

Contract farming and informality: drivers and governance responses in Zambia and Zimbabwe

Stephen Kabwe, Jackqeline Mutambara, Kingstone Mujeyi,
Emma Blackmore, Bill Vorley and Xiaoxue Weng



About the authors

Stephen Kabwe is a Senior Research Associate at Indaba Agricultural Policy Research Institute (IAPRI) Lusaka. He has over 10 years of work experience in agricultural policy analysis. His research focuses on improving the welfare of farming households and other actors through enhancing agricultural efficiency and market development, particularly in the cotton, maize and cassava value chains.

Jackqeline Mutambara (PhD) is a Senior Lecturer at the University of Zimbabwe and a founding member of the Agricultural Economics, Policy Research and Information Centre (AEPRI). An agricultural economist by profession, she has 17 years of experience in policy analysis, environmental economics, rural development, value chains agribusiness and operations management, agricultural trade and marketing.

Kingstone Mujeyi is an Agricultural Economist and Research Fellow at AEPRI based in Harare. Having worked in the agricultural sector for 15 years, he has developed a passion for research work that aims to alleviate poverty and foster social justice.

Emma Blackmore* is a Research Associate within the Shaping Sustainable Markets Group at IIED. Her expertise includes sector governance, standards and certification, and their impact on farmer and worker livelihoods and supply-chain trading relationships in agriculture. She has a Masters in Development Studies from the School of Oriental and African Studies.

Bill Vorley (PhD) is a Senior Associate within the Shaping Sustainable Markets Group at IIED. His primary interests centre on small-scale farming, the role of the private sector, the resilience of informal markets, and sustainable diets in the face of major shifts in food systems worldwide. Bill has a PhD in applied ecology from the University of Southampton.

Xiaoxue Weng is a Researcher within the Natural Resources Group at IIED. Her research focuses on foreign investment, smallholder production and extraction of natural resources in sub-Saharan Africa. She led the Africa-China Informal Resources Trade research project under which this report is published.

*Corresponding author email:

Emma Blackmore, emma.blackmore@iied.org

Produced by IIED's Natural Resources Group

The aim of the Natural Resources Group is to build partnerships, capacity and wise decision-making for fair and sustainable use of natural resources. Our priority in pursuing this purpose is on local control and management of natural resources and other ecosystems.

Published by IIED, March 2018

Kabwe, S *et al.* (2018) Contract farming and informality: drivers and governance responses in Zambia and Zimbabwe. IIED Research Report. IIED, London.

<http://pubs.iied.org/17617IIED>

ISBN: 978-1-78431-581-8

Printed on recycled paper with vegetable-based inks.

International Institute for Environment and Development

80-86 Gray's Inn Road, London WC1X 8NH, UK

Tel: +44 (0)20 3463 7399

Fax: +44 (0)20 3514 9055

www.iied.org

 @iied

www.facebook.com/theIIED

Download more publications at <http://pubs.iied.org>

Cover photo: Joyce Banda and Frederick Nyirenda check the cotton growing on their farm in Eastern Province, Zambia.

Credit: Simon Lim, 2017.

IIED is a charity registered in England, Charity No.800066 and in Scotland, OSCR Reg No.SC039864 and a company limited by guarantee registered in England No.2188452.



Contract farming and informality: drivers and governance responses in Zambia and Zimbabwe

Stephen Kabwe, Jackqeline Mutambara, Kingstone Mujeyi,
Emma Blackmore, Bill Vorley and Xiaoxue Weng

Contents

Executive summary	5
Acknowledgements	14
Abbreviations	15
Boxes, tables and figures	16
Introduction	19
1 Background	23
1.1 Contract farming and informality	23
1.2 Cotton in African agriculture	25
1.3 Cotton, contracts and informality	27
2 Methodology and analytical framework	30
2.1 Research framework: analytical lenses	30
2.2 Zambia: research methodology	32
2.3 Zimbabwe: research methodology	36
2.4 Data analysis and validation workshops	40
2.5 Research limitations	41
3 Chain and sector structure and governance	43
3.1 Zambia	44
3.2 Zimbabwe	68
4 Drivers of side-trading/informality within cotton value chains in Zambia and Zimbabwe	101
4.1 Incidence of side-selling	103
4.2 Driver: Field agents working on commission, cash payments	110
4.3 Driver: Variable and low prices	113
4.4 Driver: Perceptions of unfairness in price-setting	116
4.5 Driver: Dissatisfaction with inputs and services supplied by ginning companies	119
4.6 Driver: One-sided contracts	122
4.7 Driver: Household poverty and cash scarcity for basic needs	123
4.8 What about the farmers who don't side-sell?	126

5 Consequences for sector performance	131
5.1 Social and economic performance	132
5.2 Environmental performance	134
6 Discussion and conclusion: addressing informality in smallholder-based contract farming	137
6.1 Options for sector transformation	144
References	149
Annex 1: Primary data collection tools	155

Executive summary

This research collaboration between IAPRI (Indaba Agricultural Policy and Research Institute), AEPRIC (Agricultural Economics, Policy Research and Information Centre), and IIED (International Institute for Environment and Development) set out to understand informal trade in cotton in Zambia and Zimbabwe, and its impacts on the economic, social, and environmental performance of the countries' cotton sectors. We conducted 125 key informant interviews, 19 focus group discussions, and surveys of 400 cotton-farming households during 2016.

The cotton sectors in Zambia and Zimbabwe have historically been two of the biggest exporters of cotton lint in southern and eastern Africa, and have contributed to the livelihoods of thousands of resource-poor rural households. Contract farming¹ is the post-liberalisation model of cotton production in Zambia and Zimbabwe and at least six other sub-Saharan African countries. It formalises the links between smallholders and processors (ginners), de-risking investment on both sides through guaranteeing access to market and inputs on one side and supply of lint on the other.

For this research, we have defined 'informal' trade as side-trading of cotton outside of contracts between farmers and ginners. Side-trading is one of the most common problems associated with contract farming across multiple commodities. Especially for cotton, side-trading has high policy significance, since it has been blamed for the demise of entire sectors and the withdrawal of some long-established industry players. Those accusations have taken on an ethnic dimension, with the newer Asian entrants to the market – especially Chinese investors – singled out as destabilising cotton sectors with short-termist and opportunistic business practices.

Cotton sectors in Zambia and Zimbabwe have become increasingly competitive

Following market liberalisation policies in 1994, both Zambia and Zimbabwe embarked on what has been termed a 'concentrated competition' model of cotton production, in which a parastatal entity was privatised into an oligopsony of private cotton firms. This model allows farmers to choose the cotton company with which they wish to be contracted to access inputs, with the cost of inputs deducted at the point of marketing. Other countries

¹ Contract farming (CF) is defined as forward agreements specifying the obligations of farmers and buyers as partners in business. Legally, farming contracts entail the sellers' (farmers') obligation to supply the volumes and qualities as specified, and the buyers' (processors'/ traders') obligation to off-take the goods and realise payments as agreed. Furthermore, the buyers normally provide embedded services to farmers (Will, undated).

have followed different models, from national monopolies (Mali and Cameroon) and local monopolies (Mozambique and Burkina Faso) to fully competitive sectors (Uganda and Tanzania).

The ‘concentrated competition’ model can run into problems when markets become less concentrated and more competitive. Our research supports Tschirley *et al.*’s (2010) observation that increased competition due to rising numbers of players “may undermine extension, input credit and lint quality before it has any positive effect on prices paid to farmers.” In both Zambia and Zimbabwe the number of seed-cotton buyers has risen sharply in recent years (from two buyers shortly after liberalisation, to 28 in Zimbabwe by 2007–08, and from two buyers shortly after liberalisation in Zambia, to 11 by 2015).

One of the main reasons why increased competition undermines investment is side-trading – a short-term reaction by ginning companies to industry overcapacity in ginning (therefore increasing the urgency to secure cotton supply), and by farmers to poverty and low profitability.

Strong parallels were found between Zambia and Zimbabwe, with significant reductions in output, productivity, and quality emerging in recent years. The main factor behind the decline in sector performance has been side-trading, which peaked in both countries in the 2011–12 season, according to farmers’ responses to the household surveys.

Ginning overcapacity and cash payment have driven side-trading

The incidence of side-trading is shown to be primarily affected by changes in producer price, competition between ginners, and regulatory intervention. Factors at the household level such as age, farm size, or income level do not appear to influence farmers’ decision to side-sell.

Our research also found that there are different types of side-selling: 1) doubling up with contractors and only selling to one of them; 2) selling enough cotton to a contracted ginner to cover the costs of inputs, but no more and; 3) selling the entire crop to a non-contracted ginner. At least 30 per cent of farmers are thought to operate in the grey area associated with type 2, where the legality of this approach is unclear, and which allows for significant ‘leakage’ of cotton below the regulatory radar.

In Zambia, based on the household surveys, there was a statistically significant correlation between side-selling and gender of household head (with male-headed households more likely to side-sell). Farmers exhibiting more loyalty are less likely to side-sell, as evidenced by the significant negative correlation between side-selling and being approached by another company in the previous season but refusing to side-sell. There also appears to

be a link between lack of transparency in contracting and side-selling, with a significant negative correlation between side-selling and being informed how the input loan would be paid at the time of acquiring the loan.

In Zimbabwe, there was a statistically significant correlation between the carryover of debt from the previous season and a propensity to side-sell, and there was the same link between loyalty and not-side-selling as seen in Zambia.

The fear of negative consequences was not correlated in either country, suggesting that punitive measures are not particularly effective in curbing side-selling. In Zambia, poorer farmers (as evidenced by lower productivity in maize, and lower cotton income) were more likely to side-sell than their more productive counterparts. In Zimbabwe, side-sellers earned more income from cotton than non-side-sellers. This occurred despite strong similarities between side-sellers and non-side-sellers in the average quantity of cotton produced, the average area under cotton, and the average size of land holdings.

According to the household surveys, the main reason for farmers to side-sell in both countries (84 per cent in Zambia and 57 per cent in Zimbabwe) was that the non-contracted buyer – typically the field agent – offered cash to buy seed cotton, a practice which has now become dominant among all ginners. The research has highlighted how household cash scarcity becomes a driver of side-selling. Farmers are not necessarily always incentivised by higher prices, but rather by immediate access to cash in the marketing season. The research found that side-selling farmers tended to use the additional income gained primarily to meet basic needs, especially food, schooling, and healthcare, rather than to reinvest in the farm enterprise; households are increasingly being required to supplement public funding of education and health.

Whether they were side-selling or not, the farmers surveyed expressed high levels of dissatisfaction with their contracts. Their mistrust in the cotton trading system is in part due to a perceived lack of transparency in pricing. In addition, farmers carry all of the price risk for cotton production until harvest. In Zambia, for example, competition policy prohibits setting a pre-planting season indicative price, or transparent price negotiations between ginners and farmers. Representation of farmers in these aspects remains weak in both countries. Mistrust also arises due to the perception that inputs provided by the ginners are poor-quality and overpriced.

Side-trading is fuelled by companies' eagerness to buy due to overcapacity in ginning. Ginning capacity utilisation dropped to 33 per cent in Zambia in 2015 and 4 per cent in Zimbabwe in 2016. Consequently, ginning companies, including established players, have restructured their business models to secure a sufficient volume of seed cotton (unprocessed cotton bolls, still containing seeds) and sustain a return on their investments. Securing sufficient seed cotton has become harder against a backdrop of suppressed global markets and smaller cotton harvests. Ginners' investments in

processing capacity are not mobile, making it difficult to move their processing capacity elsewhere. One option, followed by Cargill in Zimbabwe, has been to divest and exit the sector altogether. In August 2017, Cargill in Zambia also announced it was selling its Chipata-based cotton operations to Parrogate. But the more typical response has been to compete with new players by reducing investments, costs, and exposure to risk of farmers' defaulting on input loans. (According to the ginner with the largest cotton-farmer base in Zambia, the default rate had dropped to 58 per cent in 2017.) Contracts are still used to 'stake a claim' on farmers' harvests at the start of the season, but the value to the farmer of those contracts has declined markedly in terms of inputs (which now may only comprise seed packs with no fertiliser), extension services, and sustainability programmes. In addition, many buyers now pay cash on delivery of cotton in order to attract farmers and avoid paying a quality premium after grading of the harvest.

All companies – both established and recent entrants to the market – were found to have engaged in side-buying. The research has drawn particular attention to the role of field agents (usually lead farmers not formally employed by ginneries) and their incentive structures in driving informality. Commissions – linked to targets for recouping all contracted crop and loans – make up the lion's share of agents' income. To achieve commission targets in the scramble for harvest, field agents rely de facto on side-buying cotton contracted by competitors. As field agents are not formally employed by ginneries, companies can claim compliance with sector regulations and turn a blind eye. Companies may also not monitor field-level activities closely, and thus be in fact unaware of the practices.

Other strategies that key informants listed as a means for ginning companies to remain competitive included manipulating the figures of farmers under contract (inflating the number of farmers they claim to have provided with inputs and extension), paying a uniform price for seed cotton regardless of the quality, and providing household goods as incentives to obtain farmers' cotton.

New governance approaches have not curbed side-trading

The institutional response to side-trading to date has largely been in the form of self-regulation to safeguard the contract farming model. The Cotton Ginners Associations (CGAs) in both countries have created Codes of Conduct to preserve the contract-farming model and prevent free-riding. In Zambia, this is reinforced by the Cotton Board's revoking of ginning licences and its use of a database to track contracted farmers. In Zimbabwe the Agricultural Marketing Authority (AMA) has stipulated common buying points to facilitate better oversight of trade and penalise noncompliance.

These forms of regulation have had some positive effects in reducing informality and strengthening the contract-farming model. But they have reinforced farmers' perceptions that the institutions are working against rather than for their interests. Many farmers and competition commissions believe that the CGAs have formed price-fixing cartels; farmers express dissatisfaction with the low price of cotton as well as the inflated costs of inputs. They also voice frustration over what they feel is an insufficient response from the relevant government bodies, such as the AMA, to enforce the relevant legislation and penalties.

As the 'concentrated competition' model heads towards a low-investment, low-yield, low-quality situation, chronic informality can take hold in the grey area between contract farming and an open market. In the short-term, this may suit the needs of farmers, agents, and ginners desperate for profitability and business survival; in the long term, however, it is a recipe for sector demise. The reduced value of input and service packages threatens not just productivity and quality but poses challenges to the implementation of sustainability programmes such as Cotton Made in Africa.

The expected benefits from increased competition have thus not materialised in either Zambia or Zimbabwe, though they have occurred to varying degrees, and policy responses differ. The current value chain and sector structure entrenches dependence between value-chain actors and prevents the emergence of 'free' farmers.

Further reforms are needed

Regulation (usually co-regulation between public and private sector) must push the market towards either 1) greater formalisation via a reformed model of contract farming that maintains a 'concentrated competition' structure; or 2) an open market of free buyers and free sellers. The two options are outlined below:

Option 1: An improved contract-farming model

Reform of the 'concentrated competition' model can be achieved through more stringent conditions of market entry (and stricter enforcement of existing standards), together with price-setting and sector collaboration:

- **Comprehensive screening of potential investors to ensure that only companies committed to quality service delivery are considered.** A rigorous screening exercise would limit participation to those ginning companies that can guarantee a level of quality input supply, extension provision, and quality control (Tschirley *et al.* 2010). Enforceable standards would improve the quality of input provision as well as effective extension provision to the farmers by ginners, guarantee fairness and transparency in input pricing, and avoid a 'race to the bottom' in contract farming. In policy terms, this may be implemented through requiring companies to

obtain an operating licence from the Cotton Board granted only if minimum standards set by the sector are satisfied. Renewal of the operating licence would be contingent on ginning companies passing a thorough review of compliance with the standards. These standards would help improve productivity of cotton farmers, which currently is far below its potential in both countries. As long as productivity is low – no matter how good sector reforms are – no tangible outcomes will be possible.

- **A price-setting mechanism.** Price-setting mechanisms help ensure some price certainty for farmers at the time of planting, allow for a fair retention of value and reward for producers for higher quality, and curb ginner collusion. A number of examples exist where price-setting is done in a way that ensures higher value retention for producers yet remains acceptable to other sector stakeholders, including competition authorities. For instance, prices can be set pre-season based on forward sales, historical prices, and market projections.² Alternatively, a combination of pre-season and post-season price-setting could be used, as in Burkina Faso. In Zimbabwe, sector stakeholders, during policy-engagement workshops held as part of this project, discussed the need to create a fund to stabilise prices and provide inputs. Jointly funded by government and the private sector, it would have to be managed by a multi-stakeholder taskforce whose members are drawn from all relevant stakeholder groups. The fund would cushion farmers and ginners in the event of volatility in inputs prices and in international prices of cotton lint. Within the taskforce, the voices of cotton farmers would need to be unified and strengthened to enable them to effectively lobby and advocate for favourable policies and engagement terms.
- **Transparency and verifiable farmer databases.** The contract-farming model can work only if transparency is improved and verifiable databases are created. This would allow the sectors to identify occurrences of side-trading in the short to medium term. In Zimbabwe, the Agricultural Marketing Authority (AMA) has been trying to maintain a database based on submissions of registers by cotton companies, but the databank has not been sufficiently comprehensive for use.
- **Improved multi-stakeholder representation.** A Cotton Board, or a reformed and well-capacitated regulatory body that enforces regulations and standards, with the authority to revoke licences, would demonstrate that sector institutions are working for everybody. Cotton-specific commodity associations in the market and representation in policy (for example, via the Cotton Association of Zambia) should be supported to foster a balance of power among ginners, producers and policymakers. This would help ensure that farmers' interests and rights are taken into consideration (Staritz and Tröster 2015).

² This would require the presence of a single body that has responsibility for marketing the entire cotton crop. Such a body would not necessarily need to be governmental; however, as demonstrated by the Ivory Coast cocoa sector – where this function is performed by a private-sector institution – it would still need to have oversight and control of the sales of the majority of the crop (Molenaar *et al.* 2017).

- **Government support to the sector should encourage competition.**

Stakeholders in the dialogue workshop in Zimbabwe supported the idea of input subsidies being made available to cotton farmers. They condemned the bias of the recently established subsidy programme, however, which they considered anti-competitive (since farmers are required to sell to the government-owned Cottco if they obtain inputs through the subsidy programme). Government support through public funds should be administered in a way that encourages competition among players towards improved service delivery. Under the current arrangement in Zimbabwe, private ginners are crowded out as a result of government's involvement in marketing. Farmers may also suffer the inefficiencies of distorted markets by receiving lower prices.

- **Adjusted incentive structures for field staff, and more accurate methodologies for forecasting harvested volumes.** These improvements can reduce reliance on side-buying to achieve targets. It is also necessary to introduce punitive measures at the field-agent level (to deter field agents from engaging in side-buying) to complement those at the company level.

- **Alternatives to cash payments.** While immediate cash payments are important to farmers, cash payment can fuel side-selling, and undermine quality by preventing grading. The sector should consider administering cash payments either through a quick and transparent process of payment within a 3–4 day window (to allow the company to check the quality of seed cotton bought, with premiums being paid according to quality), or with a two-stage cash payment, with the second payment contingent on quality. An e-payment system currently piloted in Zambia is a possible solution.

Option 2: An open and competitive market

An open market would mean a departure from the current institutional model of contract farming to one where 'free' farmers can access inputs directly from the national marketing body or from the open market, and sell their cotton harvest to their ginneries of choice. Ginning companies then compete to be buyers of choice rather than through enforcement of contracts. In this scenario, informality becomes irrelevant. The main risk is a significant decrease in cotton production if inputs are no longer pre-financed and private extension services no longer delivered – with implications for productivity and natural-resource management. An open market should not be confused with an unregulated market. Regulations are necessary to oversee the provision of inputs and services, and facilitate the market; otherwise an open market will be outperformed by contract farming in key indicators of productivity and quality (Staritz and Tröster 2015). The following is needed for an open market to be successfully instituted:

- **Strong input and credit markets.** Governments must ensure that the building blocks for strong input and credit markets are in place, so that processing firms and farmers have less need for contract farming to access quality inputs, especially seeds. The development of alternative financing options for farmers remains a key challenge in helping farmers become more independent. The usual challenges persist around such factors as collateral, accessibility, lending risk and transaction costs for smallholders, though group acquisition of inputs and improved marketing arrangements can overcome some of these obstacles.
- **Generation of revenues at the sectoral level.** For sustainable development of an open market that works for all, it is essential to generate revenues at the sector level rather than to rely on donors or lead firms for individual value-chain projects. The generated revenue must be re-invested in the strengthening of input and credit markets and provision of extension services, as well as market management and promotion (including mechanisms that determine the basic rules on trade, prices, quality, traceability and sustainability). Management of these funds has to be efficient, free from corruption and at arm's length from government. Several models from other sectors illustrate how sector-based financing of service delivery can be achieved. A revenue-generation mechanism is already in place in both the Zambian and Zimbabwean cotton sectors through a collection of levies on every kilogram of seed cotton bought and ginned, though many farmers and key informants find the revenue inadequate to carry out sector-wide support programmes for farmers and promote long-term development of the sector. Review and revision of the levy is needed to raise sufficient funds for boosting the authority and capacity of the Cotton Board in Zambia.
- **Adequate record-keeping and evidence.** A successful transition from contract to 'free' commodity markets, as outlined above, is constrained by a lack of case evidence globally. In-depth research on other export commodities in developing-country settings should be conducted to offer guidance on how this transition can best be managed, for example, where an integrated national marketplace can manage problems of price discovery (including by-products), price-risk management, financial inclusion and access to quality inputs.

Neither option can be achieved without sector alignment, coordination and accountability. The sector must set a vision for its development, align the key stakeholders behind it and organise accountability around investments and commitments. It is crucial to listen to the voices of smallholders and their associations in policy-making. Continued tracking of progress in the two countries – which appear to be taking very different routes to formalisation (one by further strengthening the contracting system, the other by challenging this institutional arrangement altogether) – is also important and could provide useful lessons for other countries and sectors in a similar position.

Aside from specific recommendations for Zambia and Zimbabwe and their respective approaches to formalisation, our research sheds light on drivers of side-trading which may be relevant to other sectors or value chains that utilise contract farming as their dominant institutional arrangement. The most significant drivers include farmers' cash needs – especially for food and school fees – and perceptions of unfairness in regard to contracting terms (regarding the costs and quality of inputs, or perceived collusion over pricing), as well as ginning overcapacity, which leads to significant competition among cotton ginners (and field agents) to procure cotton. Failure to acknowledge and address these drivers will lead to a failure in specific business models that rely on contract farming – or failure of entire sectors in the face of growing competition.

Acknowledgements

This work was supported by the UK Economic and Social Research Council and the Department of International Development through the project 'Natural Resources, Rural Poverty and China-Africa Trade: Equity and Sustainability in Informal Commodities Value Chains' [ES/M00659X/1] and Danida (Denmark), Irish Aid and Sida (Sweden).

IIED, IAPRI, and AEPRIC would like to thank the numerous people who dedicated their time to participate in this research as key informants, interviewees and focus group participants – especially farmers and industry representatives. We'd also like to thank all the stakeholders who participated in two workshops to verify our findings and discuss policy implications and ways forward.

We would like to thank colleagues from CIFOR (Centre for International Forestry Research), and Zambia and Zimbabwean and sector experts for their reviews of this research, including Mr. Bbebe Nchimunya, Godfrey Mutsiveri, Richard Mambeva, and Collins Chihuri.

Abbreviations

ACTIF	African Cotton and Textile Industries Federation	ESACO	Eastern and Southern African Cotton Organisation
ACVAZ	Association of Cotton Value Adders in Zimbabwe	FACHIG	Farmers' Association of Community self-Help Investment Groups
AEPRIC	Agricultural Economics, Policy Research and Information Centre	FCPA	Federal Cotton Producers Association
AICB	The Inter-branch Cotton Association of Burkina Faso	FGDs	Focus group discussions
AGRITEX	Department of Agricultural, Technical and Extension Services	FSG	Fertiliser Seeds and Grain Company
AMA	Agricultural Marketing Authority	IAPRI	Indaba Agricultural Policy Research Institute
ARDA	Agricultural Rural Development Authority	IIED	International Institute for Environment and Development
CBPs	Common buying points	KIIs	Key Informant Interviews
CBZ	Cotton Board of Zambia	MAMID	Ministry of Agriculture, Mechanization and Irrigation Development
CCPC	Competition and Consumer Protection Commission	MFGPC	Mumbwa Farmers Ginning and Pressing Company
CEEC	Citizen Economic Empowerment Commission	PACRA	Patents and Companies Registration Agency (PACRA).
CFU	Commercial Farmers Union	PPP	Public-private partnership
CGA	Cotton Ginners Association (of Zimbabwe)	PPRI	Plant Protection Research Institute
CIDPs	Common inputs distribution points	RALS	Rural Agricultural Livelihood Survey
CMiA	Cotton made in Africa	RDCs	Rural District Councils
CMTC	Cotton Marketing Technical Committee	SSA	Sub-Saharan Africa
CPMA	Cotton Producers and Marketing Association	ZCFU	Zimbabwe Commercial Farmers Union
CRI	Crops Research Institute	ZCGA	Zambia Cotton Ginners Association
CSO	Central Statistics Office	ZFC	Zimbabwe Fertilizer Company
CSRI	Chemistry and Soils Research Institute	ZFU	Zimbabwe Farmers Union
CTC	Competition and Tariff Commission	ZMW	Zambian Kwacha
DACO	District Agricultural Coordinators (of Zambia's Ministry of Agriculture)	ZNFU	Zimbabwe National Farmers Union
DR&SS	Department of Research and Specialist Services	ZIMRA	Zimbabwe Revenue Authority

Boxes, tables and figures

Box 1: Typology of cotton sector's market organisation	26
Box 2: E-payment via mobile payments	54
Box 3: Alternative buying structures: the case of Cargill	56
Box 4: Zambian government support for the cotton sector	65
Box 5: Summary of governance gaps in Zambia that determine levels of informality in the sector	67
Box 6: Chinese FDI in Zimbabwean Cotton	77
Box 7: Summary of governance gaps in Zimbabwe that determine levels of informality in the sector	98
Box 8: 'Free' cotton in Zimbabwe	144
Box 9: Cotton price-setting in Burkina Faso	145
Table 1: Numbers of farmers listed and sampled, Zambia	33
Table 2: Study areas and gender participation in focus group discussions, by district	34
Table 3: Institutions and number of key informant interviews	35
Table 4: Key informants interviewed	37
Table 5: Study sites and gender of participants	39
Table 6: Sample selection and size	40
Table 7: Cotton ginning companies in Zambia, 2014–15 season, ranked by ginning capacity	49
Table 8: Farmers' income options in Gokwe and Sanyati, Zimbabwe	72
Table 9: Cotton ginning companies in Zimbabwe from 1994–2015	76
Table 10: Drivers of side-trading, Zimbabwe and Zambia	102
Table 11: Relative intensity of cotton side-selling in Zambia and Zimbabwe from 2009–15 as estimated by farmers in FGDs	103
Table 12: Reported side-selling incidence from household surveys in Zambia and Zimbabwe (mean % households)	103
Table 13: Correlation between side-selling and selected farm household variables, Zambia (Spearman's rank correlation)	106
Table 14: Correlation between side-selling and selected farm household variables, Zimbabwe (Spearman's rank correlation)	107

Table 15: Production, productivity, farm size and value of crop sold of side-sellers and non-side-sellers, Zambia	108
Table 16: Production, productivity, farm size and value of crop sold of side-sellers and non-side-sellers, Zimbabwe	109
Table 17: Reasons for side-selling seed cotton reported by side-selling farmers in Zambia, 2014–15 season (n=34)	112
Table 18: Reasons for side-selling seed cotton reported by side-selling farmers, Zimbabwe, 2014–15 season (N=50)	112
Table 19: Reasons for farmers' dissatisfaction with their contracted ginners in 2014–15, Zambia (N=111)	114
Table 20: Reasons for farmers' dissatisfaction with their contracted ginners in 2014–15, Zimbabwe (N=158)	114
Table 21: Prices of contracted inputs for 2011–12 and 2014–15, Zimbabwe	120
Table 22: Main uses of income from side-selling, 2014–15 season Zambia (N=34)	124
Table 23: Main uses of income from side-selling, Zimbabwe (N=100, across all seasons)	124
Table 24: Farmers' perceptions of the negative consequences of side-selling in Zambia (N=67)	129
Table 25: Farmers' perceptions of the negative consequences of side-selling in Zimbabwe (N=71)	129
Figure 1: The dimensions of formality in the agricultural sector.	24
Figure 2: Zambian cotton value chain, 2014–15 season	44
Figure 3: Farm enterprise per cent share of income contribution to household economy, Zambia	46
Figure 4: Seed-cotton production trends in Zambia, 2007–2016 (metric tons)	47
Figure 5: Major cottonseed producing districts of Zambia (metric tons, 2014–15 season)	48
Figure 6: Generalised operational structures of ginning companies in Zambia	51
Figure 7: Zambian cotton institutions and their interactions	58
Figure 8: Zimbabwean cotton value chain	69
Figure 9: Seed-cotton production trends in Zimbabwe, 2009–16	73
Figure 10: Major seed cotton producing districts of Zimbabwe (metric tons, 2014–15 season)	74
Figure 11: Trends in cotton contracting by companies (2010–16), Zimbabwe	78
Figure 12: Generalised structure of ginning companies' employees and field-level representatives, Zimbabwe	79
Figure 13: Regulatory framework of cotton production and marketing in Zimbabwe	87
Figure 14: Trends in side-selling and cotton prices, 2013–15 seasons, Zambia	115

Figure 15: Relationship between incidence of side-selling and price of seed cotton, Zimbabwe	115
Figure 16: Reasons for farmers not to side-sell after being approached by a non-contractor, Zambia (N=50)	126
Figure 17: Reasons for farmers not to side-sell after being approached by a non-contractor, Zimbabwe (N=99)	127
Figure 18: Vicious cycle of informality and underinvestment	142
Figure 19: Degree of informality between contract farming and free markets	143

Introduction

The informal economy is significant in size and expanding across sub-Saharan Africa (SSA) (IIED 2016). Indeed, informality is the norm in SSA economic activity. It supports some of society's most vulnerable members: women, youth, and the rural poor. Particularly in agriculture, informal production and trade sustain the majority of farmers; a significant proportion of households across SSA rely on informal networks to access markets both for sales and consumption. The success of African agriculture in meeting the food demands of rapidly growing and urbanising populations is largely due to dynamic networks of informal trade (Allen and Heinrigs 2016; Vorley and Lançon 2016). Beyond farmwork, informal economic activities such as artisanal mining and small-scale logging also provide key off-farm employment for rural households. Non-farm work now accounts for a third of the average rural household income in SSA and is thus central to rural economic transformation (Davis *et al.* 2017).

Yet compared to its urban counterpart, the rural informal economy has been underserved by both research and policy (Weng 2015). Common definitions of the informal economy, for instance, as economic activity that is not subject to government regulation, taxation or observation (Schneider 2002), or as unincorporated production units (ICLS 1993), are not always useful in describing the rural economy that includes agriculture and its wider linkages. Hitimana *et al.* (2011) call for a more holistic view of the informal economy that takes into account its primary, secondary and tertiary sectors, its urban and rural components, and the complex interweaving of informal and formal activities. From this perspective, the informal economy provides 85–90 per cent of all employment in the West African region and about 64 per cent of the GDP across SSA (Charmes 2012).

In this paper, we explore informality as gaps between policy and practice in the agriculture sector. In the case of contract farming specifically, we uncover the gaps between the formal rules prescribed by regulatory authorities and companies and the actual behaviours of farmers and companies on the ground. This lens allows us to draw attention to the high transaction costs of formal policies that often exclude small-scale economic actors – farmers, loggers, miners or urban food sellers – from formal economic activities (Perry *et al.* 2007). Alternatively, if small-scale actors perceive the benefits derived from compliance as too low vis-à-vis their inputs of labour, capital or time, they may exercise their own agency and choose to 'exit' the formal economic activities (*ibid.*).

Informality poses significant challenges to development policymaking (Benson *et al.* 2014). Frequently associated with negative outcomes, informality is considered to undermine the performance – in social welfare, tax revenue, human and environmental health, investment climate, competitiveness and governance – of key parts of the economy in mining, forestry, trade and vending.

Research on both the positive contributions of informal economic activities and their negative impacts on people and the planet is a priority for effective policymaking in low- and middle-income countries. Evidence on the drivers and impacts of informality is scarce, in part due to their unregulated and unobserved nature but also because of an urban bias in informality research. As a result, rural informality in particular is often excluded, misunderstood or ignored in both research and policy-making. Policy approaches in many agricultural sectors have either ignored informality or misunderstood its nature.

This research focuses on informal trade in cotton – a crucial agricultural sector – in Zambia and Zimbabwe, and its impacts on economic, social and environmental performance. These countries have historically been two of the biggest exporters of lint in southern and eastern Africa.

Informal trade is framed in our research around side-trading of cotton outside of contracts between farmers and processors (cotton ginners). As contract farming is the dominant institutional model for cotton production in both countries, addressing side-trading is an important policy issue. Side-trading has been blamed for disrupting the formal institutional arrangement, triggering the demise of entire sectors and causing the withdrawal of some long-established players. Accusations of side-trading have also taken on an ethnic dimension, with newer entrants to the market – especially Chinese investors – singled out for destabilising cotton sectors through short-termist and opportunistic business practices, including side-buying cotton contracted to other companies and manipulating figures of the number of farmers they had under contract (*The Standard* 2011).

Our methodology, with lenses of value chain, political economy and livelihoods, produces a comparative analysis of the cotton sectors in Zimbabwe and Zambia. This analysis spotlights the drivers of informality as well as the short- and long-term trade-offs for livelihoods, environment and sector performance. We offer recommendations for possible approaches that recognise the nature of informality, mitigate against its negative impacts and inform the design of policies and institutions for more inclusive approaches to formalisation.

The research is based on 125 key informant interviews with sector experts in Zambia and Zimbabwe – including producers and their associations, traders, ginners and their associations, various levels of government, NGOs and donors. We also conducted a survey of 200 cotton-farming households in each country, as well as focus group

discussions (11 in Zambia and 8 in Zimbabwe) with cotton farmers. The analysis is also informed by review of the grey and academic literature.

This report is structured as follows: background is provided on contract farming and cotton farming in Africa, followed by a section on the research methodology used in Zambia and Zimbabwe. Our findings are presented in three sections: value chain and sector structure and governance, drivers of informality and consequences for sector performance. We conclude by summarising our findings and discussing two potential options for sector reforms to achieve better outcomes for livelihoods, environment and sector development.



Cotton growing in a villager's field, Mecehuri Forest Reserve, Mozambique.
Credit: Mike Goldwater, May 2010.



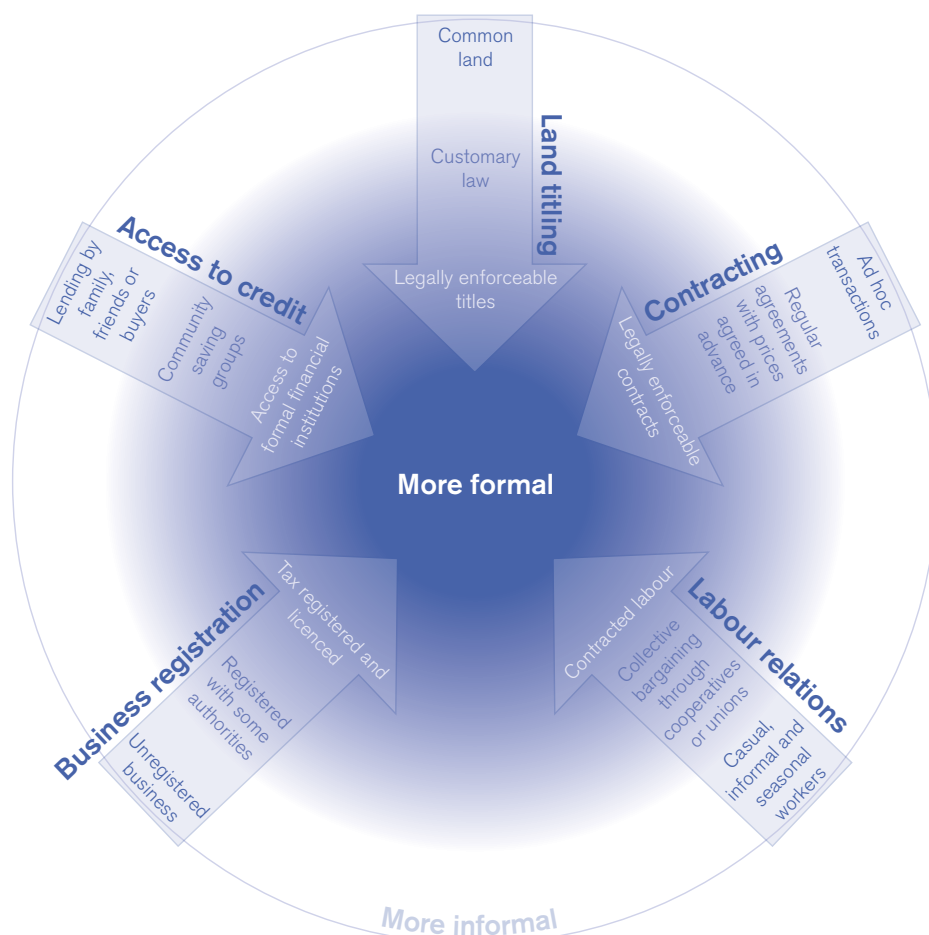
1

Background

1.1 Contract farming and informality

Both Zambia and Zimbabwe have adopted contract farming as their model of cotton production, as have at least six other sub-Saharan African countries. Contract farming is the dominant *formal* production model in many export-commodity sectors in sub-Saharan Africa and represents an important aspect of formalisation of smallholder agriculture, along with such aspects as business registration and land titling (White and Aylward 2016; Figure 1). A transition to greater formality is seen by policymakers as positive for smallholder farmers and agri-businesses, promising improved access to higher-value markets, access to credit and welfare of workers. Contract farming is presented as an alternative to modernisation of agriculture that does not require a shift of production to large farms or plantations.

Figure 1: The dimensions of formality in the agricultural sector.



Source: White and Aylward (2016)

The contract model de-risks both farmer and ginner investments in production. The contract enables farmers to invest in land and labour (and potentially reduce food production for the household), because access to inputs (seed, chemicals and extension services) and market is secured. The contract, by ensuring a secure supply, also makes it safe for processors and exporters to pre-finance inputs and service delivery. This allows them to use processing capacity optimally and therefore receive a return on their investment.

Contract farming has its costs, particularly those associated with establishing and enforcing contracts, as well as with organising the farmers. Costs are easier to recoup when the contracting company is a monopsony buyer of the product (Smalley 2013) or is sheltered from competition by other protections such as remote geographical location (Tyler and Dixie 2012).

Stronger competition creates incentives for opportunism by cash-strapped farmers, traders and the processors themselves. Increased competition allows companies to exploit the benefits of contract farming without making the investments, by free-riding on other companies who do invest and/or by using political connections to avoid regulatory compliance. This can lead to a growing informalisation of trade and less effective functioning of the formal governance of contract farming, to the point that the market heads in the direction of de-facto open and competitive trade. Side-trading is one of the most common problems associated with the weakening of formal institutions and norms set up for contract farming across multiple commodities (Minot 2011). Contract-farming schemes have a relatively high rate of failure and high farmer dropout rates. Much effort thus goes into recruiting replacement farmers each season, which increases the costs for contracting firms (Vorley *et al.* 2015).

1.2 Cotton in African agriculture

Cotton is one of the most important cash crops in SSA, where it is grown by some of the poorest rural households. Cotton supports more than 2.5 million livelihoods, and is an important export crop and source of foreign-exchange earnings (CMiA 2017). In SSA, rain-fed and (relatively) low-input cotton farming is predominantly undertaken by smallholders as part of cropping systems that mix food crops and cash crops. The largest cotton producers in SSA are Burkina Faso, Mali, Côte d'Ivoire, Benin, Cameroon, and Tanzania (ICAC 2015). While 37 out of 55 African countries produce cotton, the continent contributes to only around 5 per cent of global production and 11 per cent of world trade (ITC 2013).

Yields of cotton lint in Africa are low and declining, averaging 355kg/ha in 2011–12 for the entire continent and 229kg/ha for Eastern and Southern African (ITC 2013). The domestic textile industries collapsed after liberalisation, and the value addition of cotton lint is very limited; most production is exported as raw lint to Asia. The fibre quality of most of the cotton lint from Africa is categorised as medium-high, although high levels of contamination have a negative effect on the reputation and pricing of African cotton lint. SSA cotton producers are usually price-takers on the world market due to relatively low volumes and – particularly in Asian markets – the perception of poor quality. Low prices are exacerbated by production subsidies in China and the USA, which distort world prices and make it difficult for African suppliers to compete (ITC 2013). Global cotton-supply chains are generally highly fractured, with retailers disconnected from production.

Most of the cottonseed is used for edible-oil extraction and animal-feed production, typically domestically, while lint is usually exported in large bales to spinning mills for yarn manufacture (CMiA 2017).

As with many agricultural commodity sectors, cotton markets in SSA were managed by state-owned and quasi-governmental institutions until the late 1980s or early 1990s. These institutions partially isolated farmers from the volatility of global commodity markets, but also served as instruments of taxation and rent-seeking (Gibbon 2001; Porto *et al.* 2011).

Reforms in the 1990s liberalised markets to different extents. Tanzania pursued the greatest degree of deregulation, though it is now in the process of introducing contract farming against significant headwinds. Zambia and Zimbabwe followed what Tschirley *et al.* (2010) refer to as a 'concentrated market-based' system and Peltzer and Röttger (2013) call a 'concentrated competition' system. In this system, a parastatal was privatised into an oligopsony of private cotton companies, so that farmers can choose the cotton company with which they wish to enter a contract (Box 1).

Other countries, especially in West Africa, have held on to a state-managed, single-channel marketing system (Cameroon, Mali, Chad and Senegal). Benin has evolved from a national monopoly to a competitive system, while Ghana has gone in the opposite direction, from a competitive system to a monopoly, and Uganda has shifted from a competitive to a hybrid system. Outside Africa, India (one of the world's largest cotton producers) follows a competitive market-based organisation, with many actors participating in the value chain. Uzbekistan, on the other hand, has a highly regulated non-competitive system that has confronted a number of performance challenges.

Box 1: Typology of cotton sector's market organisation

According to Poulton and Tschirley (2009), the typology of the market organisation of the cotton sector can be determined based on whether competition is allowed and on the number of cotton buyers. Using this framework, five classifications of market organisation can be defined and described as follows:

1. **Competitive system:** Market-based; many buyers, with competition allowed in the purchase of seed cotton.
2. **Concentrated system:** Market-based; few buyers, with competition allowed in the purchase of seed cotton.
3. **National monopoly:** Regulated; competition not allowed; one buyer.
4. **Local monopoly:** Regulated; competition not allowed; one buyer assigned for each specific geographical area of trade.
5. **Hybrid system:** Regulated; competition not allowed; more than one buyer, without specification of geographical location.

