

### Support to the Monetary Affairs Committee (MAC) of the EAC: 4 (2013)

**Academics:** Stephen O'Connell (Swarthmore College), Francis Mweha (University of Nairobi)

**Project Codes:** 40032

**Focus Area:** Macroeconomics

**Abstract:** The objective of this paper is to determine the strength and reliability of the effects of the Bank of Tanzania's monetary policy actions on the Tanzanian economy. It seeks to do so while developing a framework for the empirical study of monetary transmission that can be applied elsewhere in Sub-Saharan Africa, where the financial architecture is not only quite different from that characteristic of industrialised countries, but where the financial environment has also been changing rapidly in recent years.

**Stakeholders:** BoT, Monetary Affairs Committee of the EAC.

**Project Page:** "[Support to the Monetary Affairs Committee \(MAC\) of the East African Community \(EAC\)](#)"

### Inflation forecasting in Tanzania (2013)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), Stephen O'Connell (Swarthmore College), Pantaleo Kessy (IGC Tanzania), Camillus Kombe (Bank of Tanzania)

**Project Codes:** 40023/40024/40103

**Focus Area:** Macroeconomics

**Abstract:** Following the previous work on food prices and inflation, the researchers were asked to support the newly-created BoT forecasting unit. The main topics of this analysis were the inflationary impacts of TANESCO's tariffs increase and the impacts of pass-through channels of imported risks to inflation from global economic risks. Following a memorandum prepared to the Monetary Policy Committee (MPC) of the BoT, the researchers presented it on February 2012.

**Stakeholders:** BoT (Monetary Policy Committee).

**Outputs:** "Inflation Developments in Tanzania"; Adam, Kessy, Kombe, O'Connell; Presentation to the BoT Monetary Policy Committee; February, 2012.

### Exchange rate determination (2015)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), Tara Iyer (University of Oxford)

**Project Codes:** 40209

**Focus Area:** Macroeconomics

**Abstract:** A detailed empirical analysis of the drivers of the exchange rate in Tanzania over the short- and medium-run. The focus is on the interaction of the structural and institutional characteristics of the foreign exchange rate market, the 'semi-open' capital account regime; and the impact of BoT's foreign exchange interventions. The works was presented in December 2015 at the EAC Central Bank Governor's Meeting in Arusha, and later in January 2017 at the Meeting of Economic Affairs Sub-Committee of the Monetary Affairs Committee (MAC) Zanzibar.

**Stakeholders:** BoT.

**Final Report:** "Modelling the impact of capital account restrictions on the exchange rate in Tanzania"; Adam, Christopher. Iyer, Tara. July 2017.

### Monetary policy in low-income countries: The Tanzanian experience (2016)

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), Benjamin Langford (HM Treasury)

**Project Codes:** TZA001

**Focus Area:** Macroeconomics

**Abstract:** The researchers were asked to write a chapter on Tanzania for an edited volume of "Monetary Analysis at Central Banks". This paper describes the evolution of monetary policy in Tanzania since the mid-1990s, when the Bank of Tanzania pursued a conventional reserve money programme, with broad money as the intermediate anchor for inflation and reserve money growth as the principal policy instrument. While this approach, and a managed floating exchange rate regime, supported a sustained period of high economic growth, the increased globalization of Tanzania's economy and the associated move towards greater capital account openness has prompted the Bank of Tanzania to embark on a transition towards a price-based monetary policy framework, in which the money aggregates are replaced by an explicit inflation target and a greater reliance is placed on the short-term interest rate as the main policy instrument.

