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FORUM: LAND AND AGRICULTURAL COMMERCIALISATION IN AFRICA

Impacts of land and agricultural commercialisation on local livelihoods in Zambia: evidence from three models

Chrispin R. Matenga and Munguzwe Hichaambwa

By examining three different models of commercial agriculture – a plantation, a commercial farming area, and an out-grower scheme – we observe heterogeneous impacts on different segments of rural communities. Each produces gender and generational differentials in employment and other income-earning opportunities. Our study supports the hypothesis that the plantation model typifies the ‘enclave’ economy that is poorly integrated into the surrounding communities and the local economy. While out-grower schemes have often been favourably compared to plantations, our evidence on the Magobbo sugarcane out-grower scheme points to the contrary: its block farming model consolidates smallholdings and creates a peasant-shareholder class. Shareholder ‘out-growers’ receive dividends from what is essentially an extension of the plantation. This accumulation for a few also produces land scarcity and fragile semi-proletarianised livelihoods for others. By contrast we find that the commercial farming model, while based on an elite form of large-scale commercial farming, does provide benefits to surrounding areas, through employment and local economic linkages.

Keywords: land; agricultural commercialisation; livelihoods; labour; economic linkages

Introduction

The past decade has seen increased foreign commercial interest in farmland in developing countries in general, and Africa in particular. The food price crisis of 2007–2008 is among factors underpinning the recent wave of large-scale farmland acquisitions in Africa, with Zambia being the site of significant land investment (Anseeuw et al. 2012). Large-scale land acquisitions raise concerns about loss of land and livelihoods by rural communities (Hall, Scoones, and Tsikata 2015; White et al. 2012) but also suggest opportunities for expanding employment and economic growth (Deininger et al. 2011).

Foreign interests in African farmland have moved in tandem with debates about the relative dismal performance of African agriculture and what path(s) it should follow.

This JPS Forum presents the findings of a study conducted in Ghana, Kenya and Zambia, coordinated by the Institute for Poverty, Land and Agrarian Studies (PLAAS) www.plaas.org.za at the University of the Western Cape, South Africa and under the auspices of the Future Agricultures Consortium (FAC) www.future-agricultures.org. The research was funded by the ESRC-DFID Joint Poverty Alleviation Programme, Grant ES/J01754X/1 and provided inspiration and insights to inform the FAC’s next phase of work: Agricultural Policy Research in Africa (APRA) programme.

These debates promote one form of agricultural commercialisation over another and often revolve around the relative merits of large versus small farms and their implications for land rights for smallholders, labour absorption, rural livelihoods and economic spillovers in Africa (Baglioni and Gibbon 2013; Collier and Decorn 2009). Vast literature around agriculture commercialisation concerns itself with the existence of scale economies with much focus on a general inverse relationship between farm size and productivity (Collier and Decorn 2009; Deininger 2011; Deininger 2011). Unfortunately, these polarised debates ignore other possible paths to agricultural commercialisation (for a more broad discussion on these debates, see Hall et al. 2017, this volume). Evidence of land dispossession caused by the expansion of large-scale farming has prompted policy attention towards inclusive agricultural growth (De Schutter 2009), and the relative impacts of different pathways of agricultural commercialisation (Smalley 2013). In particular, in recent years, contract farming and out-grower schemes have received renewed attention, prompted by concerns about the negative impacts of large-scale land acquisitions. Out-grower schemes are often presented as a route through which farmers can engage with agribusiness and commercial agriculture (Glover 1984; Baumann 2000). Yet as this study shows, not all 'out-grower' schemes are similar, and the shareholder arrangements seen in our case study do not show such benefits. But not all land acquisitions are large-scale and based on the expansion of estate farming. Much contemporary land consolidation is occurring through investment in medium-scale farms through local-level accumulation or investment by urban elites (Jayne et al. 2014). In Zambia, this class of land acquisitions – of between five and 100 hectares – represents more land than either the entire small-scale farm sector or the large-scale domestic and foreign investors in the country (Sitko and Jayne 2014). Although focusing on a long-established, state-planned area of medium- to large-scale farms at Mkushi, our study has investigated the role of a commercial farming area, and its effects on a local economy.

This study focuses on three agricultural models by comparing three case studies located in three different districts and provinces in Zambia (Figure 1): Zambeef (large-scale plantation model) at Chiawa in Kafue district in Lusaka province; Mkushi farm block (a medium- to large-scale commercial farming area model) in Mkushi district, Central province; and Zambia Sugar's Magobbo smallholder scheme (out-grower model) in Mazabuka district in Southern province. Under each of these models, a variety of institutional arrangements establish partnerships between local landholders (contributing the land and often the labour) and largely external investors¹ (contributing the capital, market linkages and technical expertise), under different types of land, production and associated contracting arrangements.

Our study addresses the question: *What difference do the models make to the outcomes of commercialisation and agrarian change in relation to land, labour, livelihoods and linkages? How do outcomes differ for different groups of people by gender and age?* The study is part of a broader cross-country study carried out in Ghana and Kenya at the same time, and a general overview of the study is given by Hall et al. (2017, this volume).

¹The out-grower model involves foreign investment through the private company Zambia Sugar, owned by the Illovo Group; Zambeef (plantation model) is a private company made up of foreign and local investors; and Mkushi Farm Block (commercial farming area model) is made up of farms owned and operated by largely foreign and also local private companies and individuals or families. The other type of out-grower schemes in Zambia involve a commercial private company (e.g. cotton ginner) providing inputs on loan and extension services and buying the produce from a myriad of smallholder farmers scattered across the country, and thus does not fit the context of the study.