1.3 Cotton, contracts and informality

Contract farming is the post-liberalisation model of cotton production in Benin, Burkina Faso, Mali, Mozambique, Nigeria and Tanzania, and is the dominant institutional arrangement in Zambia and Zimbabwe. Contract farming in cotton usually takes the form of a one-season contract between small-scale producers and ginneries (generally with in-country ginning facilities), with seeds and other inputs provided on credit as part of the contract. The typical contract agreement provides for input costs to be recovered from the value of cotton later supplied to the ginner, although the level of detail in these contracts varies from ginner to ginner and from agreement to agreement. In the typical cotton contract, the farmer commits to selling exclusively to one specific (contracted) ginner.

Contract farming is seen by some competition authorities as anti-competitive because of the risk of monopsony abuses. Cotton ginneries have been accused of using contract farming to run a cartel, and there have been calls to open up the market to give farmers freedom of choice about where to sell, including in Zimbabwe and Zambia.

Informality in cotton contract farming most often takes the form of side-trading outside of contractual agreements – side-buying of cotton by ginneries and traders from farmers they have not invested in, and side-selling by farmers outside of their contracts. Our research has focused on informality at this node of the value chain – between primary producers on one side and ginneries and their representatives (field agents) on the other.

Informality also exists beyond the trading relationship between producers and ginneries/ginneries' representatives, though this is mainly beyond the scope of this research. This includes collusion between companies (on price-setting for cotton or inputs), co-option (for example, of farmer representatives by ginneries to support their interests rather than those of the farmers), tax avoidance and political favours (through informal or corrupt practices allowing for easy entry into the market and 'smoothing' of business activities). According to a key informant who works with one of the ginning companies, some ginneries in Zimbabwe engage in tax evasion through reporting incorrect production and financial figures. These informal (and illegal) practices have reportedly been carried out by a number of different players, at least in the early days of their investments. In Zambia, side-trading might similarly offer an opportunity to underestimate production figures in order to avoid paying accurate levies required by the Cotton Act, although this is an area that requires further interrogation. In 2015, China Africa Cotton in Zimbabwe was reportedly fined half a million US dollars for tax fraud. This case was brought after managers who were fired from the company disclosed the company's private dealings. The Zimbabwean government-linked cotton company Cottco has faced recurrent allegations of financial mismanagement, with the CEO being fired in September 2016 for misappropriating funds for personal use (Kadzere, 2016).

The case of cotton challenges the dichotomy often perceived between the formal and informal economies, as formal and informal trades overlap within the same chains. The ginners that side-buy also engage in formal contracting, though the rate of occurrence of each of these practices may change from season to season depending on competition for supply, international prices and the effectiveness of regulatory enforcement. Cotton that is side-traded also ends up in formal chains before being exported.

Contract farming in Zambia and Zimbabwe is backed up by national legislation enforcing the contracts. Side-trading is illegal. But enforcement and monitoring of contracts can be difficult where judicial systems are weak, governance and enforcement are poor, and the number and geographical dispersion of producers are high. In addition, a clear-cut distinction between illegal and legal trade may be inadequate in instances where farmers sell enough cotton to the contracting ginner to match the estimated value of inputs they received on credit, but sell any cotton beyond that value to other buyers. There is also a lack of clarity over the extent to which ginners have rights over farmers' cotton crops if they have provided substandard or insufficient quantities of inputs. Thus, a spectrum of legality exists within the regulatory environment of contract farming.

As early as 2007, the Zambian government/regulators warned that side-trading was undermining the sector. During the 'Save Zambia's Cotton Industry' campaign, launched in June of that year, Agriculture Minister Ben Kapita told the ginners who were buying cotton they had not financed to immediately discontinue the practice, as it was destroying the industry (Zinyama 2007).

The cotton sector has become especially challenging in the past five years, with falling international and subsequently domestic prices, reduced supply, increased competition, chronic ginning over-capacity and increased side-selling. The ensuing chaos has precipitated a decline in production quantity and quality, and an erosion of investor confidence. Established companies that tend to adopt long-term business strategies have struggled to recoup their investments.

The exit of Cargill, one of the largest and longest established cotton companies, from the cotton sector in Zimbabwe in 2014, and from Zambia in 2017, is indicative of these growing challenges and their impact on sector performance and investment climate. The company, which had contracted around 20,000 farmers in Zimbabwe, stated that in recent years it had been affected by "over-capacity among ginners, shrinking margins, high levels of farmers' credit defaults and side marketing (farmers selling to competitors and not honouring contracts). These have impacted the company's ability to operate profitably and resulted in substantial losses. It has become clear that we cannot continue to operate with our current model" (Kadzere 2014). The company had tried to maintain high standards of input packages to farmers (both in quality and quantity) despite increasing competition and declining loan recovery levels.

In 2015, the Zimbabwe government came to the rescue (via the Zimbabwe Asset Management Corporation) of the other large player, Cottco, after talks with the China-Africa Development Fund had collapsed. The government took over Cottco's debt of US\$56m and increased its stake in the company from 16 to 65 per cent. The turmoil in sector governance has also caused problems for sustainability programmes such as Cotton Made in Africa (CMiA). In 2015, it emerged that Tanzania's pilot schemes of contract farming in the 2011–12 farming season had been severely undermined by side-selling (Masato 2015).

Understanding the links between informality and sector performance, as well as the possible governance approaches and alternatives that exist, is of critical importance to improving sector performance including farmer livelihoods, investor confidence, the contribution of cotton production and trade to economic resilience, and environmental sustainability. This research is also important to challenge existing rhetoric which has sometimes made allegations of side-selling along ethnic lines, for instance concerning the role of Chinese companies in driving informal trading. A separate paper will be published to present our findings on the role of Chinese companies in Zimbabwe's and Zambia's cotton sectors.

2

Methodology and analytical framework

The research used a mix of qualitative and quantitative methods to build a systemic understanding of how the sectors in Zambia and Zimbabwe are structured and governed, why and how informality occurs, how informality impacts farm households and performance of the cotton sector as a whole, and what appropriate policy responses would look like.

2.1 Research framework: analytical lenses

The research was guided by the following two hypotheses:

- 1) Informal commodity chains result in higher positive livelihood impacts for small-scale operators than alternative livelihood options.
- 2) Informal commodity chains come with multiple trade-offs (such as livelihoods, the environment, public revenue, and sector performance).

Informality in this research is defined as:

- 1) Small-scale farmers selling cotton to buyers other than those with whom they have contracts. Different 'types' of side-selling exist however, as discussed further below.
- 2) Ginners or their agents buying from small-scale farmers who are contracted to other buyers, and the buying of cotton by non-registered ginners/traders.

Three main analytical lenses were used to guide our research. These include:

- 1) **Value-chain analysis:** this lens enabled us to map the value chain, namely, identification of the key players, how they operate (informally or formally, and what business models are employed), how they relate to one another, and the distribution of value throughout the chain (understood qualitatively). We sought to understand the balance of power between players in the supply chain, and how it impacts informality. We achieved this through reviews of the existing literature and key informant interviews, in some cases supplemented by data provided by household surveys and focus group discussions.
- 2) **Political economy analysis:** this lens sheds light on how the cotton sectors in Zambia and Zimbabwe are governed. Who sets the rules, and what are their underlying incentives and interests? Who makes key decisions, and how does this shape the behaviour of others and ultimately determine the dominant institutional arrangement of contract farming? How do these decisions and the power of different players determine the nature of policy-practice gaps and the emergence of informality, as well as the subsequent impact on the performance of the cotton sector? This analysis was achieved primarily through reviewing existing literature and conducting key informant interviews.
- 3) **Livelihoods impact analysis and qualitative environmental impact analysis:** this lens sought to reveal the outcomes of the interaction between the value chain and its political economy at the household level, and on sustainability. It also aimed at giving a clearer picture of the trade-offs incurred in different systems/forms of trade. There may, for instance, be trade-offs involved in engaging in either informal or formal trade – in informal trade, there may be higher prices in the short-term for farmers, but decreasing investment in the sector in the medium/long-term. Such evidence can improve our understanding of the possible consequences of policy approaches and formalisation efforts. The relevant information was collected via household surveys and focus group discussions.

A mix of qualitative and quantitative methods was used to probe the issues and triangulate research findings. Three primary research methodologies were used, with a piloting period at the start to test the likely effectiveness of the intended research approach. Methodologies included: 1) key informant interviews (KIIs); 2) focus group discussions (FGDs); and 3) household surveys of cotton-farming households. In addition, we reviewed the existing literature to inform the context of the research (such as the history and performance of the sector), map key players, construct research questions and design piloting.

Budget and time constraints limited the ability to cover larger samples/geographies and to use counterfactuals, as discussed in more detail below.

2.2 Zambia: research methodology

Two districts in Zambia's Eastern Province, Chipata and Lundazi, were selected for the survey. This selection was based on the intensity of cotton production there in terms of quantity, the number of farmers engaged in cotton production and the presence of a wide range of cotton companies. This was determined using data from the Rural Agricultural Livelihood Survey (RALS) 2015 (Chapoto and Zulu-Mbata, 2016)³ and ginning companies' area of operations as listed by the Cotton Board of Zambia (CBZ).

Seven 'agricultural camps'⁴ representing various geographical areas from the chosen districts were selected. To ascertain that these agricultural camps have a high rate of side-trading, the research team interviewed ginning company representatives and the Cotton Board inspector. In Chipata, three agricultural camps were selected: Chinunda, Kalichero and Chipangali. In Lundazi, four agricultural camps were chosen: Boyole, Mwase-Lundazi, Chikomeni and Lumezi.

Sample selection

In order to draw a sample of farmers to interview from the selected camps, the research team intended to use the list of farmers provided by the Cotton Board of Zambia. The list had significant shortcomings, however, as some of the villages were missing in the dataset, ruling out this approach. Instead, the research team used the list of farmers relied on by field agents⁵ when recruiting farmers.

With regards to sampling design, 50 per cent of non-side-sellers and 50 per cent of side-sellers of seed cotton were supposed to be interviewed at each selected camp. Owing to the intentions of the study – to understand the reasons behind informality's manifestation in the sector, the drivers of informality and the consequences of side-selling – it was necessary to ensure a reasonably sized sample of side-sellers. This in turn means that there is positive selection bias in the results: the rates of side-selling should not be considered to be representative.

Data collection in the field was done as follows: a list of 1,195 cotton farmers who had planted cotton in the 2014–15 agricultural season was compiled using lists provided by the field agents from all seven camps. This was followed by a random selection of 25 households to be interviewed. Where it proved difficult to find side-selling households, additional randomly selected households were added, up to a maximum of 40 households

³ RALS is the rural households survey conducted by the Ministry of Agriculture, Central Statistics Office and the Indaba Agricultural Policy Research Institute in 2015.

⁴ An agricultural camp is the lowest administrative area through which development programmes (such as agricultural extension services and input provision) are channelled in Zambia. Agricultural camps are headed by Camp Extension Officers (CEO).

⁵ Field agents are engaged by ginning companies to recruit farmers to grow cotton for them. They are paid commissions based on loans recovered and on the volume of seed cotton purchased at the end of the season.

per camp. A total of 200 households who had planted cotton in the 2014–15 agricultural season were surveyed from 17–30 April 2016. The numbers were deemed sufficient to produce representative statistics for the sampled area, though not for the entire cotton sector.

Table 1: Numbers of farmers listed and sampled, Zambia

Camp	Total number of cotton farmers listed (A)	Number of farmers sampled by camp (B)
Chinunda	197	40
Kalichero	167	30
Chipangali	202	30
Boyole	198	25
Mwase-Lundazi	111	25
Chikomeni	150	25
Lumezi	170	25
Total	1195	200

Author compilation

Household survey

All of the 200 farmers included in the survey were cotton farmers who had planted cotton in the 2014–15 agricultural season. Household data collection was done between 17 April and 30 April 2016. The full questionnaire can be found in Annex 1.

Focus group discussions

Focus group discussions (FGDs) were conducted with farmers within a camp area. The field agents working on behalf of specific ginning companies were used to recruit focus-group participants in order to represent all ginning companies operating within the area. Each focus group comprised a minimum of 15 farmers including at least 2–3 farmers from each company. In some cases, one or two farmers appeared in both FGDs and the households survey. A total of 11 focus group discussions were conducted in the two districts in Zambia.

Some focus groups were large – up to 32 participants in one group – which in part reflects our reliance on local field staff to recruit farmers, and their reluctance to exclude anyone who wanted to participate. The remoteness of some communities meant that it was difficult to plan in advance for precise numbers of participants, to ensure a balance of

gender and age, or to organise separate groups based on age and gender. This created the risk of more vocal and powerful farmers dominating discussions, possibly at the exclusion of female and young farmers' voices. To mitigate this risk as much as possible, the facilitator purposefully endeavoured to encourage everyone to speak, including women and young people, and allowed some flexibility with regards to the length of the discussions, allowing them to overrun if necessary.

Table 2 shows the number of FGD participants in each agricultural camp. The FGDs were carried out in parallel with the household survey data collection. The FGD guide can be found in Annex 1.

Table 2: Study areas and gender participation in focus group discussions, by district

District	Survey Agricultural Camp	Number of participants by gender		Total Participants
		Male	Female	
Chipata	Sisinje	13	2	15
	Kalichero 1	14	5	19
	Chanje	7	9	16
	Chinunda	11	8	19
	Chitandika	9	6	15
	Chanje East (Kapasa Area)	13	7	20
Lundazi	Chikomeni (Pelembé area)	17	2	19
	Chikomeni (Chikomeni central)	13	10	23
	Lumezi	13	0	13
	Boyole	29	3	32
	Mwase	20	3	23
Total		159	55	214

Author compilation

Key informant interviews

Key informants included individuals from government (the Ministry of Agriculture and Cotton Board of Zambia), the Zambia Cotton Ginners Association and the Cotton Association, and representatives of ginning companies (including field agents). Interviews were conducted with a total of 51 key informants during and after the household survey data collection. Table 3 shows the number of key informants interviewed and their affiliated institutions. All the interviewees were male, which reflects the male-dominated nature of the cotton industry at the political and primary processing level.

Table 3: Institutions and number of key informant interviews

Key Informant Type	Number	Specific Organisations/notes
Government	2	• Ministry of Agriculture, DACOs*
Regulators	5	• CBZ (production; marketing; grading) • Consumer and Competition Protection Commission (CCPC)
Researchers	2	• Quasi-government research institutes (such as the Cotton Development Trust)
Farmer association	2	• Cotton Association of Zambia
Farmers	15	• Contracted cotton producers
Ginners Association and district managers of ginning companies	17	• Zambia Cotton Ginners Association and individual ginners
Field agents	8	• 4 from Chipata • 4 from Lundazi
Total	51	

* District Agricultural Coordinators of the Ministry of Agriculture.

In addition, in order to achieve in-depth insight into field-level buying practices by ginning companies, a researcher shadowed a number of field agents and field staff linked to one ginning company.

2.3 Zimbabwe: research methodology

Sample selection

In Zimbabwe, the Gokwe North and Sanyati districts, in the Midlands and Mashonaland West Provinces respectively, were sampled for data collection. The districts were chosen because of the prevalence of cotton production (accounting for over 40 per cent of total national cotton output), varied patterns of reported informal practices (incidences of side-trading), and accessibility. In addition, all registered cotton companies operate in these districts. Within the districts, study sites were randomly selected according to demarcations for the establishment of common buying points (CBPs). Forty-four of the 106 nationally established CBPs are found within these two districts (36 in Gokwe and 8 in Sanyati). Of these 44 CBPs, 6 CBPs were randomly selected in Gokwe (Chinyenyetu, Nembudziya Central, Tsungai, Musadzi, Mutehwe and Gwebo) and 2 in Sanyati (Sanyati Central and Chirikiti). A total of eight CBPs were thus sampled in this study.

Primary data collection

Primary and secondary data were collected using both quantitative and qualitative techniques. Secondary data were obtained from institutional data banks (such as AMA and ZIMSTAT) as well as various published and unpublished reports. Qualitative data was collected using KIs with stakeholders in the cotton sector of Zimbabwe, and FGDs with small-scale farmers. The KIs were conducted before going to the field, to gain a broader understanding of informality and other pertinent issues in the sector in general and the study areas in particular. Further KIs were carried out with representatives of the cotton companies in the field to follow up on issues that warranted further investigation. Data collection through FGDs and the household questionnaire was conducted in September 2016. Further KIs involving 10 field agents affiliated to different companies, 9 ginning company managers and 9 officers from cotton regulatory institutions were conducted in the second phase of the primary data-collection process. These aimed to understand the role of the field agents of cotton companies operating in Zimbabwe as well as governance gaps in the informal resource trade (in May 2017).

Key informant interviews

A total of 74 key informants representing a wide array of stakeholders (regulators, researchers, civil society, extension officers, ginner, farmers, farmer representatives and field agents) along the cotton value chain were identified for interviews (see Table 4). The comprehensive interview guide used to solicit relevant information can be found in Appendix 1. The KIs centred around the key issues of informality in the cotton value chain, in particular the key drivers of informality and their consequences.

Table 4: Key informants interviewed

Key Informant Type	Number	Specific Organisations
Regulators	12	<ul style="list-style-type: none"> • AMA (production; marketing; grading) • MAMID (marketing; trade) • Competition and Tariff Commission (CTC)
Researchers	6	<ul style="list-style-type: none"> • Independent researchers • Academia (university-affiliated) • Quasi-governmental research institutes
Agricultural Service Providers	9	<ul style="list-style-type: none"> • AGRITEX • Department of Research and Specialist Services (DR&SS)
Civil Society	1	<ul style="list-style-type: none"> • FACHIG
Farmer representatives	10	<ul style="list-style-type: none"> • Zimbabwe Farmers Union (ZFU); Zimbabwe National Farmers Union (ZNFU); Zimbabwe Commercial Farmer's Union (ZCFU); Cotton Producers and Marketers Association (CPMA)
Farmers	7	<ul style="list-style-type: none"> • Contracted and independent cotton producers
Ginning company administrators	19	<ul style="list-style-type: none"> • Cotton Ginners Association (CGA) and individual ginners
Field agents	10	<ul style="list-style-type: none"> • Field agents linked to specific ginning companies
Total	74	

Focus group discussions

A focus group discussion with smallholder cotton producers was conducted in each selected CBP study site (six in Gokwe and two in Sanyati). The FGDs took place near the common buying points with participants numbering between 10 and 64 per FGD⁶ across the eight sites. Mobilisation of FGD participants was done through local area (ward-based) government agricultural extension workers.

The variation in the number of participants was a function of the population density in the area, the number of other meetings occurring at the same time as the FGDs, and the effectiveness of local AGRITEX extension workers to mobilise for the meetings. In Chinyenyetu, for example, where FGD attendance was very high, the local extension worker is the wife of the headmaster of a local primary school, which made it easy for her to organise farmers through the schoolchildren. Where attendance was high, an introductory session was carried out with the whole group to explain the aims of the discussion. Afterwards, the group was divided into two, with each group assigned to discuss different themes. In the last part of the session, the groups were brought back together to share main discussion points, give feedback, and probe for agreement or disagreement on key issues. The facilitators encouraged active participation from every member present, including women, the young, and elderly farmers.

The FGDs were done at the same time as the household survey. Gender representation in the FGDs was biased towards male participants (averaging 83 per cent). Female participation (averaging 17 per cent) ranged from 0 to 43 per cent (Table 5). The gender imbalance could have been due to the prevailing drought conditions at the time, which forced women to travel longer distances in search of water and food aid for the household, making their attendance at FGDs more difficult.

⁶ Mobilisation of FGD participants was done through local area (ward-based) government agricultural extension workers. Because of the topicality of cotton-marketing issues, the discussions generated a lot of interest – hence the large number of participants in some FGD meetings. It was difficult to prevent some farmers from taking part in the discussions without causing offence. The disproportionate attendance by men could have overshadowed female voices, though facilitators took extra care to ensure balanced contributions and participation.

Table 5: Study sites and gender of participants

District	Common Buying Point	Number of participants		
		Male N (%)	Female N (%)	Total
Gokwe North	Chinyenyetu	48 (75)	16 (25)	64
	Nembudziya Central	16 (76)	5 (24)	21
	Tsungai	37 (92)	3 (8)	40
	Musadzi	48 (96)	2 (4)	50
	Mutehwe	28 (87)	4 (13)	32
	Gwebo	10 (100)	0 (0)	10
Sanyati	Sanyati Central	19 (90)	2 (10)	21
	Chirikiti	16 (57)	12 (43)	28
Total		222 (83)	44 (17)	266 (100)

Household survey and questionnaire administration

Data on farmer registrations obtained from the Agricultural Marketing Authority (AMA), categorised by common buying point (CBP) and contracting company, was used as the sampling frame. This was found to be the most comprehensive registry/database of cotton farmers available. However, the database, which was for the 2013–14 season, was deficient in that it contained information on some farmers who had since left cotton production and shifted to other crop enterprises. In the event that such a farming household was sampled, the next cotton-growing household was interviewed instead.

From each CBP, five villages were randomly selected through simple random sampling. Five households per village were selected through systematic sampling, whereby each third cotton-growing household appearing in the AMA register was selected for interview. Table 6 presents the sample selection and size determination criteria used.

Table 6: Sample selection and size

Area	Gokwe	Sanyati	Total
Common Buying Points	6	2	8
Villages per CBP	5	5	10
Sample size per village	5	5	10
Total sample size	150	50	200

The household interviews were conducted with the prominent cotton producer of the household. Where the prominent cotton producer was not available, the second most knowledgeable (about cotton production and marketing) member was interviewed.

2.4 Data analysis and validation workshops

In both countries, similar correlation analysis and validation workshops were carried out, as detailed below.

Correlation analysis

Correlation analysis was used to measure the degree of association between side-trading and key variables related to the contractual relationship such as level of satisfaction with the actions of contractors, cost of inputs and socioeconomic characteristic of farmers (for example, months without adequate food supply). Statistical analysis F-test was used to compare livelihoods indicators (crop production, productivity and income) between side-sellers and non-side-sellers.

Validation and stakeholder-engagement workshops

In both countries (Zimbabwe and Zambia), workshops in respective research areas were held to validate research outcomes together with farmers, ginners, policy makers and other stakeholders in the cotton sector. Participants had the opportunity to review research outcomes and to comment. In addition, policy-engagement workshops were held in both countries once the final research draft was completed, to discuss possible ways forward for both countries.

2.5 Research limitations

Our research emphasised qualitative data. This was in part because the nature of the topic required it, especially in relation to political economy and value-chain analysis, where quantitative data alone would not be able to highlight more nuanced results (such as drivers, weaknesses in governance and company and farmer behaviours). Where we did seek to obtain quantitative data, however, sample sizes were particularly small when we separated out figures of farmers who had side-sold (to compare, for example, livelihood impacts with those on farmers who did not side-sell).

The questions asked and the subsequent responses required for the household survey and FGDs relied on self-reporting (regarding, for example, who had side-sold, cash and income needs, and input needs from companies). In regards to reporting cash scarcity, or lack of provision of inputs and services from ginners, there may have been a tendency to over-claim.

Given the sensitive nature of side-selling, which is technically illegal in both countries and can result in negative social and economic consequences, there may have been a tendency to under-claim, despite assurances of anonymity. Alternative research approaches (such as long-term ethnographic studies involving more discreet observations) were not possible within the available budget and timescales. Nevertheless, the willingness of people to speak openly in focus groups regarding their involvement in side-selling, and the triangulation with levels of side-selling as reported by ginners, provided the research team with confidence in the findings.

Research constraints also meant we were not able to establish counterfactuals in order to make statistically significant comparisons regarding the nature and behaviour of different traders and investors, and between producers who side-sell and those who do not.



A cotton processing facility in Eastern Zambia.
Credit: Simon Lim, 2017.



3

Chain and sector structure and governance

This section looks at the structure and governance of chains in Zambia and Zimbabwe, and at the cotton sectors overall – their institutions and policy environment. For agricultural commodities like cotton, the governance of the sector is at least as important as the governance of its component value chains in generating positive outcomes for livelihoods and the environment. Sector governance is the coordinated management of a sector as a whole which can include a collection of rules, stakeholder involvement and processes to manage for common/shared interests, determining a sector's performance. Sector governance is broader than government, covering non-state individuals and institutions, including the private sector (Molenaar *et al.* undated). This section analyses the cotton value chains, and the political economies in which those chains are

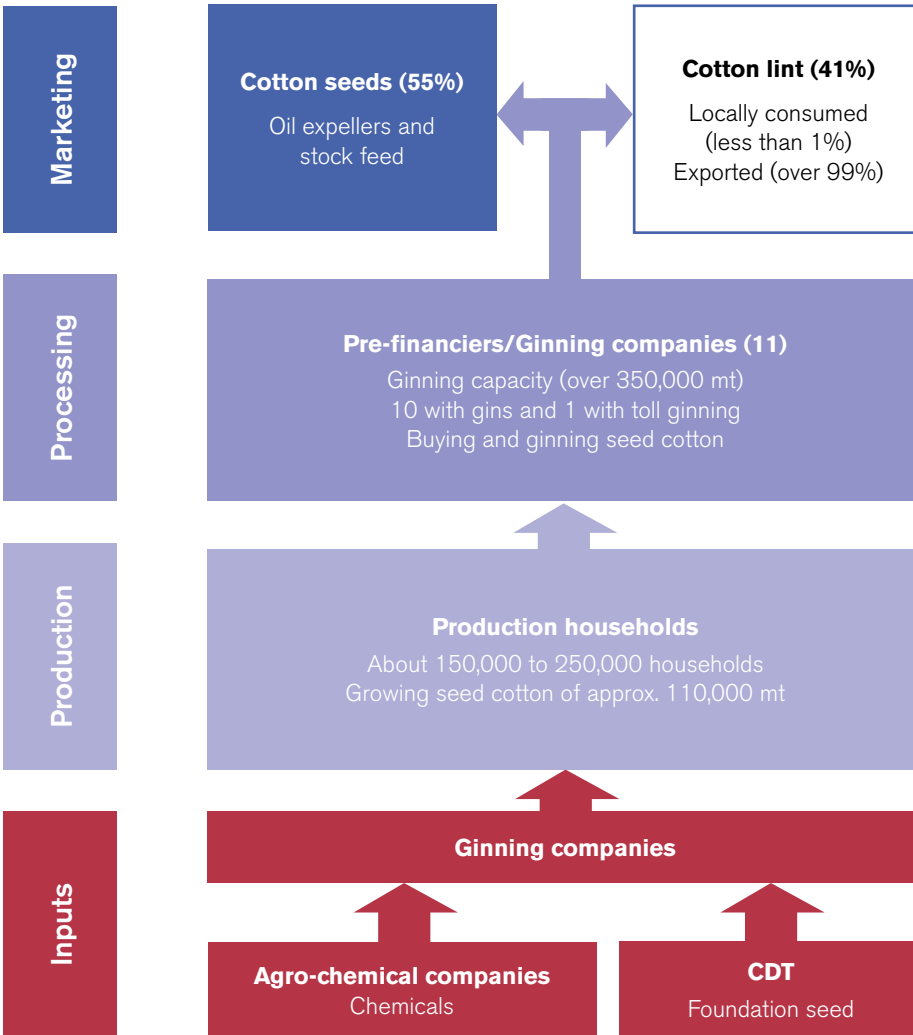
situated in each country in turn. We then summarise the key policy-practice gaps that have consequently emerged.

3.1 Zambia

Cotton value chain

The cotton value chain in Zambia is shown in Figure 2, followed by a description of each of these actors and nodes.

Figure 2: Zambian cotton value chain, 2014–15 season



Source: Authors' compilation

Inputs

The majority of cotton farmers (over 99 per cent) get inputs from ginning companies on credit under contract. The input loan is deducted from the money paid to farmers by a ginning company representative (typically field agents, as discussed later) at the time of marketing of the crop.

The source of foundation cottonseed before its multiplication by the ginning companies is the Cotton Development Trust – a government institute mandated to conduct research and produce new varieties of cotton. Farmers are not able to obtain seed from the open market, as supply is fully controlled (and retained) by the ginning companies.

Agrochemicals are sourced from local agrochemical companies and in some cases imported from companies abroad. Farmers can, in theory, buy these on the open market (instead of from ginning companies), but very few have the resources to do so (Chapoto and Zulu-Mbata, 2016). The price of chemicals offered by ginning companies is higher than the price of chemicals sold on the open market, ostensibly because ginning companies have to recover the cost of transporting the chemicals closer to the farmers. These resource constraints, and the unavailability of seed on the open market, effectively tie farmers to ginning companies – leading to allegations of a monopolisation of input provision.

In the 2016–17 season, the government allocated 155.3t of fertilisers at no cost to cotton farmers through the Farmer Input Subsidy Programme. The performance of this Programme has not been well documented and monitored. Anecdotal evidence suggests, however, that only a fraction of the fertilisers reached the intended recipients, and that the fertilisers that did reach them were used for maize production.

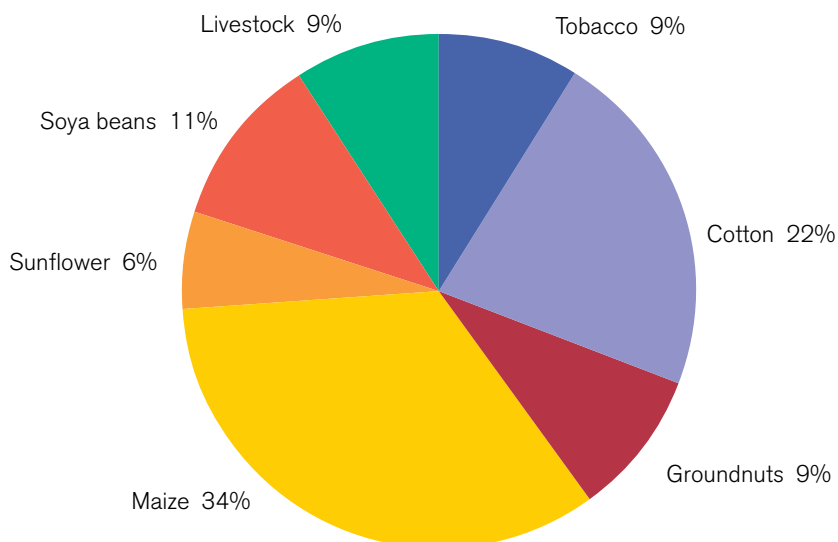
Labour for cotton production is mainly supplied by the household. As highlighted by Haggblade *et al.* (2010), 44 per cent of labour to prepare land in cotton production is provided by human labour, of which family household labour accounts for 60 per cent while hired labour accounts for 40 per cent.

Production

Cotton production in Zambia is carried out by smallholder households, with total numbers ranging from 150,000 to over 300,000 depending on the season. In the 2013–14 season, approximately 169,000 households (11% of all farming households) grew cotton. Assuming an average of 6 members per household (Chapoto and Zulu-Mbata 2016), approximately 1 million people relied on cotton production as a major livelihood source.

According to FGDs and key informants, farmers in Zambia are attracted to growing cotton as a source of income, as a way of accessing inputs on credit (for cotton and for diverting to other crops), and as a guaranteed market for their produce. These findings are echoed by Haggblade *et al.* (2010) and Chapoto *et al.* (2012). In Zambia, cotton is the second most important cash crop after maize for small-scale farmers (Figure 3). Results from the Rural Livelihood Survey (2015) show that maize ranks first in terms of income contribution to the household income (55 per cent), followed by cotton (24 per cent) (Chapoto and Zulu-Mbata, 2016). This ranking was confirmed in the FGDs, as small-scale farmers put maize first in terms of its contribution to household income, with cotton second. Other important enterprises contributing to household income included soya beans, livestock, tobacco and groundnuts.

Figure 3: Farm enterprise per cent share of income contribution to household economy, Zambia

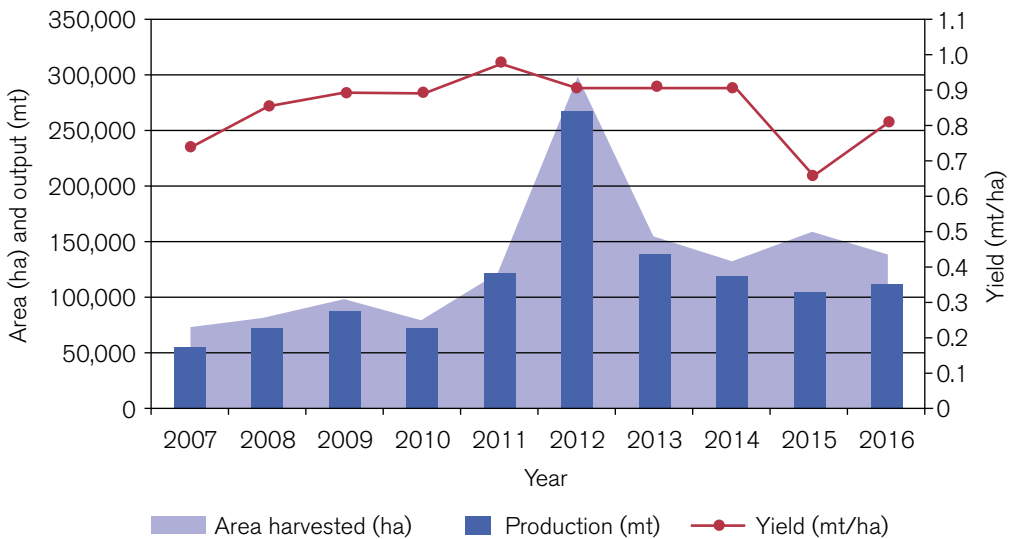


Source: FGDs in Lundazi and Chipata districts, 2016

Cotton production is male-dominated. Of the 202 fields belonging to the 200 households surveyed in Zambia, 73 per cent were controlled by males and 27 per cent were controlled by females. In Zambia, the majority of cotton farmers (53 per cent) belong to the middle-aged group (35–50 years), which mirrors the wider farming population. The second significant age group of cotton growers was under 35 years (representing 42 per cent of households).

Seed-cotton yields in Zambia have been averaging around 850kg per hectare, against a potential of 2,000kg per hectare (Kabwe *et al.* 2016). The country's production of seed cotton increased between 2007 and 2012 as a result of area expansion when farmers responded to the increase in price for seed cotton, which peaked in 2011–12 (Figure 4). In 2011–2012, Zambia produced approximately 270,000t of cotton (an all-time high) following the highest-ever price (ZMW 3.2 per kg) paid for cotton by ginning companies in the preceding season. The high price was not maintained; in 2011–12 the ginning companies paid only about half of the price they had paid in the season before. Farmers responded by reducing the area planted to cotton, which led to a 50 per cent decline in the production of seed cotton the following season. Production volumes have varied between 112,000t and 119,000t since 2013–2014.

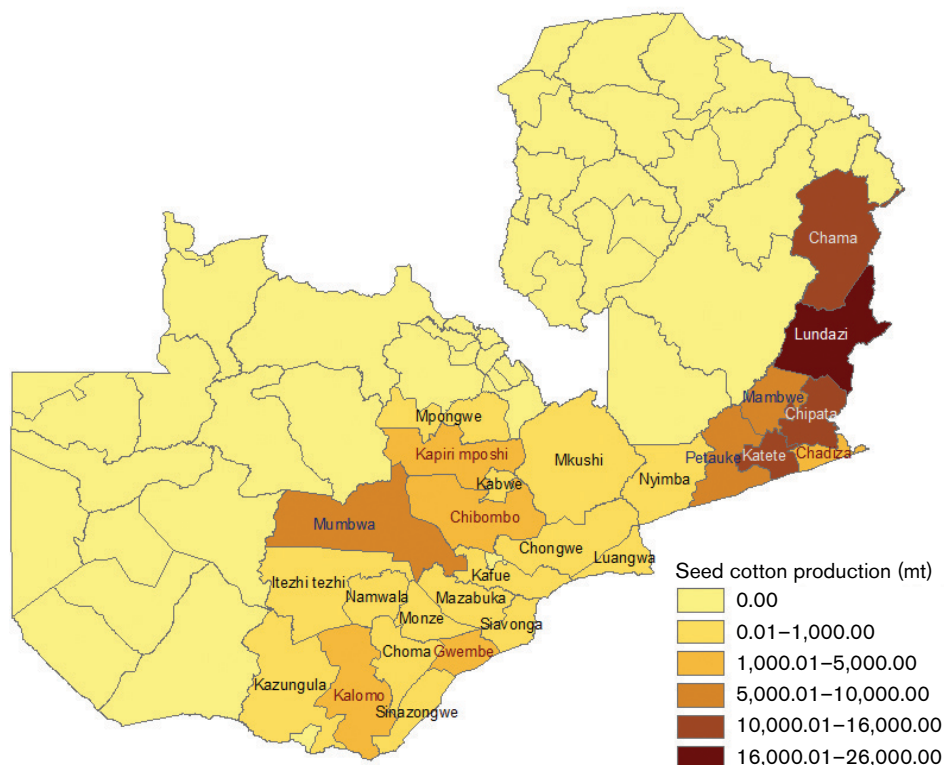
Figure 4: Seed-cotton production trends in Zambia, 2007–2016 (metric tons)



Source: Ministry of Agriculture and Livestock/Central Statistics Office (2016)

Of the seed cotton produced in the 2014–15 season, 56 per cent came from Eastern Province, followed by Central Province, which produced 24 per cent (Figure 5).

Figure 5: Major cottonseed producing districts of Zambia (metric tons, 2014–15 season)



Source: Ministry of Agriculture and Livestock/Central Statistics Office (2016)

Ginning

Cotton-ginning companies are a central player in the cotton sector. Before 1994, the sector in Zambia was state-run through the parastatal company LINTCO. The company provided inputs and extension services, and also bought seed cotton from farmers. Inefficiencies caused the performance of the sector to decline, and by 1993 annual production of seed cotton had dropped below 40,000mt. In 1994, LINTCO was sold to two companies: Lonrho Cotton (now NWK Agri-Services) and Clark Cotton (now Cargill). To minimise competition between the two firms, their operations were split geographically: Lonrho took over operations in Central and Southern Provinces, while Clark Cotton took over operations in the Eastern Province. These two regional oligopsonies remained in place for three years before four more companies entered the sector. By the 2014–15 season, there were eleven ginning companies with a combined ginning capacity of 330,000t operating in Zambia (Table 7). Based on the quantity of seed cotton procured in the 2014–15 season, the post-privatisation companies NWK Agri- Services and Cargill were still the market leaders (accounting respectively for 24 per cent and 23 per cent of the market share). In August 2017, after our research had been completed, Cargill

announced the sale of its cotton gin to Parrogate Ginnery Ltd., thus effectively exiting the Zambian cotton sector.

Table 7: Cotton ginning companies in Zambia, 2014–15 season, ranked by ginning capacity

Company	Location of head quarters and/or ethnicity of ownership and top management	Year started operation	Ginning capacity (t per annum)	Number of contracted farmers	Qty of seed cotton ginned (t)	Market Share (%)	Provinces			
							Central	Eastern	Muchinga	Southern
NWK Agri-Services	South Africa	1994	130,800	74,139	28,358	23.8	✓	✓	✓	✓
Cargill (Z) Ltd	USA	1994	60,000	66,000	27,946	22.9		✓	✓	
Continental Ginneries Ltd	India	1997	45,000	44,937	19,028	16.3	✓	✓	✓	✓
China Africa Cotton	China	2005	48,000	24,585	9,905	8.6		✓	✓	
Alliance Ginneries Ltd	India	2007	22,000	30,475	10,525	9.3	✓	✓	✓	✓
Grafax Cotton (Z) Ltd	India	2012	10,000	25,901	7,767	6.7	✓	✓	✓	✓
Manjeet Cotton (Z) Ltd	India	2012	0	22,648	8,109	6.9		✓		
Africa Global Development Corp (AGDC)	China	2012	0	16,137	5,265	4.6	✓			✓
Africotton	India	2012	0	2,900	987	0.82		✓		
Yustina Cotton & Oil Co.	Malawi	2010	10,000	1,320	191	0.0		✓		
Mumbwa Farmers Ginning & Pressing Co Ltd (MFGPC)	Zambia	2015	5,000	865	27	0.02	✓			✓
Ermine Enterprises Ltd	Zambia	2015	0	30	52	0.05	ü			

Source: CBZ, 2015

Some companies operate across all key cotton-growing provinces while others only operate in one specific province. As of the 2014–15 season, NWK Agri-Services, Continental Ginneries, Grafax and Alliance Cotton operations spanned all four provinces (Central, Eastern, Muchinga and Southern). Africa Global Development Corporation (AGDC) and Mumbwa Farmers Ginning and Pressing Company (MFGPC) operated in two provinces, namely, Central and Southern. The remaining companies operated in only one province – Eastern – except Ermine Enterprises Ltd., which operates in Central Province.

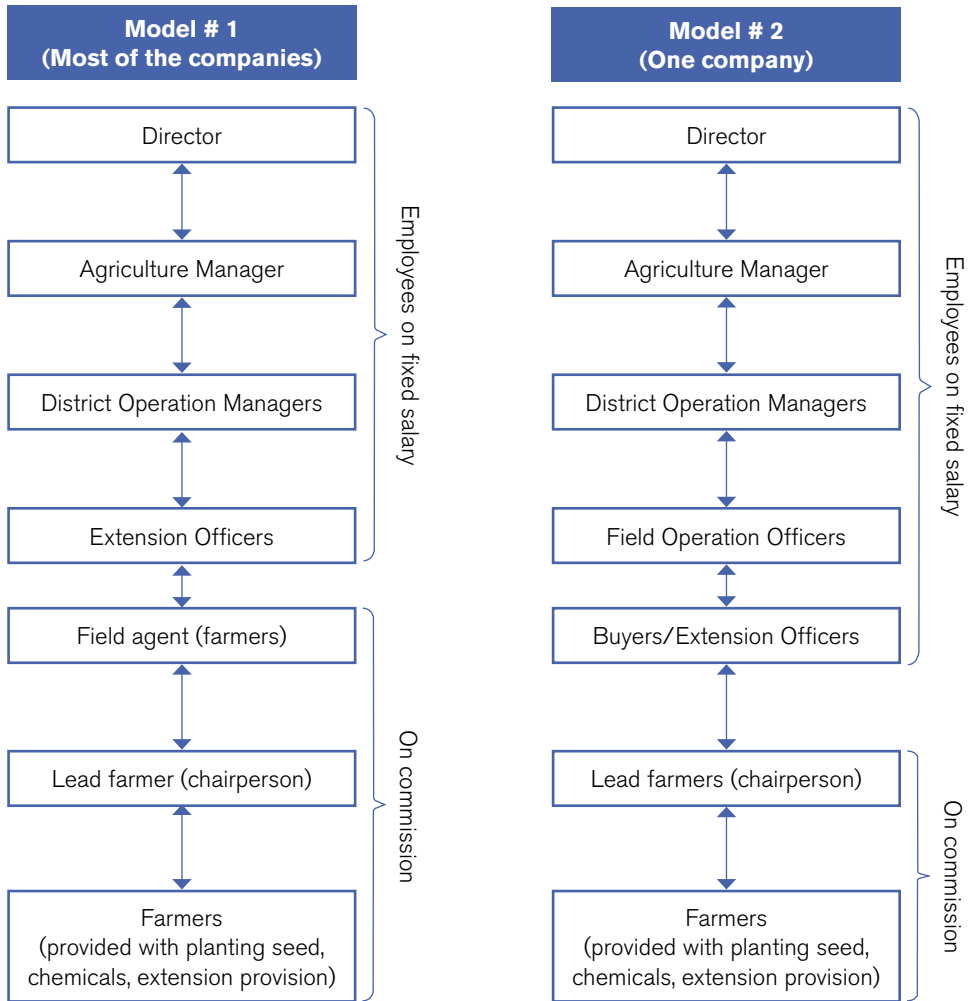
Ginning companies provide a number of inputs on credit to contracted farmers. The main inputs provided are planting seed and agrochemicals (pesticides and sometimes micro-fertilisers). Ginning companies procure the inputs from input suppliers, though pre-basic seed⁷ is bought from the Cotton Development Trust, and then multiplied before the companies distribute it to contracted farmers on credit. Ginning companies rely on field agents (essentially lead farmers, as discussed in more detail below) to contract farmers. The cost of inputs is deducted when seed cotton is marketed.