**Stakeholders:** BoT; MoF.

**Academic Paper:** ["Evolving Monetary Policy Frameworks in Low-Income Countries: The](#)

[Tanzanian Experience](#)"; Adam, Kessy, Langford; in David Cobham (editor) Monetary Analysis at Central Banks, (Palgrave Macmillan, pp. 93-129; April, 2016)

### **Fiscal institutions for an East African Monetary Union (2016)**

**Academics:** Christopher Adam (University of Oxford, IGC Tanzania), Christopher Allsopp (University of Oxford), David Vines (University of Oxford)

**Project Codes:** 40212/TZA002

**Focus Area:** Macroeconomics

**Abstract:** The Secretariat of the East African Community (EAC) has asked IGC-Tanzania to advise on the design and implementation of specific fiscal institutions to support the implementation of the EAMU Protocol. This paper discusses the fundamental macroeconomics of monetary union and their implications for the design of the fiscal architecture for monetary union in East Africa. In doing so the researchers highlight some of the weaknesses in the design and operation of the Eurozone, the only direct contemporary comparator to the proposed East African Monetary Union. Aspects of the incomplete fiscal architecture of the Eurozone are reflected in the Protocol. The paper makes recommendations on the design of subsequent and supporting enabling legislation.

**Stakeholders:** EAC Secretariat, BoT.

**Final Report and Executive Summary:** ["Designing Fiscal Institutions for an East African Monetary Union"](#); Adam, Allsopp, Vines; November, 2016.

## State capacity

### Attaining middle income status-Tanzania: Growth and structural transformation required to reach middle income status by 2025 (2010)

**Academics:** Mujobu Moyo (Center for Global Development), Rebecca Simson (LSE), Arun Jacob (Graduate Institute of International and Development Studies), François-Xavier de Mevius (Verlinvest)

**Project Codes:** NA

**Focus Area:** State Capacity/Inclusive Growth

**Abstract:** This Paper was prepared by the IGC staff in collaboration with the POPC as a contribution to the review exercise of Tanzania Development Vision (2025) and the development of the Five Year National Development Plan, both works commissioned by the POPC. The Government of Tanzania aims to transform the nation into a middle income country by 2025. This paper analyses the rate of growth and the transformation of the economy that would be required in order to achieve this goal.

**Stakeholders:** POPC.

**Working Paper:** [“Attaining Middle Income status-Tanzania: Growth and Structural Transformation Required to reach middle income status by 2025”](#); Moyo, Simson, Jacob, De Mevius; March, 2010.

### New look at the “growth without poverty reduction” debate (2010)

**Academic:** Anthony Atkinson (University of Oxford, LSE)

**Project Codes:** NA.

**Focus Area:** Inclusive Growth

**Abstract:** This paper examines one key aspect of the historical income distribution in Tanzania – the shares of top incomes – using information published as a result of the administration of the individual income tax. Although tax data was employed in earlier studies of developing countries, they have tended in recent years to be rejected as a source. In one sense, this is not surprising. Income taxes only cover a part, sometimes a very small part, of the population. The resulting data cannot provide a picture of the overall distribution.

**Stakeholders:** BoT.

**Working Paper:** [“Evidence on Top Incomes in Tanzania: 1948-1970”](#); Atkinson; February, 2011.

### Measuring growth and poverty in Tanzania (2014)

**Academics:** Anthony Atkinson (University of Oxford), Maria Ana Lugo (World Bank)

**Project Codes:** NA.

**Focus Area:** Inclusive Growth

**Abstract:** Tanzania did not meet its Millennium Development Goals target despite a growth record that – as reported – is impressive; now the challenge has been renewed with new pledges to the Sustainable Development Goals. Real GDP growth reached historically high levels between 2000 and 2006, yet this is set against only the slightest reduction in the poverty rate – from 35.7% in 2001 down to 33.4% in 2007. Interrogating the data is essential to

understanding why impressive economic growth has not led to a corresponding reduction in poverty. This is not only important to assess progress, but also when considering how social objectives are translated into concrete measures and indicators. The research shows that one of the reasons why rapid growth has not had a larger impact on poverty is that the rise in household consumption has not been equally shared.