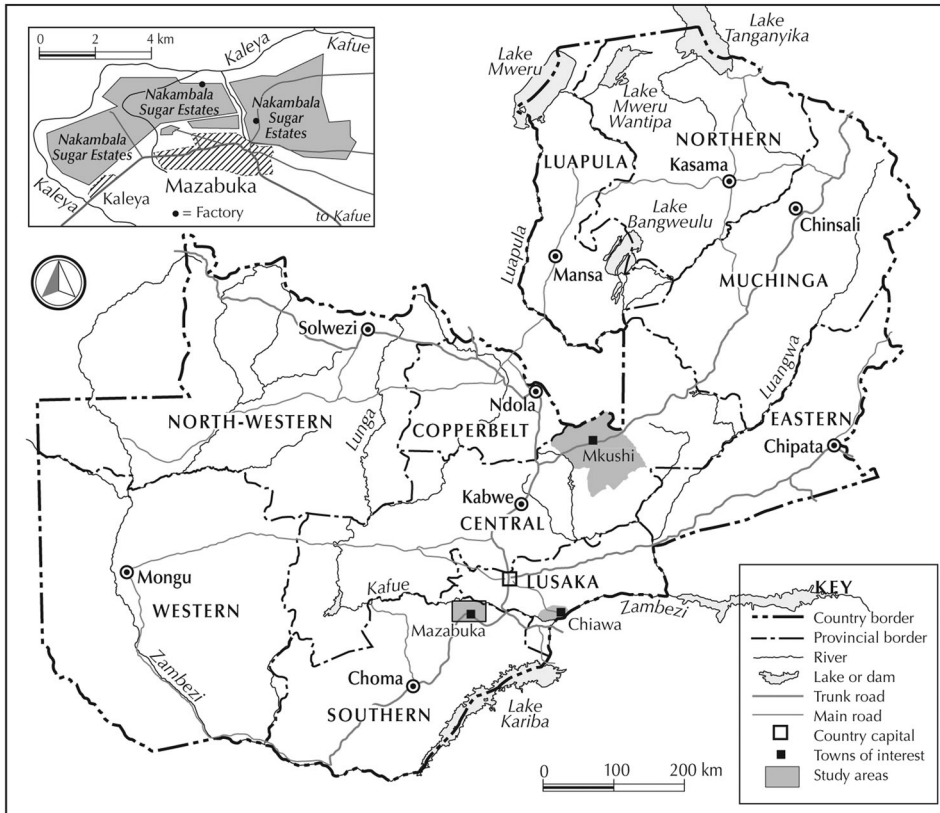


Figure 1. Location of three case study farming models.

Agricultural commercialisation in Zambia

These questions must be understood in historical context. Zambia has a long history of attempts to encourage large-scale commercial agriculture on the assumption by state authorities that the country is endowed with lots of available land that is agro-ecologically suitable for this purpose (Oakland Institute 2011; Sipangule and Lay 2015). The country's agricultural commercialisation efforts started in the early twentieth century with the establishment of blocks of farmland along the railway line from Livingstone in the south to the Copperbelt in the north, and in some eastern parts of the country for white settler commercial farmers, processes which were driven by the British South African Company (BSAC) and British colonial office (Amberntsson 2011; Kakulwa 2012; Klepper 1979). During that period, agriculture was developed to supply food to the mines in neighbouring Katanga, in the Democratic Republic of Congo (DRC), and later on the Copperbelt of Zambia. Plantation agriculture did not develop in colonial Zambia, although early white settlers made attempts to grow rubber trees in the northern parts of the country but without much success (Kakulwa 2012).

In Zambia land is administered through two tenure systems, involving 'customary tenure' and 'statutory tenure' (Himonga and Munachonga 1991). This structure of landholding has its origins in the colonial state that created a discriminatory and highly unequal landholding system between Africans and white settler farmers through the

1928 Crown Land and Reserve Order (Anthony and Uchendu 1970; Sichone 2008). At independence in 1964, the native reserves and crown land comprised 94 percent and six percent of the territory, respectively. Land laws enacted in the years following independence changed the native reserves into ‘customary land’ and the crown land into ‘state land’. Historically, commercial agriculture has taken place on state land, while traditional smallholder farming was done on customary land (Chapoto et al. 2012).

Most agricultural commercialisation programmes, such as the post-independence farm blocks and settlement schemes, were established on state land, which was compulsorily acquired by the state from white settler farmers (Chenoweth, Knowles, and Ngenda 1995). In 1985, the government adopted a policy that allowed for conversion of up to 250 hectares of land held under customary tenure to leasehold tenure for foreign and domestic agricultural investment (GRZ 1985; Hansungule 1998; GRZ 2006). In 1995, Zambia passed the Land Act that liberalised land markets and made land held under customary tenure in the country eligible for registration into leasehold title governed by statute, so as to attract investment (GRZ 1995).

The colonial administration’s policy of concentrating efforts on commercial farming in the Crown lands occupied by white settlers, and the neglect of native reserves occupied by native Zambians, resulted in the creation of a dual agricultural economy with two distinct production systems: large-scale commercial farms, which were often foreign-dominated, on one hand, and the small-scale subsistence farms on the other (Klepper 1979). With independence, the new Zambian government pursued agricultural policies that encouraged the development of a new class of farms – the medium-scale or emergent farms – considered to be economically viable to produce a surplus for the market through inputs and market and land access support (Klepper 1979; Berry 1993). Small-scale farming mainly producing the staple food crop – maize – is dominated by native Zambians and remains by far the largest, in terms of numbers, of the three production systems. These farmers generally engage in dryland farming of staple food crops (principally maize) on permanent fields or shifting cultivation; others combine cultivation with pastoralism largely on customary land on an average 1.5 hectares per household (Sipangule and Lay 2015; ECIAfrica Consulting 2012). Medium-scale farmers also produce maize and some cash crops, while the large-scale farmers produce various crops for both local and export markets.