Cotton production has not kept pace with the growing ginning capacity since privatisation. In the 2014–15 season, the eleven ginning companies, with a combined ginning capacity of 330,000t, received a harvest of only 104,000t – in other words, the industry ran at only 32 per cent capacity. Seed cotton side-trading has become more commonplace, as companies seek to run their gins closer to capacity to ensure adequate profitability/returns on investment.

Ginning companies are hierarchical in structure, with many layers of staff between the field and the director. Figure 6 gives two examples of the various ginning company structures in Zambia (information obtained during key informant interviews). This structure can obstruct effective information flow between management and field-level agents working for the company. These weaknesses in information flow may also leave room for side-buying to occur without management being aware of the practice. This is discussed in more detail below. District office staff sporadically visit the field to inspect activities. Route managers, too, make their ways to the field to check that field agents are giving the correct volume of inputs to farmers. These practices have not necessarily been adequate in curbing side-trading, however.

⁷ 'Pre-basic seed' refers to early-generation seed or parental material which is used in breeding to produce certified seed and then sold to farmers for growing the commercial crop.

Figure 6: Generalised operational structures of ginning companies in Zambia



Source: Authors' compilation

Field agents

Evidence from focus group discussions and key informant interviews shows that ginning companies (with the exception of Cargill) use field agents, also known as buyers or distributors in Zambia, to help them with field operations. The field agents are themselves farmers living in the same communities as the farmers they work with. Companies usually endeavour to use community members of good standing as field agents to ensure effective relationships with farmers. The relationship between the field agent and the ginning company is formalised by a contract, which in Zambia runs for one year – from October/November to September/October of the following year.

Field agents are required to recruit farmers and supply them with inputs (planting seed and agrochemicals) on credit. Usually planting seed is handed out first. After the farmers plant the seed and the crop germinates, they are supplied with chemicals from the field agent. This is to ensure that they get the right quantity of chemicals based on established hectareage. Managers of ginning companies also indicated in our interviews that the field agents provide extension services to the farmers, including teaching them about best crop-husbandry practices, pest management, and marketing-related issues. The cost of the training is borne by the ginning companies. The extension services provided by field agents varies from company to company, however. Some companies offer a range of services while others simply provide inputs, with minimal if any training. Field agents are also required to buy seed cotton at harvest and to recover the input loans from the farmers.

Because of significant competition between cotton companies during the harvesting season, and the occurrence of side-selling, field agents regularly check on farmers. During the buying season, field agents visit farmers to monitor progress on seed-cotton harvesting, and possibly to buy cotton if the farmers are ready to sell. The cotton is packed by farmers into companies' bags ('woolpacks'). The field agents weigh the cotton and pay the farmer. The cotton is transported to the homes of the lead farmers/ chairpersons (who operate a layer 'below' the field agent and work for the field agent) for later collection. When a sufficient amount of cotton is amassed, the company sends trucks for collection (with the agent's help in directing them to the cotton). The cotton is then transported to the ginnery. Farmers are paid 100 per cent in cash, on the spot. In instances where agents are cash-strapped due to having received insufficient working cash from the company in time, payment to the farmer may be delayed for 2–3 days.

The companies need to carefully strike the right balance in cash provision to agents. If agents are given too little cash, they may be unable to secure as much cotton as they would like, risking that agents of other companies will side-buy from the farmers. If they provide agents with too much cash, however, agents may divert some of it. According to our key informant interviews, this has happened on some occasions. Companies thus try to give cash to their agents in intervals – enough for buying during a limited number of days, but no more.

In organising and recruiting farmers, in monitoring and also during marketing of cotton, field agents are assisted by lead farmers. Lead farmers are recruited, managed and paid by field agents at their own discretion. For example, if the lead farmer is monitoring 15 farmers, the field agent may agree to pay a commission of US\$11 per farmer if the lead farmer manages to recover 100 per cent of the loan from all farmers. If the lead farmer is unsuccessful, then the total value of the outstanding loans is deducted from the total commission paid out. This arrangement operates similarly across ginning companies.

The cash-payment systems currently used by ginning companies give rise to some challenges. In particular, there are high risks in transporting cash to remote areas where cotton farming dominates. In addition, the current system is cumbersome and costly, as companies have to set up multiple payment points. Immediate payment has also contributed to poor-quality seed cotton, as farmers can add foreign matter to cotton bags but still receive full payment. For instance, farmers may add sand, stones or water to the cotton to increase its weight. Ginning companies will only discover this foreign matter once the cotton has arrived at the ginnery, and have no means to recoup costs. In an attempt to solve this problem, companies have proposed the use of a mobile-phone E-payment system, as described in Box 2.

Field agents are paid on commission, based on the tonnage and minimum input-loan amounts recovered. Some companies stipulate in the contract that a commission will be paid to the field agent, while others do not disclose a commission amount in the contract but may instead announce it at the end of the marketing season. One contract, for example, stipulated a commission of 25 per cent of the value of the loan given out to the farmer, if fully recouped. Other payments given by this particular company to the field agent, included US\$220 for securing the loan and another US\$220 for buying the targeted quantity, plus a bicycle provided on loan for the season.

Where ginning companies generally state in advance the rate of commission to be paid to field agents, varying levels of commission may be offered depending on the volume of cotton bought and the amount of input loans recouped. One particular ginning company uses the following commission structure: The first 'level' is a commission of US\$7.5 per metric ton if between 1 and 75 per cent of the target purchase quantity is attained and 75 per cent of the total loans are recouped. The second level guarantees US\$8.7 per ton if the field agent purchased 76 per cent to 90 per cent of the purchase target and recovered 75 per cent of the total loans. The third level of commission is US\$11 per ton if the field agent bought 91 per cent or more of the quantity targeted for purchase and recovered 85 per cent of the loans to farmers. In addition, if a field agent manages to recover 100 per cent of the value of the input loan, the field agent would be paid 10 per cent of the recovered loan. If 90 per cent of the loan is recovered, the bicycle that was provided is given to the field agent for free. In another case, the ginner pays a commission of US\$22 per ton of seed cotton bought for the company, regardless of the input loan amounts recovered.

Box 2: E-payment via mobile payments

E-payment is an innovative system used to make transactions or pay for goods and services through an electronic medium without the use of cheques or cash (Kabir *et al.* 2015). Studies have highlighted the potential benefits of using e-payment, including: time saved, reduced risk of loss or theft of cash, affordability/cost effectiveness, reduced transaction costs, and avoiding of challenges associated with transferring money among different payment systems (Liguyani and Nzulwa 2016). For farmers, mobile money accounts provide a safe and out-of-reach place for them to keep their money, an easy way to send money where banking systems are weak, and a convenient method of paying for goods and services.

In Zambia, the ginning companies have agreed to pilot the e-payment system in the two cotton-growing districts of Nyimba and Petauke. The system uses mobile banking applications to transfer money electronically to farmers' mobile phones. Once the buying and selling transaction takes place, the banks are instructed by the ginners to transfer money to the farmers.

Interviews with the ginning companies revealed that the companies were happy with the piloting of the systems. In particular, they felt the systems would help to resolve some of the challenges experienced with the previous system, such as monetary theft. They also thought that the systems are efficient and convenient for paying farmers, and could help minimise or eradicate incidences of side-trading of seed cotton by eliminating the cash incentive that often triggers side-buying. E-payment, they felt, could also reduce the operational costs of setting up the payment points currently in use.

Despite these advantages, some key informants pointed out that the programme still had some teething problems. For example, not all companies have an online farmer database, which may delay the process of paying farmers through the system. All companies interviewed were concerned that some farmers in remote areas have no access to mobile-phone networks. These farmers would therefore be disadvantaged, especially if they have to travel long distances and pay for transport costs. Also, as some farmers do not have National Registration Cards, verification could prove difficult. Finally, as the experience of the e-payment systems piloted by NWK Agri-Services and Cargill show, farmers incurred withdrawal fees when obtaining cash, which they resented (BDSA 2016).

Due to the small seed-cotton crop output expected in the 2016–17 season (below 50,000 mt), the e-payment system did not operate fully as some ginning companies reverted to using cash. Some other companies followed suit to remain competitive in securing cotton supply. Despite this setback, key informants still largely agreed that e-payment would positively impact the sector.

The tonnage targets set by ginning companies for their field agents varies according to the company and the way their overall targets are set. Some companies use the number of 15kg-size packets of cottonseed given to the agent, multiplied by the average yield rate (350–450kg/ha),⁸ as a proxy for the quantity of seed cotton the agent is likely to buy. Other companies carry out estimations of expected production using information provided by the field agents and lead farmers themselves. In this case, companies wait until the seed germinates and then, after six to eight weeks, the companies' field staff and field agents visit the field and estimate the expected quantity produced by each farmer being monitored by the field agent and the lead farmers. In this case, they use the following formulas:

Quantity of seed cotton = Average yield of sampled areas x total area of the field

Average yield = Plant population x boll count per plant x average boll weight

Where: *Yield = quantity of seed cotton per hectare*

Plant population = number of plants per hectare

Boll count = number of mature bolls per plant

Boll weight = boll weight

The identified yield per hectare is then multiplied by the number of hectares grown, or simply added up across all farmers to get the total estimate of seed cotton intake for the area. Several interviewees reported that the method used by most companies to estimate the yield could at times produces overly ambitious targets. Various reasons are given for this, including the fact that most farmers do not plant all the seed given to them per hectare, but typically plant less – leading to an overestimation of what will be yielded from that farmer. This is particularly the case when the price of cotton in the previous marketing season was low in relation to alternative crops. In addition, household surveys carried out by the Ministry of Agriculture/Central Statistics Office suggest that the average farmer's field is slightly smaller than one hectare. This could explain the use of fewer seeds per field and the lower output per field realised by farmers in actuality vs. the estimated hectare – thus creating a gap between what is predicted and what is actually produced. In addition, some farmers are also diverting some of their cotton to non-contracted buyers and thus claim lower than actual yields due to drought, for example. This in turn puts significant pressures on lead farmers and agents to side-buy non-contracted cotton themselves.

⁸ This differs from the yield reported by households during a number of different surveys conducted by the Ministry of Agriculture and IAPRI.

Box 3: Alternative buying structures: the case of Cargill

In late 2016, Cargill developed a new approach to support cotton-growing farmers (its previous system was not based on field agents but on the use of dedicated full-time field staff that supplied inputs, provided extension services and bought cotton).

Cargill's model of agro-dealership is designed to improve delivery of services to farmers. In this new model, the company downsized the number of full-time employees working at the field level – in each district it now employs on average two staff members known as field managers. Each field manager oversees a number of agro-dealers who are spread around the district. The agro-dealers are independent owners of agro-dealer companies registered with the Patents and Companies Registration Agency (PACRA). Agro-dealers typically are former chairpersons, lead farmers or former Cargill employees. Their main functions are to recruit farmers, provide agricultural inputs for cotton and other crops on credit, provide extension services, buy the crop and recover the input loans. These agro-dealers are entitled to a commission after marketing. For example, an agro-dealer will be entitled to US\$22 from Cargill per every metric ton of seed cotton delivered to the ginnery.

In theory, these agro-dealers can sell inputs independently of ginners. In reality, however, agro-dealers lack the resources to procure inputs to sell in this manner. This model has thus not offered a genuine alternative for farmers outside of the dominant contracting model.

As of August 2017, Cargill's ceased to operate in Zambian cotton.

Informal buyers

When prices of cotton started to rise (such as in the 2009–10 season), opportunistic companies emerged which were not engaged in ginning and had not invested in their own ginning facilities. They operated solely as traders and exporters, and either delivered seed cotton to existing ginning companies or engaged in toll ginning (using other companies' ginning facilities) and export. These opportunistic companies also used field agents/lead farmers to source cotton, but in a more aggressive manner than the companies that had previously invested in their own ginning capacity. The field agent/lead farmer saw an opportunity to earn marketing margins by bridging the gap between farmers and these opportunistic companies in marketing (such as distance to market, transportation to market, delays in marketing season and delayed cash payments). These informal buyers have subsequently disappeared from the market as prices have fallen.

Textile sector

The seed cotton produced is ginned into lint at the ginnery with an outturn of 40–41 per cent. In other words, 40–41 per cent of what is ginned becomes lint, and the rest is

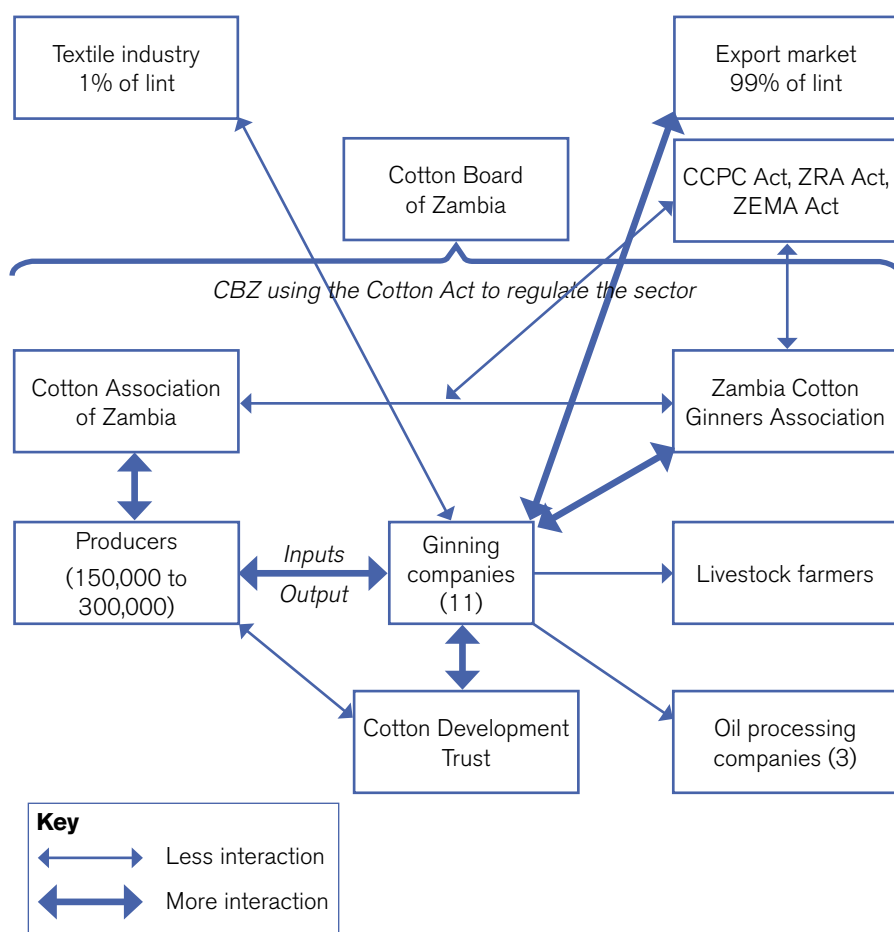
seed and waste. The lint is primarily destined for export markets (over 99 per cent). The main market for Zambian cotton lint in the 2011–13 period was China (40 per cent) followed by South Africa, Indonesia and Mauritius (Esterhuizen 2014). In 2017, the main destinations were South Africa (about 40 per cent), Singapore (about 20 per cent), Switzerland (9 per cent) and China (8 per cent), according to UN Comtrade. With the exception of China, these countries are intermediate destinations, and not where lint is manufactured into textile. The seeds are used for edible-oil extraction and animal-feed production. Before 2015, Zambia sold most of its cottonseed to Botswana, Namibia and South Africa, where it was processed into animal feed and oil. This changed after Mount Meru, an oil-seed crusher, was established and developed in Zambia. As of 2016–17, that company bought over 70 per cent of cottonseed produced in Zambia for oil and cake production. Edible oil from cotton is mainly sold in the local market, while cottonseed cake is sold in both local and regional markets.

The main reason most of the lint is exported is the collapse of the weaving and textile sector in Zambia. Previously, the weaving and textile sector absorbed about 10 per cent of lint produced in Zambia; today, less than 1 per cent lint is used by the local textile sector. After the closure of Swarps Spinning Mill, only Mukuba Textile Company still uses local lint to produce yarn. That company currently buys small quantities of lint from Mumbwa Farmers Ginners and Pressing Company for use in making yarn for producing mutton cloth. Mukuba also sells small quantities of yarn to the Cotton Association of Zambia for use in its Handloom Programme. One other textile company, operating in the Copperbelt Province, uses yarn to make mutton cloth, as well as boiler suits for use by the mining industry. However, it has to import yarn from abroad because Mukuba Textile Company does not produce enough.

Institutions of sector governance

The Zambian cotton sector is governed by a mix of state, quasi-government, and private institutions (Figure 7). This section draws particular attention to their role in preventing side-trading.

Figure 7: Zambian cotton institutions and their interactions



Source: Author's development

The Cotton Board of Zambia (CBZ) is a quasi-government regulatory body formed by an Act of Parliament (2005 Cotton Act) in 2007. The Board of Directors was convened in 2009 and is comprised of seven public and five private representatives.⁹ Board members are appointed by the Minister of Agriculture for a term of three years, which is renewable for one more term of three years. The key functions of the Board include: regulating the production, ginning and marketing of seed; setting the standards concerning the quality of the cotton crop in the field, seed cotton, cottonseed and lint; advising the government on

⁹Public representatives include: 2 Ministry of Agriculture representatives, 1 Seed Control and Certification Institute representative, 1 Environmental Council of Zambia representative, 1 Cotton Development Trust representative, 1 Ministry of Justice representative and 1 Ministry of Finance representative. Private representatives include: 1 farmer association representative, 1 farmer representative, 2 ginner representatives and 1 textile representative.

regulations, policies and measures pertaining to the protection, control and development of the cotton industry; and formulating the principal functions of the Cotton Development Trust. The CBZ also punishes/fines any ginners found side-buying seed cotton.

The Cotton Development Trust is a quasi-government institute mandated to conduct research on cotton and produce new varieties of cotton. The pre-basic seeds are sold to ginners, who later multiply it for distribution. Due to the high cost of pre-basic seed, farmers cannot afford to access seed directly from the Trust. The Trust also offers extension services related to new farming technologies to farmers and ginners during field days and also to farmers within the Trust, though coverage is limited.

The Cotton Association of Zambia (CAZ), formed in 2005, is an association of cotton farmers that seeks to represent their interests in issues related to seed-cotton production and marketing (for example, through the provision of extension services). Specifically, it provides a platform for farmers to participate more effectively in the operations and future development of the cotton industry, and also acts as an interface between government and farmers. The association successfully lobbied for cotton to be included on the list of crops to receive two bags of subsidised fertiliser during the 2016–17 agricultural season. The Association has facilitated trainings on how the price of seed cotton is determined using the Liverpool Index A of lint cotton for a number of farmers who represent the wider group of farmers belonging to the Association. Before 2012, the CAZ also took the lead in negotiating the price of harvested cotton paid to the farmers with the ginning companies. This was generally regarded as successful, with joint statements to that effect made by both CAZ and the Zambia Cotton Ginners Association (ZCGZ). This function was stopped, however, by the Competition and Consumer Protection Commission (see below).

Farmers are supposed to be aware of the activities of CAZ. However, FGDs showed that while farmers often knew that CAZ had negotiated the price of seed cotton on behalf of farmers in the past, they generally did not know about the present functions and activities of the Association. They expressed disappointment that ginners could now make their own decisions regarding price without any influence from farmers.

The Cotton Association has also invested in its own ginning facility, established in 2013 with funding from the Citizen Economic Empowerment Commission (CEEC). The ginnery, with a 5,000t capacity, is located in Mumbwa and was officially commissioned in 2016. CAZ intended the ginnery to empower farmers by opening up alternative marketing routes to the well-established ginning companies. Self-financing farmers would be at liberty to either sell seed cotton to the ginnery or engage in toll ginning at a fee – allowing the farmer to obtain the value of both the seed and the lint. Seed can be used as feed for animals, and lint can be sold to the gin itself or a textile company at a price up to four times more than that of seed cotton. CAZ also hoped that the gin would enable farmers to understand the intricate nature of lint marketing, thereby equipping them with skills and

knowledge for negotiating seed-cotton prices with ginning companies. Key informants indicated that CAZ's push for more independent farmers may well change the contract-farming landscape. According to CAZ, two additional ginneries are being planned, one in Eastern and the other in Southern Province. With help from the International Trade Centre (ITC), CAZ has also trained female cotton farmers to be weavers. It has also revived the association of weavers in Zambia.

The Association's mandate has historically been to represent all cotton farmers, regardless of which ginning company they belonged to. Some key informants indicated, however, that this impartial representation has been eroded since the establishment of the farmers' ginnery described above. Some now perceive the Association's chief concern to be the satisfaction of their own ginnery's needs.

The Zambia Cotton Ginners Association (ZCGA) is an association of ginning companies which seeks to serve their interests. The formation of a ginners' alliance made way for the establishment of the ZCGA in 2006. The Association acts on behalf of ginning companies in talks with the government on issues related to cotton. It also interfaces between the Cotton Association of Zambia and ginning companies to ensure smooth operations within the sector. The Association encourages the sharing of information between ginning companies to benefit the sector. Information that is being exchanged includes, for example, the number of farmers contracted as well as the quantity and value of inputs given to farmers. This practice is designed to help identify farmers who are double-contracted, and to offer companies a means to agree on the 'ownership' of cotton. At the time of marketing, ginning companies also share how much tonnage they expect to source. This is intended to create peer pressure between companies to identify and curb side-trading. Because information exchange relies on self-reporting by ginning companies, those companies which do engage in side-buying have an incentive to adjust their figures as they see fit (particularly as the information is also passed on to the Cotton Board of Zambia, which can fine companies engaged in side-buying). Indeed, key informant interviews have revealed some scepticism over the accuracy of the information that is being exchanged among the ginneries.

The Competition and Consumer Protection Commission (CCPC) is another statutory body established by parliament with a unique dual mandate: to protect the competition process and to protect consumers. Even though the CCPC is not directly linked to the cotton sector, it impacts the way ginners and farmers operate. For example, in 2012, when cotton prices crashed, CCPC stopped the CAZ and ZCGA from discussing an indicative price for seed cotton, as it was deemed as collusion. CCPC instead mandated that each individual farmer negotiate with the respective ginner they were registered with. CAZ appealed against this move to the CCPC Tribunal, as the CCPC ruling was considered not implementable. CAZ argued that most of the farmers do not know how the local price of seed cotton is determined, which meant that it was unfair for individual farmers to

negotiate the price with the ginning company directly. The CCPC Tribunal ruled in favour of CAZ, allowing CAZ to negotiate on behalf of farmers with the ginners (rather than each farmer having to negotiate with each ginner individually).

The District Agricultural Coordinator (DACO) is the head of the Ministry of Agriculture in each district. The main functions of the coordinator are: i) coordinating all agricultural-related activities in the district through, for example, planning and executing a registration process of farmers in the district, developing and implementing agricultural programmes, and advising on the number of farmers eligible to access subsidised inputs; ii) ensuring that extension services are provided to the farmers; and iii) making sure agricultural marketing activities are undertaken smoothly through the office of the District Marketing Officer. The DACO office also disseminates market information to the public through the office of the District Information Officer, and acts as a mediator on issues affecting different parties.

Extension services are provided to cotton farmers predominantly by ginning companies, though CAZ also provides some extension services. The Cotton Development Trust provides some extension services to farmers living close to the research station.

Sector regulatory framework

Since the privatisation of the Zambian cotton sector, there has been unprecedented investment in increasing ginning capacity. A large number of companies joined the sector when prices were high, and a number of them entered the market without investing in input provision and extension services – thereby effectively side-buying, in particular through the use of field agents. Effective governance to curtail side-buying was lacking, which undermined the investment climate for companies that were contracting with farmers and investing in the production base. Some of the more opportunistic companies have since withdrawn from the market due to a fall in cotton prices, but so too have companies that invested more substantially in production. For example, one multinational company registered a loss of US\$2 million in unrecovered input loan (Tschirley *et al.* 2004), leading to the company selling its operations the following year and a near-collapse of the sector due to significantly reduced output.

The following government acts, private-sector codes and institutions have sought to regulate the sector, though with differing degrees of effectiveness:

Government acts and private-sector codes

The formal rules governing production and marketing of seed cotton in Zambia are embedded in the Cotton Act of 2005. They are implemented by the Cotton Board of Zambia (CBZ) to ensure that seed-cotton production is maximised and marketing of seed cotton is done in an orderly way with little or no side-buying. The Act provides the basis for barriers to entry to cotton ginners (and other players in the sector), alongside the

Investment Act, Chapter 285 (see below). Emphasis in the Cotton Act is on licensing of seed-cotton pre-financiers, buyers and ginnerers, on monitoring behaviour associated with the promotion of credit default, and on punitive measures to be taken in the event that such behaviour is detected.

Zambia's Investment Act Chapter 385 allows for relatively easy entry of investors into the country. But any person investing in a business enterprise has to apply for an Investment Certificate. This certificate, according to the Investment Act, is only granted after the investor obtains the necessary licences, authorisations and permits from the relevant ministry or body. The Cotton Board of Zambia is thus entitled to use the Cotton Act to thoroughly check the capabilities of prospective cotton companies to provide sufficient inputs and effective extension before issuing a licence.

To effectively implement the Cotton Act, various strategies have been developed such as organising meetings in order to sensitise stakeholders to particular statutes of the Act. Regulation of the sector is done through registration of ginning companies before they start any operations. As companies register, during the course of the season, they also submit the list of farmers they have contracted with for that season to the CBZ. The submitted lists help CBZ create a database of farmers, which is used to identify farmers contracted by more than one ginning company. The list of double-contracted farmers is shared with the ginning companies so that they can resolve those issues before the start of the marketing season of seed cotton. They may, for instance, discuss and negotiate how to divvy up double-contracted supply between them. If a ginning company is reported to be side-buying, CBZ also uses the database to establish or verify the actual owner of the crop.

Key informants felt that entry requirements by the Cotton Act are low. This, they said, has led to an excessive number of ginnerers and caused a decrease both in inputs provided to farmers and in the quality of cotton. They complained that a number of companies are able to continue to operate in the sector without providing adequate inputs and effective extension service to the farmers, which ultimately undermines overall performance of the sector (discussed in more detail later). According to these key informants, CBZ needs to play a stronger role in scrutinising companies that apply for operating licences to ensure that they provide acceptable inputs and extension services to the farmers. This, they said, should happen before their arrival into the sector, not just at the point of licence renewal (as currently happens). This could reduce the rates of side-buying of newer entrants.

Key informants from ginning companies indicated, however, that competition was healthy for the sector's growth as long as the ginning companies entering the sector abide by the rules of the sector and Cotton Board of Zambia strictly punishes those companies not offering adequate inputs and extension.

A ginners' Code of Conduct was introduced after the sector experienced many incidences of side-trading in the 2012–13 marketing season. The goal of the Code of Conduct is to provide a framework for common understanding of the standards and behaviour expected from all ginners under the Cotton Act, and to make the sector run more smoothly. The following statutes in the Code of Conduct have been agreed by members: i) Farmers are offered a standardised ZCGA/CBZ cotton contract; ii) Farmers are given a minimum standard input package comprised of seed and pesticides as approved by CBZ, additional support in terms of fertilisers, herbicides, sprayers, and technical assistance will be at the discretion of individual ginners; iii) Companies buy seed cotton only from farmers they contracted; iv) Companies submit information of farmers contracted and on the quantity of inputs provided; and v) Companies agree on various penalties for would-be defaulters of the Code of Conduct, including suspension from ZCGA and penalties as stipulated by the Cotton Act, and also on reporting the defaulters to NGOs (to prevent companies from accessing any funding).

According to key informants, some of the statutes of the Code of Conduct have been adequately implemented. These include: the provision of a minimum standard input package; that companies will buy seed cotton only from farmers they have contracted with; and that companies will submit information on farmers they have contracted with. Penalties have also been imposed on a number of ginning companies (at least three, according to key informant interviews). In regard to inputs, a number of inspectors from the Cotton Board of Zambia perform verification assessments by talking to some buyers and farmers. They seek to understand from ginners how many farmers they have contracted with, and also the quantity of chemicals that farmers have been supplied with. However, CBZ is constrained by its lack of personnel from performing these controls on a larger scale. And standardised cotton contracts are not yet in existence, though a draft is being discussed amongst stakeholders (as of October 2017).

The implemented statutes have complemented the Cotton Act in reducing incidences of side-trading among cotton farmers and ginning companies. Furthermore, regular meetings between stakeholders and ginning companies have sensitised companies regarding the consequences of side-buying. Company meetings with their own district managers have also taken place in which managers are cautioned not to buy other companies' cotton. As discussed, however, full oversight or strict monitoring by CBZ Inspectors has been constrained by a lack of adequate resources.

District Committees were established by the Cotton Board of Zambia in collaboration with the ginners and Ministry of Agriculture in the 2012–13 marketing season as a platform for discussing issues affecting the cotton sector. Each District Committee meets monthly in the months preceding and during the cotton-marketing season (April–September). It is mandatory for companies to attend meetings organised by the DACO and the cotton

board inspector¹⁰ to discuss issues that may hinder smooth marketing of seed cotton. During these meetings, stakeholders remind each other of various issues affecting the sector as well as of the statutes of the Cotton Act and other key documents (such as the Code of Conduct). Companies are also encouraged to share information that can help curb side-trading. A company that is absent in a meeting without a proper reason is fined a sum of ZMW1,000 (approximately US\$100).

Cotton levies and taxation regime

All lint and other cotton products that are exported out of the country – over 99 per cent of national lint production and about 10 per cent of fuzzy seed and cottonseed cake – are subjected to a tax or levy, collected from cotton exports using the Zambia Revenue Authority Act. The cotton taxes contribute to the total government revenue used to meet its public obligations. The Cotton Act dictates that a cotton levy of US\$0.0014 be charged on each kilogram bought by the ginning company. This is collected by ginning companies at the ginnery. Collection of the funds relies on the goodwill of ginners – the ginning companies themselves share information on the tonnage bought at the end of each season, and pay taxes based on that volume. The funds raised from the levies are used to run the CBZ. Some parts are given to the Cotton Development Trust and the Cotton Association of Zambia for use in research and extension-service provision. The District Council also collects a crop levy from the cotton produced. They charge US\$0.0020 per kilogram of seed cotton bought by the company. This tax contributes to the total council revenue for meeting its district council service-provision obligations. It is only used for council activities, and not to further the development of the cotton industry.

Some key informants from ginning companies, in relation to recent government attempts to support the sector (see Box 4), have expressed appreciation for the support of farmers by government, but also concerns about implementation. They feel that offering farmers additional inputs challenges existing contracting arrangements. This could increase rates of side-selling and undermine companies' investments in the sector, eventually leading to companies withholding their supply of inputs. Ginning companies would prefer to offer input subsidies to be offered rather than have them occur outside existing production/trading agreements.

¹⁰ The cotton board inspector is an employee of the Cotton Board of Zambia tasked with enforcing the regulations of the Cotton Act on behalf of the CBZ. For example, in the Eastern Province, the Ministry of Agriculture and inspector work hand-in-hand to bring stakeholders together on issues affecting cotton.

Box 4: Zambian government support for the cotton sector

In the 2016–17 agricultural season, under the Farmer Input Support Programme scheme, the government allocated 155.3mt of fertiliser for cotton to be accessed by farmers regardless of the company they were registered with.

Direct government support to the cotton sector is not new. In 2002, the president announced that the government would provide US\$2,000,000 to ginning companies for funding credit schemes for out-growers with a package including a blend of cotton and maize (Tschirley *et al.* 2004). By making more money available to finance inputs, it was hoped, the number of farmers growing cash crops would be increased. The second objective of the scheme was to reduce side-buying of seed cotton, as companies found to be side-buying would be prevented from participating in the scheme. In the end, the government only released approximately US\$600,000 and considered it as a revolving fund for the four seasons in which the scheme operated. The scheme was not continued; companies paid back the loans, but the government did not release the funds again. The operation ceased completely when the sector experienced another crash in the 2006–07 season.

Contracting

Contract farming in Zambia is governed by the Cotton Act, though the Act is silent on what should be included in contracts.

The Cotton Board of Zambia has developed a draft cotton contract for use throughout the sector, but it has not yet been used.

A typical contract between a ginner and farmer states:

- 1) A duration of one marketing season.
- 2) Inputs that will be provided by the company: seed and agrochemicals. Companies generally provide the same types of agrochemicals, though these are often produced by different producers to differing levels of quality and cost to the companies. Cottonseed volumes (the standard pack is for one hectare) are determined by the area the farmer expects to cultivate for cotton, and are given to the farmer first. Once the quantity of cottonseed has been determined and the anticipated area to be planted for cotton is established, the field agent calculates the estimated quantities of chemicals required from the district office.
- 3) While some companies are silent on extension provision, those that do highlight extension service provision indicate that the grower will cultivate cotton based on the company's extension guidelines (which differ between companies).

- 4) The grower will deliver the entire quantity of harvested seed cotton to the company (the location of which is generally not specified).
- 5) The input loan will be deducted from the proceeds of cotton sales. The quantity and cost of the inputs will be stated on the invoice, which is separate from the contract. The costs of inputs differ from company to company and hence between contracts.
- 6) The contract is silent about quality standards and the grading of seed cotton to be provided to the farmer.
- 7) All the risks involved in seed-cotton production will be assumed by the grower.

Some of the ginning companies (normally the smaller ones with fewer resources) may fail to meet their commitments to provide sufficient inputs on time.

There is no mention in the contracts of grading and quality (since this is not rewarded by companies), and prices.

Price-setting

In Zambia, ginners do not set prices at the beginning of the season. As already mentioned, the Competition and Consumer Protection Commission (CCPC) has in fact ruled and warned against price-setting at the beginning of the season, citing risks of collusion. One might expect farmers' associations and ginners to negotiate prices to be paid for seed cotton at the beginning of the harvest season. In practice, the large ginning companies (NWK and previously Cargill) announce the price first, followed by other ginners, who in most cases offer slightly higher prices than the market leaders.

Prices are not specified in writing at the time of contract signing because ginners do not want to be contractually obliged to pay those prices in case international lint prices drop. Ginners, particularly their field agents and lead farmers, may mention a price at pre-planting to incentivise farmers to contract with them. If those price promises are not kept, and other ginners offer higher prices, then, producers may feel justified in (informally) selling elsewhere despite their contractual obligations.

The Cotton Association of Zambia (CAZ) has been lobbying for the development of a price-setting mechanism so that there is transparency around how prices are set. At present farmers often feel that they are cheated by ginners. CAZ's goal is that farmers and ginners share the gains or losses when the price of lint is high or low on the international market. Two attempts were made to develop a price-setting mechanism by an international consultant; however, no ginning company was willing to submit the information necessary for the price-setting mechanism to be established.

Box 5: Summary of governance gaps in Zambia that determine levels of informality in the sector

- **Entry requirements for ginners.** There is no restriction on the number of ginning companies that can enter the Zambian cotton sector as long as the applying company meets certain parameters, such as having the capability to supply planting seed, chemicals and extension services to the farmers, as well as to buy the crop during marketing. Due diligence on these parameters is done when a company is applying for an operating licence to the licencing committee of the Cotton Board of Zambia. Stakeholders have noted that the CBZ does carry out some monitoring on these parameters, but the Board faces challenges in regards to the resources required for cotton inspectors to monitor effectively. More resources are needed for the CBZ to carry out its functions effectively and efficiently. This has contributed to excessive numbers of ginners in the sector, leading to unregulated competition, side-buying, and therefore a decrease in inputs provided to farmers and quality of cotton produced.
- **Code of conduct.** Four of the five statutes of the code of conduct are being implemented by the sector players. But the lack of a standard cotton contract for the sector could make some ginning companies underinvest, which could increase incidences of side-buying of seed cotton. To deter ginning companies from side-buying, penalties are imposed, but some stakeholders feel that more companies should be penalised.
- **Role of agents in buying cotton.** Commission structures and a lack of strict oversight at the farm level allow side-buying to occur. Unrealistic forecasts of harvest volumes using inappropriate models also contribute to agents' pressure to meet their targets by side-buying.
- **Avoidance of levy payments.** Collection of the cotton levy on cotton produced in Zambia is required by law (the Cotton Act). The collection of funds relies on the goodwill of ginners – the ginning companies themselves share information on the tonnage bought at the end of each season, and pay taxes based on that volume. Side-trading can facilitate the underestimation of volumes bought, reducing the amount of levy that ginners are required to pay.
- **Unfairness in price-setting.** The dominance of ginners in determining prices, and failure to develop a price-setting mechanism due to ginners' unwillingness of ginners to participate meaningfully in the planned process has contributed to unfairness in price-setting.

Unfairness/incompleteness in contracting:

- The majority of risks involved in seed-cotton production are assumed by the growers of seed cotton. The contract contains very few ginner responsibilities apart from input provision. A number of smaller companies may fail even to adequately meet those (for instance, by delivering sufficient inputs but too late). There does not appear to be any recourse in these cases.
- Price risks fall on producers, and decisions are made by farmers to contract with a ginner without a formalised pre-planting price. Ginners or their field agents may mention a price at pre-planting to incentivise farmers to contract with them, but this is not put in writing and there is no obligation for ginners to pay these prices after harvest.
- **Grading/rewards for quality:** farmers are not rewarded for producing higher-quality cotton. Because of immediate cash payments (an important factor in farmers' decisions to sell to a buyer) and lack of grading, there is opportunity and incentive for farmers to add foreign matter to weight their bags of cotton.

3.2 Zimbabwe

Value-chain actors

The cotton value chain in Zimbabwe is structured as shown in Figure 8. A description of each of these actors follows.

Inputs

The main cotton inputs are seed, fertilisers and chemicals, and labour.

The seed market in Zimbabwe is a quasi-monopoly. The Crops Research Institute (CRI) – a government body under the Ministry of Agriculture, Mechanisation and Irrigation Development – forged a public-private partnership (PPP) with Quton Seeds Ltd in 2009, a local privately-owned cottonseed breeder which is a wholly owned subsidiary of Seed Co. Limited, bought from Cottco in 2006. The Indian Maharashtra Hybrid Seeds Company (Mahyco) owns a controlling stake of Quton. Quton is a cotton-seed breeder in its own right but is also vertically integrated into cottonseed multiplication and marketing of all government cotton varieties besides its own. The two organisations (CRI and Quton) have complemented each other: one does scientific research and the other propagates and distributes seed bred by CRI for which it pays royalties. The CRI has a mandate to test all new varieties for suitability in Zimbabwe before they are released into the market. Seed breeding and multiplication is thus centralised and concentrated with two players. The strong joint alliance of CRI and Quton to facilitate multiplication and marketing of varieties produced by CRI has created a quasi-monopoly in the cottonseed market.

Figure 8: Zimbabwean cotton value chain



Cotton growers are limited to accessing cottonseed for planting through contracts, rather than having the option of getting it from the open market (though technically farmers are allowed to operate as ‘free farmers’). This is because all farmers have to be registered as growers in order to be legally permitted to obtain seeds. Although statutes require the regulatory body – the Agricultural Marketing Authority (AMA) – to register all cotton growers at the start of the season, AMA does not have the capacity to register these farmers directly, given its thin presence on the ground. As a result, it uses the network of cotton contractors in the cotton-growing areas to register farmers. Practically speaking, although there is no law that compels farmers to grow through contract farming, AMA’s dependency on ginners’ registers of contracted farmers implies that any farmer who wants to grow cotton formally has to be contracted in order to be registered with AMA and thus to be able to access seeds independently from suppliers.

Quton tried to establish some outlets through which independent farmers could access planting seed, but this was not financially viable due to the low volumes traded and high transaction costs. As a result, those outlets were closed, limiting access to cottonseed by independent farmers to a central location in Kadoma. This made it difficult for independent cotton growers to access planting seed outside contractual arrangements. Quton faces far lower transaction costs when working solely with ginners.

An alternative option is for independent farmers to form groups, register with AMA, and collectively procure inputs from Quton's central offices. Issues related to group dynamics and the spatial distribution of farmers, however, make this arrangement difficult. Therefore, under the current arrangement, the only easy way to obtain cottonseed is through contracting with a ginning company or through the government input-support programme, which compels farmers to sell to Cottco, a ginning company part-owned by the government.

For the 2016–17 farming season, government-sourced cotton farming inputs worth US\$36 million were distributed to farmers through the Cotton Company of Zimbabwe (Cottco). The support took the form of free inputs (planting seed and fertilisers) to 200,000 smallholder farmers representing 225,000ha, who were expected to sell their cotton to Cottco at an announced price of US\$0.55/kg. Other private-sector actors expressed concern over the lack of transparency of the government in awarding the Fertiliser Seeds and Grain company (FSG – see below for more information) the cotton input scheme, as there had been no tender issued and the selection process had been unclear. In a closed interview with a top FSG official, there were indications that the company is well connected to high-level officials in government, some of whom have shares in Cottco. This government intervention with free inputs and price support is likely to distort contract-farming arrangements, increase the proportion of free farmers and also possibly boost incomes for smallholder farmers.

During the 2013–14 season, Cottco was the largest financier of inputs, accounting for 27 per cent of the total investment, followed by China-Africa Cotton, Cargill and Sino-Zim, accounting for 14 per cent, 11 per cent, and 10 per cent, respectively.

The fertiliser industry comprises local production companies and traders who import nitrogen and compounds to sell in Zimbabwe. The five major fertiliser production companies are ZimPhos (a primary producer of phosphates), Sable Chemicals (primary producer of nitrogen) and secondary producers, namely Omnia, Zimbabwe Fertilizer Company (ZFC) and Windmill, all of which produce compounds and fertiliser blends. Numerous traders have emerged including Fertilizers, Seeds and Grains (FSG), Damara, Profert, Grow Agriculture and Nyiombo, which import fertilisers to fill the gap in local supplies.

There are over 40 agro-dealers participating in the supply of insecticides and herbicides, including large players like ZFC, Windmill (both of which also produce fertilisers, as stated above), TSA, Agricura and Curechem. The bulk of the chemicals used are imported, mainly from Asia (Zim-ACP 2014), with some firms also involved in formulating and repackaging customer-suited volumes to meet demand. There are numerous other agro-dealers in the form of rural shop operators who sell various assortments of inputs together with other basic goods such as groceries. As stockists and suppliers of agricultural inputs to the farming households, they play the crucial role of enhancing accessibility of these inputs by bringing them in close proximity to the farmers. Wealthier farmers do obtain inputs from these agro-dealers, particularly in light of the inadequate provision of inputs by contractors.

