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Understanding Rural Transformation in Tanzania

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Summary

What are the drivers of economic change in rural Tanzania? This brief explores opportunities for and constraints on agricultural innovation for small farmers. By examining the factors influencing the uptake and sustainability of small-scale pig production compared with stall-fed dairying in Ulanga District, the research found that the success of small-scale pig production was not only explicable in relation to its lower start-up and running costs. The productivity of assets also depended on a range of factors, including the networks and the relations in which they are embedded.

Key Messages

- The productivity of smallholder agriculture is determined by a multiplicity of different factors, including the local economic context which is also changing.
- Access to improved livestock or technology will not automatically impact the productivity of small-scale farming.
- Farmers adapt what works for them in relation to labour strategies and local markets.
- Effective and sustainable agricultural investments have to take context into account. Supporting transformation in local economic environments will contribute to the productivity of agricultural investments.

Introduction

Despite Tanzania's impressive economic growth rates of around 7 per cent over the past decade, the majority of Tanzanians are still living in poverty (RAWG 2012). Recent work on poverty and income distribution demonstrates that growth has been confined to emerging sectors of the economy (Mkenda *et al*. 2009). As most Tanzanians derive their income from farming, raising agricultural productivity is central to achieving inclusive growth and increasing the declining contribution of agriculture to the country's GDP.

Initiatives such as *kilimo kwanza* aim to increase the productivity of small-scale farming by providing better access to subsidized inputs, improved livestock, and new agricultural technologies. This Green Revolution thinking is motivated by a strong commitment to the contribution of technology to development, and to an understanding of its potential as a driver of economic change. But do new inputs and technologies inevitably lead to improvements in productivity?

Studies of the relationship between agricultural technologies and economic transformation in Chinese rice production systems suggest that the relationship between technology and productivity is not straightforward. In these studies, what mattered more than access to new technologies was the social context in which people could make use of them, including the ways in which they organized labour and production (Bray 1983; 1998).

This research investigated how changes in farming practices were taken up in a single district in Tanzania. Qualitative research involving extended interviews and observation was conducted over a three-month period. Findings from the research were analyzed in relation to qualitative data from the same district collected between 1990 and 1996. This brief focuses on livestock practices, which have been an area of significant change since the 1990s.

A District in Transition

Ulanga is the largest district in the Morogoro Region, but it is the least densely populated. It has undergone considerable changes since the 1990s, of which the most important are improved infrastructure, better access to communications, and the improved availability of basic services, particularly in education. The district now has thirty-two secondary schools, compared with one government secondary school in the 1990s. As a result of investment in public services (including education) and a one-third increase in the number of registered villages, the number of council employees almost doubled in the period between 2003 and 2012.[1]

1 The number of council employees stood at 2,162 in May 2012, compared with 1,256 in 2006. Data supplied by the Planning Office, Ulanga District Council.

District revenues have also grown substantially during this period, along with farmer incomes, largely due to improvements in rice production along the Kilombero Valley. Opportunities for growth have been more limited in the highland part of the district; this area is dependent on maize farming and a mix of crops, including beans and groundnuts, both of which are consumed at home and sold locally. Farmers rely on family labour and hand hoes for cultivation. In view of the fact that they are currently experimenting with sesame as a recently revived cash crop in the district, it is clear that highland farmers are not resistant to change; they are willing to adopt new practices and technologies where these offer the potential of returns and where they can be integrated into existing practices (Akulumuka & Madulu 2006).

New Economies in Ulanga

In the early 1990s the majority of households in the highland area did not keep livestock, with the exception of chickens and ducks. This has now changed. Perhaps two thirds of the highland households now keep one or two pigs. A smaller proportion of households, mostly in the villages closest to Mahenge town, are now keeping stall-fed dairy cattle.

Domesticated pigs were first introduced to the district in the early twentieth century by Swiss missionaries, who maintained a herd to supply mission staff and schools. Originally restricted to a small number of well-off households, pig keeping has expanded beyond the mission from the late 1980s onwards. Keeping one or two confined pigs is now taken for granted as a component of local livelihood strategies. This expansion is not due to development interventions or projects, but to the initiatives of individual farmers.

By contrast, the adoption of stall-fed dairy farming in the district is the result of a number of external interventions promoted through various agencies, including Irish Aid, Caritas, TASAF, and the district agricultural development plan. Despite a succession of smallholding dairy projects since the 1990s, the number of dairy cattle is still low, and milk prices are higher than in other parts of Tanzania. Interviews with cattle keepers and with extension staff have revealed that dairy farming has high drop-out rates.

