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Conditional contracts in indirect local procurement of maize from smallholder farmers in Uganda

A study design to assess impacts

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Introduction

Improving smallholder farmers' access to reliable markets can have significant impacts on their wellbeing, income, poverty reduction, dietary diversity, and rural economic growth (Barrett 2008; Mmbando, Wale, and Baiyegunhi 2015; Sibhatu and Qaim 2018). As the choice of marketing channels may influence outcomes differently depending on the context, a key issue is understanding the effectiveness of different marketing instruments. One such modality is a conditional contract between a buyer and the traders supplying it. Such a contract requires traders to source a certain percentage of their supplies directly from smallholder farmers. This raises the question of whether conditional contracts create access to reliable markets for smallholder farmers, result in value chain transformation, and sustain market engagement between traders and smallholder farmers.

To help answer this question, a team of researchers at the International Food Policy Research Institute (IFPRI) designed a study to assess the effect of a conditional contracting system instituted by a Mastercard Foundation implementing partner—henceforth referred to as "a major buyer"—in the maize market in Uganda. The largest buyers of maize (by volume) in Uganda include other countries in the region (notably Kenya, South Sudan, and Rwanda), the World Food Programme, domestic millers and food processors like the Uganda Grain Milling Company, and government institutions (FEWS NET 2023; WFP 2023). Under the terms of the conditional contract we study, traders or suppliers of the major

buyer of interest are required to source 20 percent of the total volume of maize directly from smallholder farmers. IFPRI worked with this buyer to design a multiactor stacked survey—of smallholder farmers, small traders, and large traders that directly supply to the buyer—to understand how conditional contracts affect actors along the maize value chain, with special focus on smallholder farmer households. This project note outlines the main research questions, our study design, and some initial findings from our baseline survey in May–July, 2024. In total, we surveyed: (1) 393 traders (323 men, 41.8% aged 18–35 years; and 70 women, 48.6% aged 18–35 years); and (2) 1,783 farmers (858 men, 34.3% aged 18–35 years; and 923 women, 32.3% aged 18–35 years).

Study design

Research questions

The main research questions of our study are: What is the impact of the conditional contract on key outcomes—price realization, quality standards, amount sold, household income, and other welfare indicators—of actors along the value chain, including smallholder farmers and small maize traders? Are there any spillover effects on farmers in the same area who are not selling their maize directly to affiliated traders of the major buyer? Does the conditional contract create access to reliable markets, result in value chain transformation or upgrading (for example, through improved quality standards), and support sustained market engagement between traders and farmers? What challenges or barriers are faced with respect to conditional contracts? How well are these contracts being implemented on the ground?

Formative fieldwork

To better understand how the value chain was organized in the study area, who the key actors were, and what their experience was with respect to maize production in general and the conditional contracts in particular, we conducted a formative field visit in January 2024 where we held key informant interviews and focus group discussions with assorted value chain actors.

All the traders we spoke to on this visit were men. The major buyer was generally viewed favorably by large and small traders, seen as reliable and with higher quality standards than other buyers. However, maize traders must be able to supply large volumes to the major buyer at short notice. Large traders who supply this major buyer also sell to multiple domestic and international buyers. The institution of conditional contracts was not viewed as overly onerous by the traders, though the additional documentation was time-consuming, especially for smallholder farmers who have limited access to bank accounts or mobile money payments. Large traders expressed the need for the major buyer to support them in meeting the quality requirements through training or capacity building, and for there to be a consistent set of quality standards. This request was echoed by smaller traders. Maize with excess moisture or impurities is penalized through a weight reduction. Finally, our interviews suggested that lack of access to a “good” market, limited credit, training and agricultural extension, low-quality infrastructure (such as maize cribs or tarpaulins to dry the maize), and the absence of price information are key barriers farmers face.

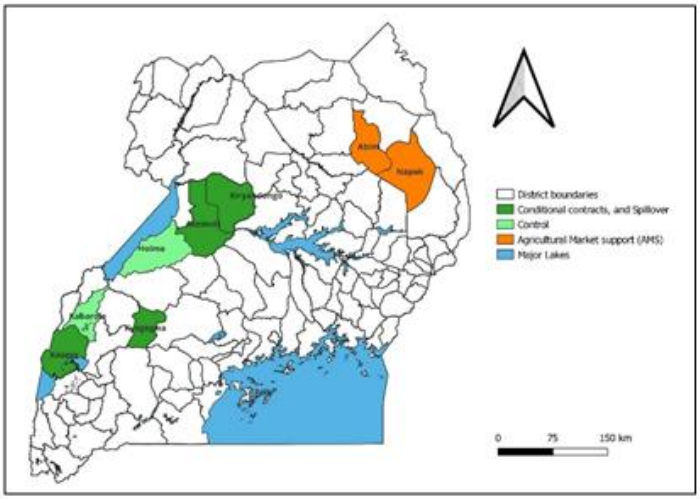
The insights from this formative fieldwork helped inform our approach to sampling for this study and the specific questions for each actor along the maize value chain. We turn to these next.