Since attaining independence in 1964, Zambia has implemented various schemes in its effort to commercialise farming and increase productivity against the backdrop of the departure of many white settler farmers in the immediate post-independence years (Adams 2003; Chenoweth, Knowles, and Ngenda 1995). These attempts at commercialisation were largely carried out by the state institutions informed by socialist thinking (Gould 1998). The immediate post-independence government did not encourage large-scale farming among Zambian citizens; instead, this type of farming was the preserve of state institutions (Adams 2003) and remaining white settler farmers. The state encouraged the expansion of smallholder commercial farming by establishing settlement schemes targeted at smallholders on state land under statutory tenure. Furthermore, in efforts to commercialise smallholder agriculture, state-managed out-grower schemes² were established in the 1960s and 1970s by parastatal companies such as the Lint Company of Zambia (LINTCO) for cotton, the National Agricultural Marketing Board (NAMBOARD) for

²These principally provided inputs on loan and extension advice, and purchased produce from smallholder farmers scattered across the country.

maize and the Tobacco Board of Zambia (TBZ) for tobacco, each providing extension services, credit and market outlets for these respective crops.

During the early post-independence period, as during the colonial period, large-scale plantation agriculture was slow to develop, save for the Zambia Sugar Nakambala Estates established in 1964 as a joint venture between the Zambian government and a private British company, Tate and Lyle. In the early 1980s, Zambia Sugar and the government of Zambia initiated a nucleus-estate out-grower scheme involving smallholders and a newly established private company, the Kaleya Smallholder Company Limited (KASCOL), to supply cane to Zambia Sugar (Kalyalya 1988).

From the mid-1980s, growth in the country's agricultural sector was negatively affected by low investment, low productivity and production by smallholder farmers. The post-liberalisation period in Zambia since the early 1990s has, however, spawned a new agricultural economy that is export-oriented and relies on new investor large-scale farmers and corporate agribusiness firms, as well as an indigenous 'emergent' elite class of farmers (Jayne et al. 2014). Liberalisation policies have also stimulated the growth of contract farming between private agricultural firms and smallholder out-growers producing traditional and non-traditional export commodities including cotton, tobacco, cut flowers, fresh vegetables and sugarcane (Keyser and van Gent 2007). By 2004, over one third of the then-800,000 small-scale farmers in the country were involved in out-grower arrangements of some kind (Droppelmann 2004, 5; Agrifood Consulting Limited 2005, 151), with nearly all cotton, tobacco and paprika being produced under these arrangements (Tschirley, Minde, and Boughton 2009, 2).

Although Zambia's agricultural policy envisages the development of both large-scale and small-scale agriculture, in the last decade it has been the explicit objective of the Zambian government to negotiate new commercial agro-deals, mostly with foreign agribusinesses (GRZ 2006; GRZ 2005). Commercialisation of large-scale agriculture is now the central focus as a result of government's desire to restructure and diversify the economy in order to reduce dependence on a single commodity – copper – which has often destabilised the national economy during global economic downturns (Sugiyama 2007; World Bank 2007).

The rapid agricultural commercialisation underway has been driven by a narrative that frames Zambia as having abundant, idle and available agro-ecologically suitable land and a stable political climate for foreign investment (Chu 2013; Oakland Institute 2011). The government has made several efforts to attract foreign investment in the agricultural sector, providing tax exemptions, duty-free inputs and express land allocation via the country's land bank and farm blocks (GRZ 2006; German, Schoneveld, and Mwangi 2011). Despite the magnitude of large-scale farmland investments envisaged in the country, including the farm block programme targeting one million hectares across the country's 10 provinces, the potential implications of such investments for local agrarian economies and smallholder livelihoods are not well understood. By examining three contrasting models of agricultural commercialisation in Zambia, the paper explores the opportunities and challenges of each, in the context of the policy push to increasing commercialisation of agriculture.

Contrasting models of commercialisation

Our plantation case study is Zambeef Chiawa Estate, a 10,000-hectare farm located in the Lower Zambezi valley, cultivating irrigated soybeans, wheat and maize in both summer and winter. It was established in 1989 by an Irish agribusiness firm, Masstock International, to grow marigolds, paprika and cotton, but when Masstock went into receivership in the early

2000s the estate was bought by Zambian-registered Lendor Agricultural Holdings, which unsuccessfully attempted to grow winter maize. In 2008, Zambeef PLC bought and revived the estate. Zambeef estate is surrounded by several villages, with smallholders involved in dryland farming – despite the unfavourably hot climate – and traditional small-scale irrigation on fields known as ‘*matoro*’,³ along the Zambezi River bank.

Our contract farming case is Zambia Sugar’s Magobbo sugarcane out-grower block farming scheme, which involves a 17,310-hectare nucleus estate at Nakambala owned by Zambia Sugar, and a 432-hectare smaller block of ‘out-grower’ farmers at Magobbo. Our choice of block farming for the out-grower model in this study is based on the fact that this model is being considered by the Zambian government for scaling up the nucleus estate-smallholder out-grower model in its ‘farm block’ programme to be implemented country-wide (GRZ 2005). This farming model is an important variant in the sugar sector, and one promoted by both South African sugar companies, notably Illovo in southern and east Africa (Matenga 2016). The Magobbo ‘out-grower’ farmers have organised themselves into a trust and pooled their land into a single block to produce sugarcane that is supplied to the Zambia Sugar mill. While Zambia Sugar already had one other out-grower scheme in Mazabuka district, the Magobbo project was established in 2007 during the expansion of Zambia Sugar in response to the EU’s Accompanying Measures for Sugar Producing (AMSP) countries. It differs from the other schemes in that it was modelled on ‘block’ farming that required the consolidation of individual smallholder plots into a larger contiguous block farm to create economies of scale and also to facilitate irrigation infrastructure. In this farming model the nucleus estate takes control of land management and marketing of the crop, while land owners become shareholders, with shares proportionate to their original landholdings, ranging from four to six hectares. The ‘out-growers’, including local smallholder farmers, retired civil servants and urban elites, play no role at all in either production or farm management, as their land is leased to the management service provider, Nanga Farms,⁴ and the shareholding ‘out-growers’ collect their income once per month.