Stall-fed dairy cattle present a range of challenges for small-scale farming, of which accessing adequate fodder is the most difficult to overcome. Successful cattle keepers either have access to labour at home, or else they must be able to afford to hire labour to collect food for their animals. Other costs associated with dairy cattle, including insemination, are perceived by farmers to be a disincentive, particularly where milk yields are low. Uncertain yields are accentuated by poor diets and extended intervals between calving. A proportion of past beneficiaries of cattle projects have since abandoned dairy farming as uneconomic.

Pig keeping, in contrast, has displayed a remarkable dynamism. Piglets for raising are in high demand. Farmers are knowledgeable about pig husbandry and well informed about the requirements of their stock and the availability of extension services. The pig production strategies adopted by Ulanga farmers reveal a preference for keeping small numbers of animals rather than seeking to maximize returns through raising more animals, as well as the tendency of farmers to sell pigs to meet immediate cash needs rather than keeping them as longer-term investments. Farmers aim to keep feed costs to a minimum by relying on maize bran as supplementary feed, which most farmers have to purchase when their own maize stocks run out. Farmers would therefore slaughter adult sows in preference to breeding from them.

While the pig sector has taken off massively in the past fifteen years, approaches to pig keeping are oriented towards predictable income rather than growth. Small farmers do not seek to maximize the productive potential of their pigs, nor increase the number of animals (Lekule & Kyvsgaard 2003: 111). These kinds of preferences, also noted elsewhere in Tanzania, probably indicate the effective limits to the expansion of the small-scale pig sector, rather than an opportunity for sustainably increasing pig production (Karimuribo *et al*. 2011). Importantly, keeping one or two pigs can be managed without a significant reorganization of household labour or finances.

Drivers of Economic Change

A range of factors have contributed to the expansion of small-scale pig keeping in the highland area. These include regional economic changes that have restructured the local demand for cash to meet expenses like fees for the government secondary schools now established in the district, and changes in the wider economy of opportunity that have made pig farming a more profitable venture. Pig keeping is popular partly because once a pig has reached a certain size, assets can be liquidated at any time. The flexibility around the demand for pork meat is enabled by transformations in the structure of demand for pork locally.

Once a meat associated with *sikukuu*, today a daily market for pork meat has been created by a combination of the rise in popularity of fried pork meat (*kiti moto*), the availability of refrigeration in the district centre, and the increased numbers of waged workers and school students who buy cooked food. Whereas farmers previously slaughtered their animals and sold pork to neighbours, a new category of intermediary has entered the pork market: sellers of cooked pork from whom purchasers can also buy uncooked meat. Pork meat is sold by *kiti moto* sellers and not through butcheries, which sell only beef. Such buyers, if they have access to refrigeration, will purchase meat in large quantities and then freeze it until they need to use it.

Small-scale pig keeping has become increasingly attractive to small farmers in the highland area because of contextual changes in the wider economy – changes that have restructured the demand for pork. These factors do not apply to the economics of dairy farming. Dairy cattle have much greater costs than pigs in terms of the provision of fodder and preventive treatments against tick-borne diseases, but also the opportunities to generate income from dairying are limited. The low demand for milk is not merely a matter of price. Milk is not a routine part of local diets. Consequently, dairy farmers rely on the same few buyers in the form of local food businesses.

Where yields are low, markets uncertain, and costs perceived as high, it is not surprising that a significant proportion of participants in dairy start-up schemes either drop out or fail to establish dairy farming on a sustainable basis. Although there are now more cattle in the villages around Mahenge when compared to ten-years ago, this increase is not explained by natural reproduction – it is project-driven.

Conclusions and Policy Recommendations

Growth-oriented agricultural policy in Tanzania is informed by theoretical models of economic change, which assume a linear relationship between investments and productivity. This research has examined the way in which change actually takes place in rural areas. The study found that assets are not inherently productive. New technologies will not inevitably lead to increased productivity. Improved livestock have associated costs which may render them uneconomic for small farmers. In comparing the factors which have influenced the adoption of pig keeping with the perceived constraints on the small-scale dairy sector, it is clear that the productivity of assets depends on a range of factors, including the networks and relations in which they are embedded. These relations are constantly changing. Recent changes in the regional economy, including the increase in wage workers and changes in technology, have contributed to creating a context in which the production of pig meat is economic for highland farmers.

Contextual factors which structure local and regional economies have an impact on the kinds of opportunities available to farmers, and hence on the sustainability of innovations. Sustainable innovations were those which complemented existing values and activities. Small farmers were more concerned with reducing risk and managing income than with maximizing returns from investments. The limited success of stall-fed dairy farming and the orientation of most pig farmers towards stock replacement rather than expansion both demonstrate the challenges of converting innovation into growth via the production strategies of small farmers.

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