**Stakeholders:** BoT.

**Project Page:** [“Measuring Growth and Poverty in Tanzania”](#).

### Public lecture: Local content and Tanzania’s industrial development (2014)

**Academics:** John Sutton (LSE)

**Project Codes:** 40201

**Focus Area:** State Capacity

**Abstract:** On Tuesday 10th June 2014, IGC researcher John Sutton delivered the Bank of Tanzania’s Seventh Gilman Rutihinda Memorial Lecture, on the topic of “Gains from the Natural Gas: Local Content and Tanzania’s Industrial Development”. The lecture was chaired by Bank of Tanzania Governor Prof. Benno Ndulu, and was attended by over 150 stakeholders from the Bank of Tanzania, Government departments, civil society organisations, donors and the private sector.

**Speech Text:** [“Gains from the Natural Gas: Local Content and Tanzania’s Industrial Development”](#), John Sutton. 2014

### Revenue mobilisation in the EAC (2015)

**Academics:** Ben Langford (IGC), Tim Ohlenburg (IGC)

**Project Codes:** 40208/40306

**Focus Area:** State Capacity

**Abstract:** This project is a joint work with IGC Uganda on revenue mobilisation across the EAC. Using a new international cross-country revenue dataset, the project aims to improve on existing estimates of tax capacity and effort across countries. The second part of the project will be centred on revenue mobilisation issues in the EAC, assessing the extent to which existing theory and evidence can address key public finance questions, and identifying priorities for further research.

**Stakeholders:** Ministry of Finance, Planning and Economic Development of Uganda; POPC.

**Working Paper:** [“Tax revenue potential and effort: An empirical investigation”](#); Langford, Ben. Ohlenburg, Tim; August, 2015.

**Presentation:** [“Tax Revenue Mobilisation in the EAC”](#); Langford, Ben. Ohlenburg, Tim.

### Deliberative democracy and resource rents in Tanzania (2015)

**Academics:** Nancy Birdsall (Center for Global Development), Abel Kinyondo (REPOA), Justin Sandefur (Center for Global Development), Mujobo Moyo (Center for Global Development)

**Project Codes:** 40303

**Focus Area:** State Capacity

**Abstract:** Public opinion is often treated as an obstacle to good governance in resource-rich developing countries, associated with populist policies and excess consumption. Can ordinary

citizens in a low-income democracy make meaningful judgements about complex resource management issues? The researchers report on a nationwide poll of voting-age adults in Tanzania, where large natural gas reserves were recently discovered. Results from a randomised experiment within the nationwide polling sample show the combination of information and extended, structured, and participatory deliberation generated (i) a measurable increase in knowledge of the gas sector; (ii) increased support for sale of natural gas and reduced support for energy subsidies; (iii) no change in support for saving vs spending gas revenues; (iv) a sharp decline in support for direct cash distribution of resource rents to citizens; (v) increased support for spending on social services as opposed to infrastructure; and (vi) a marginally significant increase in support for transparency and oversight measures. Democratic deliberation appears to be the key to these changes; the information treatment alone produced no significant impacts, and impacts did not spill over onto individuals in the same community who did not participate in deliberation. As part of a second experiment to measure public accountability, researchers provided the citizens' polling results to elites before polling them on a subset of the same questions. The analysis indicates that elites demonstrate a tendency to align their views with public opinion on most major issues.

**Stakeholders:** POPC.

**Project Page:** [“Can deliberative democracy cure Tanzania's resource curse?”](#); August, 2016.

**Output:** “How should Tanzania use its natural gas? Citizens' views from a nationwide Deliberative Poll”. Birdsall, Nancy. Fishkin, James. Haqqi, Faraz. Kinyondo, Abel. Moyo, Mujobo. Richmond, Jennifer. Sandefur, Justin. March 2016.