Our commercial farming case is comprised of multiple and contiguous privately owned large-scale commercial farms: the Mkushi farm block in central Zambia. Colonial authorities designed the farm block in 1950 as a commercial farming area for white settler farmers, and since independence it has attracted commercial farmers of different nationalities, particularly from South Africa and Zimbabwe. In recent years, there is also a growing tendency towards acquisition and consolidation of farms by corporate farming entities such as the UK-based Chayton Africa and South Africa’s AFGRI (Chu 2013).

Table 1 summarises some of the key features of the three models.

Data and methods

The study employed a mixed-methods strategy involving qualitative and quantitative approaches applied sequentially between 2013 and 2015. We used a three-stage method commencing with qualitative approaches of documentary review, 24 in-depth key informant interviews, and 14 focus group discussions involving adult men- and women-only groups, mixed groups, and mixed groups involving young women and men. These were

³‘*Matoro*’ in the local Chiawa area are small cultivation fields located near the Zambezi River bank and benefits from the natural fertility from the annual alluvial flow and moisture from the river.

⁴Nanga Farms is a subsidiary of Zambia Sugar.

Table 1. Three contrasting models of commercialisation.

Case/model	Historical context	Unit of ownership	Size (ha)	Crop(s)	Level of technology	In-situ processing
Plantation: Zambeef Chiawa Estate	Estate established in 1989 by Masstock Africa; acquired by Lendor Agricultural Holdings early 2000s; acquired by Zambeef in 2008	Corporate agribusiness	10,000 ha (only 2160 ha under production) Average surrounding smallholder farms – 2 ha	Wheat, soybean, maize	Capital-intensive <i>precision farming</i>	No on-site processing
Commercial farming area: Mkushi farm block	Established by colonial authority in 1950 for white settler farmers; production intensified post-2000	Individual large-scale farmers Corporate agribusinesses	176,000-ha farm block; individual farms in the block are in thousands of ha each Average surrounding smallholder farms – 5.6 ha	Principally wheat, soybean, maize	Capital-intensive but labour absorbing	On-site crushing of soybean for cooking oil
Out-grower: Magobbo Sugarcane Out-grower Scheme	Nucleus estate established in 1966; production expansion programme from 2007 to 2009; 'out-grower' scheme initiated 2007	Individual smallholders involved in <i>block farming</i>	Zambia Sugar nucleus estate 17,310 ha with 99-year leasehold title; Magobbo 'out-grower' farm block 432 ha with block leasehold title; 'out-growers' hold between 4 and 6 ha each in the block Average surrounding smallholder farms – 3.5 ha	Sugarcane	Labour intensive	Milling/processing plant for sugar

Source: Authors' compilation.

followed by a quantitative household survey based on a stratified sample and administered among 324 randomly selected farm household heads or other adults in communities living up to 5 kilometres away from each commercial model (98 in the plantation case, 110 in the out-grower case and 116 in the commercial farm case). Analysis of this data was disaggregated into households involved and not involved in the commercial model. Households involved in the model were those that either had members employed by the model or were part of the out-grower scheme, or both. The final stage was also based on qualitative approaches including 18 in-depth family life histories and mapping input and output markets. Key informant interviews included some workers employed in the models to gain detailed insights into employment and labour issues and with farm managers, out-growers and surrounding communities. For details on the methodology used see Hall et al. (2017, this volume).

Land access, ownership and utilisation

In order to assess the differential commercialisation outcomes of the three models in relation to land we use the proportion of households in surrounding communities that have access to land, and cultivate the land, and the average size of land owned. We compare these parameters between the households involved in the models through members employed or contracting or both and those not associated with the model as well as across the models, as shown in Table 2. Due to large-scale land commercialisation, it is expected that the level of land access, utilisation and ownership in communities surrounding the models will reduce as a result of displacements as well as movement out of farming into employment in these models.

According to the nation-wide representative smallholder Rural Agricultural Livelihood Survey (RALS)⁵ (CSO/MAL/IAPRI 2015), 98 percent of the rural households in Zambia have access to land. Almost the same proportion cultivate their land, and have an average land size of 3.5 hectares. According to the RALS these parameters at district level, where the three models are located, were as follows: in the plantation model in Kafue 91 percent of households accessed land, 84 percent cultivated it and the average land size was 3.1 hectares; in the out-grower model in Mazabuka 100 percent of households both accessed and cultivated their land and the average land size was 3.2 hectares; and in the commercial model in Mkushi 100 percent of households accessed land and cultivated it and the average household land size was 7 hectares.

Our survey results demonstrate the difference between land access in our study areas and the wider patterns within their respective districts. Table 2 shows these parameters in communities surrounding the three models by households involved (through employment, contracting or both) and those not involved in the models. Three main findings can be discerned.

First, the average size of land owned among households in the communities surrounding the plantation model is less than the district average. This can be attributed to the settlement pattern which confines many villages to a narrow zone contiguous to the Zambezi and Kafue rivers, respectively, where they cultivate the traditional *matoro* river gardens, thus leaving substantial areas away from the rivers un-inhabited, with dryland farming constrained by a dry valley environment and crop damaging wild animals as the area is a

⁵Conducted by the Central Statistical Office in conjunction with the Ministry of Agriculture and Indaba Agricultural Policy Research Institute.