Survey design and sampling

The survey for the study of conditional contracts was designed to collect data from three types of actors: large suppliers, small traders linking farmers to large suppliers, and smallholder farmers. As the large suppliers were few, we interviewed them all. Small traders were identified through farmer interviews and visits to local trading centers where most farmers sell their maize. Farmers were selected randomly after stratifying them into four groups (Figure 1):

- Smallholder farmers from the traceability lists of the major buyer's linked suppliers in four districts: Kasese, Kyegegwa, Kiryandongo, and Masindi (Group 1).
- Farmers who reside in the same four districts but do not sell to the major buyer's linked suppliers (that is, a nearest nonparticipating neighbor of each Group 1 farmer), which is our strategy for measuring the potential spillovers of indirect conditional contracts (Group 2).
- Farmers in two districts (Abim and Napak) of the Agricultural Market Support (AMS), who are often organized in groups and sell directly to the major buyer and also receive a range of training and other support services from the major buyer, which allows us to investigate the effect of other influential factors such as training and other AMS services on the effectiveness of the indirect conditional contracts (Group 3).
- Farmers residing in two districts (Kabarole and Hoima) with characteristics similar to those of Group 1, but where the major buyer was not procuring, which is our control group (Group 4).

Figure 1: Surveyed districts by farmer type



Source: Authors' elaboration.

Using the sampling frame of the Uganda Bureau of Statistics (UBOS), 25 villages in each district were first randomly selected (with probability proportional to the village household population). Ten households were randomly selected from each village using the village household lists maintained by the village chairperson. Where feasible, we aimed to interview an equal number of men and women maize farmers for a target of 500 men and women farmers in each group. Table 1 shows the sample of farmers and traders achieved across the four groups.

Table 1: Achieved samples of maize farmers and traders by stratification group

Group/Farmer type	Farmers			Traders		
	Achieved sample	Men	Women	Achieved sample	Men	Women
Group 1: Conditional contract farmers	392	176	216	143	139	4
Group 2: Spillover farmers	389	178	211			
Group 3: AMS farmers	499	234	265	96	37	59
Group 4: Control group farmers	503	270	233	154	147	7
Total	**1,783**	**858**	**925**	**393**	**323**	**70**

Source: Authors' calculations based on the survey results.

Note: For traders, the numbers surveyed are merged for Groups 1 and 2 (see text for details).

Initial descriptive findings

Basic farmer characteristics

Table 2 describes basic farmer characteristics by the study arm for our sample. We achieved a close to 50 percent split by gender, with a higher proportion of female farmers in group 1 (conditional contract farmers) and group 2 (spillover farmers). On average, farmers were 42-46 years old at the time of the survey. Most households had at most some primary education, and only 3–7 percent had a level of education higher than secondary. As would be expected, more than 90 percent of the sample households were engaged in crop production, with only 3–5 percent in noncrop wage employment and commerce or trade. A sizeable proportion of farmers reported that someone in their household had migrated for work in the last one year preceding the survey, ranging from 15 percent among spillover farmers to more than twice that (32 percent) among AMS farmers. A substantial proportion reported being members of a farmers' group; this was highest among AMS farmers (74 percent), followed by conditional contract farmers (50 percent). AMS farmers were, on average, located roughly three times as far as other farmers from the closest agricultural inputs shop or market.

Among AMS farmers, 62.2 percent had been contracted to grow maize by a trader affiliated with the major buyer, much higher than the 28.9 percent of conditional contract farmers and 15.6 percent of spillover farmers. However, farmers in the AMS group were the least likely to express their willingness to sell maize regularly to the major buyer: only 52.5 percent said yes, compared to close to 90 percent among the other three groups.