### **Decentralised pricing with motivated agents: Evidence from Tanzania (2016)**

**Academics:** Florian Blum (LSE), Longin Nsiima (MALF)

**Project Codes:** 40400/40606/89315

**Focus Area:** State Capacity

**Abstract:** This project focuses on the market for publicly subsidised livestock vaccines in Tanzania. The Tanzanian government produces and distributes a vaccine against Newcastle Disease, a viral and lethal poultry infection, through a network of public extension agents who visit farmers and apply the vaccine. A market for this vaccine arises because the distribution process is financed through user charges. Due to the absence of competition and regulation, agents have substantial discretion over what they charge each farmer. This project assesses whether agents choose prices consistent with individual profit maximisation or whether they rely on rules-of-thumb when setting prices for user charges. The empirical investigation presents two pieces of evidence which support the notion that agents use simplified heuristics (rules-of-thumb) when setting prices.

**Stakeholders:** Ministry of Livestock and Fisheries, United Nations Food and Agriculture Organisation (UN-FAO)

**Infographic:** [“Livestock services in Tanzania: Actionable policy recommendations”](#); February, 2017.

**Blog post:** [“Livestock services: Agricultural technology & service delivery in rural Tanzania”](#); Blum, Florian; Chipman, Joshua. 2016.

**Working Paper:** [“Price-caps, discretion, and service delivery: Evidence from a field experiment”](#); Blum, Florian, 2016.

### **“Policies for Prosperity”, volume on Tanzania (2016)**

**Academics:** Christopher Adam (University of Oxford), Paul Collier (University of Oxford, IGC), Benno Ndulu (Bank of Tanzania)

**Project Codes:** 40402/40419/40603

**Focus Area:** State Capacity/Inclusive Growth

**Abstract:** The “Policies for Prosperity” book is a synthesis of a range of ongoing research on growth in Tanzania, drawing heavily on existing and new IGC-supported work. This project is designed to follow the pattern established with earlier volumes in Kenya and Zambia, and the Governor of BoT is a co-editor of the volume. Widespread distribution of the volume within country is an indicator that this book responds to the pressing policy demands. Prof Paul Collier delivered remarks in June 2016 in an event to launch the book as a component of the BoT’s 50th anniversary celebrations. Further in September 2017, a high-level event was organised in which the locally based authors presented their assessment on the key issues for policymakers and local academics to consider in their sector in the medium term. As some time had passed since the authors finished their chapters, the presenters built on their chapters updating their recommendations to take into account events of 2016 and 2017.

**Stakeholders:** BoT; MoF; POPC.

**Book:** [\*Tanzania: The Path to Prosperity\*](#); Adam, Collier, Ndulu (ed.); July, 2016

### **Legal and regulatory challenges and market opportunities in the cosmetics sector in Tanzania (2017)**

**Academics:** Kathrin Kuhlmann (New Markets Lab)

**Project Codes:** 40407

**Focus Area:** State Capacity

**Abstract:** This project conducts an assessment of the legal and regulatory environment as it pertains to the cosmetics industry in Tanzania, drawing the link between the regulatory system, the realised implementation of this system, its contribution to public policy goals (such as consumer protection), and the impact of regulation on market opportunities for firms. The report provides detailed insights into the legal and regulatory environment for a particular sector, with a specific focus on how the realised regulatory system impacts firms vis-à-vis broader public sector goals such as consumer and worker protection, industrial policy etc.

**Stakeholders:** Tanzania Investment Centre (TIC); MITI.

**Final Report:** ["Increasing growth and competitiveness through an enhanced enabling environment: An assessment of the cosmetics sector in Tanzania"](#); New Market Labs; March, 2017.

### **The cost of road construction in rural Tanzania: Random audits and contractor performance (2018)**

**Academics:** Paul Novosad (Dartmouth College), Martina Kirchberger (Columbia University), Sam Asher (University of Oxford)

**Project Codes:** 40204/40200

**Focus Area:** State Capacity

**Abstract:** This project was identified in collaboration with the Tanzania Roads Funds Board (TRFB). TRFB expressed a strong interest in better understanding what was driving the costs

of building roads in Tanzania, and shared a unique dataset from all of their bid evaluation and project reports on road construction. Due to data limitations it was not possible to pursue the initially proposed identification strategy of using the change in procurement law to investigate the effect of competition on bidding behaviour. Following this change in scope, the policy aim is to create a knowledge base to help reduce costs of road construction and maintenance in the future. The main contribution of the final paper will be a clear outline of the bidding process using a unique dataset and it has the potential to give significant insights into the functioning of the roads sector in Tanzania.