Table 2. Land access and land cultivation across the models.

Model	Category	Land variable			Count
		% with access to land	% cultivating land	Average land size (ha)	
Plantation	Employed in plantation	89.3	89.3	2.5	28
	Not involved	94.3	94.3	1.5	70
Out-grower	Employed in scheme	36.8	36.8	0.5	19
	Contracted	100.0	100.0	4.7	15
	Both employed and contracted	100.0	100.0	5.9	12
Commercial	Not involved	66.1	66.1	2.8	59
	Employed on commercial block	82.3	71.0	5.3	62
	Not involved	83.3	79.6	5.9	54

Source: LACA Zambia Quantitative Survey and authors' computations.

game management area. In this area, farmers have a mix of dryland farms and small plots along the river, but all combine this with off-farm work, with many households having members who are remitting income from tourist safari lodges, trading, farms and urban areas. Households with members employed on the plantation have relatively more land than those that are not. Land was reportedly acquired mostly by inheritance and traditional authority for both households involved and not involved. An interesting finding is that no purchasing of land was reported as a mode of acquiring land by the sampled households at all, with relatively high proportions of households reporting acquiring land through borrowing (especially among the households not involved in the model), and just occupying without authority for those households with members employed in the model who are mostly migrants. Most employees on the plantation are migrants from the neighbouring Southern Province. From key informant interviews and life histories, many such employees did not seek land within the surrounding community but invested in land from their home areas. A relatively higher proportion of households employed in the model are of the opinion that land availability and area under crop cultivation have increased in the past five years.

Second, the average sizes of land owned by communities surrounding the commercial model are also smaller than the district average. It cannot be said for sure that the smaller size of land is as a result of the development of the commercial farm block, as the Mkushi farm block itself has not expanded beyond its original boundaries. Our findings do confirm, though, that households that have members employed on the commercial farms own relatively less land than their counterparts who are not involved at all. The reported main way of acquiring land by the households with links to the commercial farms relative to those not was purchasing. Leasing and borrowing land were more pronounced among the households not involved in the commercial farms, while inheritance and getting land from traditional authorities were equally important for the two categories of households. Both categories of households were of the opinion that land availability has reduced and land prices have increased in the past five years. But relatively more of the households not involved in the commercial farms felt that area under crop cultivation and yields have increased during the same period.

Third, the average size of land owned by communities in the Magobbo out-grower scheme is relatively larger than the district averages. This is attributed to the scheme having been a government settlement scheme⁶ before part of it was developed into an out-grower scheme growing sugar cane under block farming. The households involved in contract farming have much more land than those not involved in the scheme at all, while those with members employed in the scheme have the least land. Most employees in the scheme and the Zambia Sugar estate are young adults, most of whom can no longer access family land for their own cultivation as most of it has been tied into the sugar-cane scheme, and who therefore seek employment as their main livelihood option. Previously, farmers in Magobbo held between four and 32 hectares of land each, but with the establishment of the scheme those participating were permitted a maximum of six hectares each and those who possessed more could sell and/or exchange with other farmers outside willing to join the scheme. Thus, some 'out-grower' households in the Magobbo scheme still engaged in dryland crop farming and livestock rearing on land held off the scheme, while others who sold the balance of their land had to depend on out-grower incomes for the major part of their livelihoods. Land purchase among out-grower contracting households is the most important mode of acquiring land, followed by inheritance. The most important modes among households employed in the scheme are borrowing and leasing, while those of the households not involved in the scheme at all are inheritance and borrowing. All categories of households in the out-grower area recognised that land availability and areas under crop cultivation had decreased and land prices increased in the past five years.

In all the case study areas, there is a general perception that land availability had decreased in the past five years, combined with growing land conflicts. Around the Zambeef estate and near Mkushi commercial farming area there was increasing demand from agricultural investors and safari lodges, and growing land speculation, respectively, while in the out-grower area land was continuing to be removed from small-holder production through Zambia Sugar's expansion through out-grower schemes. While there has been no recent mass dispossession of land evident around any of the three model areas, as commercial farming has been long established, expansion and intensification of commercial production have been intensifying land pressure. For example, the development of a major water abstraction point on Zambezi River following the expansion of Zambeef plantation displaced several families from one village. The decisions to give up land to Zambeef were arrived at by mainly individual male household heads to whom compensation was paid. According to key informants, many heads of households misused the compensation money, leaving their families with no agricultural land for farming, while a few relocated to nearby Chirundu border town where they have bought houses. Around the out-grower model area, the relocation of many of the farmers to give way to a single contiguous block farm resulted in their resettlement on land previously used as livestock pastures, thus impacting negatively on pastoral livelihoods. These farmers were given loans to rebuild their houses in the new areas as most of them were to be beneficiaries of the scheme.

The differential sizes of land owned by households around the three models are a result of both the impacts of the farming models and also contextual and historical influences associated with climate, demographics and government intervention. For the commercial

⁶Government settlements were commercial farms which were divided into five- to 10-hectare farm plots for settling by local small-scale farmers.

farming area and ‘out-grower’ models, land access and distribution in the surrounding area are also consequences of these models. Around the commercial model, low population densities and the fact that the area of the model itself has not expanded outside its original boundaries has allowed for large land sizes among households around this area to remain. In the out-grower model, many farmers experienced net decreases in their landholdings as a consequence of their participation in the scheme since they had to cede any land above six hectares as required by the scheme.