In terms of labour inputs, most of the labour is from the household, although hired labour can be engaged during cotton picking and weeding times. Contrary to widely held perceptions, labour shortages are prevalent in rural areas.

Production

Data is lacking on the exact number of farmers now engaged in cotton growing, especially after the near-collapse of the sector, but evidence suggests that more than 200,000 farmers scattered across over 85 per cent of the country grew cotton in Zimbabwe in 2010–11 (ZEPARU 2014). At that time, cotton was the second most important cash crop after tobacco. Cotton growers are predominantly male-headed smallholder households who rely on family labour for almost all farm operations. Out of the 200 surveyed households, 91.4 per cent reported that cotton production is controlled by men, with women representing only 6.1 per cent, and the remaining 2.5 per cent controlled by men and women together. In rare cases, labour is hired during peak periods for weeding and harvesting. Payment for hired labour is rarely cash-based but made in-kind with food, groceries or livestock. In cases where the husband is involved in off-farm income-generating activities, farm operations are undertaken by women and children, with the husband still responsible for making key decisions. Because of long distances to common buying points (CBPs) and the time it takes to receive payment once cotton has been sold (and the marketing process in general), men dominate the marketing of seed cotton while women stay at home.

In parts of Zimbabwe, seed-cotton production is the mainstay economic activity and livelihood option for smallholder farmers. FGDs with smallholder farmers indicate that cotton is their main livelihood source, accounting for an estimated 60 per cent of their family incomes. Besides cotton production, other livelihood options in semi-arid areas of Zimbabwe are maize, livestock, selling firewood collected from the forests and mining. Although it is recommended that farmers grow small grains such as millet in dry areas, they prefer to grow maize as a food-security crop (maize is the dominant staple food for Zimbabweans). Livestock contributes 10 per cent to the farmers' livelihoods while sesame

production, an emerging crop enterprise, averages 8 per cent. Sesame is emerging as a substitute for cotton in terms of cash earning in some areas. Despite low yields, farmers see huge potential for sesame to become a viable substitute for cotton as a cash crop. Non-timber forest products (firewood and wild fruits) contribute about 2 per cent to farmers' livelihoods (Table 8).

Table 8: Farmers' income options in Gokwe and Sanyati, Zimbabwe

Enterprise/livelihood option	Percentage Contribution (%)
Cotton	60
Maize	15
Livestock	10
Sesame	8
Firewood and wild fruits	2
Other	5
Total	100

Source: FGDs (2016), based on average weightings across the eight FGDs.

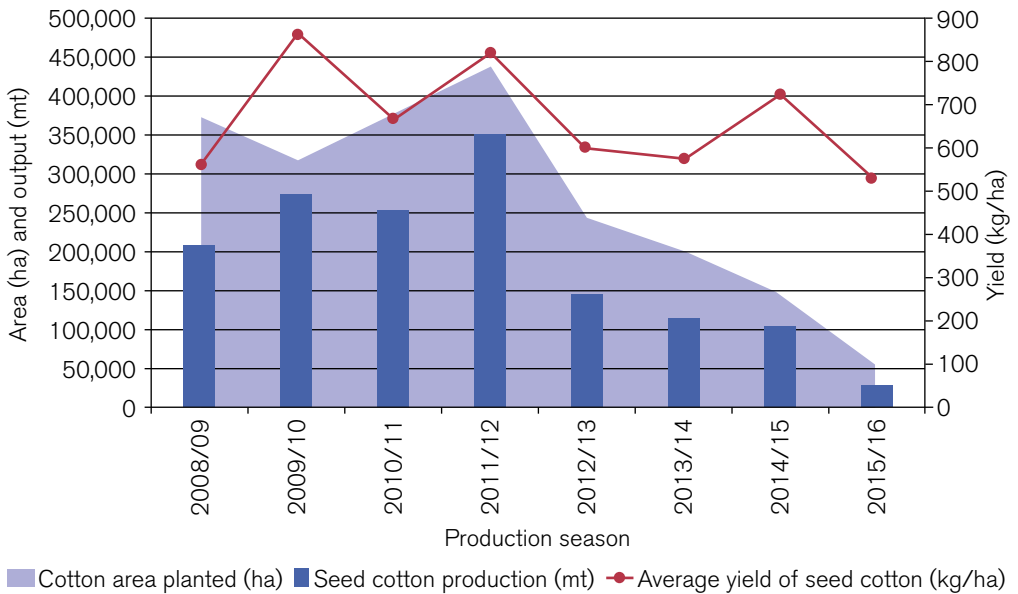
The mean age of cotton farmers is 44 years.

There is little involvement of cotton farmers in value addition, such as ownership of ginneries (see below). According to a key informant, some farmers in Gokwe through the Gokwe North Farmers Association (GNFA) have been purchasing cotton-planting seed directly from Quton as an organised group for some time. But this cooperation could not be sustained due to corruption in the group leadership and lack of support, as some members pulled out of cotton production when prices began to fall from 2011 onwards. Attempts were made in the 2012–13 season by farmers to toll-gin and export their own seed cotton following continued price disputes between ginners and farmers. The GNFA and some Federal Cotton Producers Association (FCPA) members in Checheche were behind this initiative. It failed, however, because most ginning companies indicated that they did not have facilities for toll-ginning and because farmers needed to go through a formalisation process to gin and export their lint. Since then, according to key informants, frustrated farmers in these areas have resorted to shifting to other income-generating activities unrelated to cotton.

Zimbabwe, like Zambia, has cotton yields far below varietal potential, which are also erratic because of poor agronomic practices and droughts. Average seed-cotton yields have generally been declining since 2004, with a high of 1,098kg/ha in 2004 and a low of 519kg/ha in 2016 (AMA 2015) (Figure 9). Current yields range between 600 and 800kg/ha.

Also in line with Zambia, high prices in the cotton sector in Zimbabwe prevailed in the 2010–11 season, when there was strong demand for lint in China as a result of Chinese stock-holding policies. In that season, ginners were buying seed cotton at between US\$0.85/kg and US\$1/kg – double the prices of the previous season. In 2011–12, international lint prices declined sharply following an upward shift in supply in response to price incentives in the previous season and decreased demand for lint in China. Lower prices as well as natural factors such as late rains and, in some cases, incessant rains, have contributed to decreased output. When the price of cotton plummeted, most farmers reportedly shifted to tobacco, which fetches a higher price. Seed-cotton production in Zimbabwe declined by 92 per cent from a peak of 350,703t during the 2011–12 season to only 28,598t during the 2015–16 season (Figure 9).

Figure 9: Seed-cotton production trends in Zimbabwe, 2009–16



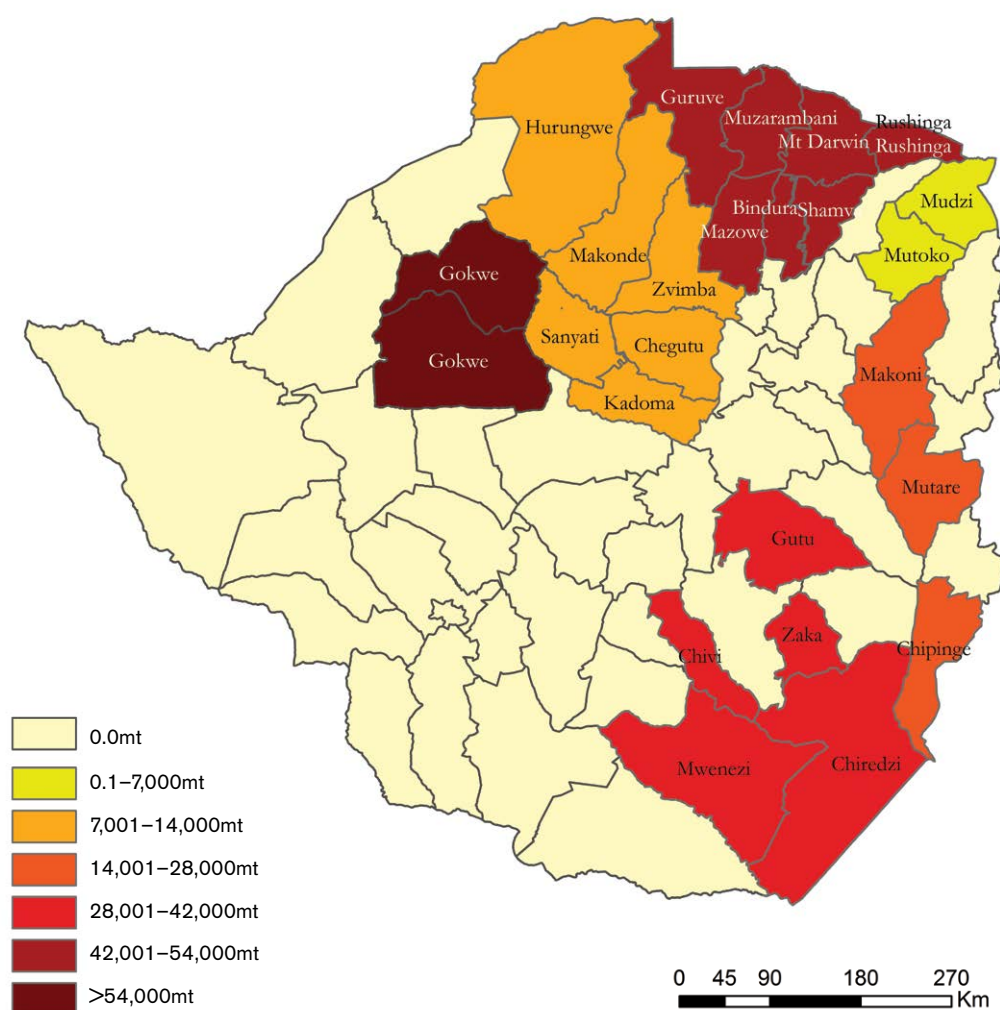
Source: AMA end of year cotton reports from 2011–2014 and MAMID (2013 and 2014)

Since the 2015–16 season, the government of Zimbabwe has intervened in the sector by offering free inputs and producer price support to farmers, to save the sector from total collapse and reverse the decline in output. Based on a key informant interview with an employee of the Fertilizer Seeds and Grain (FSG) company, the private company contracted to supply cotton inputs on behalf of the government, and about US\$36 million has been made available for cotton by the government – targeting 200,000 smallholder farmers and 225,000 ha of land during the 2016–17 farming season. In light of these efforts, the sector still offers the potential to support the livelihoods of up to approximately 600,000 people, including farmers, farm workers, their families and industrial workers.

Around 40 per cent of Zimbabwe's cotton is grown in the Western Region, which encompasses Gokwe and Sanyati (Figure 10). While cotton production has substantially decreased in other cotton strongholds of the country, this region is still producing significant output. Furthermore, the Western region performed much better compared to other areas during the 2015–16 farming season despite the El Niño drought conditions that prevailed across the country, which had extremely detrimental effects on crop harvests.

All cotton produced by smallholder farmers is handpicked, which has contributed to the country's record for quality premiums in international markets. However, in light of the recent challenges that have hampered the sector, these premiums and this reputation for quality has not been sustained.

Figure 10: Major seed cotton producing districts of Zimbabwe (metric tons, 2014–15 season)



Source: Compiled by authors

Ginning

The liberalisation of the cotton industry two decades ago triggered a remarkable growth in the number of private-sector players involved in financing the production and procurement of seed cotton in Zimbabwe through contract farming with smallholder farmers. In 1994, the parastatal Cotton Marketing Board was privatised into an effective duopsony of Cottco and Cargill. From these two players, the number of cotton-contracting merchants grew to 15 involved in financing the production and procurement of seed cotton through contract farming with smallholder farmers by 2013 (peaking at approximately 28 ginners in 2007–08). The cotton ginners with operations in Zimbabwe, their origins and capacities are presented in Table 9 below.

Following an increase in international lint prices in 2010–11, a number of companies – many with Asian ownership (see Box 6) – responded to the price signal by joining the industry, with existing ones seeking to expand operations. This resulted in the expansion of the total ginning capacity¹¹ to 750,000t as each company invested in their own ginning infrastructure.

The drop in international lint prices in 2011–12 had major implications for the domestic prices of seed cotton, and precipitated a decrease in the number of contracting companies in cotton. Low international lint prices have made cotton production unviable for many companies. The number of contractors gradually fell from 23 (in 2008) to 15 (2013) and then to 8 (2016). In the 2014–15 and 2015–16 marketing seasons, capacity utilisation was only 13 per cent and 4 per cent, respectively, of the total available ginning capacity.

With the arrival of new buyers following the liberalisation policy, challenges of market organisation and coordination along the value chains (via contract farming) have emerged. These took the form of price disagreements, input disputes (regarding such issues as quality, time of delivery, adequacy and cost), input diversion by farmers, defaulting on input repayments and side-trading.

The participation of each cotton contracting company in the cotton-marketing seasons, as indicated by the farmer respondents, is shown in Figure 11. Cottco, Olam, Grafax and Alliance Gineries have been consistent in their participation in the market in the two areas over the target period (2010–16). Cargill, one of the traditional giants in cotton, ceased operations in 2014, citing unfair competition and lack of viability.¹² Cottco was a parastatal, then was privatised, and has now had its large debts assumed by the Zimbabwe Asset Management Company (ZAMCO) in a debt/equity swap. The government currently owns 65 per cent of Cottco, and has effectively become the majority shareholder (Majaka 2016).

¹¹ The seed cotton harvested by the farmers is bought by the contracting companies for ginning into lint and seed at the ratio of 41:58 per cent, respectively (one per cent is accounted for by ginning losses).

¹² Some companies that had invested little or nothing into the growing of the crop by way of contract farming, as required by SI 142 of 2009, were being allowed to buy cotton sponsored by other companies, thereby contributing to the high default rate.

Table 9: Cotton ginning companies in Zimbabwe from 1994–2015

Company	Ownership	Inception Year	Ginning capacity (t per annum)	# of contracted farmers (2015)	Qty of Seed Cotton ginned in 2015 (t)	Market Share 2015 (%)	Operating Provinces*
Alliance	Indian	2004	44,550	13,958	14,131	13.5	MC, MW
Cargill	American	1997	52,800	28,472	0		MC, MW, MD, MS
China Africa	Chinese	2013	65,000		14,436	13.8	MD, MW, MC
Cottco	Zimbabwean	1994	171,700	134,898	29,775	28.4	MN, MC, MW, MS, MD
Cottzim	Indian	2009	21,000	2,707	0		MW
Fahad	Tanzanian	2009	13,200	3,604	0		MC, MD
Grafax	Indian	2003	53,000	11,959	12,945	12.2	MN, MC, ME, MW
Insing	Indian	2004	13,700	5,000	0		MC, MW, MN, MS
Jinmac	Zimbabwean/ Chinese	2011		4,507	0		MW, MD
Olam	Singaporean	2005	30,000	31,342	13,995	13.3	MC, MW, MD, MS
Parrogate	Indian	2004	55,900	3,958	3,454	3.3	MN, MS
Romsdal	United Kingdom	1998	35,000	13,159	0		MN, MC, MW, MD, MS
Sinotex	Chinese	2012	35,000		6,551	6.2	MN, MS,
Sino Zim	Chinese	2009	30,000	18,000	9,711	9.3	MC, MW, MD, MS
Southern Cotton	Zimbabwean	2002	26,600	1,500	0		MC, ME, MS, MN
Viridis	Chinese/ Zimbabwean	2011		9,283	0		MW, MD

*MN=Manicaland, MC=Mashonaland Central, ME=Mashonaland East, MW=Mashonaland West, MS=Masvingo and MD=Midlands

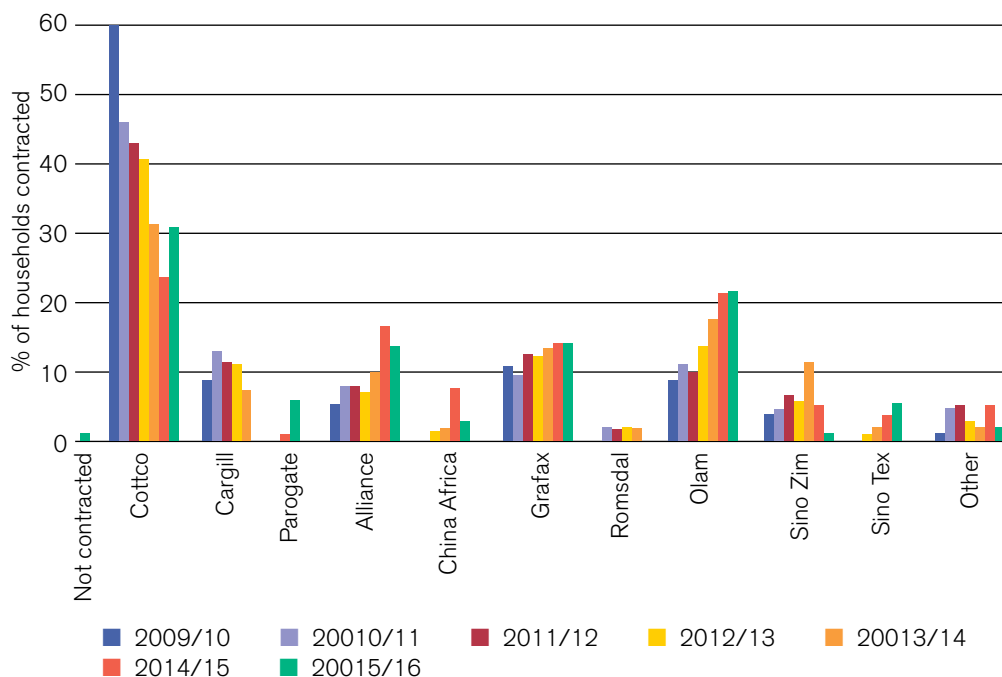
Source: AMA (2012, 2015); Buka (2016); ZEPARU (2014)

Box 6: Chinese FDI in Zimbabwean Cotton

The 'look east' policy resulted in increased Chinese foreign direct investment (FDI) in Zimbabwe, influencing its agrarian transformation in terms of structure, tenure and institutional arrangements, as well as in other sectors of the economy such as mining, energy and manufacturing. By offering aid with no strings attached, China has presented an attractive and unique alternative to conditional Western aid to Zimbabwe. Chinese investments in agriculture have been especially pronounced in non-food commodities such as tobacco and cotton. Chinese investors have, since 2010, invested in the cotton sector as private companies on their own or as partnerships with government entities. To date Zimbabwe has seen four Chinese investors join the cotton sector. Sino Zim, a Zimbabwean government and Chinese private-investor joint venture, started business in Zimbabwe in 2010, contracting cotton farmers, ginning and processing lint in the apparel and textile industry. It has a ginning capacity of 35,000t, with its main plant situated in Harare. Viridis had been a Zimbabwean government company (through the army), entering into a partnership with Chinese investors in 2010. They contracted, bought and ginned cotton, but closed business in 2013. Sinotex and China Africa Cotton are private Chinese investors involved in cotton contracts, buying and ginning (with a ginning capacity of 30,000t in Kadoma and 40,000t in Gweru, respectively) that started their operations in 2012 and 2013, respectively. Sinotex shut down in 2016, but China Africa is still operational.

In line with Zimbabwe's indigenisation policy, foreign investors in ginning and textile have generally sought to abide by the 51 per cent local shareholding rule as a prerequisite for continued operations in the country. Sino Zim, whose conception involved a partnership between the Zimbabwean government and Chinese investors, have thus easily complied with the policy requirement. In contrast, China Africa Cotton and Sinotex, which are wholly privately-owned, have faced much greater challenges in complying with the indigenisation policy and thus sustaining their business operations in Zimbabwe. (As of the time of writing, they had still not done so.) The indigenisation policy was singled out as one impediment to investment in the cotton sector by foreign multinational companies, and reflects a general trend of cooling Zimbabwe-China relations. This policy stance has resulted in most foreign companies either folding up altogether or scaling down operations. According to KIIs, some Chinese companies, specifically China Africa Cotton, have allegedly been colluding with influential politicians and local businesspeople to give them false shareholding in the company, in a bid to meet the deadline for compliance. They apparently also made frantic (and ultimately failed) efforts to change their name to China Africa Investment Company.

Figure 11: Trends in cotton contracting by companies (2010–16), Zimbabwe



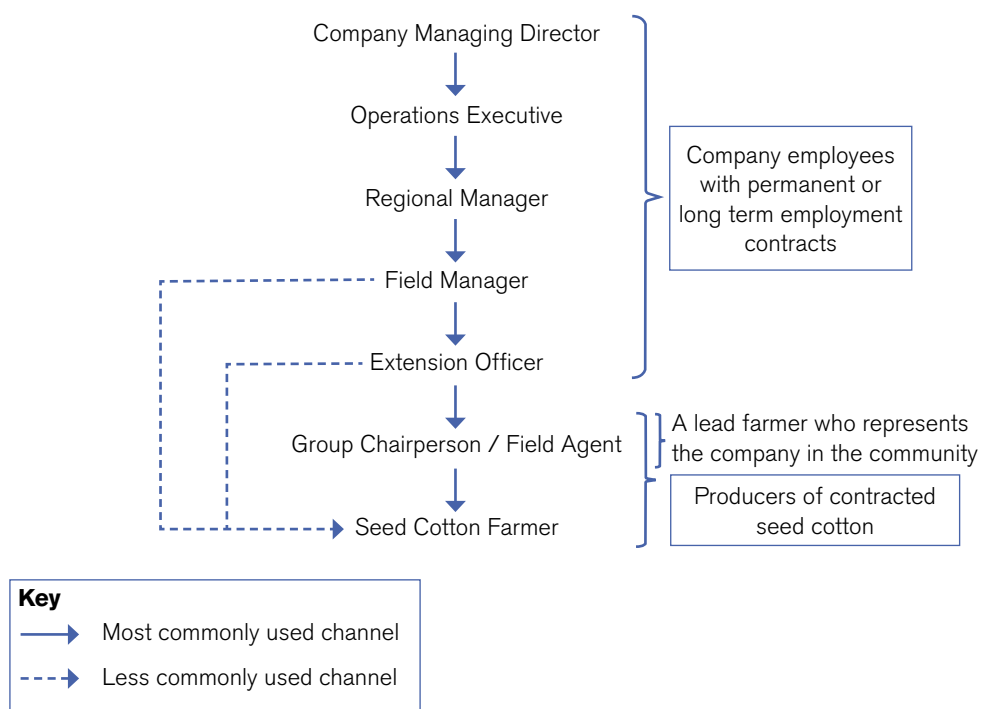
Source: Household survey (2016)

Sinotex and China Africa Cotton have also been consistent participants in the market since joining the industry. Sino Zim could not participate in 2015 after having participated consistently since 2010, due to economic and financial challenges faced after vertically integrating its operations into spinning and weaving. The company's financial challenges caused it to lay off over 400 workers in 2015.

Of particular interest is the presence of Cottco, which has also used two of its subsidiary companies, Cotpro and Mortmate, to conduct business in some parts of the Western Region where it has spinning and weaving facilities. The farmers tend to identify more with these ancillary companies than with the parent company, and may not be aware of the existing ties among these companies.

Figure 12 below shows a generalised structure within ginning companies in Zimbabwe, with direction and information flowing from top to bottom, and information flowing from the bottom – the field level – up. The number of staff at each level increases from the top to the bottom of the chain of command. Our research focuses predominantly on the behaviours of 'lower'-level staff at the interface between the ginning company and the farmer, who strongly contribute to determining buying practices – and therefore informality – within the value chain.

Figure 12: Generalised structure of ginning companies' employees and field-level representatives, Zimbabwe



Source: Key informant interviews (2017)

Buyers and field agents

The field manager, extension officer and field agent (also referred to by some as group chairperson) are directly in contact with farmers from whom they buy seed cotton – from the initial stage of contracting throughout production and marketing. Field managers and extension agents are employees of the companies, whereas field agents are self-employed but will work in a given season to represent a particular ginning company. During the buying of seed cotton, the ginner employs a buying team at the Common Buying Points (see below) to issue empty wool packs and purchase seed cotton.

Performance targets are set at all levels of the company's buying hierarchy, starting with the chief executive officer and operations executive, who are responsible for the company's national target. The company's target is broken down by depots, where field managers are given their targets. The field manager will then break the depot target down by extension officers, who in turn break it down to the level of field agents. The ratio of extension officer to field agents varies from company to company; there can be 10–30 field agents per extension officer. Each field agent will be responsible for a group of farmers comprised of 25–150 members, depending on the company. Field agents are normally well-respected farmers amongst the communities and could be lead farmers,

outspoken politicians or religious leaders who hold trust and influence in the groups of farmers they lead.

Intake targets are normally based on the final crop forecast for each area, calculated by the extension officers of the companies operating there. The general formula used to calculate crop forecast is as follows:

$$YpH = \text{plant population} \times \text{boll count} \times \text{boll weight}$$

Where: *YpH = yield per hectare*

Plant population = number of plants per hectare

Boll count = number of mature bolls per plant

Boll weight = projected average boll weight

The estimated yield per hectare is then multiplied by the number of hectares grown, or simply added up across all farmers to estimate the total seed cotton intake projected for the area. However, these estimates are often inaccurate because cotton company representatives tend to base their targets on conventional yield calculations that assume optimal conditions often not obtainable at the smallholder farmer level. When the selling season begins, the agents are issued with wool packs according to the estimates they submitted.

Field agents are not formal, contracted employees of the ginning companies. Their role is to link the company and farmers, and to coordinate company activities on the ground, including recruiting farmers for contracting, assisting in distribution of inputs, monitoring planting and crop development, analysing company's competitor activities and providing updates on these activities through field officers or area managers. They also facilitate distribution of wool packs during harvesting, and mobilise farmers to deliver seed cotton to the CBP. No contract is signed between the ginner and the field agent; instead, a verbal agreement is made based on social understanding between the extension officer and the field agent. Field agents do not engage in *formal* buying of seed cotton, as in the Zambian case, mainly because purchases are required by law to be conducted through CBPs. However, our research suggests that cotton buying does occur outside of the CBPs.

Field agents are key to monitoring the activities of other farmers and their company's competitors on the ground. They report cases of 'misbehaviour' (namely, side-selling and input diversion) to extension officers of the contracting company. Thus, if a company is found to engage in farm-gate purchases, the field agents will quickly report it to the extension officers who in turn will verify and report the practice to the AMA.

In cases where the ginner provides transport to ferry seed cotton from the farm gate to the CBP, the field agent's home is normally used as the 'collection point'. It is important to note that the actual purchase of seed cotton is done at the CBP and not the collection

point. When such seed cotton arrives at the CBP, it does not go to the ginner's area in the CBP but is first vetted before being purchased.

For mobilising seed cotton for the company, field agents are paid on a commission basis, though the incentives vary from company to company. Mobilising by field agents is limited to encouraging and convincing farmers in the group to deliver seed cotton to the CBP. The group's total volume of seed cotton delivered and amount of loans recovered determine the agents' performance rating. Performance targets for field agents also include rates of wool-pack recovery based on the number of empty wool packs given out to farmers. If field agents exceed given targets, they receive proportionate increases in the commissions they receive. Commissions are normally paid at the end of the buying period after losses have been factored in. The payment of commissions to field agents varies from company to company; some pay US\$1 per bale of seed cotton, while others pay US\$0.1 per kg of seed cotton bought from the agent's farmers. Other companies give the field agent a lump-sum figure of commission (such as US\$100) that is decided upon by the ginner on a case-by-case basis at the conclusion of sales. (This statement is based on information gathered from the field agents and company manager interviews.) Commissions are not necessarily predefined, but based on a subjective determination by the company's hierarchy.

A field agent who exceeds a target can be promoted to cashier in the following season or, in some cases, an Area Extension Officer (that is, a formal employee of the company). In the event of failure to achieve a target, there is nothing that a ginner can do to penalise the agent, as there is no written contract specifying actions that may be taken against the agent; but the chances for such an agent to be re-engaged in the following season are very slim.

A variety of other performance-based incentives are offered to the field agents by some companies. These can take the form of bicycles, knapsack sprayers, company regalia (such as branded T-shirts, work suits, hats, wrapping cloths for the women, calendars, diaries or notebooks) and Christmas 'grocery' hampers. These are normally awarded for outstanding performances (such as meeting/exceeding seed-cotton intake targets, recovery of unused wool packs and other successes), or as motivation for the agents to effectively monitor and guard against infringement on the company's interests (agents are instructed to immediately report any observed infringement to the company management in the area). Other incentives may be provided in the form of promises of seasonal jobs within the company for the agents themselves, or for their children as clerks/buyers or cotton-graders. Field agents are also assured of free input packages every season for their own farming.

Because of these incentives, field agents sometimes side-buy seed cotton to achieve or increase their commissions. All agents interviewed confessed to having solicited seed cotton from farmers belonging to other companies, so that side-buying is a strategy

towards meeting intake-volume targets. The field agents also indicated that the area managers of the companies they represent do not have a problem with receiving seed cotton sourced from non-contracted farmers. In fact, they actually encourage side-buying to enhance their seed-cotton intake, though they pretend not to be aware of such practices given the legal implications

The field agents also may facilitate 'green buying', an illegal practice whereby the seed cotton is paid for in advance while still in the field. The company representative is called to come and secretly make advance payments to those farmers with a predicted high crop as a way of securing seed-cotton intake volumes for the company.

Failure to mobilise adequate seed cotton from the company's contracted farmers compels the agents to solicit non-contracted seed cotton under the guise of buying 'free' cotton. Under the AMA regulations, seed cotton is regarded as 'free' if it is "grown by a grower without contractual obligations or is above the contracted volume agreed to between the grower and contactor".¹³ The bone of contention is what actually constitutes the "above contractual obligations" amounts. In instances where the crop is contested, 'mobile buying' (following farmers and buying at the farm gate) may be instituted by the company extension officers, with the assistance of the field agents, to divert the seed cotton from passing through the mandatory CBP and allow it to go straight to the ginner. Due to the thin presence of regulators on the ground, disputes arising during the marketing period are not easily resolved, thereby prejudicing the affected ginner. One of the major obligations of the field agents is to ensure that contracted growers remain loyal to the contractor regardless of the level of input support provided.

Informal 'briefcase' traders

'Briefcase buying' is no longer a common practice, but it did thrive in Gokwe during the peak of informality in 2010–11. The term refers to agro-dealers/grocery-shop owners buying small quantities of seed cotton in picking bags (of 10–15kg) from farmers with immediate cash needs, at lower prices or in exchange for groceries. Purchases were conducted at the agro-dealer's shop, where the cotton would then be bulked up into bales and resold at a profit to selected cotton companies. Although the practice was initially seen as helping farmers with insignificant quantities of cotton or leftovers to sell, it was discouraged by AMA through fines because it had also become an avenue for side-marketing. It emerged from FGDs that some rural agro-dealer shops were also used by some cotton companies as conduits for conducting advance payments for cotton in exchange for groceries. The practice was outlawed when emphasis was placed on using CBPs for conducting all seed-cotton-related transactions. There were only a few incidences reported to AMA then, and offenders were fined. Evidence from FGDs suggests that this practice has now disappeared.

¹³ Statutory Instrument (Amendment) 63 of 2011

Textile manufacturing

In Zimbabwe, a mandatory 30 per cent quota has been set for lint to be reserved for the local spinning, weaving and textile-manufacturing firms. The local industry has failed to absorb even a third of this quota due to constrained capacity utilisation. The textile industry, currently composed of eight spinners, has four main players, namely, Zimbabwe Spinners and Weavers, Sino-Zim, Modzone, and Twine and Cordage.

Seventy per cent of cotton lint is destined for the export market, without further processing and value addition. Major destinations for Zimbabwean lint are South Africa, China, Indonesia and Malaysia (ITC 2014). South Africa is the leading destination for lint from Zimbabwe, although the bulk of it is then re-exported again. Exports to China have declined significantly in recent years because of low prices offered and high tariffs applied to imported cotton. During the 2014 export-marketing season, total cotton-lint exports from Zimbabwe amounted to 45,348t (AMA 2014).

Oilseed processing

Cottonseed is utilised locally for edible oil and animal feed. Zimbabwe has a total installed capacity of 530,000t for processing oilseeds by seven major oil-pressing companies. However, capacity utilisation in 2009 was estimated at 63 per cent due to frequent plant breakdowns, power outages and insufficient raw materials. Major animal-feed manufacturers include National Foods, Blue Ribbon Foods and Agrifoods, which together command a market share of 40 per cent. There are also a significant number of smaller animal-feed manufacturers.

Institutions of sector governance

Value chain and sector governance in Zimbabwe share many similarities with Zambia, with institutions in place to uphold the 'concentrated competition' mode of production around contract farming. However, the recent re-entry of the state into the cotton market in Zimbabwe will likely drive a divergence between the two countries.

There are four main farmer representative bodies in Zimbabwe, of which three represent the interests of smallholder farmers. These are the Zimbabwe Farmers Union (ZFU), the Zimbabwe Commercial Farmers Union (ZCFU) and the Zimbabwe National Farmers Union (ZNFU). White, large-scale farmers are represented by the Commercial Farmers Union (CFU).

A number of cotton-specific commodity associations also exist to represent farmers. These include the Cotton Producers and Marketers Association (CPMA) of the Zimbabwe National Farmers' Union (ZNFU) and the Federal Cotton Producers Association (FCPA), which has a weak alliance with the ZFU. The FCPA suffered from a lack of formal recognition by the government, since it was perceived to be donor-driven and backed by some civil-society organisations that the government considers to be hostile. As such,

they were sidelined from participation in important cotton-related meetings, particularly on price negotiations. FCPA had to forge a weak alliance with the ZFU as a means to participate in cotton meetings.

These farmer organisations and commodity associations are supposed to play an important role in representing smallholder cotton farmers' interests in advocacy discussions with the government and, in particular, in price negotiations with cotton ginners. However, as discussed later, the multiplicity of farmer representative organisations, without clear lines of differentiation in mandate, has created confusion among smallholder farmers. As smallholders are often unaware of what each farmer representative organisation stands for and what the possible benefits of membership would be, it is a challenge to figure out who should represent them. Subscriptions to farmer representative organisations are thus very low. Farmers appear to need stronger representation to facilitate an enabling environment for successful farming through provision of services, farmer organisation, communication, lobbying and advocacy.

Of the three officially recognised farmer representative organisations in Zimbabwe,¹⁴ the Cotton Producers and Marketing Association (CPMA, affiliated to ZNFU) is the most vocal. This is probably because its representatives in cotton negotiations are bona-fide cotton growers. The ZFU and the ZCFU have no strong commodity-association structures specifically set up for cotton; although the FCPA is now weakly linked to the ZFU, the Association was not established directly by ZFU or its members. This is despite the ZFU representing the majority of smallholder farmers in the country. The ZFU and ZCFU were criticised by some key informants for fronting office people (non-farmers) to represent cotton growers in negotiations, unlike the CPMA, which has bona-fide cotton producers as representatives in such meetings. During FGDs, farmers accused their representatives of being "insensitive" to their plight to the extent of "being bribed" by the CGA to "sell out" the cause of farmers. It was the CPMA that was instrumental in initiating attempts at value addition (through toll-ginning) of seed cotton at the farmer level. This organisation also took the CGA to the Competition and Tariff Commission (CTC) in 2012 on allegations of collusion in seed-cotton price-setting.

As producer associations, the ZFU, ZCFU and ZNFU have not played an important role in representing smallholder cotton farmers' interests in advocacy matters with the government and in price negotiations with other stakeholders. This has been attributed to the fragmented nature of farmer representation, corruption by some members of farmer organisations, low subscriptions by farmers who seem not to know which organisation to join, or why, and limited government support in terms of funding. The ZEPARU (2014) study found ZFU to be uniquely suited for playing a transformative role in furthering cotton farmers' interest because it has representatives at provincial, district

¹⁴ The Zimbabwe National Farmers Union (ZNFU, to which the CPMA is affiliated); Zimbabwe Farmers Union (ZFU); and Zimbabwe Commercial Farmers Union (ZCFU).

and grassroots levels throughout the country, backed by a well-equipped secretariat at its head office in Harare. However, ZFU's perceived suitability does not seem to translate into effective representation of farmers or enhanced lobbying and advocacy on issues affecting cotton growers, as pointed out by farmers in this research. Another representative body that exhibited great potential to represent cotton farmers (from around 2007) was the Federal Cotton Producers Association. However, its lack of official recognition (as explained above) appears to have severely limited its potential.

The Cotton Ginners Association of Zimbabwe (CGAZ) was formally instituted in 2006 as the National Association of Cotton Ginners, Merchants and Buyers (NACGMB), but was renamed the Cotton Ginner Association of Zimbabwe in 2007. It is a non-profit representative organisation of cotton merchants and ginners that supports contract seed-cotton production. Membership is voluntary. The association was formed in response to the growing need for the ginning sector to speak with one voice to the government and other stakeholders. The CGA is also tasked with acting as a watchdog – monitoring field operations of individual members, and ensuring fair trading practices and adherence to quality standards by members – to ensure that seed-cotton sales are properly conducted and to help curb side-trading. The CGA is governed by a constitution and by-laws in conformity with the existing legislation, namely SI 63 of 2011 and SI 142 of 2009. The code-of-conduct stipulates disciplinary procedures to be followed when dealing with any member found to be violating the by-laws. The penalties for breaching the code-of-conduct range from fines to expulsion from the association “in extreme cases of deliberate acts of neglect or very serious offence”. Expulsion was perceived to have serious implications for participation at CBPs and CIDPs (common inputs distribution points), as these are normally located on private premises offered by members for communal use by all companies. There are no known cases of expulsion and other forms of penalisation as such by the CGA.

The CGA is a member of the African Cotton and Textile Industries Federation (ACTIF) through the Association of Cotton Value Adders in Zimbabwe (ACVAZ), the country's apex body in the cotton-value chain, which is affiliated to the Eastern and Southern African Cotton Organisation (ESACO). The CGA members promote the production of seed cotton and its by-products through contract farming, while ensuring that quality standards are maintained in the domestic cotton industry. The association also advocates for fair-trade practices to prevail in the cotton industry in its bid to become a world-class player in the promotion of quality production, processing and marketing of Zimbabwean seed cotton and its products. The CGA provides a strategic link to international buyers and organisations.

The CGA has been helpful in reducing opportunistic behaviour by some ginners, particularly in the early phases of their investment cycles, when some ginning companies tried to do away with regulatory procedures such as registration. One such prominent

case arose between the CGA and Sino-Zim Cotton, adjudicated in the High Court of Zimbabwe (case number HC4842/10) in July 2010. The judgment interdicted Sino-Zim Cotton Company from purchasing or receiving any contracted seed cotton from growers contracted by CGA members, including any seed cotton packed in wool packs belonging to other merchants. Sino-Zim was then ordered exclusively to purchase 'free' seed cotton, and to do so through CBPs used by other cotton merchants in Zimbabwe. Further, Sino-Zim was banned from "selling, exporting or howsoever disposing of any seed cotton purchased in Zimbabwe during the year 2010". Following this historic court ruling, Sino-Zim had no choice but to join other merchants in the CGA as a fully subscribed member during the 2010–11 season. Over the years, following government intervention in cotton production and marketing since the 2015–16 season, the CGA has weakened. Currently six ginning companies make up the membership of the association (down from 15 in the 2012–13 season): Sino-Zim, Sinotex, Alliance Ginneries, ETG Parrogate, Grafax Cotton and Olam Zimbabwe. While other companies have failed to maintain business and pulled out of the sector altogether, Cottco and China Africa are still operational but have pulled out of the CGA.

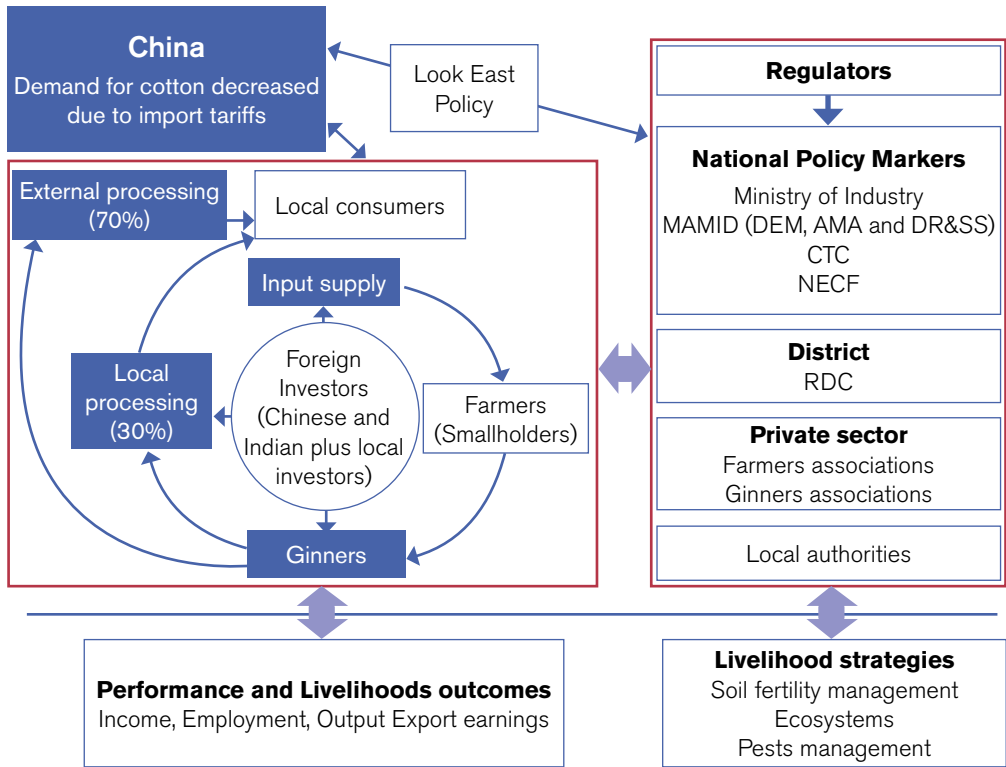
There have been reported cases of power struggles among ginning companies in the CGA, with some traditional players such as Cottco dominating other smaller players.

Sector regulatory framework

The regulatory framework of the cotton sector, from production to consumption of final products, including by national, sectorial and private-sector organisations, is shown in Figure 13.

Because of institutional and policy failures to regulate behaviour in the Zimbabwe cotton sector and to ensure trust and coordinated effort among members, the sector was approaching its demise, with production reaching a record low of 28,000mt, in the 2015–16 season, down from a peak of 350,000mt in 2011–12. In an effort to support declining cotton production amid persistent value-chain conflicts, as described above, particularly associated with financing and buying of the product, the government of Zimbabwe has since the 2015–16 season committed to supporting cotton production through providing free inputs to all farmers over and above those given by ginners through contracts, and announced a minimum guaranteed price of US\$0.45/kg. Although it was earlier announced that all supported farmers were to sell their seed cotton to Cottco, a government-owned company, other ginners who had registered earlier also had a right to buy. Cottco was not recovering any inputs from farmers, purchasing seed cotton at a flat price of US\$0.35/kg, and promising farmers a US\$0.10/kg price adjustment at the conclusion of the marketing season, to bring the final price to US\$0.45/kg.