**Stakeholders:** TRFB; Ministry of Transport.

**Project Page:** [“The cost of road construction in rural Tanzania: Random audits and contractor performance”](#).

### **Property tax policy and administration in Tanzania (2018)**

**Academics:** Mihaly Kopanyi (World Bank), Joshua Chipman (IGC)

**Project Codes:** 40415

**Focus Area:** State Capacity

**Abstract:** In July 2016, the Government of Tanzania shifted responsibility for property tax administration and collection from the Local Government Authorities (LGAs) to the Tanzanian Revenue Authority (TRA). The TRA is planning and strategising for how it will manage property taxation, expand the number of municipalities to collect property taxes in all urbanised municipalities according to the Central government’s objectives, and ultimately increase property tax revenue substantially. The IGC and TRA are partnering to conduct research on property taxation issues and aim to address the following: the current situation pertaining to property taxes in Tanzania, including the legal and institutional framework, realised practices, level of compliance, heterogeneity in enforcement across municipalities; the key tax policy and tax administration issues in property taxation the TRA should be aware of and respond to; and any pertinent lessons from other countries such as Rwanda and Uganda for property taxation reform in Tanzania. The project will produce an issues note on property tax policy and tax administration issues. Based on a quick diagnostic, the note will focus on mechanisms by which TRA can increase tax compliance, broaden the property tax base, and adopt strategies for expanding property taxation.

**Stakeholders:** TRA.

**Project Page:** [“Property tax policy and administration in Tanzania”](#). Kopanyi, Mihaly.

### **Analysis of the EAC Common External Tariff (2018) (research in progress)**

**Academics:** Prof. Razack Bakari Lokina (UDSM)

**Project Codes:** 40425

**Focus Area:** State Capacity

**Abstract:** The Government of Tanzania is currently involved in negotiations at the EAC level on the rules of origin and the Common External Tariff (CET), which unifies the customs duties, import quotas, preferences and other non-tariff barriers across all Member States of the customs union. The IGC is supporting analysis using export and import data, interviews and surveys with firms, focus group discussions, and reviews of legal and policy documents.

**Stakeholders:** Ministry of Foreign Affairs and International Co-operation, MITI, TRA.

**Outputs:** Project is ongoing, final paper is pending.



## Energy

### The natural gas development in Tanzania: Potential impact and consequences (2012)

**Academics:** Mujobu Moyo (Center for Global Development), Arun Jacob (Graduate Institute of International and Development Studies), Francois-Xavier de Mevius (Verlinvest)

**Project Codes:** 40025

**Focus Area:** Energy

**Abstract:** This paper presents two ways to think about the connection between natural gas and human development. The paper first reviews current gas production and the opportunities for increased domestic gas consumption from shallow-water or onshore gas production, before focusing on the potential from larger-scale, higher cost, deep-water gas.

**Stakeholders:** POPC; MEM; TANESCO.

### ESRF Conference presentation (2013)

**Academic:** Mark Henstridge (Oxford Policy Management)

**Project Codes:** 40102

**Focus Area:** Energy

**Abstract:** This paper presents two ways to think about the connection between natural gas and human development. The paper first reviews current gas production and the opportunities for increased domestic gas consumption from shallow water or onshore gas production, before focusing on the potential from larger scale, higher cost, deep-water gas. The researchers then use a framework that treats subsurface gas as an asset, which is then put through a sequence of transformations to turn it into human capital, and other assets that sustain higher living standards, as the first way to think about linking natural gas to human development. The second way to think about making more of gas simply tracks the linkages to jobs and economic growth associated with this process of asset transformation. Thinking in terms of an asset transformation provides a focus on the public finances; viewing the linkages to the process of asset transformation with an eye on the implications for jobs provides a focus on the business environment for associated private investment and job creation.