Employment and labour

Employment is widely considered the main benefit that rural communities can derive from large-scale commercial agriculture (FAO 2013; Sparks 2012; Aabo and Kring 2012; Cotula 2009). We investigated the impact of the three models on employment generation, quality, and gender and generational dimensions of employment in and around the model areas. Our survey found that all the three agricultural models considered in this study have generated both permanent employment and casual or temporary jobs. As shown in Table 3, the proportion of household members from the surrounding areas employed both casually and permanently is highest within the commercial farming area (22 percent) and lower on the plantation and on out-grower block farms (7 and 8 percent, respectively). This is split between permanent and casual employment, with casual employment dominating jobs in the commercial farms. In all sites, a high proportion of household members were employed somewhere, but not all of this work was generated within the ‘models’; indeed, there was more work outside the out-grower block farm and the plantation model.

While there are relatively more permanent than casual workers in the plantation model, absolute employment is in fact very low at Zambeef plantation compared to the out-grower area and commercial farm area. Both permanent and casual employment are on the decline around the plantation and out-grower areas. Around the plantation, our informants argued that declining employment is due to the use of precision farming techniques that displace labour.

Table 3. Employment status of household members by model.

Model area	Location of employment	Household members employed (%)			Household members unemployed (%)	Count
		Permanent	Casual	Total		
Plantation	Inside plantation	5.7	1.5	7.2	82.5	388
	Outside plantation	6.7	3.6	10.3		
	Total	12.4	5.1	17.5		
Out-grower	Inside scheme	4.5	3.0	7.5	81.6	470
	Outside scheme	7.9	3.0	10.9		
	Total	12.4	6.0	18.4		
Commercial	Inside commercial block	5.9	16.0	21.9	73.3	474
	Outside commercial block	1.6	3.2	4.8		
	Total	7.5	19.2	26.7		

Source: LACA Zambia Quantitative Survey and authors' computations.

At the Zambeef plantation, administrative and other skilled jobs were taken by migrants⁷ from across the country, while unskilled jobs were shared by both migrants and people from the locality. As one participant in a focus group discussion observed:

There is no employment; very few people are employed; weeding is done by chemicals and harvesting by combine harvesters ... Zambeef brings workers from its other farming areas to work here in Chiawa; it is like we do not know how to work.

The out-grower block farm creates a relatively large number of jobs as most jobs in sugarcane cultivation are done manually. Most labour for planting, weeding, irrigation and application of fertilisers and chemicals is sourced locally from the surrounding villages. It was established from key informants that the management service provider to the out-grower scheme recruits as much as possible within the area, but that not all families benefitted from the employment if there was no one in the family who had the right physical characteristics. Thus, labour for cane harvesting, which constitutes the bulk of all labour in cane growing, is sourced from far afield, mostly from western Zambia. A respondent in a focus group discussion observed:

Only those who had been earlier employed and considered to have experience are the ones that keep on getting the jobs. Those who have never worked are not getting the jobs; we get the forms and apply but we never get the jobs.

There are also gender and generational differentials in employment opportunities. Interviews revealed that women occupy a high proportion of the less-skilled jobs in all the model areas and are under-represented in managerial and supervisory roles. Women predominate in highly seasonal and low-quality unskilled jobs, such as weeding and crop scouting, while men dominate irrigation, planting, cane cutting, driving and motor vehicle maintenance. While the out-grower scheme has an obligation to employ at least one member of each 'out-grower' household, it is largely male members who are availed such opportunities. As a woman responded in a focus group discussion:

At first they were taking one person from each household for employment; now this year they are not doing that. Last year there were 30 people taken; only three were women of the 30 working there. This year they say only one woman has been taken ...

As with gender, generational differentials with regard to employment opportunities across the three models are significant. On the plantation, more older adults over 35 years are employed than youths,⁸ on both a permanent (37 versus 27 percent) and casual (11 versus 6 percent) basis, and younger people, especially men, seek better paying jobs in the nearby safari lodges. In the commercial model also, more adults are employed on a permanent basis than youths (30 versus 18 percent), while the trend is opposite for casual employment, where more youths are employed than adults (67 versus 45.5 percent).

⁷Many migrants were employed at the estate when it was under Masstock Africa, the company that established the estate. Due to the labour intensities of the crops grown then, thousands of migrant labourers were brought in from southern province and Lusaka rural areas. A number of these were retained in their jobs as the estate changed ownership, and employment of other people whether skilled or unskilled is through social networks of relations.

⁸According to the *Zambian National Youth Policy* (2006), a youth is someone aged between 18 and 35 years.

However, given the poor wages prevailing here, the benefits young people can derive from greater participation in casual work are limited. More youths than adults are employed in the out-grower enterprise both on a permanent (31.5 versus 12.5 percent) and a casual basis (20 versus nine percent), as adults concentrate on their own farming, or are shareholders in the 'out-grower' scheme. Access to employment on the 'out-grower' block is facilitated by the out-grower scheme management, with each shareholding household being guaranteed one job opportunity since many young people are excluded from 'out-growing' arrangements which are contingent on ownership of land.

Education is important in determining access to employment across the three models particularly for skilled jobs. On the plantation, secondary education was key to getting both permanent and casual employment. In the out-grower block and the commercial farms, those with secondary schooling and above dominate the ranks of permanent employment, with those with primary schooling dominating the casual jobs.

Gendered wage differentials are significant, with women being confined to low-grade unskilled and low-paying jobs. The quality of employment, as reflected in wages, also varied significantly across the three cases as well as between men and women and between permanent and casual workers. Our quantitative survey showed that the highest paid were casual workers in the 'out-grower' model (USD 77 per month), followed by permanent workers at the plantation (USD 60 per month), followed by permanent workers at the out-grower model (USD 42 per month). Wages were lowest in the commercial farming area, with permanent and casual workers receiving USD 30 and USD 18 per month, respectively. Across all models, women were consistently paid less than men for permanent jobs (USD 48 versus USD 64 on the plantation, USD 31 versus USD 43 in the out-grower scheme and USD 17 versus USD 33 in the commercial farms).