Figure 13: Regulatory framework of cotton production and marketing in Zimbabwe



Source: Authors' compilation

Following this dramatic move by Cottco, the majority of ginneries resorted to cancelling farmers' debt, buying cotton at US\$0.36/kg, and promising farmers a US\$0.09/kg price adjustment at the conclusion of the marketing season to bring the final price to US\$0.45/kg. The intervention of the government in the cotton market has thus created uncertainties for private-sector actors, particularly ginners, and will affect the contract farming arrangements (by implementation of SI 142 of 2009) while crowding out private-sector activity in cotton farming and marketing.

Before looking at the specific regulations around cotton, it is important to acknowledge some overarching national policies. At the national level, the government of Zimbabwe embarked on a "Look East Policy" in 2003 to attract new funding and investors, in an effort to sustain the economy in the face of Western isolation. This attracted investment by a number of Chinese companies in the cotton sector, often with close links between these companies and their respective home country's policymakers.

Zimbabwe's Indigenisation and Economic Empowerment Act requires that at least 51 per cent of the shares of every company and any other business shall be owned by Zimbabweans. In line with this policy, the previously mentioned foreign investments in agriculture, such as those in ginning and textiles, have to abide by the 51 per cent local shareholding rule as a prerequisite for continued operations in the country.

The Zimbabwe Agenda for Sustainable Socio-Economic Transformation (Zim Asset), is the current national economic blueprint which emphasises value addition and beneficiation among the four key economic development clusters. In the cotton sector, due to the collapse of clothing and textile industry following the era of economic meltdown, the government is making efforts to support local value-added activities by reserving 30 per cent of all produced lint for the local market. The intention is for as much lint as possible to be processed locally, rather than exported, as is currently the case.

The Competition and Tariff Commission (CTC) is a regulatory body established under the Competition Act with the role of promoting and maintaining competition and fair trade in the economy. It executes its mandate through prevention and control of monopolistic situations and prohibition of restrictive and unfair business and trade practices, and has previously ruled against players in the cotton sector, as discussed later.

The Ministry of Agriculture, Mechanization and Irrigation Development (MAMID) is the ministry responsible for all public services in agriculture (for instance, regulatory, research and extension services) relevant to the cotton sector. The Ministry achieves its mandate through its various departments and parastatals, namely the Department of Research and Specialist Services (DR&SS) and its Cotton Research Institute (CRI), the Department of Agricultural, Technical and Extension Services (AGRITEX), the Agricultural Rural Development Authority (ARDA), and the Agricultural Marketing Authority (AMA). The DR&SS, through CRI, has a cotton-research organisation based in Kadoma, with experimental stations in Shamva and Chiredzi. Research at the government institute focuses on four areas: seed breeding (guided by the Seed Breeders' Rights Act and the Seeds Act, and regulated by the Seed Services Institute), agronomy, entomology and pathology. The institute also partners with private-sector organisations in seed multiplication and marketing. The CRI forged a public-private partnership with Quton in 2009. The government of Zimbabwe has adopted a GMO-free policy position, and as a result all cotton grown in Zimbabwe is non-GMO.

Suppliers of other agricultural inputs (fertilisers and agrochemicals) are regulated by the Fertilizers, Farm Feeds and Remedies (FFR) Act administered by the DR&SS. Under the DR&SS, the Chemistry and Soils Research Institute (CSRI) regulates fertilisers, farm feeds and remedies by registering agricultural input sellers, testing laboratories, processors and manufacturers, and regulating the import and export of agricultural inputs, *inter alia*. The Plant Protection Research Institute (PPRI) is responsible for registration of all dealers in agrochemicals and certification of the chemicals for use in the country. The

objective is to ensure availability of quality agricultural inputs and products by providing dependable regulatory services that prevent introduction of pests and diseases. According to some key informants, some agrochemicals imported mainly from China have found their way into the country and are being used by farmers without following the necessary regulatory procedures.

The Department of Agricultural Technical and Extension Services (AGRITEX), under MAMID, was formed as a public agricultural-extension service provider and has service centres spread throughout the country, providing extension services for all crops including cotton. The majority of farmers indicated that the most reliable source of extension service is from government support, supplemented with limited support from contracting companies. Another parastatal, the Agricultural Rural Development Authority (ARDA), formed in 1981 under the Ministry of Agriculture, has the mandate of championing the development of communal farming by providing education and management services to small-scale farmers. This was intended to occur through establishing centres of excellence for farmer learning within farming communities on state land; it has not been effective, however, due to capacity and management issues.

The Agricultural Marketing Authority (AMA) is a statutory body and parastatal established under the Agricultural Marketing Authority Act (CAP 18:24), which administers regulations governing the production and marketing of seed cotton and seed-cotton products. The motivation behind re-establishing the AMA in 2004¹⁵ was a need to bring order into the sector as the market evolved from a monopsony to a duopsony and finally an oligopsony following the market-liberalisation policy of the mid-1990s. AMA's role is to promote the growing, ginning, processing and value-addition of seed cotton and related products; to set and maintain standards relating to quality, classification, grading and packaging of seed cotton; to assist in training, examination and accreditation of seed-cotton graders; and to ensure fair-trade practices in the cotton industry. AMA regulations include a requirement for all players in the cotton industry to be registered in their respective roles, even if those are multiple roles. For example, contractors and buyers have to be registered under separate contracting and buying registrations, even if they engage in both (which is very common). The AMA has been effective in enforcing registration requirements, particularly for ginners. In the few cases where unregistered players had tried to illegally participate in the market, these were promptly noticed and penalised. As such, the AMA is the most important institution in Zimbabwe for the regulation of side-trading.

¹⁵ After re-enactment in 2004, AMA's operations began in 2009.

Although AMA regulations technically provide for production and marketing of 'free seed cotton', as mentioned above, they do not permit any buyer who does not contract with farmers to actually purchase cotton. This effectively means that only registered contractors qualify¹⁶ as legal purchasers of seed cotton, whether produced under contract or independently as 'free seed cotton'. If a ginning company is also a contractor, it makes little sense for them to buy 'free' cotton since they will want to focus on procuring cotton from their contracted farmers to recoup input costs, and to avoid incentivising side-selling within the system, which would ultimately disadvantage them.

According to farmers, besides the hassles of getting registered as free farmers given the thin presence of AMA (and therefore the practical necessity of being linked to a contractor), there is also a notable difference in treatment at the CBPs between contracted and non-contracted farmers. Contracted farmers generally get priority in service by clerks at the buying points. This situation also pushes free farmers to agree to contracts in the following season. A farmer in the Chinyenyetu area of Gokwe North said during the FGD that she was denied selling her crop as a free farmer for a period of two weeks, and that she ended up selling through a contracted farmer to the ginner to which that farmer was contracted.

The financing, production, marketing and processing of seed cotton in the country are governed by two statutory instruments under the AMA Act (SI 142 of 2009 and SI 63 of 2011). Acknowledging that side-selling is perpetrated by the behaviour of ginners and farmers, the legislation seeks to control the activities of ginners and farmers in the contract production and marketing of seed cotton. Statutory Instrument 142 of 2009, which forms the backbone of cotton legislation in Zimbabwe, has the following basic tenets:

- a) Appointment of the Cotton Marketing Technical Committee (CMTC) by the AMA Board to perform functions on behalf of the Board. Members of the committee are to be chosen due to their knowledge, expertise or experience in any facet of the cotton industry, including the growing and marketing of cotton and research-related aspects of the growing and marketing of cotton and cotton varieties. The general functions of the committee are to promote growth of the cotton value chain, set and maintain quality standards in the sector, and promote fair-trade practices.
- b) Compulsory registration of farmers, ginners and associations or unions involved in the production and marketing of seed cotton in any given season. This is meant to ensure the commitment of serious players, not 'fly-by-night' buyers or farmers who would want to come at marketing time to side-trade.

¹⁶Under the AMA Regulations, a series of registrations is provided for producers, producer associations, contractors, buyers, ginners and exporters.

- c) Introduction of a common funding arrangement to ensure adequate funding of the crop while at the same time reducing side-trading.
- d) Introduction of common inputs distribution points (CIDPs) and common buying points (CBPs) to promote transparency in the financing and purchasing of seed cotton, respectively. Inputs are distributed at the CIDPs following a distribution calendar specifying the dates, times and venues. The use of CBPs is also intended to halt farm-gate purchases. All seed-cotton purchases are supposed to be done from the CBP, where each buyer is allocated a buying space. Despite this facility, some seed cotton is still traded at the farm gate.
- e) Issuance of buyer's certificates or licences, in proportion to the level of inputs contracted to farmers and the areas that a company has financed.
- f) Contractors should issue wool packs to their own contracted farmers or free farmers; when buying seed cotton, they should buy seed cotton that is in their own wool packs.
- g) Contractors should observe the standard classification and quality requirements by following the cotton-grading specifications when buying and ginning seed cotton.
- h) Export licences are issued in accordance with the amount of seed cotton bought from contracted farmers and free farmers.
- i) Failure to observe the seed-cotton regulations incurs a penalty or even cancellation of a licence.

Statutory Instrument 63 of 2011 – which was promulgated as an amendment to SI 142 of 2009 – abolished the CMTC, replacing it with the AMA. The amendment was seen as necessary to ensure fairness in the industry, as there were allegations of bias in the negotiation of the producer price for seed cotton. It was observed that farmer representatives in the CMTC were bribed by ginners, resulting in producer prices skewed towards ginners. Furthermore, the CMTC was seen as an agent of price-fixing, and the Competition and Tariff Commission (CTC) ordered the disbandment of price negotiations between ginners and farmers under the CMTC forum. A quota system for lint exports is also administered by AMA.

The close institutional links between AMA and CGA may work against the interests of farmers. For example, it was the perception of all farmers in the FGDs (and again openly voiced during the validation workshop) that the CGA has bought the allegiance of the regulatory body, AMA, to uphold only the interests of the cotton merchants while suppressing those of farmers. Farmers said that they have witnessed CGA staff discharging the duties of AMA in the region. Furthermore, they complained that CGA officers have acted as AMA inspectors, sometimes even with AMA badges and identification cards. During FGDs, farmers expressed their belief that the AMA is biased towards CGA because it is almost entirely dependent on CGA for funding, through

registration fees for seed-cotton buyers and ginnerers. They felt that this relationship between AMA and CGA compromises the former's position of ensuring fair competition and a level playing field in the cotton industry. According to the farmers, it is because of this unholy marriage that a cartel – in the form of the CGA – has been promoted to discourage competition among the ginnerers. This may work against the prices offered to farmers for seed cotton and charged to them for inputs.

During the validation workshop, the AMA officer in attendance was put to serious task by farmers and other stakeholders, who asked her to explain the role of AMA in the cotton sector if not to exploit farmers. It was confirmed that AMA does not have a direct link with farmers due to its thin presence on the ground, and relies on ginnerers to get information on registration of farmers.

District level stakeholders and governance

The Rural District Councils (RDCs), under the Ministry of Local Government, regulate business activities within their localities to ensure order, growth and development in rural and urban settings. In line with cotton marketing, RDCs are noted to be collecting various levies from cotton buyers and ginning companies in their localities. These are formal taxes meant to be used for development purposes in the local area. However, the farmers feel short-changed by the RDCs as, according to the farmers, these funds are not being ploughed back into the communities, for example, through development and rehabilitation of public infrastructure and facilities. Infrastructure is seen to be deteriorating. Farmer representatives and community leaders are said to be weak and liable to corruption (receiving bribes and other incentives such as job provision) by the RDCs as a way of silencing them from demanding services that benefit the communities.

Contracting

As in Zambia, the vast majority of cotton in Zimbabwe is grown under contract-farming arrangements. The standard contracts used by most of the companies follows the template developed during the Cotton Marketing Technical Committee (CMTC) era (2009–11) discussed earlier. The key characteristics of these contracts are as follows:

- The parties to the contract are the individual farmer and the contracting company.
- Their duration is only for a single cotton-growing season.
- In terms of price, the contract obliges the contracting company to pay the grower a minimum price negotiated and agreed between the farmer's registered association and the contractor's association, as ratified by the regulatory authority.
- Quantities of inputs to be provided by the contractor are specified, including their estimated costs and timelines upon which they should be delivered to the farmer. Farmers, through their leader (field agent), register to grow cotton under a contracting

company indicating the hectares (land area) they intend to put under the crop. This is the basis upon which input volumes for each area and each farmer are determined.

- For recouping inputs costs, the contract empowers the contractor to effect deductions from payment to recover the inputs loan in accordance with the regulations (Farmers Stop Order Act).
- Contracted growers are obliged to deliver harvested seed cotton baled in the contractor's wool packs to the contracting company at the nearest CBP.

The input packages for contracted farmers are determined through a process of categorising farmers based on performance (A, B Plus, B and C). The highest-performing farmers, categorised as A, receive slightly more than farmers in lower-performing categories.

The majority of farmers (90 per cent) belong to Group C, receiving the minimum quantities of inputs, which fall short of standard agronomic requirements for optimal crop production. This situation is worsened by the fact that most ginners do not comply with the minimum packages agreed on, based on farmer category – they end up supplying inputs that are short of the agreed package. As a result, the majority of farmers in this category perform poorly, with yields of about 0.55 mt/ha, resulting in estimated losses of US\$148.32 for every hectare of cotton grown (Mutambara *et al.* 2014). Furthermore, the contract is always silent about incentives for quality standards and grading of seed cotton, as well as provision of other services such as extension (discussed further in Section 5).

Price-setting

In Zimbabwe, the price-setting process has been more complicated, conflicted and politicised than in Zambia. Cotton prices in Zimbabwe were previously determined pre-harvest, through negotiations between farmers and ginners via farmer representative organisations and the CGA, and facilitated by AMA. However, despite the agreed pricing framework that took into consideration quality (grade), costs of production and the prevailing international cotton price outlook for cotton lint, there have been allegations of collusion among ginners and corruption in the process of price determination resulting in prices being suppressed in favour of ginners.

There was also lack of order in the price-negotiating process, with stakeholders taking different positions. For instance, in July 2012, the Ministry announced a minimum price of US\$0.77/kg even though the technical committee responsible for price determination, chaired by the AMA, had announced a minimum price of US\$0.35/kg. At that time, the ginning companies were buying the seed cotton from farmers at US\$0.29/kg, prompting the Minister of Agriculture to ban the Cotton Marketing Technical Committee (CMTTC),

invoking SI 106A of 2012¹⁷ and declaring seed cotton and seed-cotton products to be controlled products. According to the Notice, "... if the contracted price under a seed cotton contract is less than the price fixed by the Minister ... the buyer shall only be entitled to recover from the grower the cost of the contracted inputs unless the buyer pays a price equivalent to or in excess of the price fixed by the Minister, in which event the buyer shall be entitled to the seed cotton or seed-cotton products." The notice was ignored by the companies, however, as they continued to buy at prices around US\$0.35/kg, disregarding quality for cotton of higher grade. This is a classic case of divergence between policy and practice where there is general disregard by industry players for policy pronouncements deemed to be inconsistent and/or unfair. Institutional failure to enforce endorsed policy positions, and the inconsistent nature of policy announcements (sometimes changing in a very short space of time) also exacerbates noncompliance to policy in the agricultural sector. This is discussed in more detail in Section 4.

The new Cottco strategy of providing free inputs with government support has challenged prices and buying practices somewhat, particularly as the company withdrew from the Cotton Ginners Association in 2016 – the forum in which ginners decide on uniform prices. Cottco purchased seed cotton at a flat price of US\$0.35/kg during the 2016 seed-cotton marketing season, followed up with a US\$0.1/kg price adjustment at the conclusion of the marketing season, to bring the final price to US\$0.45/kg. The company entered into the market early whilst other players struggled to secure cash for paying farmers due to the liquidity crisis in the country. Although the marketing season was supposed to have begun in April/May, actual buying started in late June, with most of the companies beginning in July. In a bid to counter Cottco's offers, the other players began buying at US\$0.36/kg and telling their farmers that the US\$0.45/kg announced by Cottco was a marketing gimmick. After continued government pronouncements that Cottco would indeed pay the US\$0.10/kg price adjustment, the rest of the companies also began announcing their intention to pay a US\$0.9/kg price differential at the end of the marketing season to match Cottco's offer.

The price adjustments were eventually paid by all companies as promised, but the impact of these changes on the extent of informality in trading (side-selling), and the willingness of other companies to stay in the market, has yet to be assessed. In addition, where farmers used to wait for two weeks to receive payment after delivery of their seed cotton during the past season, transactions by the other merchants during the 2016 marketing season were based on payment of cash upfront, as an adaptation to new competition from Cottco. Only Cottco was giving a 1–2-week waiting period. These delays in payments, according to the farmers, have led some farmers to bribe company clerks at the Common Buying Points (CBPs) to expedite processing of their payments. So, while

¹⁷ The regulations in SI 106A of 2012 (Temporary Controlled Products Declaration [Seed Cotton and Seed Cotton Products] Notice 2012)

common buying points have been introduced as a means to improve monitoring of cotton trade, they have also offered further opportunity for informal practices via rent extraction. Despite the improved price and marketing conditions, the farmers indicated that they are still not happy, and will only be satisfied if the price reaches the 2011 level of at least US\$0.85/kg.

Due to the alleged collusive efforts within – and the strong influence of Cottco on – the CGA, the producer price for seed cotton was generally uniformly at US\$0.30/kg during the 2014–15 marketing season. Government subsidies to the cotton-farming sector in the 2015–16 and 2016–17 seasons that are aligned to Cottco, with a minimum price of US\$0.45/kg, have created an uneven playing field for other ginners in the market, though it appeared to have a public good objective – to revive the sector and get a fairer deal for farmers. The 2015–16 marketing season was characterised by fragmentation of the CGA, with Cottco and China Africa pulling out of the organisation and the remaining companies (Sino-Zim, Sinotex, Alliance, Grafax, Olam and ETG Parrogate) operating as the so-called ‘G7’ (even though there are 6). After pulling out of the CGA, Cottco began offering and paying farmers the higher producer price of US\$0.45/kg in addition to writing off their input loans. This prompted other merchants to follow suit and cancel debts with farmers and, as such, there were no deductions for input costs from the farmers’ sales during the 2015–2016 marketing season.

The disbandment of the Cotton Marketing Technical Committee (CMTC) followed a historic ruling by the CMTC after allegations of collusion among the powerful cotton merchants to pay farmers unfairly low prices during price negotiations in the CGA-dominated CMTC¹⁸ in 2012.¹⁹ Following adjudication of the submission of the ZNFU, the CMTC ordered that members of the Cotton Ginners Association negotiate prices individually with their contracted farmers; and that the Cotton Ginners Association refrain from recommending prices to its members for inputs and seed cotton bought. The overall recommendation of the CMTC in resolving the farmer and CGAZ dispute was that the regulations (Statutory Instrument 142 of 2009 – AMA [Seed Cotton and Seed Cotton Products] Regulations) be reviewed and amended to eliminate those provisions deemed to have been promoting anti-competitive collusion among CGAZ members. The report also recommended the restructuring of the CMTC to ensure a balance in membership between the ginners and the farmers, as a way of diluting the dominant power of the ginners which facilitated the tendency to abuse power with collusive and cartel-like

¹⁸ The CMTC was comprised of more ginners than farmer representatives.

¹⁹ The allegations, as contained in the CMTC ruling were that: ... cotton ginners and merchants who contracted farmers to grow cotton on their behalf were, through the CGA, engaging in collusive arrangements and agreements in their dealings with the farmers, which resulted in their operating like a monopoly. Due to the monopolisation of the cotton market, the CGA was alleged to provide cotton farmers with defective contracts, and offered inflated inputs prices, which negatively affected the farmers. It was also alleged that members of the CGA were buying seed cotton from farmers at the same price throughout the country, as well as offering the same terms and conditions, thus leaving the farmers with no choice.

behaviour. The price war has escalated since then, resulting in the eventual dissolution of the CMTC and the development of the Contract Farming Framework which, as of February 2017, was at the draft stage.

Common Buying Points

Since promulgation of SI 142 in 2009, all seed cotton is required to be sold through a common buying point (CBP), designated by the regulatory body (AMA), where all companies operating in the area are allowed to participate. The CBPs are managed by the Cotton Ginners Association local area committees and staffed by clerks from the AMA. This arrangement, whereby farmers are required by law to sell their cotton to their contracted ginner, and ginner is required to buy from farmers, at CBPs, is intended to allow minimal room for farmers to divert cotton to non-contracting buyers.

After registration with the AMA as a buyer of seed cotton, a cotton company, in its own right or as an association (CGA), is required to enter into a memorandum of understanding with AMA on the establishment of CBPs. The Memorandum of Understanding is valid for a single growing season and renewable annually, with or without amendment. The company or association proposes sites for designation as CBPs by the AMA. For obvious reasons, a company only participates in CBPs situated in areas where they have contracted farmers. For each CBP, the AMA has a record of the companies that have subscribed to it. The CBP can take any form – it can be an open space in a state land, a growth point (rural trading centre) or a cotton company's premises, as approved by the Authority. CBPs can also function as common inputs distribution points (CIDPs).

CBPs were advocated for by the Cotton Ginners Association to promote transparency in the financing and purchasing of seed cotton. The CBP set-up is characterised by one entry and exit point so as to make it easy to monitor the movement of people and vehicles when distributing wool packs and delivering seed cotton.

CBPs were meant to curb the practice of farm-gate purchasing that had become rampant at the height of side-trading in 2009. While CBPs used to be managed by CGA's local area committees, they have since 2016 been taken over by AMA, which now employs clerks who monitor and direct the buying process. Inspectors and clerks from AMA are granted unhindered access to the CBPs or CIDPs during normal working hours, and have access to business records of companies participating at the CBP. However, due to the highly under-resourced nature of AMA, some CBPs may rarely be visited by AMA inspectors during the course of the season. CBPs have not managed to completely curb side-trading practices, with farm-gate purchases occurring at night, predominantly through company agents.

When a farmer arrives at the CBP, either to collect empty wool packs or sell seed cotton, the first port of call is the Vetting Desk, where an AMA clerk will use the database to determine which ginning company the farmer is contracted to. The overall (national) database has not been easy to maintain or use as a tool to tackle side-trading, due to multiple subscriptions to different contractors (double-dipping) by farmers seeking to maximise profits on inputs received and to speculate on market conditions including prices. The mass exodus of farmers from growing cotton to perceived better-paying alternative cash crops has made the management of the database even more difficult.

Vetting by the AMA clerk is done in the presence of the ginners' clerks and field agents. Once complete, the farmer proceeds to the contracting ginner's area within the CBP, where the respective company's buying team issues empty wool packs or buys seed cotton.

Under normal circumstances, spot cash payments are made at the CBPs by company cashiers, if the cash is readily available. The clerks (AMA staff) now oversee the weighing of seed-cotton bales upon delivery by farmers. Payment to farmers is made based on the weight of the seed cotton, using the minimum (grade D) price, pending grading of the seed cotton at the company's warehouse/ginning, after which the farmers are supposed to get their grade-differential price adjustments. No grading is carried out at the CBP because there are no grading facilities. The buyers will then collect the bales in the company's own woolpacks, and transport them to their warehouses/ginneries for grading and ginning. No company's buying team is allowed to operate outside the designated CBP or outside the stipulated working hours and days.

The companies provide cashiers and cotton-bale handlers at the CBPs. This move is meant to ensure that each contracting company gets its rightful share of contracted seed cotton. According to the AMA regulations, "any buyer or contractor who may not be a member of a buyer's or contractor's association, any buyer or contractor who seeks to buy cotton from an area in which there is a common buying point, shall be obliged to purchase seed cotton in the area from such common buying point," provided they pay their pro-rata share of the cost of establishing and maintaining the CBP, as established by AMA. Failure to comply with any of the terms of a registered MoU results in a buyer being found guilty of an offence, and liable to automatic de-registration. According to key informants, a number of contractors are found to be noncompliant every season, and are made to pay fines charged per bale of seed cotton.

Box 7: Summary of governance gaps in Zimbabwe that determine levels of informality in the sector

- **Perceived lack of independence of AMA to effectively regulate the sector:** CGA is alleged to have bought the allegiance of the regulatory body (AMA) to only uphold the interests of the cotton merchants while suppressing those of farmers. Farmers have witnessed CGA staff discharging the duties of AMA in the field. Allegations are made that the CGA officers have acted as AMA inspectors, and even had AMA badges and identification cards. Farmers feel that this relationship between AMA and CGA compromises the former's position of ensuring fair competition and a level playing field in the cotton industry. This may work against the prices offered to farmers for seed cotton and charged to them for inputs.
- **Lack of capacity of the regulatory body (AMA) to register all cotton growers at the start of the season:** AMA relies on the links and presence of cotton contractors in the cotton-growing areas to register farmers. Practically speaking, this means that any cotton farmer has to be contracted to be registered with AMA and thus to be able to access seeds independently from suppliers – they are thus locked into contracts even if they prefer to be free farmers.
- **Inadequate oversight of common buying points by AMA:** As AMA is chronically under-resourced, some CBPs may be rarely visited by AMA inspectors. CBPs have not succeeded in curbing side-trading practices, with farm-gate purchases occurring at night, predominantly through company agents.
- **Poor farmer representation:** ZFU, ZCFU, and ZNFU have not effectively represented smallholder cotton farmers' interests in advocacy matters with the government or in price negotiations with other stakeholders. This has been attributed to the fragmented nature of farmer representation, corruption by some members of farmer organisations, low subscriptions by farmers who seem not to know which organisation to join, and limited government support in terms of funding.
- **Ginners' failure to provide minimum input packages:** Ginners do not respect the minimum packages agreed upon for the stipulated farmer categories.
- **Failure to use taxes to reinvest in cotton production, and corruption of farmer representatives:** farmers feel short-changed by the Rural Development Committees, as their funds are not being ploughed back into the communities. Farmer representatives and community leaders are said to be weak and liable to corruption (receiving bribes and other incentives such as job provision) by the RDCs as a way of silencing them from demanding services that would benefit the communities.

- **Confusion over price negotiations and announcements:** For instance, in July 2012, the Ministry announced a minimum price of US\$0.77/kg while the technical committee responsible for price determination had announced a minimum price of US\$0.35/kg.
- **Failure to pay farmers price adjustments for grade differentials:** At the CBP, seed cotton is bought at a uniform price for the lowest grade of seed cotton, with promises to pay price adjustments after grading the cotton. The farmers complain that the grade-differential price adjustments are either too little or not paid at all by some companies, since the majority of the cotton ends up getting classified by the ginner as the poorest grades (C and D).
- **Inability of farmers to hold ginners accountable for quality payments:** Although regulations do provide for farmers to participate and monitor the grading process, it is almost impossible to do so in practice, since grading is done at the company's ginnery and not at the CBP. This limits the ability of farmers to hold ginners accountable for quality payments, and exacerbates perceptions of unfairness in the value chain and unequal value accumulation. It also contradicts the requirement of the AMA Act (SI 142 of 2009), which states that contractors should observe the standard classification and quality requirements by following the cotton-grading specifications when buying and ginning seed cotton.
- **Collusion over price-setting:** There have been allegations that collusion among ginners and corruption in the process of price determination have resulted in prices being suppressed in favour of ginners.
- **Delays in payments by some companies:** Delays in payments by some companies have prompted some farmers to bribe company clerks at CBPs to expedite processing of their payments. So, while common buying points have been introduced as a means to improve monitoring of cotton trade, they have also offered another opportunity for informal practices via rent extraction.
- **Unfairness in contracting:** Contracts are always silent about incentives for quality standards and grading of seed cotton as well as provision of other services such as extension.

We have seen how the structure and governance of value chains and cotton sectors as a whole reveal strong similarities between Zambia and Zimbabwe. The players, their operations and relationships, the incentives and disincentives, and the distribution of power and value throughout the chain have a common set of implications for the nature and extent of informality. The responses by government and other sector players has, however, differed in the two countries. These trends all have a bearing on informality in the form of side-trading, and this will be explored in the next section.



Children walk to school in Eastern Province, Zambia. School fees are one driver of side-trading.
Credit: Simon Lim, 2017.

4

Drivers of side-trading/informality within cotton value chains in Zambia and Zimbabwe



Section 3 demonstrated the changes in the structure and governance of the cotton sector, especially around production and processing, in Zambia and Zimbabwe. It described the market and governance environment, to which informality can be a logical response, both by sellers (farmers) and buyers (ginnery and their field agents).

This section now looks at the reality of side-trading resulting from these 'pull' and 'push' factors ('drivers'), using data from both countries' household surveys, supplemented by focus group discussions and key informant interviews. It asks who is side-selling and who is not, in response to what perceptions or incentives, and under what circumstances.

Side-trading is ultimately a sum of the responses of supply-chain players to multiple drivers, including governance gaps that have emerged as a result of the sectors' political economy. Table 10 summarises the drivers brought to light by the FGDs and KIIs in 2016.

Table 10: Drivers of side-trading, Zimbabwe and Zambia

Causes of side-selling by farmers	Causes of side-buying by ginners
<ul style="list-style-type: none"> • Avoiding paying back inputs loans • Low prices offered by contractors/ ginners • Low production volumes (adding to need for higher prices) • Receiving welcome on-the-spot cash from the non-contractor agent • Declining value of inputs and services provided by contractors/ginners • Late delivery of inputs by contractors/ ginners • Ineffective enforcement of contracts • High input costs charged by contractors/ ginners • Late start of the marketing season • Need for immediate cash to pay for school fees, food, medicine, etc. • Long distances to buying points (Zimbabwe) • Lack of incentives for product quality • Disorderly marketing • Perceived unfairness in price-setting and input provision by ginners 	<ul style="list-style-type: none"> • Need to beat competition and increase seed-cotton volume intakes to more fully utilise ginning capacity • Performance-based payment for field agents who conduct the actual buying, based on volumes secured • Risk/cost of financing farmers with uncertain production outcomes and market behaviours • Use of cash when buying seed cotton • Lack of enforcement of contract regulations • Loopholes in the cotton contract-farming framework • Burdensome regulations associated with cotton buying. • Political connections – some companies have links (shareholding or otherwise) with politicians who can influence decisions on their operations. • Disorderly marketing – absence of effective monitoring of marketing activities in line with regulatory frameworks due to thin presence of AMA at buying points (Zimbabwe)

Source: Focus group discussions and key informant interviews (2016)

We now look in more detail at the most significant of those drivers: the competition between ginners (linked to incentives), cotton prices, declining value of inputs and services supplied under contract, and household poverty and cash scarcity. We first summarise data collected on side-selling, and the characteristics of farmers who have admitted to side-selling.

4.1 Incidence of side-selling

The data from the household surveys and FGDs shows that side-selling is prevalent in both countries, though more so in Zimbabwe, and varies greatly from season to season. Each FGD (nine in Zambia and eight in Zimbabwe) came to a consensus about the relative intensity of side-selling across six seasons (Table 11). The household surveys by contrast give a figure of reported incidence of side-selling per year. There is a consistent pattern across both countries in terms of peaks and troughs.

Table 11: Relative intensity of cotton side-selling in Zambia and Zimbabwe from 2009–15 as estimated by farmers in FGDs

Season	Zambia		Zimbabwe	
	Mean	Range	Mean	Range
2009–10	16	7–43	6	3–10
2010–11	4	1–11	5	4–10
2011–12	48	15–71	60	42–65
2012–13	10	2–18	15	10–20
2013–14	17	2–55	8	2–10
2014–15	17	2–42	8	1–11

Source: FGDs (2016)

Table 12: Reported side-selling incidence from household surveys in Zambia and Zimbabwe (mean % households)

Season	Zambia	Zimbabwe
2011–12	N/A	44 (N=153)
2012–13	11 (N=200)	29 (N=174)
2013–14	12 (N=200)	26 (N=195)
2014–15	17 (N=200)	38 (N=200)

Source: Household surveys (2016)

During focus group discussions in Zambia, farmers ascribed the low level of side-selling in 2010–11 to the high cotton price (US\$0.66/kg) offered by ginning companies. The following season, 2011–12, showed a peak in side-selling – with farmers ranking that year as a particularly intense one in terms of side-selling. That was the season when the cotton price was at its lowest point in the six-year period. In both countries, farmers associated that wave of breaking contracts to the sudden price fall and the use of cash by some companies to pay farmers.

The return to lower rates of side-selling since that peak were ascribed by key informants to specific actions taken to curb side-selling (reasons given were the code of conduct and regular district stakeholder meetings in Zambia; increased regulatory enforcement by AMA; and the influence of the Cotton Ginners Association in Zimbabwe), alongside the adoption by ginners of uniform pricing. The 38 per cent rate of side-selling in Zimbabwe reported by farmers (in household surveys) for 2014–15, however, is associated with a persistent level of farmers' dissatisfaction with the contract arrangements, as supported by other data and discussed in more detail below.

Farmers in Zimbabwe noted that side-selling was difficult to quantify for the 2015–16 season due to the distortion that followed the government input subsidies and announcement of a guaranteed minimum price of US\$0.45/kg. Marketing regulations were not enforced as before, with ginners competing for seed cotton through promotional strategies such as provision of loan-recovery waivers, branded regalia such as T-shirts, hats and caps, and cooking oil. Convenience of marketing in the form of transportation, transaction time and payment time were also strategies used by ginners to attract farmers.

In both Zambia and Zimbabwe, all ginning companies identified in the sample were reported by farmers to have approached farmers with the intention to side-buy in the 2014–15 agricultural season. Both established and newcomer firms were engaged in the practice. There were large variations among the sampled areas in Zambia, however, with Boyole agricultural camp reporting the highest number of farmers involved in side-selling, followed by Chinunda agricultural camp. Boyole has many ginning companies competing for seed cotton.

Types of side-selling

Through KIs and shadowing of field staff, it became clear that the nature of side-selling is more fluid than its representation in research or regulation. There were three broad types of side-selling reported:

1. Entering into contractual agreements with more than one contractor to get more inputs, and honouring only one of those contracts depending on price being offered at harvest;

2. Honouring only part of the contract (for example, up to the value of inputs provided), and side-selling the rest; and
3. Selling the entire cotton crop to a non-contracted buyer.

Staff of one ginning company estimated the proportions of cotton farmers in these three categories respectively at 60 per cent, 30 per cent and 10 per cent. The fact that side-selling is most prevalent in the grey area between full contractual compliance and full default is particularly interesting. It explains why official records of side trading – based on formal complaints – are so unreliable. It also explains why the national yield estimates of ginneries versus those of authorities are so divergent (though both are based on information provided by households); farmers can create a buffer of harvest to side-sell by underreporting yield and/or claiming poor seed germination. A farmer can claim a yield of 300kg, for example, while the actual yield was 500kg, allowing the farmer to sell 200kg to other companies without triggering an obvious or visible breach of regulations and while maintaining social relations. In Zambia that gap had, according to one industry participant at the policy-engagement workshop in October 2017, grown to the 850kg/ha reported by the Ministry of Agriculture (based on household surveys) versus the 235kg/ha yield reported by the industry.

Characteristics of side-sellers

In Zambia, based on the household surveys, there was a significant ($p < 0.05$) correlation between side-selling and gender of household head, with male-headed households more likely to side-sell (Table 13). Farmers exhibiting more loyalty are unsurprisingly much less likely to side-sell, as evidenced by the significant ($p < 0.01$) negative correlation between side-selling and being approached by another company in the previous season but refusing to side-sell. There also appears to be a link between lack of transparency in contracting and side-selling, with a significant ($p < 0.001$) negative correlation between side-selling and reporting how the input loan would be paid at the time of acquiring the loan.

Table 13: Correlation between side-selling and selected farm household variables, Zambia (Spearman's rank correlation)

Variable	Coefficient
Age of the household head	-0.133 0.060 (N=200)
Gender of the person who controlled the cotton field	0.1553* 0.028 (N=200)
Months without adequate food supplies	0.108 0.129 (N=200)
Months without adequate money for school fees	0.034 0.629 (N=200)
Value of productive assets (ZMW)	-0.090 0.206 (N=125)
Total income earned from selling livestock (ZMW)	-0.041 0.647 (N=200)
Approached by another company but refused to sell cotton in the previous season (1=Yes)	-0.1813** 0.010 (N=200)
At the time of acquiring the loan, were you (the farmer) told how the input loan would be paid? (1= Yes)	-0.2306*** 0.001 (N=200)
Were you satisfied with the services provided by the company you registered with? (1=Yes)	-0.057 0.422 (N=200)
Chipata	0.053 0.454 (N=200)
Lundazi	-0.053 0.454 (N=200)

Standard errors in parentheses

Level of significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Household survey (2016)

In Zimbabwe (see Table 14), there was a statistically significant correlation between side-marketing and being approached by ginner to side-sell ($p < 0.01$). There was also significant correlation ($p < 0.01$) between the carryover of debt from the previous season and a propensity to side-sell, and the same link between loyalty and not-side-selling as seen in Zambia (Table 13).

Fear of negative consequences from side-selling was not correlated in either country.

Table 14: Correlation between side-selling and selected farm household variables, Zimbabwe (Spearman's rank correlation)

Factors	Coefficients
Age	0.123 (0.087) N=195
Gender	0.080 (0.269) N=195
Education	-0.029 (0.687) N=195
Approached by ginner to side-sell (1= Yes, 0=no)	0.22** (0.001) N=153
Carried over debt from previous season (1= Yes, 0=no)	0.265** (0.002) N=153
Satisfied with inputs provided by contracted company	0.100 (0.167) N=191
Provision of information about price of inputs	0.061 (0.402) N=188
Months of inadequate food	0.067 (0.355) N=195
Number of months where school fees cannot be paid	-0.106 (0.142) N=192

Standard errors in parentheses

Level of significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: Household survey (2016)

In terms of farm production in Zambia, cotton productivity, cotton field sizes, farm sizes and the value of all crops sold were not statistically significantly different when comparing side-sellers and non-side-sellers (Table 15). The only significant differences in production were in the level of food insecurity (highly significant at $p < 0.001$, indicated by months of inadequate food supply, with side-sellers facing more months of inadequate food supply), the average yield of maize and average income from cotton sales (both $p < 0.05$). The non-side-sellers were more productive in maize, and earned more from cotton production than side-sellers, which could be an indicator of professionalism or of reduced overall food or cash shortages (and thereby a decreased need to side-sell).

Table 15: Production, productivity, farm size and value of crop sold of side-sellers and non-side-sellers, Zambia

	Side-sellers (N=34)	Non-side-sellers (N=166)	t-value and significance
Average land holdings (ha)	3.56	6.21	1.1180
Average area under cotton in 2014–15 (ha)	0.79	0.95	1.5507*
Average yield of cotton (kg/ha)	897	815	−0.9010
Average quantity of seed cotton produced (kg)	600	693	1.0763
Average income from cotton sales (US\$)	203	257	1.6899*
Average area under maize in 2014–15 (ha)	0.87	0.97	0.6461
Average yield of maize (kg/ha)	1,948	2,493	1.7968*
Average quantity of maize produced (kg)	1639	2,688	1.4470*
Average income from maize sales (US\$)	352	578	0.8549
Average income from other crop sales (US\$)	172	341	1.0584
Average income from all crop sales (US\$)	415	678	1.2698
Months of inadequate food supplies	2.41	1.86	−1.939**
Number of months where school fees cannot be paid	7.76	7.23	−0.4841

Level of significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Household survey (2016)

In Zimbabwe, by contrast, side-sellers earned more income from cotton than non-side-sellers. This is despite strong similarities between side-sellers and non-side-sellers in the average quantity of cotton produced, the average area under cotton and the average size of land holdings. This demonstrates that side-selling has potential for income gains, probably because side-sellers can avoid repayment of debts and benefit from better prices offered by non-contracting ginners (Table 16). Similarly to Zambia, side-sellers in Zimbabwe faced more months of inadequate food supply. They also faced more months when they were unable to pay school fees (with very high levels of significance at $p < 0.001$).

Table 16: Production, productivity, farm size and value of crop sold of side-sellers and non-side-sellers, Zimbabwe

	Side-sellers (n=52)	Non-side-sellers (n=145)	t-value and significance
Average land holdings (ha)	5.0	4.9	-0.433
Average area under cotton in 2014–15 (ha)	1.4	1.5	-0.156
Average yield of cotton (kg/ha)	1039	1027	-0.095
Average quantity of seed cotton produced (kg)	1332	1402	-1.685
Average income from cotton sales (US\$)	581	362	-3.010***
Average area under maize in 2014–15 (ha)	1.6	1.5	-0.768
Average quantity of maize produced (kg)	1532	1657	0.816
Average yield of maize (kg/ha)	1000	1111	0.970
Average income from maize sales (US\$)	152	170	0.326
Average income from other crops (US\$)	157	210	0.928
Average income from all crop sales (US\$)	706	562	-1.454
Amount of carryover debt	192	110	-1.669
Number of months of inadequate food	3.74	2.20	-4.593***
Number of months without paying school fees	4.72	2.90	-3.829***

Level of significance * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Household survey (2016)

In addition to the relationships between households' food insecurity and side-selling within a season, we can observe that differences between seasons (and associated changes in producer price and competition between ginners, and also the level of regulatory intervention) appear to have an overriding impact on the prevalence of side-selling.

4.2 Driver: Field agents working on commission, cash payments

Section 3 has highlighted how the increase in ginning capacity against a backdrop of stagnating cotton production has increased competition for cotton on the market, and has put a severe strain on the contract-farming model. Ginning companies scramble to obtain adequate seed cotton to meet their procurement targets and to generate a return on their ginning investments.

Ginners, with the exception of Cargill, have continued with a field-agent model based on commissions to enforce existing contracts and recoup contracted cotton and input credit. Because agents are typically not employees, ginners can turn a blind eye to informal procurement of uncontracted cotton which, due to unrealistic targets for earning commissions, is an inevitable outcome.

Accusations of side-buying against the new ginners in the sector took on an ethnic dimension in both countries, with Chinese and other Asian investors being singled out for procuring cotton contracted by other companies. But this analysis has shown that all companies, Asian and otherwise, have adjusted to the new realities in ways that can foster side-trading.

The role of field agents has become very important in determining levels of side-trading – both in preventing it, by playing a supervisory role (to lock in crop already contracted) and in driving it, where agents are incentivised by performance-based commissions for volumes of cotton procured and loans recovered. The base salaries of field agents are extremely small, which greatly increases the significance of commission to their income (and therefore the financial incentive to side-buy). Key informants also mentioned unrealistic target-setting by company headquarters as a key driver for field agents to engage in side-buying, as they are pressured to meet the targets. Several interviewees suggested that getting the incentive structure 'right' for the field agents could make a big difference to the practice on the ground.

Another way in which ginners have adapted to greater competitiveness and overcapacity is to shift to cash payment. In the past (around 2011–12, at the height of side-buying), the timing of payment to farmers differed between informal versus formal transactions, with farmers getting paid immediately in cash mainly by informal (briefcase) traders rather than two days to three weeks after handing over their harvest (in the case of formal transactions). This delay in payment creates a strong incentive to side-sell, since farm households have urgent cash needs for various expenses (as discussed later in this section). However, the mode of payments by a number of ginners has now changed in both countries in order to help encourage loyalty and deter side-trading, with all ginners now using cash when buying cotton in Zambia and all ginners using clerks at CBPs in Zimbabwe to pay cash to farmers (with a promised 'bonus' paid later if the cotton exceeds minimum quality).