**Stakeholders:** Economic and Social Research Foundation (ESRF), BoT.

**Working Paper:** "[Natural Gas and Human Development: National conference on unleashing growth through natural gas](#)"; Henstridge; September, 2013.

### The impact of electric stoves and electricity subsidy on charcoal consumption in urban Africa: Evidence from a randomised controlled experiment in Tanzania (2015)

**Academics:** Yonas Alem (University of Gothenburg), Peter Berck (University of California, Berkeley), Martin Chegere (UDSM), Remidius Ruhinduka (University of Gothenburg)

**Project Codes:** 40206/89225/89410

**Focus Area:** Energy

**Abstract:** This project is an investigation into the factors that hinder or promote transition to cleaner energy sources; why households continue to use charcoal even when income rises; if

the provision of affordable electric cook stoves or electricity subsidies reduce charcoal consumption; and the impact of switching away from charcoal on Tanzania's forests. The high start-up cost of modern cooking appliances has been shown to be the key factor that hinders transition of households from biomass energy to clean energy in developing countries. The research team designed a randomised controlled trial to identify the impact of relaxing households' liquidity constraints on LPG stove adoption and charcoal use in urban Tanzania. In collaboration with a local micro-finance institution, they randomly assigned households into a subsidy treatment and a credit treatment, which included different repayment arrangements. The results show that, relative to households in the control group, adoption of LPG stoves reduced charcoal use by 47.5% in the treated group. However, providing subsidies for stove purchases resulted in a much larger reduction in charcoal use (54%) than did providing access to credit (41%). It was highlighted the importance of relaxing households' financial constraints and improving access to credit to encourage urban households to switch to clean energy sources and save the remaining forest resources of Africa.

**Stakeholders:** MEM.

**Working Paper:** "[Credit, LPG stove adoption and charcoal consumption: Evidence from a randomised controlled trial](#)"; Alem, Berck, Ruhinduka, Buffstone; October, 2015 (also available on [external link](#)).

**Policy Brief:** "[Liquidity constraints, LPG stoves, and charcoal consumption in Tanzania](#)" Yonas Alem, Remidius Ruhinduka, and Peter Berck. November 2017.

### Rural electrification: The potential and limitations of solar power (2016)

**Academics:** Anna Aevardottir (University of York), Nick Barton (Goethe University Frankfurt), Tessa Bold (Goethe University Frankfurt)

**Project Codes:** 89302

**Focus Area:** Energy

**Abstract:** The focus of this project is to provide the first experimental evidence on the adoption and impact of solar power at the household level. In partnership with the NGO GiveWatts the authors designed a randomised field experiment in which households in rural Tanzania will be offered the chance to purchase solar powered lamps with solar panels. The lamps are offered on credit and provide a clean source of lighting and a small amount of power enough, for example, to charge a mobile phone. The researchers examine how price, liquidity constraints, and information influence the decision to adopt a clean and renewable energy source such as solar power and how access to this source of energy influences household outcomes. In order to experimentally test how price and liquidity constraints influence take up of solar lamps they randomly allocate vouchers to households that offer a subsidy on solar lamps, ranging from 0 to 100%.

**Stakeholders:** MEM.

**Working Paper:** "[The impacts of rural electrification on labour supply, income, and health: Experimental evidence with solar lamps in Tanzania](#)"; Aevardottir, Anna; Barton, Nicholas; Bold, Tessa. 2016 (also available on [external link](#))

### Sustainable electricity pricing in Tanzania (2016)

**Academics:** Bassam Fattouh (Oxford Institute for Energy Studies), Rahmatallah Poudineh (Oxford Institute for Energy Studies), Donna Peng (Oxford Institute for Energy Studies)