Food insecurity was high in all groups, especially among AMS farmers, where three out of four farmers reported being worried about a lack of food or having to skip meals in the preceding 12 months. Over 55 percent of AMS farmers said they had gone without food for a whole day in this period—a very severe form of food insecurity—compared to 16 percent of spillover, 10 percent of conditional contract, and only 4 percent of control group farmers. Despite these apparent hardships, an overwhelming majority across groups said that they were either "somewhat likely" or "definitely" going to grow maize in the next five years, with the highest proportion (98.4 percent) coming from AMS farmers. A large proportion were also "somewhat likely or certain" to want their children to be maize farmers, again highest among AMS farmers (90 percent).

Table 2: Characteristics of surveyed maize farmers by type in Uganda, 2024

Characteristic	Group 1: Conditional contract	Group 2: Spillover	Group 3: AMS	Group 4: Control group
Respondent is a woman	55.1%	54.2%	53.1%	46.3%
Average age of respondent (years)	45	42	43	46
Respondent's education level				
No formal education	14.8%	16.5%	46.1%	9.3%
Some education, but no more than primary	51.3%	59.9%	34.0%	56.6%
No more than secondary education	28.6%	20.6%	16.3%	27.9%
Higher than secondary education	5.4%	3.1%	3.6%	6.2%
Household size	6.3	5.8	7.1	6.1
Primary occupation of household head				
Crop production	93.9%	93.6%	93.4%	90.7%
Other noncrop employment[α]	3.6%	3.4%	5.2%	4.2%
Household member migrated for work	17.3%	15.2%	32.1%	21.7%
Any household member in a farmer group	57.4%	23.7%	73.5%	13.7%
Distance in km to nearest agri-input shop	4.2	4.2	12.6	4.0
Distance to nearest market (km)	3.1	3.0	10.8	4.0
Agricultural land in 2023 (acres)	4.0	3.3	4.6	3.8
Contracted by major buyer to grow maize	28.9%	15.6%	62.2%	0.0%
Willingness to sell maize to major buyer regularly	91.2%	88.2%	52.5%	89.9%
Has a financial account at bank	43.9%	28.8%	21.6%	43.1%
Food insecurity measures in the last 12 months				
Worried about lack of food	43.9%	49.1%	79.4%	34.2%
Skipped meals	32.9%	38.8%	74.1%	19.3%
Went without food for a whole day	10.2%	15.9%	55.3%	4.2%
Likelihood of growing maize in the next 5 years[β]				
Definitely not/unlikely	7.9%	7.4%	1.0%	12.8%
Somewhat likely/definitely	91.9%	91.3%	98.4%	86.1%
Want children to be maize farmers[β]				
Definitely not/unlikely	19.9%	21.9%	7.4%	21.7%
Somewhat likely/definitely	76.7%	72.4%	89.9%	72.4%

Source: Authors' calculations.

Note: Total sample: N = 1,783. α: noncrop employment includes commerce, trade, or other wage employment. Other occupations—livestock farming, nonsalaried business, salaried employment, and religious leader—were practiced by fewer than 2% of the sample households and are not reported here. β: the category that responded "Don't know" is not shown but was always <5%.

Basic trader characteristics

Table **3** describes the characteristics of traders linked to farmers in these three groups. On average, traders were slightly younger than farmers: between 37 and 41 years of age at the time of the survey. They were also better educated on average, with 25 percent of those linked to AMS farmers and 33–39 percent of those in the other two study groups having some secondary education. Unsurprisingly, their most frequently reported occupation was commerce or trade, though a sizeable proportion were also engaged in crop production, ranging from 18.8 percent among traders linked to AMS farmers to 28.7 percent among traders linked to conditional contract or spillover farmers. Close to 90 percent of all traders were the sole owners of their trading business.

The traders we interviewed started trading maize several years prior to our survey, and maize formed the bulk of their business, with the share of maize in the year preceding the survey ranging from 59–66 percent. Six to 12 other traders operated in the same area, providing some competition for the traders in our survey. We gathered data on traders' estimate of the proportion of the farmers they purchased from who were women, youth, or smallholders. Reassuringly, in both the first and second season of 2023, roughly one-half of the farmers supplying to these traders were smallholders, 30–60 percent were women, and 30–50 percent were youth.

More than three-quarters of sales made were in cash. About one-third (31 percent) of traders linked to conditional contract and spillover farmers reported providing inputs to farmers but otherwise input provision does not appear to be a common phenomenon. And yet most farmers selling to these traders are repeat sellers, suggesting a sustained relationship.

The major buyer is the largest purchaser of maize from the traders linked to AMS farmers, constituting between two-thirds and three-quarters of the maize sold in the two seasons of 2023. This proportion is far lower for those traders linked to conditional contract and spillover farmers, ranging from 38–52 percent of all maize sold. Traders reported that the main benefits of selling to the major buyer were higher prices, bulk purchases, and timely payment. Nearly 74 percent of traders linked to AMS farmers also mentioned that the major buyer engaged in training or skills transfer, though this was not the case for the other two groups of traders.