The overriding importance of cash payment was underlined by the household survey data. The two main reasons offered by farmers for side-selling during household surveys in Zambia were that the non-contracted buyers (typically the field agents discussed above) of seed cotton offered cash to buy seed cotton; 75 per cent of side-sellers cited this as a reason for side-selling (Table 17). The big companies, particularly Cargill and NWK Agri-Services, did not pay cash on delivery to farmers during the 2014–15 agricultural season. This resulted in most farmers selling their cotton to companies that paid cash on the spot upon delivery. However, in the 2015–16 agricultural season, NWK Agri-Services joined those companies that pay cash on delivery of seed cotton to the agents, and in 2016–17 Cargill followed suit. Further research would be necessary to assess how incidences of side-trading have evolved since NWK Agri-Services and Cargill started paying cash on delivery.

The second reason, cited by 18 per cent of farmers, was that the contracted buyer arrived on the market too late. These farmers chose to side-sell to non-contracted buyers who were available earlier in order to obtain much-needed funds. Other reasons cited for side-selling included: the contracted buyer being delayed in paying for the seed cotton that had already been delivered, so that farmers decided to side-sell any other cotton volumes to a non-contracted buyer; differences in the price offered by a contracted versus non-contracted buyer, where a non-contracted buyer offered a slightly higher price; and non-contracted buyers being more conveniently located near the farmer's homestead (Table 17). FGDs in Zambia confirmed the farmers' opinion that side-sellers were most likely to side-sell to ginning companies that used cash to buy seed cotton.

Table 17: Reasons for side-selling seed cotton reported by side-selling farmers in Zambia, 2014–15 season (n=34)

Reason	% total responses
Buyer offered to buy with cash	75.0
The company I registered with did not come on the market early enough	18.2
Price offered was higher than the price offered by the company I registered with	2.3
More convenient collection points, or agent comes to farm to collect	2.3
There was delay in payment	2.3

Source: Household survey (2016). Up to three unprompted responses per respondent

In Zimbabwe, the most important reason cited for side-selling was the same as in Zambia – the use of cash by ginnerers or their representatives (field agents) when buying cotton (Table 18). The second most important reason was the convenience offered by side-buying ginnerers (coming to the market early and/or collecting at the farm gate – avoiding the need for farmers to travel to common buying points, as discussed below), and in a close third place were higher prices offered, followed by the avoidance of repaying loans.

Table 18: Reasons for side-selling seed cotton reported by side-selling farmers, Zimbabwe, 2014–15 season (N=50)

Reason	% total responses
Non-contracted buyer offered to buy with cash	33
Price offered was higher than the price offered by the company I registered with	26
To avoid paying back the loan	20
Buyer came at a more convenient time in the season	6
More convenient collection points, or agent comes to the farm to collect	5
Better relationship with agent	4
There was delay in payment	3
Other	3

Source: Household survey (2016). Up to three unprompted responses per respondent

4.3 Driver: Variable and low prices

Cotton prices in Zambia and Zimbabwe are linked to the world market price. Farmers' decisions to plant cotton is closely linked to prices of the previous season (Ndhlovu and Seshamani 2016). One would thus expect cotton prices to be high on both farmers' lists of complaints and their reasons for side-selling. There may indeed be some justification for farmers' frustration – a declining share of cotton export value despite greater competition in the market. The 'concentrated competition' model of cotton production (Tschirley *et al.* 2010) in both countries does provide room for ginners to extract monopoly rents, both in the price paid for cotton and the costs deducted for inputs. Zambia and Zimbabwe both saw declines in farmer share of export price (FOT²⁰ lint price) between the period of high market concentration (1995–99) and greater number of ginners (2000–05) (Poulton and Hanyani-Mlambo 2008). Indeed, an interview with one of the newer Asian entrants to the ginning industry in Zambia made clear that their business model was one of disrupting the market by more fairly dividing those rents between farmers and themselves. More recent comparable data on farmers' share of export prices are unavailable.

Within cotton-producing countries, value accumulation is greatest at the ginning node (RATES 2003). This is because ginners are typically price-setters, compared to farmers who are price-takers, though declining international prices are putting pressure on ginners' margins. Another reason is ginners' engagement in primary processing (converting cotton from seed cotton to lint and a number of by-products), which increases profit margins.

We have noted in the previous section that in both countries farmers are not organised enough to influence price-setting, and that competition policy in any case precludes agreements on price-setting between producers and ginners.

In the household surveys in Zambia, dissatisfaction with the price paid by ginners for contracted cotton ranked by far the highest of farmers' concerns (Table 19).

²⁰ 'Free on Truck' – the price of the goods when they have passed over the truck's tailgate. See: <http://www.intracen.org/coffee-guide/logistics-and-insurance/contract-of-carriage-FOB-CIFCFR-FOT-and-FCA/>

Table 19: Reasons for farmers' dissatisfaction with their contracted ginners in 2014–15, Zambia (N=111)

Reason	%
Low price received for seed cotton	70
High inputs cost	8
Ineffective inputs	5
Changing price during marketing	5
Bonus not received after meeting a target	3
Others	9

Source: Household survey (2016)

In Zimbabwe, price ranked second, below dissatisfaction with the inputs package (Table 20) (further discussed below).

Table 20: Reasons for farmers' dissatisfaction with their contracted ginners in 2014–15, Zimbabwe (N=158)

Reason	%
Not satisfied with inputs package supplied	62
Low price received for seed cotton	24
Delays in payment and service	6
Cheating on weighing scales	5
Corruption at buying points	3

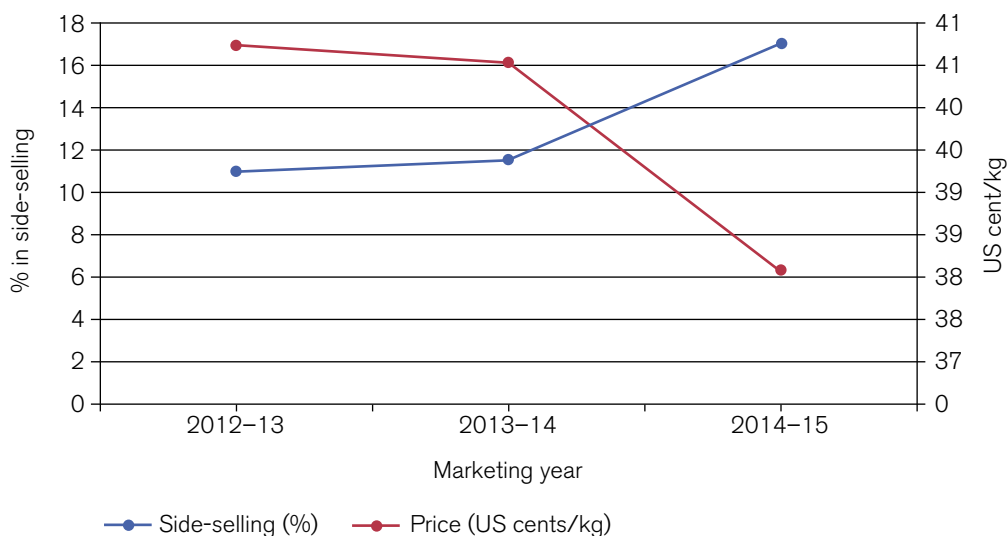
Source: Household survey (2016)

In both countries, peaks in side-selling by farmers have coincided with periods when prices have been lower and more volatile. In Zambia, the household survey recorded a marked increase in side-trading in 2014–15, when farm prices declined (Figure 14).

Similarly, in Zimbabwe, side-trading was perceived to have been generally low during the 2009–10 season, when the price received by producers for seed cotton was fairly low and constant at around US\$0.30/kg. The cost of inputs was also fairly low then. The 2010–11 marketing season witnessed the record-highest producer price of US\$0.85/kg, and the farmers were of course very happy with this price. However, in 2012, the producer price suddenly receded, and farmers thought the contractors were deliberately short-changing them. Consequently, side-selling increased, as farmers protested the low

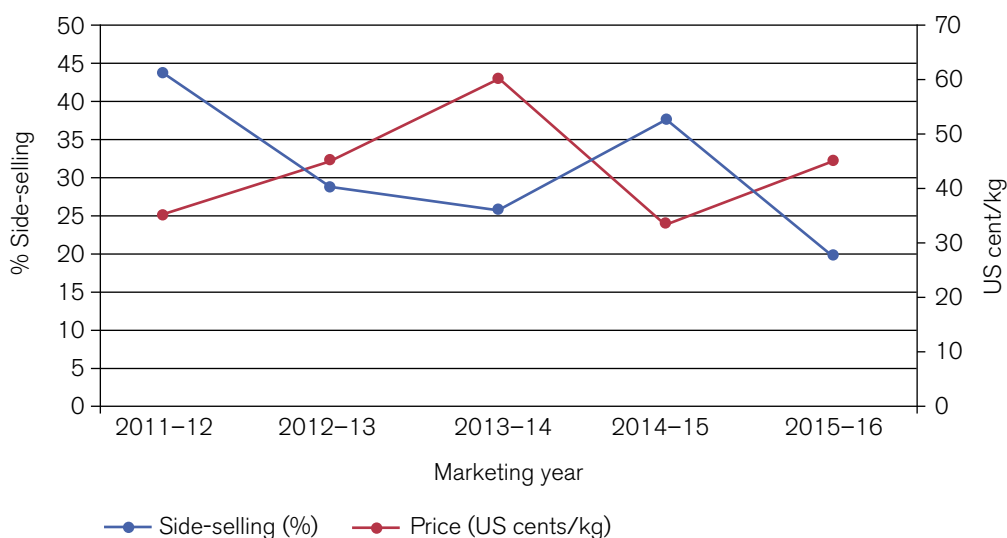
prices by diverting the crop to non-contracting buyers (Figure 15). Such perceptions speak to the lack of a transparent price-setting mechanism, as discussed later.

Figure 14: Trends in side-selling and cotton prices, 2013–15 seasons, Zambia



Source: Household survey (2016) and CBZ 2012–15

Figure 15: Relationship between incidence of side-selling and price of seed cotton, Zimbabwe



Source: Household survey (2016) and AMA (2012–16 annual reports)

In almost all FGDs, farmers complained about the low price they receive for their cotton. In Zimbabwe, the high cost of production coupled with the low producer price has increased farmers' propensity to side-sell in hopes of remaining viable. According to KIIs, the farmer's cost of production for a kilogram of seed cotton is estimated at around US\$0.44. Given the US\$0.45/kg price that farmers received in the previous season, the economics of cotton production is clearly borderline. However, the losses are not necessarily readily noticeable to the farmers, since costs including land preparation, labour and transport, which constitute around 55 per cent of the total production cost, are mainly provided by the family.

Side-selling has become a strategy for some farmers to remain in production through evasion and default on loan repayment to ginners. The major challenge facing the sector is that the local producer price is linked to the volatile international market, where more than 90 per cent of the cotton lint produced in the country is sold. The 2010–11 spike in the international price that resulted in a local producer price of US\$0.85/kg was a rare occurrence, but it has unfortunately been used by the farmers as a yardstick for price determination.

In neither country did farmers mention low productivity experienced by the majority of cotton farmers as a main challenge facing the sectors. Low productivity leads to loss-making by the majority of cotton farmers and thus contributes to their side-selling of seed cotton.

4.4 Driver: Perceptions of unfairness in price-setting

Beyond the cotton price per se, research in both countries found a perceived lack of transparency in pricing leading to a general mistrust in the cotton trading system, particularly on the part of farmers. This may not directly result in side-trading, but contributes to an environment of distrust which fosters it. Farmers in the FGDs in Zambia expressed concern over the lack of agreement on a floor price for seed cotton when signing contracts with companies. This scenario has left farmers – as the carriers of price risk in the chain – vulnerable to seed-cotton price changes on the international market as well as seasonal price changes.

The Zambian government, via the Cotton Act, has been silent about offering any guidance on pricing or price-setting processes. In recent years, autonomous decision-making by ginners in establishing prices for seed cotton has offered scope for ginning companies – who are well organised and the more powerful players in the supply chain, with access to knowledge and resources that farmers do not have – to collude in setting the price for seed cotton. For example, all companies ended up paying the same price to farmers

for the 2016 harvest, which left farmers feeling that ginneries had colluded on price. The Cotton Association of Zambia on one occasion managed to bring a renowned consultant to assist in the development of a price-setting mechanism, but ginning companies failed to cooperate in providing the necessary information – further exacerbating perceptions in farmers of unfairness and unwillingness by ginning companies to create a better deal for them.

Unfairness of quality grading

The fact that quality is not rewarded has added to farmers' perceptions of unfairness and collusion by ginneries.

All of the ginning companies in Zambia have stopped grading seed cotton, and pay uniform prices whether seed cotton is grade A, B or C. Field agents and key informants attributed this to high levels of competition in the sector, resulting in a rush to procure supply. Furthermore, farmers and other key informants observed that ginneries have a tendency to increase the price of seed cotton for farmers as the marketing season progresses – presumably in order to meet their procurement/processing targets. Farmers who sold early and/or at a higher quality did not receive any additional payments from companies later in the season for the cotton already sold.

Normally, cotton sold in the later weeks of the marketing season tends to be of lower grade and discoloured by dust or other foreign matter. One farmer in a FGD complained, “I delivered the cotton early and I was paid a lower price, but my friend who supplied later in the season was paid a higher price. My crop was looking better than his. Now that I know the secret, I will be holding on to my crop when I harvest, or just leaving the crop in the field.” So payment of higher prices for cotton later in the season could delay sales by farmers and thereby increase the probability of cotton being contaminated, further undermining cotton quality and the ginneries' rush to buy. And where farmers are in desperate need of cash, perceptions of unfairness around the variable prices paid by contracted ginneries may further incentivise them to side-sell.

In Zimbabwe in 2014, the CGA agreed to buy cotton at a flat interim payment price at the CBP equivalent to the price of the lowest grade D, and pay farmers price-differential adjustments at the end of the marketing season after proper grading of the cotton, based on actual grades and each company's pricing structure. Although this two-phase system appeared to have great potential for minimising side-trading, some companies reneged on disclosing the cotton grades and payment of the price adjustments where the grade was higher than lowest (D) grade. Farmers further allege that in the few instances where actual grades were disclosed and they were entitled to receive price differentials, the resultant amounts were too low to warrant travelling to the company's premises to collect it; in most cases it was not even enough to cover the bus fare. Since the 2015–16 season, when the government introduced a minimum guaranteed price (US\$0.45/kg in

2015–16 and US\$0.47/kg in 2016–17), ginners paid part-price (US\$0.35–36/kg in 2015–16 and US\$0.47/kg in 2016–17) upon transaction at the CBPs, with a promise to pay the guaranteed price differential plus a grade differential later. In the 2015–16 season, the guaranteed price differentials were paid to all farmers in line with the grading results.

Unfairness in accounting for value of by-products

Another part of price-setting that lacks transparency relates to the value of by-products. Almost 60 per cent of seed cotton tonnage produced by farmers is constituted of seed, the rest of lint (which is extracted during processing). The seed is an important raw material for edible oil manufacturing, accounting for over 60 per cent of total oil consumed in Zimbabwe (Zim-ACP 2014). Ginned seed is sold to oil-expressers by ginners at prices ranging from US\$200 to US\$270 per metric ton in the country. Some ginners have vertically integrated operations, thereby engaging in processing and value-addition of the seed to produce and sell higher-value products such as cooking oil and cotton cake. The value of by-products – cottonseed oil and cake – is 20–25 per cent of the value of lint (Poulton and Hanyani-Mlambo 2008). But in most cases, the value of the seed is not taken into account in the producer price-determination process in Zimbabwe²¹ (according to key informant interviews), leading to advantages for processors and disadvantages for producers. The farmers are unable to benefit from the value of by-products, which helps in enhancing the profit margins for the ginning companies. Farmers are still fighting to have the value of ginned seed included in the producer price-determination process. In Zambia, ginners do claim that seed is considered in the determination of the final price paid to producers. The actual formula used for determining the price is not made available to farmers, however.

The ability of ginners (notably in Zimbabwe) to avoid considering the value of by-products they can ultimately sell in prices paid to farmers for their cotton is likely due to their stronger position in the value chain; it places them at an advantage vis-à-vis producers in terms of value accumulation.

²¹ The basis for seed-cotton producer price determination is the Cotlook A index, providing an international price for lint. It does not take into account the value of de-linted (ginned) seed that the company has the privilege of selling and benefiting from.

4.5 Driver: Dissatisfaction with inputs and services supplied by ginning companies

According to the household surveys, key informant interviews, and FGDs, some ginners have adopted the strategy of scaling back input provision to reduce their financial exposure to the defaulting of contracted farmers through side-selling or input diversion.

The household survey in Zambia showed that 55 per cent of cotton-growing households were not satisfied with the services provided by the companies in the 2014–15 season. The level of satisfaction with the service provided by the contracting ginner was inversely correlated with side-selling, though the relationship was not statistically significant. Some ginners' behaviour has been characterised by inadequate and partial input provision, which often is delivered late – and side-selling may be a rational response to this inadequate provision.

In Zimbabwe, 83 per cent of the farmers surveyed (N=200) were not satisfied with services provided by contracting companies, citing inadequate input packages, low prices paid for the product, delays in payment, cheating with weighing scales and corruption at buying points as the main reasons for dissatisfaction. Furthermore, contracting companies were not providing extension services to facilitate good agronomic practices for enhanced yields in production of cotton. The results from FGDs and the household survey imply that side-selling by farmers is a retaliatory reaction against poor contracting terms offered by ginners, or their failure to meet contracting commitments altogether. Even if farmer and ginner agree on input packages based on the farmer's category, the ginner often provides inputs that fall short of promises and are often delivered late. However, this latest season may look very different in terms of levels of, and reasons for, dissatisfaction, with Cottco and other ginners offering higher prices and cancelling debts to compete with one another, and with the distribution of free government input handouts.

A number of ginners in Zimbabwe now provide almost no fertilisers or chemicals within their contracts. This can further increase dissatisfaction on the part of farmers, and perceptions of unfairness in terms of trade/contracting. As reported in FGDs, farmers in Zambia felt that the high cost of input packages (seed, insecticides and micro-fertilisers) charged by some contracting companies had serious implications for them in terms of profitability and were generally perceived to be unfair. Consequently, some farmers resort to selling part of their cotton production to other companies in the hope of realising a slightly higher profit margin – arguably a rational response to unfair and poor trading conditions. Cargill had the highest cost in terms of a 1 ha input pack (US\$44) compared to Manjeet's (US\$29/ha) and Grafax's (US\$21/ha).

According to results from FGDs, the cost of inputs per ha pack in Zimbabwe was the same across ginning companies, as noted in Table 21. The price of inputs has increased by between 25 and 100 per cent from the 2011–12 season to the 2014–15 season. This cannot be attributed to inflation, because the Zimbabwean economy experienced deflation under dollarisation during that period. This took place in parallel with falling prices paid to producers for seed cotton. The fact that prices were the same across companies could imply a monopolisation of input supply, or collusion around input prices.

Anecdotal evidence suggests that ginning companies are adding significant profit margins onto the inputs they source. With fertiliser, for instance, the tender price is around US\$520 per tonne, or US\$26.00 per 50kg bag. Contractors are thus selling inputs to farmers on contract at a mark-up of about 54 per cent, which is large even if distribution costs are taken into account. This practice is likely contributing to the perceived unfairness in trading/contracting terms offered by ginners, contributing to farmers feeling justified to engage in side-selling.

Table 21: Prices of contracted inputs for 2011–12 and 2014–15, Zimbabwe

Input/ha for category C (the majority of) farmers	Cost in 2011–12 (US\$)	Cost in 2014–15 (US\$)	% increase
Seed (15kg)	15	27	87
Fertiliser (50kg)	27	40	48
Carbaryl insecticide (kg)	9	16	78
Lambda insecticide (litre)	8	16	100
Acetamak insecticide (100g)	1.60	2	25

Source FGDs (2016)

In the FGDs and household survey in Zimbabwe, farmers reported getting a 15kg seed pack through contracts at US\$27 – a price they considered too high. The farmers observed that the same seed company exported identical seed to farmers in neighbouring countries at lower prices. Cotton farmers in Chisumbanje have previously crossed into Mozambique to purchase Zimbabwean-produced planting seed from Espunga Beira at US\$3 per 15kg packet (ZEPARU 2014).

Farmers have responded to the rolling-back of input provision by doubling up on contractual agreements, that is, entering into contractual agreements with more than one contractor as a way of acquiring additional inputs, particularly fertiliser, for cotton or other crops such as maize (as mentioned in FGDs). In some cases, farmers may use different members of the same household to contract with different ginning companies so that

each can obtain inputs from a different company. During marketing, they will then sell the cotton produced by the entire household to whichever company offers the highest price.

In addition, a cotton farmer may sell some of his or her crop under contract (for instance, up to the value of inputs provided) but side-sell any excess (the reasons for which are discussed later). Alternatively, they may decide to sell their entire cotton crop to a non-contracted buyer. However, it is very difficult to obtain detailed information about volumes being side-sold, since it is a challenge to accurately observe how much farmers are harvesting. The decision to side-sell, and how much, depends on the prices and perceived fairness of payment terms offered by side-buying versus contracted buyers, household cash scarcity, the amount of crop produced, the costs of input loans and transportation, and the effectiveness of regulatory approaches/enforcement. In addition, some field agents indicated that they side-bought seed cotton from 'their' farmers at a slightly lower price than the company was paying, in order to increase the tonnage they themselves could sell under their own contracts and gain some profit. This normally takes place when a farmer is in need of cash to meet urgent household needs, and therefore willing to accept a lower price. Evidence from FGDs and KIIs suggests that this practice tends to happen at the start of the season, when farmers are more in need of cash, but it is unclear how widely it occurs.

A rolling-back in input provision and extension services (and a subsequent dissatisfaction of farmers with contractual arrangements) creates a vicious circle of side-trading and underinvestment in the sector, which is exacerbated by a lack of appropriate regulation and enforcement.

High transaction costs

In Zambia, some farmers were discouraged from selling to certain ginneries because of the long distances involved in transporting cotton to those companies. Farmers tried to cut down on transport costs by selling to other companies that were buying within the village or at the homestead. Similarly, in Zimbabwe, some contractors were able to side-buy through their field agents *and* maintain loyalty amongst 'their' farmers by offering transport of growers' seed cotton from the farm gate to the CBP, which is generally rare. Ironically, a measure designed to prevent side-trading – the establishment of common buying points – may actually be a factor in farmers' choice to side-sell.

4.6 Driver: One-sided contracts

There are a number of contractual uncertainties in the typical farmer-ginner contract, which can be attributed to the fact that the contracts do not follow basic guiding principles for responsible contracting. According to FAO (2012), basic guidelines for responsible contracting include common purpose, validity, documents review and alterations, full disclosure, transparency, risk-sharing, fair practice and open dialogue, among other measures. The standard cotton contracts in Zimbabwe and Zambia are not consistent with these basic principles. In some cases, the acceptance of the contract by farmers is marked by their registration with the contracting company before the season starts, rather than any 'official' signing of a document that has been reviewed by farmers. The registration is conducted by the field extension officer, with facilitation by the field agents (see below for more information) who collect farmers' names for registration. There is no room for dialogue on the contract terms, no efforts to reach a common understanding on the nature of the contract and no attempt to reach consensus on key issues. In some cases, farmers may not have even seen any relevant documentation at this stage of the contracting process.

At the point of registration, incomplete information on specific expectations from farmers and contractors makes it challenging for farmers to make informed decisions about the balance of risks and rewards contained in the contract. According to farmers – as expressed in FGDs and key informant interviews – they feel compelled to register and sign because they are desperate to receive inputs for their cotton farming. Post-registration, farmers receive a short document specifying what the company intends to provide (in terms of inputs and extension), as well as the cost of those inputs. In these contracts, information regarding the price per kilogram of cotton sold is absent. In addition, as discussed earlier, the inputs provided by companies will be delivered to farms at different times. This erratic timing can be problematic for production and productivity, as they are not always well aligned to the times when the inputs are needed.

The fact that contracts do not specify these details makes it difficult for farmers to plan the production process. Furthermore, despite ginneries' clear knowledge of the risky nature of agricultural activities in terms of climatic factors, disease and volatility of product markets, the contract effectively places most, if not all, of the risks of production onto the farmer. The nature of cotton contracts – in particular their incomplete nature – means they are biased against the farmer. They do not foster an atmosphere of certainty, trust and respect, which are critical for effective contracting and fairer supply chains. These factors can exacerbate perceptions of unfairness and contribute to farmers' choice to side-sell.

To compound those issues, farmers generally lack information on international prices, and the ability to use this information to better negotiate with ginners. Farmers' representative organisations have a role to play in filling this gap but, to date, for reasons discussed above, have not been successful in doing so.

4.7 Driver: Household poverty and cash scarcity for basic needs

The majority of cotton-growing households in both countries are cash-constrained (Haggblade *et al.* 2010). In Zambia, data shows that poverty is more pronounced in rural areas (78 per cent) than in urban areas (53 per cent) (CSO 2010). According to the 2015 Rural Livelihoods Vulnerability Assessment Report, 59 per cent of rural households in Zimbabwe lack adequate labour for normal agricultural operations (ZimVAC 2015). Poverty²² in Zimbabwe is reported to be more pronounced in rural households (76 per cent) than in urban areas (38 per cent) (ZimSTAT 2013). Farmers often have no viable cash-crop alternative, given the geophysical nature of these areas (Cotton Indaba Taskforce CIT 2012). Cotton, therefore, plays an important role in poverty alleviation, rural development and food security. Our research shows that cash is prioritised to cover basic needs – especially food and education – before re-investment in agricultural productivity. In Zimbabwe, 24 per cent (N=155) of farmers in the household survey indicated that they had carryover debt from the previous season.

There are a number of items on which farmers spend the income obtained from side-selling of seed cotton. Apart from food purchasing (47.1 per cent), the other major cash needs in Zambia are for covering expenses related to school fees, healthcare, funerals and labour (Table 22).

In Zimbabwe, additional income from side-selling was reported to be used mainly for purchasing food (21 per cent), school fees (20 per cent) and buying inputs (17 per cent), as indicated in Table 23. Despite earning livelihoods from cotton, other crops, livestock, wages and remittances, farmers reported that these livelihood sources were not adequately covering their basic and other needs.

²² Poverty in Zimbabwe is measured through a per capita consumption approach that uses the Total Consumption Poverty Line (TCPL) and Food Poverty Line (FPL). The TCPL is pegged at US\$106.22 per person per month while the FPL is pegged at US\$163.96 for five persons per household per month (ZimSTAT 2013a).

Table 22: Main uses of income from side-selling, 2014–15 season Zambia (N=34)

Item	% total responses
Food purchasing	47.1
School fees	12.4
Healthcare	12.2
Hiring labour	8.1
Funeral expenses	6.2
Clothing	4.1
Repaying debts	4.0
Inputs purchases	4.0
House/physical infrastructure	2.0

Source: Household survey (2016). Up to three unprompted responses per respondent

Table 23: Main uses of income from side-selling, Zimbabwe (N=100, across all seasons)

Items	% total responses
Food purchasing	21
School fees	20
Inputs purchases	17
Farm equipment	12
Clothing	9
Repaying of debts	6
Housing	6
Healthcare	3
Other	2
Hiring labour	1
Other	4

Source: Household survey (2016). Up to three unprompted responses per respondent

The majority of cotton-growing households experience months without adequate food provision. The months of particular food scarcity in Zambia were reported to be December, January, February and March. In Zimbabwe, critical months of inadequate food were noted as September to February, peaking in January, with around 50 per cent of the households indicating critical months of inadequate food. In these periods, crops that farmers have planted are not yet ready for harvest. Household food shortages in these months may be due to inadequate production in the previous season, or distress sales of stored food to cover emergency cash needs.

Across both countries, ensuring adequate food supply for the family was a particularly significant use of income obtained from side-selling. Of all the cotton households that side-sold cotton in Zambia, 85 per cent indicated that they experienced months with inadequate food. Of those that did not side-sell, 70 per cent indicated that they experienced months with inadequate food. This is a highly significant difference (Table 13). Side-sellers in Zambia experienced, on average, 2.41 months of food insecurity, compared to 1.86 months for non-side-sellers. In Zimbabwe, 64 per cent of side-selling households experienced months of inadequate food provision, compared to 71 per cent of non-side-selling households (which was also highly significant at $p < 0.001$) (see Table 16). Side-selling households had, on average, 3.74 months of food insecurity, compared to 2.20 months for non-side-sellers.

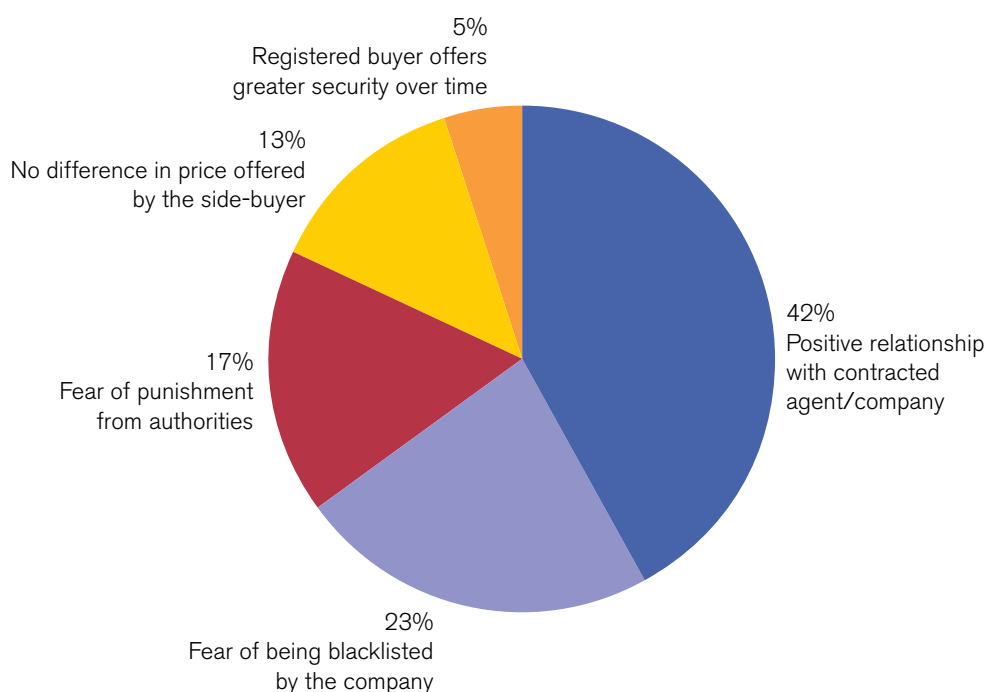
This suggests that side-selling is more likely to be associated with poorer and more food-insecure households, although causality (that poverty causes side-selling, or that side-selling contributes to poverty) cannot be proven. School fees are a significant contributor to overall household costs. Aggravating cash shortages, they partially explain the rush and need for liquidity from cash crops. In Zambia, 61 per cent of households surveyed indicated that they did not have enough money to pay for school fees. There is not a significant difference between cash needs for education when comparing side-sellers and non-side-sellers. January is the month when the need for money for school fees is most acute. This was similar for both side-sellers and non-side-sellers of seed cotton. This coincides with the time that schools reopen for the year, and when cotton has just been planted. Similarly, in Zimbabwe, 79 per cent ($N=193$) indicated that they did not have enough money for school fees during the year. In Zimbabwe, there is a significant difference between cash needs for education when comparing side-sellers and non-side-sellers. January is also the month of most acute need for school fees in Zimbabwe, followed by February–March, and September–December. These dates coincide with the timings of school opening, examinations and registration for official examinations.

4.8 What about the farmers who don't side-sell?

While it is important to understand the drivers of side-selling, we also need to understand why the majority of farmers in most seasons stick with their contract, despite the challenges that the research has highlighted, such as extreme cash scarcity.

According to the household survey in Zambia, the major reasons for not side-selling after being approached by an agent of another company were: a good relationship with the agent or company the farmer is registered with (42 per cent), fear of being blacklisted by the company registered with (23 per cent) and fear of punishment from authorities (17 per cent) (Figure 16).

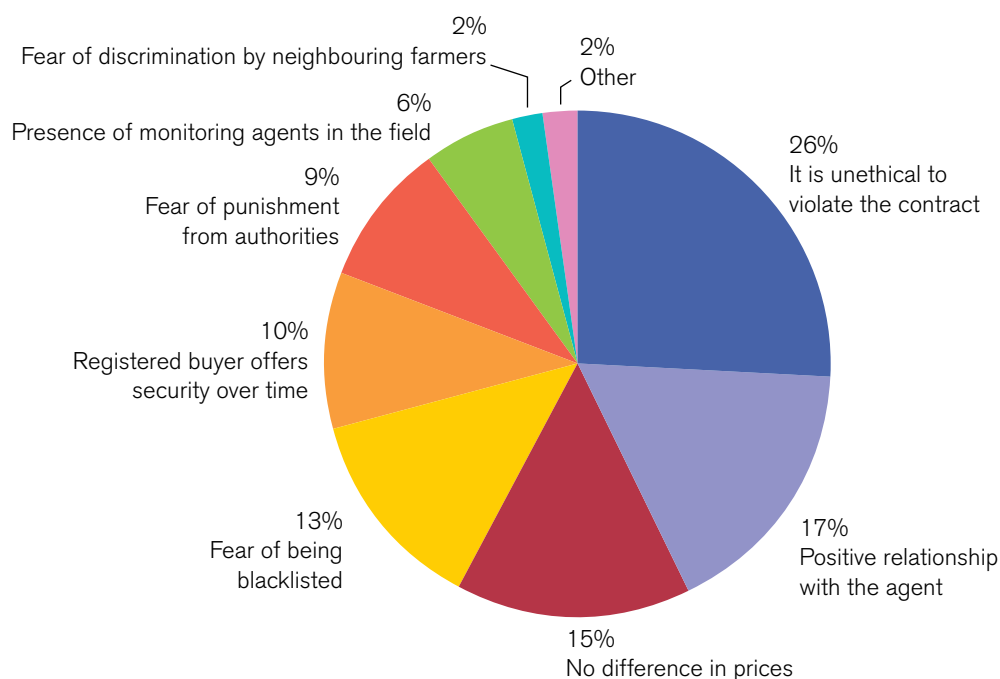
Figure 16: Reasons for farmers not to side-sell after being approached by a non-contractor, Zambia (N=50)



Source: Household survey (2016)

In the household survey in Zimbabwe, the major reasons given for choosing to refrain from side-selling were: a feeling that it is unethical to violate contractual agreements (26 per cent) and a desire to maintain good relations with the company's agent (17 per cent). About 15 per cent perceived insufficient difference in prices to warrant side-trading, and 14 per cent are afraid of being blacklisted (Figure 17).

Figure 17: Reasons for farmers not to side-sell after being approached by a non-contractor, Zimbabwe (N=99)



Source: Household survey (2016). Up to three unprompted responses per respondent

Social constraints to side-selling are used strategically by ginning companies to discourage it. Companies have increasingly relied on peer pressure rather than legal enforcement in their contracting models. In Zimbabwe, ginners have generally adopted the strategy of engaging local lead farmers/chairpersons as field agents in farming communities to monitor production and marketing activities. The field agent is the one who leads the company to homesteads of defaulting farmers, identifies defaulters and assists in identifying their assets for confiscation. But they also reside in the community, and are generally well respected by the community as knowledgeable farmers. Side-selling can then put strains on long-standing kinships, and engender conflicts between relatives and community members. These repercussions of side-selling can be as severe as being dragged before the courts, or confiscation of defaulting farmers' assets.

In Zambia, group loans have also been used by some companies as a strategy to improve loyalty to ginners, as cited in the household survey, FGDs and some KIIs. Exploiting peer-pressure dynamics is a strategy employed for example by one of the largest multinational ginners in Zambia. Farmers in the group act as surety against the loan, and also ensure that each group member does not default on the loan (and thereby does not side-sell).

In addition, in Zambia, through their field agents companies ensure that their farmers receive enough empty woolpacks (in which harvested seed cotton is packed) labelled

with the company name. It was generally reported during the FGDs that if a farmer delivers filled cotton woolpacks bearing the label of a different company, such cotton is confiscated, and the farmer forfeits the cotton and money paid for it.

As indicated in the household survey, FGDs and also by some key informants, some ginning companies confiscate belongings from farmers if they have been found to have side-sold seed cotton. Though the practice was not common, it was mainly used by a large multinational company in 2015 after it gave out huge loans (seed, pesticides and fertiliser) to the farmers in a particular area and some farmers failed to pay back the loan due to particularly bad harvests that season. The company asked police to assist in enforcing the contract by obtaining farmers' properties by force. This frightened farmers, and as a result the company lost most of these farmers' contracts in the following year – undermining their own supply base. According to KILs, this is one reason companies decide not to adopt strong approaches to penalising farmers who break their contracts. Another company has in the past asked farmers for maize if they cannot repay their cotton-linked loans, as an alternative form of repayment.

In Zimbabwe, farmers argued during FGDs that they could be threatened with blacklisting – being barred from receiving support from all companies operating within a particular area – if they are found to be side-selling. Some of the serious consequences of side-trading witnessed in cotton-producing areas include being dragged before the courts, strained family relations and stress. Extreme cases included broken marriages, forced emigrations from communities, and suicides. However, it is not known how regularly these instances occur.

Although the AMA has the mandate to regulate cotton marketing in accordance with statutes, just under a quarter of farmers in Zimbabwe (23 per cent, N=86) indicated that they had been caught and penalised by AMA for side-selling. Instead, private players (farmers and ginners) take it upon themselves to ensure that they deal with contract violations on their own. These measures include confiscation of property, and blacklisting of farmers by the ginning companies. AMA does not have the capacity to adequately enforce and monitor set guidelines in cotton production and marketing, and this is one of the reasons both ginners and farmers fail to abide by regulations.

In Zambia, for those farmers that did side-sell, there was generally a perception that there were no negative consequences in doing so (Table 24).

Table 24: Farmers' perceptions of the negative consequences of side-selling in Zambia (N=67)

Consequence	% total responses
No negative consequence	83.3
Company registered with will lose out	4.2
Troubles with village authorities	3.1
Farmers do not get all income at once	3.1
Fear of being blacklisted	2.1
Properties confiscated by the company	2.1
Farmers lose out	2.1

Source: Household survey,(2016). Up to three unprompted responses per respondent

In Zimbabwe, for the surveyed cotton producers, the perceived risk of blacklisting and other negative consequences was considerably higher than in Zambia (Table 25).

Table 25: Farmers' perceptions of the negative consequences of side-selling in Zimbabwe (N=71)

Consequence	% total responses
No negative consequences	48.2
Being blacklisted by the ginning company registered with	32.1
Properties confiscated by contracted buyer	7.4
Penalised by the AMA	6.2
Troubles with village authorities	4.9
Troubles with police	1.2

Source: Household survey (2016). Up two three unprompted responses per respondent



Cotton Association of Zambia (CAZ) Board Vice President, Michael Banda, checks on cotton plants at his demonstration plot in Chipata, Eastern Province, Zambia. He is worried about the enormous challenges facing Zambia's cotton sector but also hopeful that the government and the companies can find a path forward. Credit: Simon Lim, 2017.



5

Consequences for sector performance

We have seen in Section 3 how the governance of a sector – via its institutions, policies, rules and strategies – is at least as important as the internal governance of its component value chains in influencing the level of informality in contract-cotton production, as measured in side-trading (Section 4).

Our two hypotheses for this research were that 1) Informal commodity chains result in higher positive livelihood impacts for small-scale operators than alternative livelihood options; and 2) Informal commodity chains come with multiple trade-offs (including livelihoods, the environment, public revenue and sector performance). This section looks at the evidence for and against those hypotheses, in terms of the consequences of side-trading and its institutional response relative to livelihoods, profitability and competitiveness, public revenue and environmental sustainability of the cotton sectors in Zambia and Zimbabwe.

5.1 Social and economic performance

Livelihoods

In rural Zambia and Zimbabwe, cotton is an important source of cash for rural households. Those households – in common with rural economies throughout the global south – are becoming more deeply integrated into the cash economy.

Side-selling and the avoidance of loan repayments could, in theory, improve the profitability of the farm enterprise if the extra income is channelled into productivity. The household surveys and associated FGDs have uncovered a different reality. Under extreme cash constraints and indebtedness, income from avoiding repayment of input loans is used for basic household needs – especially food and school fees – rather than being invested in the agricultural enterprise for the longer term (Section 4.8). This was especially the case in Zambia where the incidence of side-selling in the survey was more closely associated with poverty. Receiving payment in cash, rather than avoiding loan repayment, was the prime motivator. In Zimbabwe, in contrast, revenue from side-selling was used by over half of the surveyed side-selling households to procure farm inputs, though food security and school fees were ranked first and second as uses of income from side-selling.

Any positive gains for farm livelihoods in the short term from side-selling will likely be compromised by the long-term negative impact on the profitability and competitiveness of cotton sectors as a whole. Those impacts result from (a) the disinvestment by ginners from input and service provision, as they respond to the higher risk of default on their input loans caused by side-trading; and (b) the ending of grading at point of sale, as they shift to flat-rate cash payments and rush to obtain supply without paying out any premiums for quality. Reduced investment in input/service provision (at a period of depressed world prices) is contributing to the cotton sectors' long-term shift in southern and eastern Africa towards a low-input, low-yield, low-quality model (Gibbon 2001), operating far below varietal potential and not building on the inherent superior quality of hand-picked cotton.

It was generally acknowledged during the FGDs that all companies do engage in training farmers, though to a diminishing extent and more so by the larger, multinational ginners. In general, however, high rates of side-trading and market competition are undermining technology transfer to farmers through a rolling-back of extension provision. Productivity is chronically low in Zambia and Zimbabwe, and service provision would help to address this. But technology transfer is currently not part of contracts. Including it would just raise the cost that farmers would have to repay at harvest, and a return on ginners' investments cannot be guaranteed where there are high rates of contract defaulting, disincentivising them from running their own service-delivery programmes.

Farmers' appetite for cash has meant that ginners offering cash at harvest (but making no investments in farmer support) can out-compete ginners investing in extension support. Under these conditions, investing in productivity and quality puts firms at a competitive disadvantage. Some side-buyers of choice for farmers are those that pay well but “give seed but no fertilizer, inadequate chemicals and no extension services” (from KIIs). The lack of provision of adequate fertilisers and chemicals, and the rolling-back of extension services by companies – services that are not being provided by government – could have a medium-term negative impact on farmers' productivity, soil fertility, pest infestation problems and ability to invest in conservation agriculture.

Fertiliser use is symptomatic of farm systems with chronically low productivity, and which are stripping nutrients from soils. Fertiliser use in Zambia is very low, even in cotton. Unlike the provision of seeds, fertiliser provision in input packages is discretionary under the Code of Conduct as approved by the CBZ. In the 2014–15 season, only 2 per cent of cotton farmers applied fertiliser (Chapoto and Zulu-Mbata, 2016); the household survey for this research in 2016 found that 8 per cent of farmers reported applying fertiliser. Anecdotal information provided during FGDs highlighted the issue that farmers divert fertiliser supplied under contract for cotton to their maize fields because that is their main crop and is also considered a food-security crop. Fertiliser application rates are similarly low in Zimbabwe.