Our survey thus found that employment created by the plantation and out-grower models was far less than that created by other enterprises surrounding the models, while the commercial model at Mkushi created more employment overall than the other enterprises surrounding the model, although largely casual and poorly paid. Indeed, areas around Zambeef plantation in Chiawa and Magobbo out-grower scheme in Mazabuka have high activities offering employment opportunities by other players, such as tourist establishments and other small- and medium-scale farms and the Nakambala Sugar plantation, and other large-scale sugar out-growers, respectively.

Livelihood outcomes

How are livelihoods in the surrounding areas of the different agricultural models affected? The results are complex, showing different patterns of accumulation and class formation, and differences across groups depending on their engagement with the commercial enterprise in the area. For example, households employed by the plantation area significantly increased the size of their cultivated area in the last five years by using their wages to increase crop output, while their counterparts in the out-grower and commercial farming areas only reported very small increases in cultivated land. Although households employed in the out-grower scheme had comparatively high wages, these households had the least land, holding only 0.5 hectares on average. The wage earners in the out-grower scheme with smallest land areas were often young people, newly establishing homes, and under the patronage of more elderly heads of households who had placed their land under sugar cane cultivation. These young people have come to depend largely on employment on the out-grower scheme and elsewhere due to land scarcities arising from commercial sugarcane production, and the absence of intergenerational transfers of land to young

people as land is tied in the sugar scheme. Households employed in the commercial farming area at Mkushi comparatively had the lowest wages, and could not increase the area under cultivation despite abundance of land. Those who were benefiting from the presence of the commercial farms in Mkushi and acquiring land were investing resources from non-farm income from outside.

How then did the changing agrarian dynamics affect people's food security around the three farming models? In order to assess the food security status in the model areas respondents were asked how often their households reduced the amount of meals consumed or skipped a meal altogether, and how this had changed over the past five years. Our survey data indicate that perceptions of households' food security situation over the past five years differ across groups in the three case study sites. Households around the out-grower model were more food secure, with the biggest reported improvement in food security experienced among households receiving dividends from the out-grower shareholder scheme. Households working on the scheme block only but with no land in the scheme also reported improvements. The food security for these groups of households is related to the incomes received from dividends and wages, respectively. However, households in the surrounding areas, without access to the out-grower-shareholder scheme and not employed, reported a declining food security situation, reflecting the growing pattern of differentiation in the area. The deteriorating food security situation for households outside the scheme is not a result of the scheme but a consequence of poor food crop harvests from dryland farming due to extreme weather events of droughts and floods in the area, as well as a lack of farming inputs. In the Mkushi area, those around the commercial farm area reported improvements, while those employed by commercial farms at Mkushi farm block as casual workers reported no improvements or declines. Households employed in the Zambeef plantation reported improved household food security, whereas those without wage employment reported growing food insecurity.

Rural livelihoods are transforming in the areas around all three case studies, reflecting new class dynamics and changes in local agrarian systems. Around the plantation and commercial farming area sites, a peasant-worker class is emerging among employed households, as wage workers straddle between employment and small-scale farming to compose livelihoods in a context of low wages. Around the out-grower model, new dynamics of accumulation have emerged where a new 'peasant-shareholder' class has pooled family land into a consolidated block in the out-grower scheme in return for monthly dividends that are quite significant, with a net average income of USD 2999 per annum per household in our sample. This income stream is captured by older men, who have monopolised opportunities for accumulation, marginalising women and youths. As a result, control over income has become more unequal within households.

Local economic linkages

One of the potential outcomes of commercial agriculture is the benefit through their linkages into the local economy, creating multiplier effects. The spillovers include technology transfer, input and output markets and social and productive infrastructure (Smalley 2013; Sipangule and Lay 2015; Glover and Jones 2015). Our study found a different mix of local economic linkages around the three models (Table 4). Our study found that the commercial farming area has relatively stronger and more localised economy linkages than either the plantation or the out-grower scheme. The plantation model typifies the 'enclave economy' that is poorly integrated into the surrounding communities and the local economy (Ferguson 2006). The Zambeef plantation purchases machinery from Lusaka

Table 4. Types of local economic linkages by model.

Case/model	Sources of inputs	Output markets	Sources of labour	Development of productive infrastructure	Technological spillovers
Plantation: Zambeef Chiawa Estate	Nothing locally in Chiawa Largely Lusaka (agrochemicals, fertilisers, equipment) Other countries the region (equipment)	Largely within Zambia to Zambeef's subsidiary companies Zimbabwe	Largely in southern province outside Chiawa A few within Chiawa A few from South Africa and Zimbabwe	No input depots Irrigation infrastructure only for the plantation	No synergies between Zambeef plantation and local smallholder production system
Commercial farming area: Mkushi Farm Block	Locally in Mkushi (agrochemicals, fertilisers, equipment) Other major towns (agrochemicals, fertilisers)	Within Zambia Other countries in the region	Largely within Mkushi area A few from other areas within Zambia A few from other countries in the region	Irrigation infrastructure Inputs depots	Emerging satellite farms adopting crops and technologies used on the farm block Skills spillovers
Out-grower: Magobbo Sugarcane Out-grower Scheme	Locally in Mazabuka Town (fertilisers, agrochemicals) Lusaka (agrochemicals) South Africa (equipment, sugar seed varieties)	Within Zambia Within the region The EU	Largely within Mazabuka area Cane-cutters from Western province A few within Magobbo community	Irrigation infrastructure only for the sugar scheme block No input depots	Skills development to workers through learning-by-doing as apprentices on the scheme block farm and Nanga Farms

Source: Authors' compilation.

and other inputs both from Lusaka and Mazabuka town in Southern province, demonstrating its enclave nature, as all its expenditures on farming inputs and machinery take place more than a 100 kilometres away.