Table 3: Characteristics of surveyed maize traders by type in Uganda, 2024

Characteristic	Groups 1&2: Linked to conditional/spillover farmers	Group 3: Linked to AMS farmers	Group 4: Linked to control group farmers
Respondent is a woman	2.8%	61.5%	4.5%
Age of respondent	38	37	41
Respondent's education level			
No formal education	3.5%	21.9%	2.6%
Some education but no more than primary	48.3%	28.1%	51.9%
More than primary but no more than secondary education	41.3%	34.4%	41.6%
Higher than secondary education	7.0%	15.6%	3.9%
Primary occupation of household head			

Characteristic	Groups 1&2: Linked to conditional/spillover farmers	Group 3: Linked to AMS farmers	Group 4: Linked to control group farmers
Commerce/trade	71.3%	75.0%	76.0%
Crop production	28.7%	18.8%	22.7%
Sole owner of business	89.5%	90.6%	92.9%
Share of business from maize in last year (%)	66.2	58.9	59.0
Number of other maize traders in same area	9	12	6
In the second season of 2023, among farmers sourced from:			
Share who were women (%)	35.7	56.4	32.8
Share who were youth (%)	33.8	51.5	31.4
Share who were smallholders (%)	47.3	49.0	46.7
In the first season of 2023, among farmers sourced from:			
Share who were women (%)	36.5	62.4	32.4
Share who were youth (%)	32.5	42.4	32.0
Share who were smallholders (%)	48.4	48.2	44.7
Share of purchases made cash in hand (%)	78.2	89.1	75.3
Trader provided inputs to farmers in 2023	31%	6%	20%
Share of sellers who are repeat sellers (%)	56.9	41.2	51.0
Share of maize sold to the major buyer in second harvest of 2023 (%)	38.8	66.7	45.0
Share of maize sold to the major buyer in first harvest of 2023 (%)	52.0	74.7	0.0
Benefits of selling to the major buyer			
Bulk purchase	65.0%	82.6%	80.0%
Higher prices	87.5%	91.3%	60.0%
Timely payment	42.5%	39.1%	20.0%
Skill transfer/training	12.5%	73.9%	0.0%
Boosts reputation	12.5%	4.3%	20.0%

Source: Authors' calculations.

Note: Total sample: N = 393.

Next steps and expected outcomes of the study

In our upcoming econometric analysis of this data in a more technical paper, we will estimate the impact of the conditional contract on: the behavior of actors along the maize value chain (for example, amount sold); value chain transformation (for example, price stabilization and quality standards); and key outcomes (for example, household income and other welfare indicators). The analysis will include an assessment of the conditional contract's spillover effects on nonparticipating farmers, in addition to the lessons and challenges faced by the main actors along the value chain vis-à-vis the conditional

contract. The analysis will control for key farmer and trader covariates, like education, socioeconomic status, and household size, among others. Importantly, to the extent possible given sample sizes, we will explore heterogeneous effects by farmer and trader gender and age, to allow us to say something about differential impacts for men and women and youth versus nonyouth. We hope that the results of this study will help inform policymakers and donors on the design of contractual and other arrangements to improve smallholder farmers' access to markets.

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REFERENCES

Barrett, C. B. 2008. "Smallholder Market Participation: Concepts and Evidence from Eastern and Southern Africa." *Food Policy*, *33*(4): 299–317. https://doi.org/10.1016/j.foodpol.2007.10.005

FEWS NET. 2023. *East Africa: Maize Supply and Market Outlook*. https://fews.net/sites/default/files/2023-11/EA_RSMO_202311.pdf

Mmbando, F. E., E. Z. Wale, and L. J. S. Baiyegunhi. 2015. 'Welfare Impacts of Smallholder Farmers' Participation in Maize and Pigeonpea Markets in Tanzania." *Food Security*, 7(6): 1211–1224. https://doi.org/10.1007/s12571-015-0519-9

Sibhatu, K. T., and M. Qaim. 2018. "Review: Meta-analysis of the Association Between Production Diversity, Diets, and Nutrition in Smallholder Farm Households." *Food Policy*, *77*: 1–18. https://doi.org/10.1016/j.foodpol.2018.04.013

WFP. 2023. *Uganda Annual Country Report 2023: Country Strategic Plan 2018–2025*.

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