Both countries have seen significant decreases in harvested volumes of cotton (down to 112,000t in Zambia and just under 29,000t in Zimbabwe for the 2015–16 season), with the ginning sector consequently running far below capacity. In Zimbabwe, the sector has been on the verge of collapse, having been the mainstay economic activity and livelihood option for smallholder farming and in semi-arid areas. As a sign of weak investor confidence, Cargill – one of the largest players – withdrew from the sector altogether in 2014 due to a lack of confidence in obtaining any return on their investment or being profitable in future. The Agricultural Marketing Authority – sometimes acting on tip-offs from farmers and ginning company employees – is believed to have tried very hard to penalise side-trading buyers, but has suffered from a lack of personnel and a resultant thin presence on the ground. The provision of free inputs by the government through a three-season US\$25.8m cotton inputs support scheme starting in the 2015–16 season may go some way toward correcting this situation, though the first season suffered from late distribution of inputs and the El Niño drought (USDA 2016). There are also risks associated with direct government intervention in the market.

In Zambia, sector performance has not decreased as dramatically as in Zimbabwe, though Cargill recently (August 2017) also closed down its ginning operations in the country. Some improvements in terms of levels of side-selling have been noted as a result of the Code of Conduct and regular meetings with all stakeholders facilitated by the District Agricultural Coordinator and Cotton Board of Zambia. The implementation of an

e-payment system was envisioned to improve the performance of the sector, especially in minimising incidences of side-trading of seed cotton (as all participating ginning companies in the two districts were required to pay farmers using e-payment). However, the implementation of e-payments did not go as planned because some companies resorted to using cash to pay for cotton in order to maximise purchases. The main reason for this was low production of seed cotton in the 2016–17 agricultural season, expected to be below 50,000mt. To promote diversification away from maize production, the Ministry of Agriculture has included additional crops in its input-subsidy-for-production programme, and cotton is now one of these.

Public revenue

Side-trading will not have a significant direct impact on revenue from a cotton levy because informally traded cotton re-enters the formal chain before the point of ginning or export, where levies are collected. But public revenue is influenced in another way: by buying more seed cotton than contracted and using data on contracted farmers and their predicted production volume, rather than actual volumes procured, ginners are able to undervalue their lint output and avoid tax obligations. More research is required to put a figure on those losses in revenue. In Zimbabwe, this manipulation of figures also means they are able to export lint in excess of the stipulated quota of 70 per cent, which impacts local value added via the textile industry, if that industry is competitive.

5.2 Environmental performance

The main environmental and health impacts of cotton production relate to pesticide use and misuse, and the decline in soil health upon which the long-term future of the sector depends. A decline in crop rotation and crop hygiene, especially in growing a *ratoon* (second) crop, is leading to serious problems with pest outbreaks and pesticide-resistance.

Training on how to use pesticides, and how to dispose of the containers, is important to minimise and reduce incidences of pesticide poisoning. The major source of extension advice on safe and effective use of agrochemicals among cotton farmers in Zambia, according to farmers in the household survey, is the ginning company they are registered with (66 per cent), with a similar percentage indicating receipt of training on the safe and effective use of pesticides, across both categories of farmer (though the survey did not interrogate for implementation). The other sources of advice include lead farmers (25 per cent), followed by another company that the farmer is not registered with (20 per cent). Ministry of Agriculture extension officers emerged as the least significant source of advice to farmers on the proper use of agrochemicals.

By contrast, in Zimbabwe, the Ministry of Agriculture (through the Conservation Agriculture Scaling Up project with the Conservation Farming Unit of ZNFU) was the major provider of extension advice about conservation agriculture in cotton (33 per cent of surveyed farmers). Cotton companies were far less effective, however, in providing information on conservation agriculture, though minimum tillage has been promoted by Cargill and NWK. Despite these efforts – and the seemingly favourable opinions of farmers – adoption remains low (less than 10 per cent) and disadoption is common (Grabowski *et al.* 2014).

In Zimbabwe, Ministry of Agriculture extension (AGRITEX) workers were the major source of extension advice on safe and effective use of agrochemicals (averaging 61 per cent at the two study sites) and conservation agriculture practices (47 per cent) reaching farmers – although adoption rates here too are low. The contracting ginners were much less important sources, averaging 15 per cent for safe and effective use of pesticides and 5 per cent for conservation agriculture.

Company-led extension, specific to individual value chains, is likely to see a further reduction in both countries as companies seek to reduce their overheads and limit their exposure to investment risks; companies do not see a return on their investment in extension if farmers sell their cotton elsewhere. Household surveys and key informant interviews show that the delivery of extension services by ginners has been decreasing in recent years as a way for these companies to reduce their commercial risk and remain competitive in a context of significant side-trading. This is particularly true in Zimbabwe.

Conservation agriculture information is going to become increasingly challenging to deliver as sector performance decreases. As extension is rolled back, farmers may become increasingly dissatisfied with service provision by their contracted companies, leading to further increases in side-selling – a vicious circle which could ultimately see a downward trend in cotton production. This is likely to significantly limit the continued uptake of conservation agriculture, as well as investments by companies and farmers in other sustainability initiatives such as Cotton Made in Africa (CMiA) which has been another victim of declining sector performance. All this raises the importance of sector-level extension, beyond chain provision, but questions remain regarding the capacity of governments to deliver on this without some kind of revenue-generating model specifically for extension in cotton.

CMiA aims to improve the living conditions of cotton farmers in sub-Saharan Africa through a trade-based model. Agricultural training is provided by CMiA to build farmers' capacity to implement efficient and environmentally friendly cultivation, aiming to increase both yields and the quality of cotton produced (and thus incomes). An international alliance of textile companies has committed to purchasing CMiA cotton, and paying a licencing fee to use the seal. CMiA has been benchmarked with the Better Cotton Initiative (BCI), which means that any cotton produced under CMiA can be sold as BCI.

Participating farmers must gradually adhere to a range of sustainability criteria. For example, farmers are required to maintain soil fertility, protect waters and use pesticides in a controlled and reduced manner. Producers are required to develop improvement plans, and to demonstrate progress towards sustainable production. Ginners or buying companies are required to secure pre-financing for smallholder farmers for investments in seed and fertiliser necessary for cotton production, and should be informed about the cost of these expenses before signing the contract. In addition, the cotton farmer should receive a fair price, be paid on time and be represented at the levels at which national cotton prices are negotiated. There should be transparency in the classification of cotton quality and the price paid for raw material (CMiA 2015).

An estimated 650,000 farmers are involved in CMiA throughout all participating African countries. CMiA's research on impact suggests that agricultural training has enabled the farmers to increase their crop yields compared to a control group by an average of 23 per cent (CMiA 2015). In Zambia, CMiA's partners include Alliance, Cargill, NWK and Parrogate. CMiA claims to have more than 200,000 participating smallholders in Zambia (based on reports by companies of how many farmers they support/contract with/provide extension to). However, actual implementation of CMiA and adherence to their standards is likely to be far lower based on other reports of low adoption of conservation agriculture, and evident trends around the roll-back of extension services (CMiA 2015). CMiA's main partner in Zimbabwe and Zambia was Cargill, so the company's withdrawal from cotton in both countries is likely to have been a major blow for conservation agriculture.

In summary, therefore, the short-term impacts of side-trading may be positive for farmers in terms of their livelihoods, but in the long-term will be detrimental to farmers' ability to grow cotton, to overall cotton output and associated public revenue earned from the sector, and to environmental performance.

6

Discussion and conclusion: addressing informality in smallholder-based contract farming

This research set out to understand informal trade in cotton in Zambia and Zimbabwe and its impacts on livelihoods as well as on the economic and environmental performance of the sector. We also sought to understand and evaluate the policy approaches that have been adopted in both countries to govern their sectors and reduce informality.

Organisation of the sectors has shifted; new challenges have emerged

The cotton sectors in Zambia and Zimbabwe have historically been two of the biggest exporters of cotton lint in southern and eastern Africa. As well as being a source of export earnings and foreign exchange, cotton has been an extremely important cash crop for resource-poor rural households.

Both Zambia and Zimbabwe have adopted contract farming as their model for cotton production, as have at least six other sub-Saharan African countries, and for many other crops besides cotton. Following privatisation/liberalisation in 1994, both countries

adopted the 'concentrated competition' model of cotton production, in which a parastatal was privatised into an oligopsony of private cotton firms, with farmers able to choose the cotton company with which they wish to enter a contract. Over time, both countries have seen their cotton markets become less concentrated, with dramatic increases in the number of (predominantly Asian) seed-cotton buyers, rising to 28 in Zimbabwe by the 2007–08 season and 11 in Zambia by 2015, especially since 2010 when international cotton prices were high. Despite some companies withdrawing from the market since prices have fallen, the sectors remain competitive in terms of the number of ginneries and ginning capacity, especially when compared to the pre-liberalisation era.

Tschirley *et al.* (2010) have explored the possible trade-offs between competition and coordination in cotton across a number of SSA cotton-sector structures. Their research found that compared to more competitive sectors in Tanzania and Uganda, in the period between 2000 and 2005, the concentrated coordinated cotton sectors of Zambia and Zimbabwe performed well in input provision and cotton quality. But they performed worse in farmer share of export price (49–55 per cent compared to 68–70 per cent) despite the growing number of ginneries in the market. This suggests that coordinated sectors are vulnerable to monopoly rent extraction by the dominant firms through price collusion or failure to pass on quality premiums for the cotton crop, and overpricing of inputs in their contracts. So, concentration has improved sector performance in terms of market coordination and investor climate, but has been less beneficial for producer welfare.

Tschirley *et al.* (2010) also observed that "the entry of additional companies can dramatically change the prospects of co-ordination for input supply and extension (and quality control). As the number of players rises in these [concentrated] systems, increased competition may undermine extension, input credit and lint quality before it has any positive effect on prices paid to farmers." Our research supports this observation, with the rise in buyers in Zambia and Zimbabwe being accompanied by structural instability and a decline in sector performance, with significant reductions in output, productivity and quality emerging in the last 3–4 years.

The main factor behind the decline in sector performance has been informal trade in the form of side-trading, which spiked in both countries in the 2011–12 season when around half of surveyed farm households in both countries reported side-selling. That was the season when the cotton price was at its lowest point in the six-year period. Increasing side-selling and side-buying is in effect an informalisation of the cotton market. Coordinated markets start to resemble the fully competitive markets in poor input and service provision and poor management of quality, but with the added down-side of poor producer prices and a subsequent shift of farmers away from cotton production altogether.

Our analysis shows that both countries' systems are under strain, with informality posing a significant threat to cotton-sector development based on contract farming. These

threats manifest as companies' disinvestment in input and service provision, or complete divestment of their cotton businesses (such as Cargill in both countries), leading to decreases in the quality of cotton production and output, environmental performance and public revenue.

Why do farmers side-trade? Cash is king

In Zambia, based on the household surveys, there was a statistically significant correlation between side-selling and gender of household head (with male-headed households more likely to side-sell). Farmers exhibiting more loyalty are less likely to side-sell, as evidenced by the significant negative correlation between side-selling and being approached by another company in the previous season but refusing to side-sell. There also appears to be a link between lack of transparency in contracting and side-selling, with a significant negative correlation between side-selling and being informed how the input loan would be paid at the time of acquiring the loan.

In Zimbabwe, there was a statistically significant correlation between the carryover of debt from the previous season and a propensity to side-sell, and there was the same link between loyalty and not side-selling as seen in Zambia.

The fear of negative consequences was not correlated in either country, suggesting that punitive measures are not particularly effective in curbing side-selling. In Zambia, poorer farmers (as evidenced by lower productivity in maize and lower cotton income) were more likely to side-sell than their more productive counterparts. In Zimbabwe, side-sellers earned more income from cotton than non-side-sellers. This is despite strong similarities between side-sellers and non-side-sellers in the average quantity of cotton produced, the average area under cotton and the average size of land holdings.

The main reasons farmers gave for side-selling during household surveys in both countries (84 per cent in Zambia and 57 per cent in Zimbabwe) was that the non-contracted buyer (typically the field agent) offered cash to buy seed cotton. This has now become a dominant practice amongst all ginnerers. Our research has highlighted how household cash scarcity is a driver of side-trading. Farmers are not necessarily always incentivised by higher prices but by immediate access to cash in the marketing season. The research found that side-selling farmers in Zambia and Zimbabwe tended to use the additional income primarily on basic needs, especially food, schooling and healthcare, rather than reinvesting in the farm enterprise; in these countries, households have been increasingly required to supplement public funding of education and health.

Our research also found that there are different types of side-selling: 1) doubling up with contractors and only selling to one of them; 2) selling enough cotton to a contracted ginner to cover the costs of inputs, but no more; and 3) selling the entire crop to a non-contracted ginner. At least 30 per cent of farmers are thought to operate in the grey area

associated with type 2, where the legality of this approach is unclear, and which allows for significant 'leakage' of cotton below the regulatory radar.

Attempts at formalisation are unlikely to be successful where these types of side-selling and their drivers are not considered and addressed. The portrayal of farmers as rapacious and fickle opportunists by some sector players is unhelpful in reforming sector policy.

Beside the relationships between household income/productivity and side-selling within a season, we can observe that differences between seasons (and associated changes in producer price and competition between ginners, and also the level of regulatory intervention) appear to have an overriding impact on the prevalence of side-trading.

New governance approaches have been implemented, but side-trading has persisted

Sector institutions – both quasi-governmental and private – have been directed to maintain coordination and uphold the 'concentrated competition' model. They act as a bulwark against creeping informalisation of trade, and uphold legislation prohibiting side-marketing. Strategies include a Code of Conduct for ginners in Zambia, databases of contracted farmers, common buying points (in Zimbabwe) and sanctions for noncompliance. In Zambia, much of this institutional response has been in the form of self-regulation via the Cotton Ginners Association of Zambia and the Code of Conduct, backed up by the Cotton Board's remit of revoking ginning licences. In Zimbabwe, the parastatal AMA is legally mandated to enforce the regulatory framework that governs seed-cotton production and marketing, with the power to revoke licences from offending ginners.

These forms of regulation have had some positive effects in terms of reducing informality and strengthening the dominant contract-farming model. But an enforcement strategy can bring about higher transaction costs such as the need for farmers to transport their cotton to common buying points for marketing (as is the case in Zimbabwe). As Delpuech *et al.* (2012) note in their research on the West and Central Africa cotton sectors, high transaction costs associated with reforms are likely to have detrimental effects, especially for the poorest farmers.

At the same time as the response by sector institutions, individual ginning companies, including established players, restructured their business models in order to secure a sufficient volume of seed cotton in a sector struggling with chronic overcapacity, and to sustain a return on their investments. Securing a sufficient volume of seed cotton becomes harder against a backdrop of suppressed global markets and smaller cotton harvests. Ginners' investments in processing capacity are not mobile, making it hard to move their investment elsewhere. One option, followed by Cargill in Zimbabwe and

Zambia, has been to divest and exit the sector altogether.²³ But the more typical response has been to compete with new players by disinvesting, reducing costs and reducing exposure to risk of farmers' defaulting on input loans. Contracts are still used to 'stake a claim' on farmers' harvests at the start of the season, but the value of those contracts has declined markedly in terms of inputs (which now may only comprise seed packs with no fertiliser), extension services and sustainability programmes. In addition, many buyers now pay cash on delivery of cotton in order to attract farmers, and avoid paying a quality premium after grading of the harvest.

We found that all companies – including both established and recent entrants to the market – have engaged in side-buying. The research has drawn particular attention to the role of field agents (usually lead farmers, and not company employees) and their incentive structures in driving informality. Commission is by far the largest source of income for agents, linked to targets for recouping all contracted crop and loans. Achieving commission targets means a de facto reliance on side-buying cotton contracted by competitors. The practice of informally employing field agents allows companies to claim compliance with sector regulations and turn a blind eye. They companies themselves may also not monitor field-level activities closely, and thus may be unaware of the practices.

Other strategies that key informants listed as a means for ginning companies to remain competitive included manipulating claimed figures of farmers under contract (inflating the number of farmers they claim to have provided inputs and extension to); paying uniform price for seed cotton regardless of the quality; and providing household goods as incentives to obtain farmers' cotton.

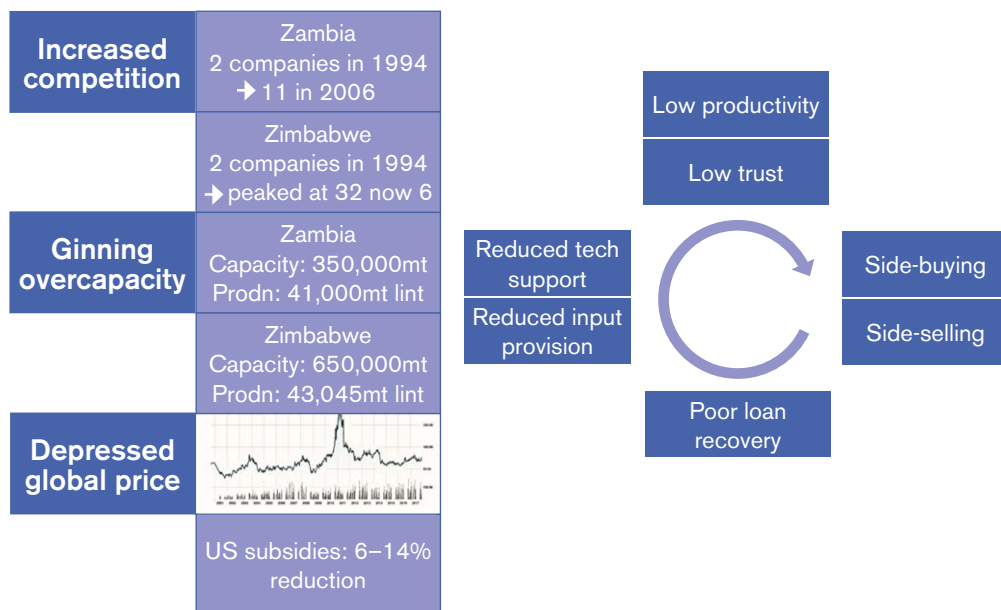
Unsurprisingly, farmers' satisfaction with the value of their contracts and the provision of inputs and services has declined. The farmers surveyed in this research expressed high levels of dissatisfaction with their contracts, whether or not they were side-selling. Mistrust in the cotton-trading system is in part linked to a perceived lack of transparency in pricing, but also to the poor quality of input and service provision. An institutional focus on enforcing contracts that do not appear to work in farmers' favour – for instance, by reducing price/production risks – reinforces farmers' perceptions that those institutions are predatory rather than facilitating. They have a perception that larger numbers of entrants have not benefited farmers, but instead through their institutions (CGA and AMA) formed a price-fixing cartel.

Such dissatisfaction has partly fuelled the vicious cycle of low recovery, low investment and low yield (Figure 18). Competition policy is prohibiting the setting of an indicative price pre-season (in Zambia), or price negotiations between ginners and farmers under the CMTC forum (in Zimbabwe), thereby locking in place a system in which individual farmers with imperfect information are expected to negotiate with ginneries.

²³ In August 2017, Cargill Zambia also announced it was selling its cotton operations in Chipata to Parrogate.

Representation of farmers remains quite weak in both countries, and is seen to be diluted by mixed functions (an association acting both as farmer lobbyist and ginner in Zambia, or a multiplicity of farmer representative organisations, without clear lines of differentiation in mandate, in Zimbabwe).

Figure 18: Vicious cycle of informality and underinvestment



Source: Authors' own

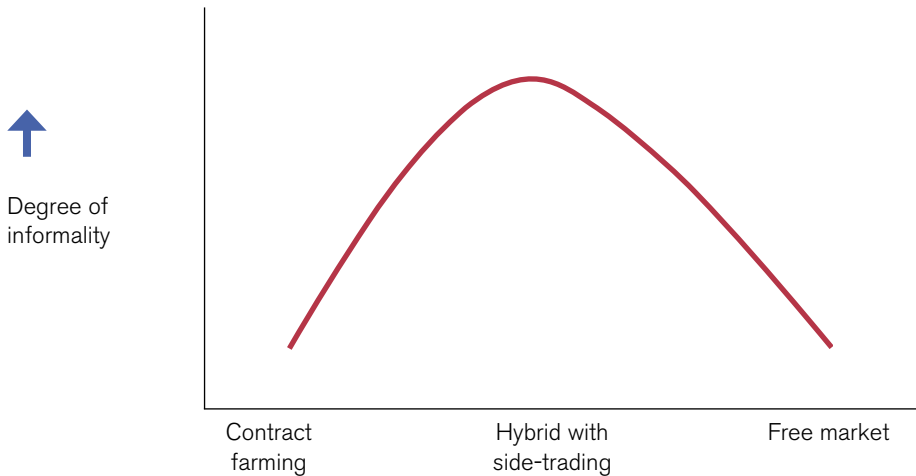
Sectoral evolution in the two countries diverged in 2016, when the Government of Zimbabwe re-entered the cotton market and became a direct player in cotton trade and input provision. This move was seen by some independent analysts as hampering private-sector investment and possibly leading to a long-term change in the structure of the market and the dominant institutional arrangement of contract farming.

In summary, the cotton sectors in Zambia and Zimbabwe have been heading towards low-investment, low-input, low-yield models. In Eastern and Southern Africa, concentrated competition systems with contract farming as their basis, and fully liberalised systems like Tanzania's, are converging in terms of productivity and quality. Thus, the benefits of contract farming are being eroded.

We have seen in the case of cotton that if markets become more competitive and institutions are not able to adapt, a situation of endemic informality can take hold in the no-man's-land between contract farming and open market, in which many ginners compete for market share (Figure 19). While the 'leaky' hybrid system that emerges may suit the short-term needs of ginners, agents and farmers (with some 'free' farmers

operating in an institutional framework designed for contracting), it is the worst of both worlds in the long-term. Hybridity poses significant challenges to governance, and can undermine the rigour of the contract model. Side-trading becomes an important secondary market for farmers, but because of its illegality is unsupported by extension or credit services. Because of the declining probability of recouping their investments, companies reduce the value of their inputs packages to farmers. In this 'race to the bottom', productivity and quality are threatened, but publicly funded or sector-funded extension is not built up to fill the gaps. This leads to long-term declines in sector performance – in which everyone loses.

Figure 19: Degree of informality between contract farming and free markets



Source: Authors' own

The current value chain and sector structure create dependence and prevent the emergence of 'free' farmers. In Zambia, farmers are not able to obtain seed from the open market because it is unavailable for purchase. In Zimbabwe, farmers who want to grow cotton have to be contracted in order to be registered with the AMA and thus be able to access seeds independently from suppliers. Although the AMA regulations technically provide for production and marketing of 'free seed cotton', they do not permit any buyer who does not contract with farmers to actually purchase cotton. Of course, free farmers by themselves – without the necessary financial and technical capacity and support as discussed below – would not guarantee a transition to a high-performing cotton industry; but it **could put** farmers on a better footing with companies to capture higher value from the commodity chain, and could stimulate the emergence of profitable, independent finance and input providers.

Box 8: ‘Free’ cotton in Zimbabwe

In Zimbabwe, the CPMA has been instrumental in advocating for regulatory review, resulting in amendments to the original/principal seed-cotton marketing regulations (SI 142 of 2009 through SI 63 of 2011). They lobbied for any extra seed cotton produced above contracted tonnage/volume to be regarded as ‘free’ cotton which can be sold to any buyer of the farmer’s choice. The amended regulations have, however, fuelled side-trading owing to the diversity of views among stakeholders in interpreting the meaning of ‘free’ cotton. The CPMA leaders are often accused by authorities of encouraging the farmers they represent, if dissatisfied with conditions offered by their contracting company, to side-sell seed cotton to buyers offering better incentives. They do, however, encourage the farmers to repay the cost of inputs to the contracted ginner after side-selling the cotton. This has prompted the ginners to inflate the prices of inputs provided, as a strategy for minimising losses on investments and also to compel the farmers to repay with seed cotton.

6.1 Options for sector transformation

Continuing on the present track – in which there is a weakening of the value of contracts and therefore reduced claim by ginners over ‘their’ contracted cotton, disorderly marketing and reduced international competitiveness – is not viable, especially when cotton prices are low. Regulation (often in the form of co-regulation between public and private sectors) must push the market towards either 1) greater formalisation, via a reformed model of contract farming that maintains a ‘concentrated competition’ structure in the short term; or 2) shifting governance and institution to a competitive open market of free buyers and free sellers in the long term. Each option has its opportunities and challenges.

Option 1: An improved contract farming model

Reform of the ‘concentrated competition’ model can be achieved through more stringent conditions of market entry (and stricter enforcement of existing standards), together with price-setting and sector collaboration.

- **Comprehensive screening of potential investors to ensure that only companies committed to quality service delivery are admitted.** A rigorous screening exercise would limit participation to those ginning companies that can guarantee a level of quality input supply, extension provision, and quality control (Tschirley *et al.* 2010). Enforceable standards would improve the quality of input provision as well as effective extension provision to the farmers by ginners, guarantee fairness and transparency in input pricing, and avoid a ‘race to the bottom’ in contract farming. In policy terms, this may be implemented through requiring companies to

obtain an operating licence from the Cotton Board, granted only if minimum standards set by the sector are satisfied. Renewal of the operating licence would be contingent on ginning companies passing a thorough review of compliance with the standards. These standards will help improve the productivity of cotton farmers, which currently is far below its potential in both countries. So long as productivity is low – no matter how good sector reforms are – no tangible outcomes will be possible.

- **A price-setting mechanism.** Price-setting mechanisms help ensure some price certainty for farmers at the time of planting, allow for a fair retention of value and reward for higher quality for producers, and curb ginner collusion. A number of examples exist where price-setting is done in a way that ensures higher value-retention for producers yet remains acceptable to other sector stakeholders, including competition authorities. For instance, prices can be set pre-season based on forward sales, historical prices and market projections. Alternatively, a combination of pre-season and post-season prices could be used, as in Burkina Faso. In Zimbabwe, sector stakeholders, during policy-engagement workshops held as part of this project, discussed the need for creating a fund to stabilise prices and provide inputs. Jointly funded by government and the private sector, it would have to be managed by a multi-stakeholder taskforce whose members are drawn from all relevant stakeholder groups. The fund would cushion farmers and ginners in the event of volatility in inputs prices and in international prices of cotton lint. Within the taskforce, the voices of cotton farmers would need to be unified and strengthened to enable them effectively to lobby and advocate for favourable policies and engagement terms.

Box 9: Cotton price-setting in Burkina Faso

At the beginning of the cotton season in Burkina Faso, the inter-branch association (AICB), consisting of both cotton companies and farmers, set cottonseed prices. The AICB announces a 'floor price', which is 95 per cent of the 'pivot price' – a reference based on the average international price of cotton in the previous three years. This is subject to various adjustments based on the recovery rate of the fibre, export value and farmers' debt to the cotton companies. Farmers are paid the adjusted floor price when cotton is delivered. At the end of the season, the 'ex-post' price or rebate of cotton is calculated using the average sale price during the season. If the ex-post price is between 95 per cent and 101 per cent of the pivot price, producers receive a refund. If the ex-post price is lower than the floor price, ginners receive a compensating payment from a stabilisation fund. If the ex-post price exceeds 101 per cent of the pivot price, the excess portion goes partly to the 'stabilisation' fund, partly to the ginners and partly to the farmers.

Source: Molenaar *et al.* (2017)

- **Transparency and verifiable farmer databases.** The contract-farming model can work only if transparency is improved and verifiable databases are created. This would allow the sectors in the short- to medium-term to identify occurrences of side-trading. In Zimbabwe, the Agricultural Marketing Authority (AMA) has been trying to maintain a database based on submissions of registers by cotton companies, but the databank has not been sufficiently comprehensive for use.
- **Improved multi-stakeholder representation.** A Cotton Board, or a reformed and well-capacitated regulatory body that enforces regulations and standards, with the authority to revoke licences, would demonstrate that sector institutions are working for everybody. Cotton-specific commodity associations in the market and representation in policy (for example, via the Cotton Association of Zambia) should be supported to foster a balance of power between ginneries, producers and policymakers. This will help ensure that farmers' interests and rights are taken into consideration (Staritz and Tröster 2015).
- **Government support to the sector should encourage competition.** Stakeholders in the dialogue workshop in Zimbabwe supported the idea of input subsidies being made available to cotton farmers. They condemned the bias of the recently established subsidy programme, however, which they considered anti-competitive (farmers are required to sell to the government-owned Cottco if they obtain inputs through the subsidy programme). Government support through public funds should be administered in a way that encourages competition among players towards improved service delivery. Under the current arrangement in Zimbabwe, private ginneries are crowded out as a result of the government's involvement in marketing. Farmers may also suffer the inefficiencies of distorted markets by receiving lower prices.
- **Adjusted incentive structures for field staff, and more accurate methodologies for forecasting harvest volumes.** These improvements could reduce reliance on side-buying to achieve targets. It is also necessary to introduce punitive measures at the field-agent level (to deter field agents from engaging in side-buying) to complement those at the company level.
- **Alternatives to cash payments.** While immediate cash payments are important to farmers, cash payment can fuel side-selling, and undermine quality by preventing grading. The sector should consider administering cash payments either through a quick and transparent process of payment within a 3–4 day window (to allow the company to check the quality of seed cotton bought, with premiums being paid according to quality), or with a two-stage cash payment, with the second dependent on quality. An e-payment system currently piloted in Zambia is a possible solution.

Option 2. An open and competitive market

An open market would mean a departure from the current institutional model of contract farming or of regional monopolies, for example in Mozambique and West Africa, to one where 'free' farmers can access inputs directly from the national marketing body or from the open market, and sell their cotton harvest to their ginneries of choice. Ginning companies then compete to be buyers of choice rather than through enforcement of contracts. In this scenario, informality becomes irrelevant. The option to shift towards an open market is worthy of consideration, while learning from the experiences of Uganda and Tanzania. We concur with Tschirley *et al.* (2009) in that "Governments and donors need to realise that contract farming in SSA is largely a response to failures in the markets for agricultural credit and inputs. As economic growth and good policy allow these markets to strengthen, the desire for contract farming on the part of both farmers and processors will diminish, though there will still be instances where the parties find it advantageous (primarily export markets with high standards on quality, timeliness, and food safety)."

The main risk of an open and competitive market is a significant decrease in cotton production if inputs are no longer pre-financed and private extension services no longer delivered – with implications for productivity and natural-resource management. An open market should not be confused with an unregulated market. Without regulations to oversee the provision of inputs and services and to facilitate the market, an open market will be outperformed by contract farming in key indicators of productivity and quality (Staritz and Tröster 2015).

- **Strong input and credit markets.** Governments must ensure that the building blocks for strong input and credit markets are in place, so that processing firms and farmers have less need for contract farming to access quality inputs, especially seed. The development of alternative financing options for farmers remains a key challenge in helping farmers become more independent. The usual challenges around such issues as collateral, accessibility, risk of lending and transaction costs for smallholders persist, though group acquisition of inputs and marketing arrangements can overcome some of these challenges. In Zambia, the Cargill agro-dealership model could be used as a vehicle for this arrangement. In Zimbabwe, some farmers in Gokwe (through the Gokwe North Farmers Association) have already been purchasing cotton-planting seed directly from Quton as an organised group for some time. Sadly, this cooperation could not be sustained due to problems within the leadership and lack of support, as some members pulled out of cotton production as prices began to fall from 2011 onwards. In Zimbabwe, the current arrangement for distribution of free inputs by the government is only meant to last for three seasons (until 2018) after which the farmers will be required to purchase inputs themselves.

- **Generation of revenues at the sectoral level.** For sustainable development of an open market that works for all, it is essential to generate revenues at the sector level rather than to rely on donors or lead firms for individual value-chain projects. The generated revenue must be re-invested in the strengthening of input and credit markets, provision of extension services, and market management and promotion (with mechanisms that determine the basic rules on trade, prices, quality, traceability and sustainability). Management of these funds has to be efficient, free from corruption and at arm's lengths from government. Several models from other sectors illustrate how sector-based financing of service delivery can be achieved. A revenue-generation mechanism is already in place in the Zambian cotton sector through collecting a levy on every kilogram of seed-cotton ginned, though many feel that the revenue is not adequate to benefit farmers and develop the sector. Review and revision of the levy is needed to raise sufficient funds for boosting the authority and capacity of the Cotton Board.
- **Sector alignment, coordination and accountability are key.** These are necessary in order for the sector to set a vision for its development, align the key stakeholders behind it and organise accountability around investments and commitments. Priority must be given to the voice of smallholders and their associations in policymaking, so that there is alignment and coordination between key stakeholders (namely, government, the private sector and farmers).
- **Need for evidence.** A successful transition from contract to 'free' commodity markets, as outlined above, is constrained by a lack of case evidence. In-depth research on other export commodities in developing country settings should be conducted to offer guidance on how this transition can best be managed – for example, where an integrated national marketplace can manage problems of price discovery (including by-products), price risk management, financial inclusion and access to quality inputs.

Aside from specific recommendations for Zambia and Zimbabwe and their respective approaches to formalisation, our research sheds light on drivers of side-trading which may be relevant to other sectors or value chains that utilise contract farming as their dominant institutional arrangement. The most significant drivers include farmers' cash needs – related to such factors as food insecurity and the need to pay school fees – and perceptions of unfairness in regards to contracting terms (such as the costs and quality of inputs, and collusion over pricing).

Failure to acknowledge and address these drivers (for example, through timely cash payments) will lead to a failure in specific business models that rely on contract farming – or the collapse of entire sectors.

References

- Allen, T and Heinrigs, P (2016) Emerging Opportunities in the West African Food Economy. OECD, France. www.oecd-ilibrary.org/development/emerging-opportunities-in-the-west-african-food-economy_5jlvfj4968jb-en
- AMA (Agricultural Marketing Authority) (2011) End of Year Cotton Report. AMA, Harare.
- AMA (Agricultural Marketing Authority) (2012) End of Year Cotton Report. AMA, Harare.
- AMA (Agricultural Marketing Authority) (2013) End of Year Cotton Report. AMA, Harare.
- AMA (Agricultural Marketing Authority) (2014) End of Year Cotton Report. AMA, Harare.
- AMA (Agricultural Marketing Authority) (2015) End of Year Cotton Report. AMA, Harare.
- AMA (Agricultural Marketing Authority) (2016) End of Year Cotton Report. AMA, Harare.
- Benson, E *et al.* (2014) Informal and Green? The forgotten voice in the transition to a green economy. IIED, London.
- BDSA (2016) Assessment of Smallholder Cotton Farmer Perceptions Of E-Payment, Southern and Eastern Province. Lusaka, Zambia.
- Buka G (2016) Cotton and its By-Products Sector in Zimbabwe. A Background Paper. United Nations Conference on Trade and Development. UNCTAD, Geneva.
- Cotton Board of Zambia (CBZ) (2015) Cotton Ginning Companies and their Capacities of Zambia. Lusaka, Zambia.
- Chapoto, A and Zulu-Mabata, O (2016) Rural Livelihood Survey. IAPRI, Lusaka, Zambia. See www.iapri.org.zm/images/Articles/RALS_Report.pdf
- Chapoto, A *et al.* (2012) Institutional models for accelerating agricultural commercialization: Evidence from post-independence Zambia, 1965–2012. IAPRI Working Paper. Lusaka, Zambia.
- Charmes, J (2012) The informal economy worldwide: trends and characteristics. *Margin – The Journal of Applied Economic Research* 6(2) 103–132.
- CIT (Cotton Indaba Taskforce) (2012) Paving the way forward. A report of the Cotton Indaba Taskforce Team.
- CMiA (2015) African Cotton. Aid by Trade Foundation, Hamburg. See www.cottonmadeinafrica.org/en/about-us/african-cotton

- CMiA (2017) African Cotton. Aid by Trade Foundation, Hamburg. See www.cottonmadeinafrica.org/en/about-us/african-cotton
- CSO (2010) Living Conditions and Monitoring Survey of 2010. Central Statistics Office Report, Lusaka, Zambia.
- Davis, B *et al.* (2017) Are African households (not) leaving agriculture? Patterns of households' income sources in rural Sub-Saharan Africa. *Food Policy* 67, 153–174.
- Delpuech, C *et al.* (2012) Revisiting the 'Cotton Problem': A Comparative Analysis of Cotton Reforms in Sub-Saharan Africa. LICOS Discussion Paper No. 290/2011.
- Esterhuizen, D (2014) Supply and Demand of Cotton in Zambia. USDA Foreign Agricultural Service, Washington, DC.
- FAO (2012) Guiding principles for responsible contract farming operations. Office of Knowledge Exchange, Research and Extension, FAO, Rome.
- Gibbon, P (2001) Upgrading Primary Production: A Global Commodity Chain Approach. *World Development* 29(2) 345–363.
- Grabowski, P *et al.* (2014) Determinants of Adoption of Minimum Tillage by Cotton Farmers in Eastern Zambia. IAPRI Working Paper 87, Lusaka, Zambia. See www.iapri.org.zm/images/WorkingPapers/wp87.pdf
- Haggblade, S *et al.* (2010) The rural nonfarm economy: prospects for growth and poverty reduction. *World Development* 38(10) 1429–1441.
- Hitimana, L *et al.* (2011) Informal economy and food security. *West African Futures* 6. OECD Sahel and West Africa Club Secretariat, Paris. See www.oecd.org/swac/publications/49526765.pdf
- ICAC (International Cotton Advisory Committee) (2015) African cotton exports: threats and opportunities. Washington, DC. See www.wto.org/english/news_e/news15_e/ICAC_nov15_dev.pdf
- ICLS (International Conference of Labour Statisticians) (1993) Resolution concerning statistics of employment in the informal sector. 15th ICLS. See www.ilo.org/wcmsp5/groups/public/@dgreports/@stat/documents/normativeinstrument/wcms_087484.pdf
- IIED (2016) Informality and inclusive green growth. Evidence from 'The biggest private sector' event. IIED, London. See <http://pubs.iied.org/pdfs/17365IIED.pdf>
- ITC (International Trade Centre) (2014) Zimbabwe cotton-to-clothing strategy 2014–2019. ITC, Geneva, Switzerland. See <http://www.coton-acp.org/modules/docpool/files/zimbabwe-c2c-strategyweb.pdf>

- ITC (International Trade Centre) (2013) Improving Africa's cotton value chain for Asian markets. Technical Paper, ITC, Geneva. See www.intracen.org/Improving-Africa-Cotton-Value-Chain-for-web
- Kabir, AM *et al.* 'Adoption of E-payment System: A Review of Literature.' Paper presented at the International Conference in E Commerce, School of Accountancy, University Utara, Malaysia, 2015.
- Kabwe, S *et al.* (2016) Technical Efficiency: Are Zambian Cotton Lagging Behind? IAPRI Working Paper, Lusaka, Zambia. See www.iapri.org.zm/images/Working_paper%20111_Cotton_technical_efficiency.pdf
- Kadzere, M (21 October 2016) Olam guns for Cottco management contract. Zimbabwe. See www.herald.co.zw/olam-guns-for-cottco-management-contract/
- Kadzere, M (15 October 2014) Cargill closes local cotton business. *The Herald*. See www.herald.co.zw/cargill-closes-local-cotton-business/
- Liguyani, JN and Nzulwa, J (2016) Challenges facing performance of E-payment Systems in Government Ministries in Kenya: A Case of Ministry of Energy of Petroleum. *The Strategic Journal of Business Change and Management* 3(4) 990–1012.
- Majaka, N (1 February 2016) Zamco to assume Cottco \$56m debt. *Daily News*, Zimbabwe. See www.dailynews.co.zw/articles/2016/02/01/zamco-to-assume-cottco-56m-debt
- Masato, M (28 August 2015) Credit Default, Side Selling Threaten Sustainability of Contract Farming. *Tanzania Daily News*. <http://allafrica.com/stories/201508280669.html>
- Ministry of Agriculture, Mechanisation and Irrigation Development (MAMID) (2014) Second Round Crop and Livestock Assessment Report 2014. Harare, Zimbabwe.
- Ministry of Agriculture, Mechanisation and Irrigation Development (MAMID) (2013) Zimbabwe Agricultural Investment Plan (2013 – 2017) A comprehensive framework for development of Zimbabwe's agriculture sector. Harare, Zimbabwe.
- Ministry of Agriculture and Livestock and Central Statistical Office (2016) Crop Forecast Surveys from 2007 to 2016. Lusaka. Zambia.
- Minot, N 'Contract Farming in sub-Saharan Africa: Opportunities and Challenges.' Paper prepared for policy seminar Smallholder-led Agricultural Commercialization and Poverty Reduction: How to Achieve It? Kigali, Rwanda, 18–22 April 2011. [http://fsg.afre.msu.edu/aamp/Kigali%20Conference/Minot_Contract_farming_\(AAMP%20Kigali\).pdf](http://fsg.afre.msu.edu/aamp/Kigali%20Conference/Minot_Contract_farming_(AAMP%20Kigali).pdf)
- Molenaar, JW *et al.* (undated). An overview of sector governance. Looking beyond the value chain to build high performing and resilient agriculture sectors. Aidenvironment. Amsterdam.

Molenaar JW *et al.* (2017). Reaching beyond the value chain. How sector governance can improve the performance of agricultural commodity sectors. Aidenvironment. Amsterdam.

Mutambara, J *et al.* (2014) Enhancing the competitiveness of Zimbabwe's cotton value chain. Final Report, USAID Zimbabwe, Zimbabwe Agricultural Competitiveness Project Report.

Ndhlovu, O and Seshamani, V (2014) The linkage between price and output of cotton in Zambia. *African Journal of Agricultural Economics and Rural Development* 4(4) 328–336.

Peltzer, R and Röttger, D (2013) Cotton sector organisation models and their impact on farmer's productivity and income. Discussion paper, German Development Institute. See www.die-gdi.de/uploads/media/DP_4.2013.pdf

Perry, GE *et al.* (2007) Informality: Exit and Exclusion. World Bank, Washington, DC.

Porto, G *et al.* (2011) Supply Chains in Export Agriculture, Competition, and Poverty in Sub-Saharan Africa. World Bank, Washington, DC. See http://siteresources.worldbank.org/INTRANETTRADE/Resources/Supply_Chains.pdf

Poulton, C and Hanyani-Mlambo, B (2008) The cotton sector of Zimbabwe. Report for the World Bank, Centre for Development, Environment and Policy School of Oriental and African Studies University of London, UK. See www.coton-acp.org/docs/study/Zimbabwe_Cotton_Case_Study_Final_October%202008.pdf

Poulton, C and Tschirley, D (2009) A typology of African cotton sectors. In *Organization and Performance of Cotton Sectors in Africa: Learning from Reform Experience*. World Bank Group, Washington, DC.

RATES (2003) Cotton – Textile Apparel Value Chain Report Zambia. RATES Centre, Nairobi, Kenya.

Schneider, F (2012) The shadow economy and work in the shadow. What do we (not) know? IZA discussion paper series, discussion paper no. 6423, Bonn, Germany.