The out-grower scheme – operating on the principle of block farming, an extension of the sugar estate – sources farming equipment both locally in Mazabuka and Lusaka and in countries around the region, mostly from South Africa, where Zambia Sugar's parent company Illovo is based. Because the Magobbo out-grower scheme operates on block farming model, all services from land preparation to harvesting and haulage of cane are undertaken centrally by a management service provider, thereby bearing the hallmarks of a plantation.

Because of the scale and technology mix of farming, and the concentration of farmers at Mkushi, some farming equipment and other inputs are sourced within the area as a number of regional and international suppliers of machinery and inputs have established depots within the farming block to reduce distance for farmers from input sources. One such example is AFGRI Ltd. of South Africa, a major financier of commercial farming and agribusiness operations in Southern Africa, which supplies John Deere tractors and other farm machinery and maintains a demonstration farm at Mkushi (Chu 2013). Farmers within the Mkushi farming area also purchase equipment and inputs from Lusaka and other major towns on the Copperbelt province. Outputs for three models end up in different markets, with sugar and maize from the out-grower and plantation/commercial farms, respectively, being exported, while other crops such as wheat and soybean from Chiawa and Mkushi are sold domestically, but not to local markets.

Thus, both the Zambeef plantation at Chiawa and the out-grower block scheme at Magobbo operate largely as 'enclave' operations with few links to the local economy, beyond employment in both instances, and, in the case of Magobbo, shareholder revenue streams. Indeed, wages from employment and dividends for the shareholder out-grower farmers around the out-grower model on one hand, and employment in the plantation and commercial models on the other, have engendered substantial spillovers into the local economy through consumptive linkages that stimulate petty trading around the three models. The greatest integration seen is at Mkushi, where commercially oriented smallholder and medium-scale farmers surrounding the commercial farms have collaborated with those with farms on the farm block. In this area, productive infrastructure such as electricity, irrigation dams, roads and input depots has created positive spillovers, with satellite farms emerging and becoming involved in new value chains by adopting some of the crops and technologies introduced in the block. Commercialisation around the block has also opened up opportunities for off-farm incomes through trade and the growth of a non-farm rural economy. The emergence of this class of commercialising farmers appears to constitute a dynamic of accumulation that is elite driven, as small- and medium-scale farmers acquire land through off-farm incomes. The result is a diversified and growing local economy around Mkushi. Such effects are not seen in areas surrounding either the plantation or the out-grower case study sites, and although schools and clinics have been established for company employees, local people in surrounding areas have no free access.

Conclusion

Commercial agriculture has mixed effects – on land access, employment, livelihood patterns and economic linkages. Simple narratives, whether focusing on land dispossession or employment creation, do not stand up to empirical scrutiny.

Our case studies of very different forms of commercialisation in Zambia show how employment is important, but not extensive. As Li (2011) and Deininger (2011) also observe, our study notes that the institutional arrangements in the three agricultural models, the types of crops cultivated and the scale of technology employed in the production processes all have an impact on the quantity and quality of jobs and where and how labour is sourced. Mechanisation and 'precision farming' reduce job opportunities in the Zambeef plantation in Chiawa; most jobs go to in-migrants, leading to economic 'leakages' from the local economy via remittances. While casual wage labour is generated in the Mkushi commercial farming area, it is low paid and does not improve livelihoods and household food security. The out-grower model on the sugar estate at Magobbo is atypical, in that it provides dividends to a limited group of shareholders, and guaranteed well-paid employment for some, but not others.

Both the plantation and the out-grower scheme operate as 'enclaves', benefitting a restricted group, and showing few linkages to the wider economy. The long-established plantation has not generated widespread landlessness recently, although there are isolated hotspots of imminent displacement. The out-grower scheme, by contrast, experienced a net decrease of landholdings, as participating smallholders who previously held more land were required to hold only a maximum of six hectares, while at the same time they had to encroach on pastoral land as this was turned into residential dwellings for out-growers relocated to give way to block farming. In the commercial farming area, the Mkushi farm block is not expanding, but is creating demand for land around the area, as new investors – both from the local area and from outside – are creating new farms, linked to the commercial farm block. Others in the area are, however, not benefiting, except through low-paid agricultural labour.

In all case study areas, processes of agrarian change resulting from the commercial investments are occurring. These are generating social differentiation, with particular negative effects on women and youths. Those who benefit most are the (mostly older male) shareholders with stakes in the sugar out-grower scheme; those linking up with thriving commercial farming in the Mkushi farm block, creating 'satellite' medium-scale commercial farms nearby through investments of capital from outside the area and the accumulation of land; and those with skilled permanent employment (mostly from outside the area) at the Zambeef plantation. Those who lose out are those without access to the shareholder out-grower plots; those unable to invest in new commercial farms around Mkushi; and those unable to combine low-paid casual work with small-scale agriculture, because of limited rainfall (in Chiawa) or land scarcity.

In sum, the outcomes are complex, depending on diverse relations with commercial arrangements, mediated by a range of factors, including employment conditions, access to 'shareholding' out-grower arrangements and possibilities through access to land and capital for linking up with commercial farming. Thus, as a result of agricultural commercialisation in an area, some benefit, but others do not, and a dynamic social differentiation is seen in all sites, which differentially affects men and women, young and old. Thus, depending on class, gender and age, different people are able to insert themselves into the commercial agricultural economy in different ways. However, the terms of incorporation differ across the sites, depending on the institutional arrangements, the level of capitalisation and mechanisation of the commercial farms, the type of crop, and the wider livelihood opportunities in the area.

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