**Project Codes:** 40305

**Focus Area:** Energy

**Abstract:** This paper includes a summary of the history and detailed situational analysis of the energy sector in Tanzania. It is structured around two key questions: 1) For a country anticipating a significant increase over the next 3-5 years in the supply of low-cost feedstock for electricity generation and given that high cost and poor availability of electricity is the binding constraint on private investment, how should government and the power utility determine electricity tariffs? 2) In the light of the poor track-record of TANESCO, what key lessons from regulatory experiences elsewhere would help the government put in place a regime that would provide predictability in pricing, deliver a tariff that generates an appropriate degree of cost recovery, and is appropriately structured given investment requirements? A core tension within Tanzania's tariff setting methodology is the trade-off between efficiency, sufficiency, and stability principles. The Bangladeshi experience reveals that the availability of a domestic fuel for power generation and a low tariff for its use in the power sector is not enough to sustain unconstrained growth of electricity demand. Because natural gas is a depletable resource, the tariff for its consumption needs to be determined especially carefully, so that it does not incentivize its inefficient use throughout the economy or discourage investors with the technical and financial resources needed to continue the development of gas within the country. The case study of Côte d'Ivoire reveals that the pacing of supply growth relative to demand growth is of critical importance.

**Stakeholders:** MEM; TANESCO.

**Working Paper:** [“Sustainable electricity pricing for Tanzania”](#); Peng, Poudineh; August, 2016.

### **Crowdsourcing to evaluate and improve electricity supply in Tanzania (2018)**

**Academics:** Davida Wood (World Resources Institute), Bharath Jairaj (World Resources Institute), Shantanu Dixit (Prayas Energy Group)

**Project Codes:** 40403

**Focus Area:** Energy

**Abstract:** The Electricity Supply Monitoring Initiative (ESMI), an approach created and proven in India by Prayas Energy Group, uses a crowdsourcing methodology to generate independent data about the quality and regularity of electricity supply to all stakeholders in the electricity sector, including distribution companies, regulatory commissions, government agencies, and individuals. ESMI data will be used in this pilot project to provide a 1-year snapshot perspective on what some of the issues regarding service quality and reliability are in one district in Tanzania.

**Stakeholders:** Tanzania Electric Supply Company Limited (Tanesco), Energy and Water Utilities Regulatory Authority (EWURA), World Bank.

**Project Page:** [“Shedding a Light on Power Quality in Tanzania: The problem of unreliable power in Tanzania”](#); External blog: Energy Change Lab; December, 2017.

### **Medium-term impacts and valuation of solar energy-enabled secondary school programs in Northern Tanzania (2018) (Research in progress)**

**Academics:** Michael Greenstone (University of Chicago), Hee-Kwon Seo (University of Chicago)

**Project Codes:** 40308/40409/40416

**Focus Area:** Energy

**Abstract:** In this project, the researchers evaluate a field experiment targeting mathematics performance of 9th-grade students in 170 northern Tanzanian secondary schools, where pass rates on the 11th-grade standardized national mathematics examination have historically remained below 10%. In January 2016, enabled by the President's Office Mathematics Evaluation (POME) programme, the researcher team randomized 9th-grade classrooms sampled from 170 high schools into three treatment groups and a control group. Treatment one provided cash incentives for marks scored on a curriculum-based test, with price per mark varying within each classroom at \$0.125, \$0.25, \$0.50 and \$0.75 per mark. Treatment two provided solar lights, TVs, mathematics textbooks and videos. Treatment three provided both. After eight months, average school-level impacts from the research team's internal examination were statistically insignificant but suggestive. The programme is continuing into the second year with sample students in their 10th grade, reinforcing a similar design but with prices per mark equalized across students at \$0.50 per mark. Second year results are being awaited. Also, a structural model to estimate a student's "willingness to pay" to accumulate knowledge worth a unit of test score using the variation from the first year is works in progress.

**Stakeholders:** University of Chicago; PO-RALG; Rural Electrification Agency (REA); MEM.

**Academic Paper:** ["Do School Electrification and Provision of Digital Media Deliver Educational Benefits? First-year Evidence from 164 Tanzanian Secondary Schools"](#); Seo, H.K.; September, 2017.