Smalley, R (2013) Plantations, Contract Farming and Commercial Farming Areas in Africa: A Comparative Review. Working Paper 55, Future Agricultures Consortium. See www.futureagricultures.org/publications/research-and-analysis/working-papers/1710-plantationscontract-farming-and-commercial-farming-areas-in-africa-a-comparative-review/file

The Standard (8 October 2011) Chinese investors accused of unfair business practice. Zimbabwe. See www.thestandard.co.zw/2011/10/08/chinese-investors-accused-of-unfair-business-practice/

Staritz, C and Tröster, B (2015) Cotton-based development in Sub-Saharan Africa? Global commodity chains, national market structure and development outcomes in Burkina Faso, Mozambique and Tanzania. Austrian Foundation for Development Research (ÖFSE),

- Vienna. See www.oefse.at/fileadmin/content/Downloads/Publikationen/Workingpaper/WP54_Cotton_based_development.pdf
- Tschirley D *et al.* (2004) Cotton in Zambia: An Assessment of its Organization, Performance, Current Policy Initiatives, and Challenges for Future. FSRP Working Paper, Lusaka, Zambia. See www.iapri.org.zm/images/WorkingPapers/wp10zambia.pdf
- Tschirley, D *et al.* (2009) Contract Farming in Sub-Saharan Africa: Lessons from Cotton on What Works and Under What Conditions. ReSAKKS Issues Brief No. 7, IFPRI. See www.ifpri.org/publication/contract-farming-sub-saharan-africa-lessons-cotton-what-works-and-under-what-conditions
- Tschirley, DL *et al.* (2010) Institutional Diversity and Performance in African Cotton Systems: Learning from Reform in West-Central Africa and East and Southern Africa. *Development Policy Review* 28(3) 295–323. See www.coton-acp.org/docs/montpellier/ISSCRI_2008_D/Documents_E/S4_P2_Tschirley.pdf
- Tyler, G and Dixie, G (2012) Investing in Agribusiness: A Retrospective View of a Development Bank's Investments in Agribusiness in Africa and Southeast Asia and the Pacific. World Bank, Washington, DC.
- United Nations Comtrade. See <https://comtrade.un.org/data/>
- USDA Foreign Agricultural Service (2016) Zimbabwe: cotton production and consumption annual report. Washington DC, See https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Cotton%20Production%20and%20Consumption%20Annual%20Report%20_Pretoria_Zimbabwe_6-20-2016.pdf
- Vorley, B and Lançon, F (2016) Urban food consumption, urbanisation and rural transformation: the trade dimensions. IIED, London. See <http://pubs.iied.org/10767IIED>
- Vorley, W *et al.* (2015) Growing inclusion? Insights from value chain development in Ugandan oilseeds. IIED, London. See <http://pubs.iied.org/16563IIED>
- Weng, X (2015) The rural informal economy: Understanding drivers and livelihood impacts in agriculture, timber and mining. IIED Working Paper, IIED, London. See <http://pubs.iied.org/16590IIED>
- White, S and Aylward, D (2016) Formalisation of smallholder agriculture and agri-business. Business Environment Reform Facility, DFID, London. See www.businessenvironmentreform.co.uk/wp-content/uploads/2016/11/Scoping-Study-smallholder-agriculture-and-agribusiness-formalisation.pdf
- Will, M (undated) Contract farming handbook. A practical guide for linking small-scale producers and buyers through business model innovation. Commissioned by GIZ, Bonn, Germany. See: <https://www.giz.de/fachexpertise/downloads/giz2013-en-contract-farming-manual.pdf>

ZEPARU, 2014 (Zimbabwe Economic Policy Analysis and Research Unit) Zimbabwe's Cotton to Clothing Value Chain Study. ZEPARU Occasional Research Paper No.1/2014.

Zim-ACP (Zimbabwe Agricultural Competitiveness Program) (2014) Enhancing the competitiveness of Zimbabwe's cotton value chain. United States Agency for International Development (USAID), Harare, Zimbabwe.

ZimSTAT (Zimbabwe National Statistics Agency) (2013) Compendium of Statistics 2012. Zimbabwe National Statistics Agency, Harare, Zimbabwe.

ZimVAC (Zimbabwe Vulnerability Assessment Committee) (2015) Rural Livelihoods Vulnerability Assessment. Report, Food and Nutrition Council, Harare, Zimbabwe.

Zinyama, F (25 June 2007) Govt advises ginner to stop buying cotton from farmers they didn't fund. *The Post*, Zambia. See <http://maravi.blogspot.co.uk/2007/06/govt-advises-ginner-to-stop-buying.html>

Annex 1: Primary data collection tools

a) Household survey questionnaire

IAPRI and IIED Household Cotton Survey, 2016

This survey is part of a team effort between IAPRI and IIED aimed at understanding issues of side selling or/and side buying of seed cotton in the cotton value chains and particularly its implications for resource governance, rural livelihoods and sustainability. Your help in answering these questions is very much appreciated. Your responses will be kept COMPLETELY CONFIDENTIAL to the maximum extent allowable by law. If you choose to participate, you may refuse to answer certain questions, or you may stop participating at any time. Your responses will be summarised together with those of roughly 200 other cotton households in Zambia and general averages from analysis will be reported. All of the answer you give will be confidential and will not be linked to you personally. You indicate your voluntary consent by participating in this interview: may we begin? If you have questions about this survey, you may contact the Executive Director of IAPRI Mr. Chance Kabaghe.

Enumerator: during the interview, the most prominent cotton producer(s) from the household has to be available.

Identification particulars

1	Province		PROV				
2	District		DIST				
3	Location		LOCT				
4	Village Name						
5	Household Serial Number		HH				
6	Name of Household Head						
7	Name of Main Respondent (If different from head)						
8	Gender of HH (1= male, 2 = female)						
9	Education level of the HH head (see code below)						
10	Year of birth of HH head						
11	Number of HH members						
12	Screening questions: Did the household grow cotton in 2014/15 season? 1 = Yes, 2=No <i>Enumerator: if the response is Yes, continue with the interview, otherwise, stop the interview</i>						
13	RESPONSE STATUS RSTATUS 1=Complete 2=Refusal 3=Moved out of SEA 4=Non-contact 5=Household dissolved						
14	GPS Coordinates	South S_DD	Decimal degrees □□□□□ □□				
		East E_DD	Decimal degrees □□□□□ □□□				
15	ASSIGNMENT RECORD				Day/	Mon/	Year
	a. Name of Enumerator:	ECODE		Date completed			2016
	b. Name of Supervisor:	SCODE		Date checked			2016
	c. Name of Quality Control Officer	DEOCODE		Date entered			2016

Education levels (Question 9)		
00=None	06=Standard 5; Grade 6	13=Form 6 Lower
01=Sub-standard A; Grade 1	07=Standard 6; Grade 7	14= Form 6 Upper
01=Sub-standard B; Grade 1	08=Form 1; Grade 8	15= College Student
02=Standard 1; Grade 2	09=Form 2; Grade 9	16= University Undergraduate Student
03=Standard 2; Grade 3	10=Form 3; Grade 10	17= Tertiary Certificate; Diploma
04=Standard 3; Grade 4	11= Form 4; Grade 11	18= Bachelors Degree
05=Standard 4; Grade 5	12=Form 5; Grade 12	19 = Masters Degree and Above.

Section 1. Farmland and use (Rain-fed fields only)

		Unit 1= <i>lima</i> 2= <i>acre</i> 3= <i>ha</i> 4= <i>sqm</i>	Number (0 if no land)
1.1	How much land do you own?		
1.2	How much land did you rent in the past season (2014–2015)?		
1.2a	If yes to 1.2, at how much per unit (Kwacha)?		
1.3	How much land did you lease out in the past season (2014–2015)?		
1.3a	If yes to 1.3, at how much per unit (Kwacha)?		
1.4	We would like to know more about your far and what you grow. We'd also like to know specifically about the area of cotton you grow and the inputs you use. <i>How many fields were under production of crops during 2014–2015?</i>		HH01

Enumerator: Ask the respondent to give you the details about their total area of farmland. From F09 we focus on cotton only.

Table 1.4.1 Fields for 2014/15 season. Reference Period: 2014/2015 agricultural season

Field ID			What was the area planted for each of these crops?	How much area was harvested for each crop?				How much quantity of this crop did the hh harvest from this field?		(Cotton only) what quantity of seed did you plant?	(Cotton only) What quantity of fertilizer (basal and top) in kg did you apply?	(Cotton only) What was the total cost of herbicides used?" (Enter '99' if did not use)	(Cotton only) How much did they charge you for the input pack (seeds, insecticides and folia fertilizer)?
			Area of field	Unit	Area of field	Unit	Quantity harvested (if 0 → go to next field)	Unit (see codes below)	Quantity	Unit (see codes below)			
FLD	MEMF	F01	F02	F03	F04	F05	F06	F07	F09	F10	F11	F12	F13
1		COTTON											
2													

Crop code F01				Unit codes F07, F10				
1 = Maize	7 = Soya beans	13=Bambara nuts	57=Sweet potato- orange fleshed	61=Sugarcane	1=90 kg bag	7=50kg bag unshelled	13=bunches	19=number
2 = Sorghum	8 = Seed cotton	14=Cowpeas	18=Cassava	21=Other crop (specify)	2=50kg bag	8=25kg bag unshelled	14=MUCHUMBU	20=kilogram
3 = Rice	9 = Irish potato	15=Velvet beans	19=Kenaf	23=Garden	3=25kg bag	9=10 kg bag unshelled	15=ka B.P.	21=litres
4 = Millet	10 = Virginia tobacco	16=Coffee	20=Cashew nut	24=Natural fallow	4=10kg bag	10=20lt tin unshelled	16=crates	50=mls
5 = Sunflower	11 = Burley tobacco	17=Sweet potato- white or yellow-fleshed	22=Paprika	25=Improved fallow	5=20lt tin	11=5lit5 gallon	17=metric tons	
6 = Groundnuts	12=Mixed beans		60=Popcorn	26=Pigeon peas	6=90kg bag unshelled	12=MEDA	18=boxes	

Section 2: Producer's relationship with ginning firms

We would like to ask you about your experience with cotton over the past six years, starting with the previous cropping season (2014/15)

Enumerator: Ask the following cotton questions to the most prominent cotton producer available in the household. Please reiterate that the answers here are confidential and will not be attributed to any individual.

Table 2 Key Variables: PROV DIST, CSA, SEA, HH, YEAR

Agricultural Season	Did you grow cotton in that season? 1=Yes → go to CT3a	[If response to CT1 =2] What was the most important reason for not growing cotton? 1=Lack of labour 2=low price in previous season 3=poor yield 4=poor input delivery by comp 5=other crops more profitable 6=Other specify	What area of cotton did you plant	Which company(ies) were you registered with in that particular season? 1=NWK/ Dunavant 2=Cargill 3=Continental Ginneries/ Paragate 4=Alliance Cotton 5=China Africa Cotton 6=Grafax 7=AGDC 8=Yustina Ginneries 9=Mumbwa Farmers Ginneries 10. Manjeet 11. None	From whom did you obtain the following inputs for cotton during that agricultural season? 1=from company(ies) registered with or its agent on CREDIT 2=from company(ies) registered with or its agent paying CASH 3=from different company on CREDIT (specify which company sub-column needed) 4=from different company paying CASH (specify which company sub-column needed) 5=from inputs dealer on CREDIT 6=from input dealer paying CASH 7=from other sources 8=I did not use this input 9=free	Did you use any of the inputs for crops other than cotton? 1=Yes 2=No	(Do not ask if CT4 is 11 (none) Were you satisfied with the quality of services you received from the company you were registered with? 1=Yes 2=No	To whom did you sell your cotton? <i>Enumerator: Enter the value in ZMW in the respective space.</i>							
			Area Unit 1=Lima 2=Acre 3=Hectares 4=metre square		Seed Pest-icides Ferti-lizer Bags				1=if sold all to the company(ies) I was registered with 2=if sold some to company I registered with, some to other buyers (not registered with) (specify which company sub-column needed) 3=if sold all to other buyer(s) (specify which company sub-column needed)						
Year	CT1	CT2	CT3a	CT4	CT5a	CT5b	CT5c	CT5d	CT5a	CT5b	CT5g	CT6	CT7a	CT7b	CT7c
2014/15													e.g. sold 5 kgs at X \$ a KG	Sold 5kg to buyer X and 10 kg to buyer y	
2013/14															
2012/13															
2011/12															
2010/11															
2009/10															

Enumerator: ask these questions if CT7b/CT7c has a value.

2.1	<p>Why did you decide to sell the cotton to this buyer? <i>Enumerator, do not prompt. Include up to three reasons that respondent gives, ideally in order of importance, and remember to ask for each non-registered buyer if there is more than one.</i></p> <p>(Attracted by the buyer)</p> <ol style="list-style-type: none"> 1. Price offered by another company was more than the price offered by the company I registered with 2. The other company was giving material things as well, for example basins, blankets. 3. Better advice/access to extension services 4. More convenient collection points/ agent comes to field to collect/convenience 5. Better relationship with agent 6. Buyer offered to buy with cash 7. I followed the example or advice of a lead farmer 8. The non-registered buyer does not look at quality so closely <p>(Not liking the registered company)</p> <ol style="list-style-type: none"> 9. The company I registered with did not come on the market early 10. Harvest was poor so I wanted to avoid paying back an input loan/farmer was not expecting profit from cotton, after the cost of inputs were deducted 11. I felt the inputs provided to me by the company I registered with were of poor quality (e.g. seeds had a low germination rate) 12. The inputs offered by the company I registered with were overpriced when deducted from harvest price 13. Sense of unfairness in how ginners work against the interests of farmers 14. Others (specify; sub column) 15. No other reason 	Resp1	
		Resp2	
		Resp3	
2.2	<p>What were the main negative consequences of selling to a 'non-registered' buyer, if any? <i>Enumerator, do not prompt. Include up to three reasons that respondent gives, ideally in order of importance.</i></p> <p>(Coding)</p> <ol style="list-style-type: none"> 1. No negative consequence 2. Being blacklisted by the ginning company that one registered with 3. Properties confiscated by the ginning company that one registered with, 4. Troubles with village committee/authorities 5. Reduced access to training and extension services 6. Others (specify; subcolumn needed) 7. No other reason 	Resp 1	
		Resp 2	
		Resp 3	
2.3	<p>Have you noticed any positive consequences of selling to a 'non-registered' buyer? <i>Enumerator, do not prompt. Include up to three reasons that respondent gives, ideally in order of importance.</i></p> <p>(Coding)</p> <ol style="list-style-type: none"> 1. No positive consequence 2. Immediate access to cash for urgent needs (break down: school fees, food scarcity, dowry, medical, debt repayment, funerals, others please specify: another column) 3. Greater profitability because of higher prices 4. Greater profitability because of avoiding repayment of loans 5. Purchase of material goods that have benefited the household 6. Improved yields due to better technical assistance 7. Reduced time and cost in travel to cotton depot 8. Others (specify; subcolumn needed) 9. No other reason 	Resp 1	
		Resp 2	
		Resp 3	

If respondent received inputs on credit (for example CT5a,b,c,d=1,3 or 5) this agricultural season (2014/15), ask questions 2.0 through 2.5

2.4.1	At the time that you acquired the inputs on loan, were you told the PRICE you would be charged for the inputs? 1=Yes 2=No	
2.4.2	At the time you acquired the cotton input loan, were you told HOW THIS LOAN WAS TO BE REPAYED? 1=Yes 2=No	
2.4.3	Is there anything you would like to add? (Enumerator; capture the comments related to 2.4.1–2.4.2 in this box)	

Enumerator: ask this question if CT7a has a value:

2.5	In the previous season (2014–2015), were you approached by buyers other than those you were registered with to buy your cotton? (1=Yes, 2=No)		
2.6	If yes, which company? (use the same code for CT4)		
2.7	If you have been approached but did <u>not</u> sell to “non-registered buyers”, why did you decide to stick to your contracts? (Enumerator, do not prompt and get the three most important reasons). (Coding) 1. Fear of punishment from authorities 2. Fear of negative feelings towards me by neighboring farmers 3. There are agents from registered company in the field monitoring me 4. Fear of being blacklisted 5. Registered buyer offers greater security over time (e.g. increased likelihood or buying again next year) 6. Price offered by ‘non-registered’ buyer did not exceed that offered by the buyer I am registered with 7. I have a positive relationship with the agent/company and do not want to spoil that 8. Others (specify; subcolumn)	Resp 1	
		Resp 2	
		Resp 3	
2.8	Did you receive any training in the past two seasons on conservation agriculture (minimum tillage, crop residue retention (30%), crop rotation)? 1=Yes 2=No		
	2.8a Extension officers of the Cotton company registered with		
	2.8b Extension officers of another Cotton company not registered with		
	2.8c Ministry of Agriculture Officials/CASU)		
	2.8d Fellow farmers		
	2.8e Others (specify; subcolumn)		
2.9	Did you receive any training in the past two seasons on safe and effective use of pesticides? 1=Yes 2=No		
	2.9a Extension officers of the Cotton company registered with		
	2.9b Extension officers of another Cotton company not registered with		
	2.9c Ministry of Agriculture Officials		
	2.9d Fellow farmers		
	2.9e Others (specify; subcolumn)		
2.10	How did the containers of pesticides get disposed of? Choose one main method. 1. Just cleaned and start using them 2. Through them in ditch 3. Burn them 4. Other specify subcolumn)		

Section 3: Crop stocks and sales from own production (Reference Period: Marketing season (1st May 2015–30th April, 2016))

Enumerator: Ask the following questions about crop sales for all crops, excluding cassava, the household harvested this year (2014/2015 agricultural season). Make sure that crop sales include payments made with crops in exchange for labour and other services. Food crops include all crops listed under crop codes except for kenaf, coffee, cashew nut, Virginia and burley tobacco.

Table 3.1 All Crop Stocks and Sales, Reference Period: Marketing season: 1st May 2014—30th April 2015 cropstock.sav

Write the crop name for all crops harvested in 2014/2015 season	Enter the crop codes for all crops harvested in (2014/ 2015) See codes below	Since May 2015, has the household sold or exchanged any of this crop? 1=Yes 2=No → go to S14	What is the total quantity of this crop that the household sold for cash and/or barter for goods and/or labour since May 2015?		Ask the following questions for the <u>largest cash/barter transaction</u>			
			Quantity sold/ bartered	Unit See codes below	When did the household sell/barter? Month See codes below	To whom did you sell/barter this crop? (see codes below)	How far is this location from your homestead? (in km) (1 mi = 1.6 km)	What was the price per unit for the largest cash transaction? (enter -9 if all the transaction was bartered)
CROPNAME	CROPS	S01	S02	S03	S04	S05	S06	ZMW
Seed cotton	8							Unit See codes below S08

Crop Code			Unit Code (S03)				Month codes (S05)
1=Maize	9=Irish potatoes	17 = Sweet potatoes	1=90kg bag	10=20lt tin unshelled	17=metric tons	05=May	01=January
2 = Sorghum	10=Virginia tobacco	19 = Kenaf	2=50kg bag	11=5lt gallon	18=boxes	06=June	02=February
3 = Rice	11=Burley tobacco	20 = Cashew nut	3=25kg bag	12=MEDA	19=number	07=July	03=March
4 = Millet	12=Mixed beans	21= Other crop (specify)_	4=10kg bag	13=bunches	20=kilogram	08=August	04=April
5 = Sunflower	13 = Bambara nuts	22 = Paprika	5=20lt tin	14=MUCHUMBU		09=September	13=After April 2012
6 = Groundnuts	14 = Cowpeas	60 = Popcorn	6=90kg bag unshelled	15=ka B.P.		10=October	
7 = Soya-beans	15 = Velvet beans		7=50kg bag unshelled	16=crates		11=November	
8 = Seed cotton	16 = Coffee		8=25kg bag unshelled			12=December	
			9=10 kg bag unshelled				

Section 4: Off-farm and livestock income (May 2014 to April 2015)

Wage income (May 2014 to April 2015)

4.1	Did any adult member of the household earn income from wage employment or informal labour activities or pensions between Oct 2014 and Sept 2015? 1=Yes 2=No <i>Go to 4.3</i>	
4.2	What was the total amount the household earned from wage employment or informal labour activities or pension between Oct 2014 and Sept 2015 in ZMW	

Remittances (May 2014 to April 2015)

4.3	Did any member of the household receive any money from anyone else who was not a member of this household? 1=Yes 2=No, <i>if the answer to no, skip to 4.5</i>	
4.4	If yes, what was the total amount of money the household members received in ZMW	
4.5	Did any member of the household send out any money to anyone else who was not a member of this household? 1=Yes 2=No, <i>if the answer is no, skip to question # 4.7</i>	
4.6	If yes, what was the total amount of money the household members sent out in ZMW	

Livestock income (May 2014 to April 2015)

4.7	Did any adult member of the household own any livestock between Oct 2014 and Sept 2015? 1=Yes 2=No <i>Go to Section 5</i>	
4.8	What was the total amount the household earned from selling livestock (goats/sheep/pigs/cattle/poultry) and livestock products between Oct 2014 and Sept 2015 in ZMW	

Section 5: Months of Adequate Household Food Provisions

Enumerator: Tell the respondent that you would now like to ask about the household's food provisions during different months of the year.

5.1	Between May 2014 and April 2015, were there months in which the hh did not have enough food to meet its family's needs? 1=Yes 2=No <i>go to Table 5.2</i>	HH49	
-----	---	------	--

5.2 (*If yes*), which were the months between May 2014 and April 2015 in which the hh did not have enough food to meet its family's needs?

(*Enumerator: Do NOT read the list of months. Simply record a 1=yes for months the household mentioned being without enough food, and 2=no for months not mentioned by the household.*)

Enumerator: Was the household without enough food to meet its needs in this months

Table 5.2 Food needs Key Variables: CLUSTER, HH, MONTH

Reference Period: Beginning of May 2014 to end of April 2015

1=Yes (not enough food)		2=No (month not mentioned by household)			
MONTH		FOODNEED	MONTH		FOODNEED
May 2014	1		November 2014	7	
June 2014	2		December 2014	8	
July 2014	3		January 2015	9	
August 2014	4		February 2015	10	
September 2014	5		March 2015	11	
October 2014	6		April 2015	12	

5.3 What were you doing to support yourself during these months of need?

Enumerators: do not prompt; get the top three answers. (coding)

1. trading, 2. working on other farms, 3. Logging, 4. Mining, 3. Others (specify; subcolumn)

Section 6: Income use (only applies to farmers with values on CT7b and CT7c in Section 3)

6.1 What was the main use of income from the sale of seed cotton to non-registered buyer(s)?	
<i>Enumerator: do not prompt and get the top 3 answers</i>	Resp 1
<i>on-farm:</i> 1. buy inputs 2. pay labour <i>non-farm:</i> 3. school fees 4. food purchasing, 5. healthcare, 6. clothing	Resp 2
<i>Investments in physical assets</i> 7. farming equipment 8. housing/physical infrastructure <i>Others:</i> 9. drinking 10. repay debts. 11. funeral 12. dowry 13. Others (specify; subcolumn)	Resp 3

Thank you very much for participating in this interview. We appreciate your time and effort

b) Focus group discussion guide

During facilitation of FGD, make sure to distribute the questions across the group and solicit answers from the silent ones, so that ordinary farmers beyond the lead farmers will speak.

Stones: give each participant a portion of stones (e.g., 10 stones), then ask each participant to put down their own stones for all the stone exercises.

Explanation of side-selling: “sold to more than one buyer”; “selling to companies that did not provide inputs”

- 1) Please make the farmers feel at home and tell them to open up during the discussion of the issues of side selling and buying of seed cotton. Inform them that the information that will be given out will not be given out to companies or used for harming the farmers, but will be used purely for research purposes. It will be treated as confidential as the law allows. Thank the farmers for accepting to be interviewed.
- 2) General trends in side selling of seed cotton at community level
 - ✓ First tell the farmers to identify the ginning companies that provided inputs (seed, chemicals, folia fertilizers) to the farmers in each year. Draw a table like one below and List the companies in each year.

Table 1: List of Companies by year

2010	2011	2012	2013	2014	2015

Explain to the farmers what the terms side selling/side buying of seed cotton means.

- ✓ Explain that we would like to know in general terms the trends in side selling of seed cotton by farmers or side buying of seed cotton by the ginning companies since 2010 to 2015. Draw a table on a flip chart as shown below, put a heap of 60 stones or beans in the middle and ask the participants through a volunteer to distribute the stones/beans across the periods, putting more stones/beans in the periods where more farmers side sold seed cotton and relatively less where less farmers did so. Encourage the group to discuss as they distribute the stones/beans. Take note of important issues being mentioned especially pertaining to side selling of seed cotton (why it happened so high/low, which ginning company/ies were involved, why farmers get involved, and what type of farmers get involved).

Table 2: Side selling of seed cotton

2010	2011	2012	2013	2014	2015

After the stones/beans have been distributed, count the number in each box and record it. Interpret the meaning of the numbers in each box (more farmers side sold seed cotton where that number is larger and vice versa) and let them change the numbers if they want to until they agree the numbers are correct.

- ✓ For changes in the numbers across the periods, ask what happened, why, what were the consequences, etc. paying attention to socio-cultural as well as technical and economic issues noting down interesting quotes and examples.
- ✓ Then ask the farmers to mention the companies that were involved in side buying of seed cotton for each year. List the mentioned company/ies for each year.
- ✓ For company/ies listed, ask the farmers to allocate the stones/beans to each company.
- ✓ After the stones/beans have been distributed, count the number on each company and record it. Interpret the meaning of the numbers on each company (with more stones/beans means the company side bought seed cotton more and vice versa).
- ✓ Ask the farmers to allocate the stones/beans as they see who gets involved in side selling of seed cotton (gender, remoteness, wealth level?).
- ✓ Ask the main reasons why it is so.

3) Find out the key drivers for side selling of seed cotton

- ✓ Explain to the farmers that there are reasons why some farmers side sell the seed cotton.
- ✓ Firstly explain to the farmers how the pattern of side buying/side selling has been based on what is found in question 2 above;
- ✓ Then list the four categories of farmers found in the village (ie, well off farmers, medium well off farmers and very low well off farmers, or all the categories of farmers) on the flip chart.
- ✓ Ask the farmers to distribute the stones/beans among these categories of farmers. Interpret the meaning of the numbers in category (with more stones/beans means that farmers in that category side sold and vice versa) and let them change the numbers if they want to until they agree the numbers are correct.
- ✓ Then ask the farmers to mention the reasons why farmers in each group side sell seed cotton.
- ✓ Use the stones to rank the top reasons

4) Consequences of getting involved in side selling of seed cotton

- ✓ Explain to the farmers that when some farmers get involved in side selling they face some consequences. Ask the farmers to list the consequences farmers face after getting involved in side selling of seed cotton.
- ✓ Does this behaviour affect your relationship with other farmers and the community? If so, how does this affect
- ✓ What safeguard measures are in place at the community level to address side-selling?
- ✓ How are these safeguard measures working?
- ✓ Evaluation of the inputs given out and extension service provision to the farmers by ginning companies Refer to the companies that are listed in table 1 above. Again list them on the flip chart.
- ✓ Referring to last season, find out if each ginning company listed gave a contract to the farmers they contracted.
- ✓ Ask the farmers to list the type and quantity of inputs each ginning company gives out to the farmers.
- ✓ Assessing of extension service provision: Using the stones/beans, ask the farmers to distribute the stones/beans to each company listed (with more stones/beans means that a ginning company provides adequate extension service to the farmers and vice versa) and let them change the numbers if they want to until they agree the numbers are correct.
- ✓ Ask the farmer to list in general terms the differences in input provision by these companies?

5) Marketing evaluation

- ✓ Refer to the companies that are listed in table 1 above. Again list them on the flip chart.
- ✓ Referring to last year, ask the farmers to indicate when each company entered the market.
- ✓ List the periods of seed cotton marketing (beginning of season, middle of the marketing season, end of the marketing season); referring to these periods, ask the farmers to indicate the price of seed cotton that each ginning company offered to the farmers.

- ✓ If there are differences in prices, find out how farmers behaviour with regard to selling the seed cotton (do they sell to companies that offer a higher price even if they did not get inputs from that company? Or what happens in general terms? Or do farmer withhold seed cotton until the price goes up?).
- ✓ Ask the farmers to indicate how long it took for these companies to pay them their dues after selling seed cotton. Using the stones/beans, ask the farmers to distribute the stones/beans to each company listed (with less stones/beans means that a ginning company paid the farmers promptly and vice versa) and let them change the numbers if they want to until they agree the numbers are correct.
- ✓ Find out if farmers were satisfied with the price that was offered last marketing season? What else can they say about seed cotton marketing?

6) Livelihood Impact Analysis

- ✓ Ask the farmers to explain what motivates them to participate in cotton production. (Probe on *the early harvest timing* therefore access to money; ask *why do they need cash urgently* at that time of the year)
- ✓ What economic opportunities are presented to them in cotton production?
- ✓ Ask farmers to mention the different enterprises they are involved in that village (cotton included)? List them on the flip chart.
- ✓ Of all the enterprises listed and using the stones/beans, ask the farmers to distribute the stones/beans to each enterprise listed to show which one contributes more to the household income (with more stones/beans means that the enterprise contributes more to the household income and vice versa) and let them change the numbers if they want to until they agree the numbers are correct.
- ✓ Ask them to give the reasons why it is like that.
- ✓ Then to the farmers that side sell seed cotton and those that do not and using the stones/beans, ask the farmers to distribute the stones/beans to show which group of farmers makes more money from cotton (with more stones/beans means that a farmer makes more money from cotton promptly and vice versa) and let them change the numbers if they want to until they agree the numbers are correct.

7) Environmental Impact Analysis

- ✓ Find out from the farmers if they know any environmental impacts (e.g. handling of pesticide, chemicals, containers etc.) associated with cotton production in general terms.
- ✓ Ask the farmers to explain how the methods of production employed in the cotton value chain affect the environment
- ✓ List the ginning companies again on the flip chart and using the stones/beans, ask the farmers to distribute the stones/beans to each company listed to show how farmers have to care about the environment (with more stones/beans means that a ginning company training its farmers on how to care about the environment, disposal of empty chemical containers and vice versa) and let them change the numbers if they want to until they agree the numbers are correct.

8) How can things improve in your opinion? (getting farmers' own opinions on potential solutions)

9) Concluding remarks

- ✓ As you come to the end of the discussion, ask the participants for any questions or additional comments on the issues that were discussed;
- ✓ When no further issues are coming out:

Thank the participants for their time and especially the information shared;

Assure them the information will be anonymously used on behalf of other farming communities to help understand the issues of side selling/side buying of seed cotton and help the cotton sector move forward; and

Inform them, you will now go back and synthesise the information you have obtained from them together with that from other communities/villages to make a summary of key issues and what needs to be done to reduce incidences of side selling of seed cotton in the country:

This information from the main report will be used by Government, Cotton Board of Zambia, Ginning Companies, Cotton Association of Zambia, etc. as they design programmes to help increase their agricultural activities and consequently livelihoods.

c) Key informant interview guide

IAPRI and IIED Key Informant Cotton Interview, 2016

This interview is part of a team effort between Indaba Agricultural Policy Research Institute (IAPRI) and International Institute for Environment and Development (IIED) aimed at understanding issues of side selling or/and side buying of seed cotton in the cotton value chains and particularly its implications for resource governance, rural livelihoods and sustainability. Your help in answering these questions is very much appreciated. Your responses will be kept COMPLETELY CONFIDENTIAL to the maximum extent allowable by law. If you choose to participate, you may refuse to answer certain questions, or you may stop participating at any time. All of the answer you give will be confidential and will not be linked to you personally. You indicate your voluntary consent by participating in this interview: may we begin? If you have questions about this survey, you may contact the Lead Researcher for IAPRI on this assignment Mr. Stephen Kabwe.

Ask key informant to tell you about their organisation where appropriate, particularly about their role in the cotton sector

1. How common is side selling and side buying in cotton sector (dependent on the interviewee)?
2. What has been the trend in side selling and side buying over the years?
3. Why is this informal commodity trade being practiced?
 - a. By farmers?
 - b. By ginnerers?
4. What type of farmers are associated with side selling?
5. What type of ginnerers are associated with side buying?
6. What are the benefits/cost to informal trade by the following actors?

Actors	Benefits	Costs
Farmers		
Ginnerers		
Government		
Other actors, specify		

7. What are the production methods and practices associated with informal trade in cotton?
8. How do these practices and methods affect the environment?
9. What policy options do you propose to ensure environmental sustainability and sector viability in cotton?
10. Is there anything else you would like to tell us on the subject matter and anyone else you would recommend us to meet as a key informant on the subject matter?

Key Informant Cotton Interview Guide, 2017 for Regulatory Authorities (Government, AMA, CGA)

This interview is part of a team effort between Agricultural Economics, Policy Research and Information Centre (AEPRIC) and International Institute for Environment and Development (IIED) aimed at understanding issues of side selling or/and side buying of seed cotton in the cotton value chains and particularly its implications for resource governance, rural livelihoods and sustainability. Your input will help improve governance approaches in the cotton sector and provide recommendations to on how the performance of the cotton sector can best be enhanced.

Your help in answering these questions is very much appreciated. Your responses will be kept anonymous, we will not mention your name or institution in any of our analysis but use the insights to provide general knowledge. If you choose to participate, you may refuse to answer certain questions, or you may stop participating at any time. All of the answer you give will be confidential and will not be linked to you personally. You indicate your voluntary consent by participating in this interview: may we begin? If you have questions about this survey, you may contact the Lead Researcher for AEPRIC on this assignment Dr Jackqeline Mutambara on 0716966493.

- a) What are the written rules around contracting and side-marketing that you are aware of (*ask them to summarise the main features of relevant laws*)?
- b) Who is responsible for enforcing these written rules? How effective are these actors in terms of enforcement?
- c) To what extent do you think these written rules are adhered to by actors in the market? Please comment on the reasons why you think they are adhered to, or not. What are the drivers and barriers to compliance with the rules or incentives/disincentives to comply with the rules or seek to enforce them? (*encourage them to think about different actors in the value chain that may have reasons not to comply with rules, or actors in the political economy that may be responsible for enforcing rules but may benefit from not doing so*).

- d) In your opinion, in what way should the written rules or approaches to enforcement be changed to make the sector more effective/productive?
- e) What is your opinion on the effectiveness of private-sector led approaches to regulating the sector (e.g. CGA)? Do you have any experience of them working to date? Are they a positive development for the sector?
- f) To what extent do you think the recent approach by government to introduce input subsidies to farmers will help improve performance in the sector? How are the existing rules going to be affected by such a move?
- g) What should be done to ensure that side marketing of seed cotton is better controlled? Do you think there is any option to move away from contract farming altogether? And if so, how would this work?

Key Informant Cotton Interview Guide, 2017 for Field Agents–Buying Agent and Company Chairpersons

This interview is part of a team effort between Agricultural Economics, Policy Research and Information Centre (AEPRIC) and International Institute for Environment and Development (IIED) aimed at understand how the whole cotton buying and selling system works, performance of cotton sector, impact on farmer livelihoods and the environment, impact of recent changes in Zimbabwe and how governance might be improved to enhance the performance of the sector. Your input will help improve governance approaches in the cotton sector and provide recommendations to on how the performance of the cotton sector can best be enhanced.

Your help in answering these questions is very much appreciated. Your responses will be kept anonymous, we will not mention your name or institution in any of our analysis but use the insights to provide general knowledge. If you choose to participate, you may refuse to answer certain questions, or you may stop participating at any time. All of the answer you give will be confidential and will not be linked to you personally. You indicate your voluntary consent by participating in this interview: may we begin? If you have questions about this survey, you may contact the Lead Researcher for AEPRIC on this assignment Dr Jackqeline Mutambara on 0716966493.

- h) As a field agent, do you enter into contract with the company you work for? (*if not a formal contract, is it a verbal agreement? How do both parties ensure they adhere to what they've agreed*).
- i) What type of works do you do? (*e.g. recruiting farmers, giving inputs to farmers, provision of extension, buying seed cotton, loan recovery, beating the target of tonnage*)

- j) How are you incentivised to do the work you have just indicated?
- k) Have you ever collected seed cotton from farmers from the farm gate or any other points outside the farm gate? *(for this question, refer to 2014–15 season, 2015–16 marketing season and also 2016/17 marketing season)*
- l) When you are buying seed cotton, how are payment transactions handled ((a) *immediate cash direct from you, or (b) collect seed cotton and pay later through company finance officers*). If both (a) and (b) are used, indicate under what circumstances each option is used and the prevalence of each payment option for the 2014–15 season, the 2015–16 marketing season and also the 2016–17 marketing season)
- m) How do you agree with the company on the tonnage of seed cotton you are going to buy as an agent? *(for example, is it based on seed given out and also crop assessment of your farmers)*
- n) If the tonnage is not reached, how does the company react? Are you penalised in anyway? Do you risk not obtaining work next season?
- o) If you buy more than the agreed tonnage, does the company reward you in any way?
- p) If 100% of loan recovery is achieved for your target farmers, what does the company do?
- q) If you have failed to recover 100% loan, what does the company do?
- r) In order to meet your targets, have you ever considered side buying as a strategy?
- s) Have you ever approached non contracted farmers to buy seed cotton from them? If yes, what proportion of the seed cotton you bought in the 2014–15 season, 2015–16 marketing season and also 2016–17 marketing season) was side-bought?
- t) If yes in (k), how do you incentivise non contracted farmers to side sell to you?
- u) Does your company management encourage or discourage you to side buy?
- v) How frequent does the company supervisor visit you during crop production period, crop marketing period? *Specify for each period*
- w) How often do you visit farmers during crop production period, crop marketing period? *Specify for each period*
- x) What is the relationship with your superiors like?
- y) To what extent do their superiors know your field-level activities?
- z) What does the cotton marketing legislation as specified by AMA say?

- aa) How has the introduction of cotton input subsidies by government and the affiliation of subsidies to COTTOCO as a buyer affected your business as a buying agent for your company?

Key Informant Cotton Interview Guide, 2017 for Ginning Companies Managers

This interview is part of a team effort between Agricultural Economics, Policy Research and Information Centre (AEPRIC) and International Institute for Environment and Development (IIED) aimed at understanding issues of side selling or/and side buying of seed cotton in the cotton value chains and particularly its implications for resource governance, rural livelihoods and sustainability. Your input will help improve governance approaches in the cotton sector and provide recommendations to policy makers on how the performance of the cotton sector can best be enhanced.

Your help in answering these questions is very much appreciated. Your responses will be kept anonymous, we will not mention your name or institution in any of our analysis but use the insights to provide general knowledge. If you choose to participate, you may refuse to answer certain questions, or you may stop participating at any time. All of the answer you give will be confidential and will not be linked to you personally. You indicate your voluntary consent by participating in this interview: may we begin? If you have questions about this survey, you may contact the Lead Researcher for AEPRIC on this assignment Dr Jackqeline Mutambara on 0716966493.

- ab) How are field operations for seed cotton procurement structured for your company?
(Here, we would like to see how the field operations take place, what is the hierarchy, in which locations, what number of staff or representatives etc)
- ac) Which category is in direct contact with the farmers in the procurement of seed cotton from farmers for the company (buying agent)? *(Are these employees of the company or are they self-employed but doing some work of the company, i.e., agents or lead farmers or something else).*
- ad) Is the buying agent based in the field/community, or nearby? Are they considered to be part of the community?
- ae) How does the buying agent operate in doing its functions? *(Does the company enter into contract with this buyer? Or is it a verbal agreement. If contract, how long does the agreement last)*
- af) What type of work does this the buying agent perform? *(e.g. recruiting farmers, giving inputs to farmers, provision of extension, buying seed cotton, loan recovery, meeting or exceeding the target of tonnage, monitoring farmers on the ground)*

- ag) How is this buying agent incentivised for the work they perform for the company? *(do they receive a base salary? Do they receive commission based on performance? How is performance defined.*
- ah) Does the buying agent handle cash transactions between farmer and company?
- ai) When buying seed cotton, what payment methods are use? *(cash on immediate collection, cash at a later date when seed is collected or deposited etc)) (for this question, refer to 2014/15, 2015/16 marketing season and also 2016/17 marketing season).*
- aj) If both methods of payment are used, specify the conditions when
 - a. The farmer is paid cash on immediate collection
 - b. The farmer is paid cash at a later date when seed is collected
- ak) Do these 'agents' collect cotton from farmers' homesteads or farms immediately, do they collect later, or do they oversee farmers' own delivery to a collection point?
- al) Do these agents grade the quality of cotton? If not when is it graded and by whom?
- am) Does the agent have targets for volumes (and/or quality) of cotton they have to collect? What is this target based on? *(for example, seed given out, seed given out and also crop assessment reports)*
- an) If an agent buys more than the agreed tonnage, what incentive does the company give him or her?
- ao) How frequently does the company supervisor visit the field agent during crop production period, crop marketing period? *Specify for each period*
- ap) How does the company supervise and monitor the activities of the buying agent in the field?
- aq) What is their relationship with their superiors like? How often do they communicate? What kinds of things do they discuss?
- ar) To what extent do their superiors know of their field-level activities?
- as) Have you had cases brought to your attention in the past of your company buying agents side buying? How did the company react to that?
- at) *Are your buying agents aware of the Code of Conduct or other legislation that makes side-buying illegal such as AMA regulations?*
- au) Out of the contracted cotton in 2014–15, 2015–16 and 2016–17 seasons, what proportion was lost to the company due to side marketing?
- av) How has been the loan repayment for the company affected by side marketing in 2014–15, 2015–16 and 2016–17 seasons?

- aw) What have been the other impacts of side marketing on the performance of the company over the years?
- ax) How have the introduction of cotton input subsidies from 2015–16 and 2016–17 affected your business for your company?
- ay) In your own opinion, what recommendations would you propose to curb side marketing and sustain the cotton sector in the future?



Knowledge
Products

Research Report

March 2018

**Sustainable markets;
food and agriculture**

Keywords:

Informality, cotton, foreign investment,
sector governance

Cotton production in Zambia and Zimbabwe plays a key role in the countries' agricultural sector and in the lives of millions of farmers who depend on it as a cash crop. Yet, in both countries, cotton production is at one of its lowest levels in recent years. One dominant cause for declining production is informal trading, manifested in side-trading, that circumvents the dominant institutional model of contract farming. Through a three-year research collaboration between IAPRI (Indaba Agricultural Policy and Research Institute), AEPRIC (Agricultural Economics, Policy Research and Information Centre) and IIED, we examined the informal cotton trade and its impacts on the economic, social and environmental performance of the cotton sectors in Zambia and Zimbabwe.

Our findings illustrate the drivers and consequences of side-trading, including the short term positive impacts on livelihoods and longer term negative impacts of declining crop quality, yields and soil fertility. We show that regulatory frameworks around contract farming have struggled to deal with growing market competition, over-capacity and side-trading. At the same time, farmers are becoming increasingly distrustful of sector institutions and ginning companies. We conclude by presenting two options for institutional reform which would reverse this trend, minimise informality and bring the cotton sector back from the verge of collapse.

IIED is a policy and action research organisation. We promote sustainable development to improve livelihoods and protect the environments on which these livelihoods are built. We specialise in linking local priorities to global challenges. IIED is based in London and works in Africa, Asia, Latin America, the Middle East and the Pacific, with some of the world's most vulnerable people. We work with them to strengthen their voice in the decision-making arenas that affect them – from village councils to international conventions.



International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK

Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
www.iied.org



Research jointly supported by the ESRC and DFID

MINISTRY OF FOREIGN AFFAIRS OF DENMARK
Danida



This research was funded by the DFID-ESRC Growth Research Programme, Danida (Denmark), Irish Aid and Sida (Sweden). The views presented in this publication are those of the authors and do not necessarily reflect the views of DFID, ESRC, Danida, Irish Aid or Sida.