

Prospects for Using Market-Based Price Risk Management Instruments to Benefit Smallholder Farmers in ESA

David Tschirley
Bob Myers
Michigan State University

Oxfam “Convening on Price Risk Transfer Tools for Poor Farmers in Africa”, 13-14 January 2011, Washington, D.C.

Factors driving price risk

- Production factors
 - lack of control of production environments
- Consumption factors
 - Low elasticity of demand linked to undiversified consumption
- Downstream factors
 - High costs of operation (transport, credit, physical losses)
- Policy
 - Unpredictable government action
- World market instability
 - Though direct price transmission is low

Alternative risk mgmt tools

- Diversified, low input agriculture
 - High cost in foregone income
- Saving, borrowing, transfers
 - Hindered by poor formal banking system
 - Cell phone banking!
- Any investments that improve the depth of cash markets
 - Transport, storage, communications, market information, grades & standards, improved legal system ...

Who and how many might benefit from market based tools?

Maize sales concentration

Table 1. Concentration of maize sales among smallholder farmers in Zambia and Kenya

Group	Kenya				Zambia			
	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income
Did not produce	0.03	0		1,794	0.01			602
Did not sell	0.54	0		1,808	0.84			946
Quintile 1 (sold least)	0.08	0.01	16	1,603	0.03	0.01	8	305
2	0.09	0.03	50	2,295	0.03	0.03	20	483
3	0.09	0.07	109	2,533	0.03	0.06	37	516
4	0.08	0.13	227	3,788	0.03	0.13	80	797
Quintile 5 (sold most)	0.08	0.76	1,264	5,479	0.03	0.77	478	1,721

Who and how many might benefit from market based tools?

Maize sales concentration

Table 1. Concentration of maize sales among smallholder farmers in Zambia and Kenya

Group	Kenya				Zambia			
	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income
Did not produce	0.03	0		1,794	0.01			602
Did not sell	0.54	0		1,808	0.84			946
Quintile 1 (sold least)	0.08	0.01	16	1,603	0.03	0.01	8	305
2	0.09	0.03	50	2,295	0.03	0.03	20	483
3	0.09	0.07	109	2,533	0.03	0.06	37	516
4	0.08	0.13	227	3,788	0.03	0.13	80	797
Quintile 5 (sold most)	0.08	0.76	1,264	5,479	0.03	0.77	478	1,721

Highly concentrated

Who and how many might benefit from market based tools?

Maize sales concentration

Table 1. Concentration of maize sales among smallholder farmers in Zambia and Kenya

Group	Kenya				Zambia			
	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income
Did not produce	0.03	0		1,794	0.01			602
Did not sell	0.54	0		1,808	0.84			946
Quintile 1 (sold least)	0.08	0.01	16	1,603	0.03	0.01	8	305
2	0.09	0.03	50	2,295	0.03	0.03	20	483
3	0.09	0.07	109	2,533	0.03	0.06	37	516
4	0.08	0.13	227	3,788	0.03	0.13	80	797
Quintile 5 (sold most)	0.08	0.76	1,264	5,479	0.03	0.77	478	1,721

Very low sales values & income shares for all but top

Who and how many might benefit from market based tools?

Exportable cash crops

Table 2. Concentration of exportable cash crop sales among smallholder farmers in Zambia and Kenya

Group	Kenya				Zambia			
	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income
Did not produce	0.64	0		2,222	0.87			894
Did not sell	0.01	0		1,553	0.00			
Quintile 1 (sold least)	0.07	0.01	21	1,351	0.03	0.03	54	389
2	0.07	0.03	138	1,902	0.03	0.07	114	567
3	0.07	0.1	401	2,065	0.03	0.1	180	751
4	0.07	0.23	936	2,947	0.03	0.17	297	1,115
Quintile 5 (sold most)	0.07	0.64	2,639	5,248	0.03	0.63	1116	2,642

Less concentrated

Who and how many might benefit from market based tools?

Exportable cash crops

Table 2. Concentration of exportable cash crop sales among smallholder farmers in Zambia and Kenya

Group	Kenya				Zambia			
	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income
Did not produce	0.64	0		2,222	0.87			894
Did not sell	0.01	0		1,553	0.00			
Quintile 1 (sold least)	0.07	0.01	21	1,351	0.03	0.03	54	389
2	0.07	0.03	138	1,902	0.03	0.07	114	567
3	0.07	0.1	401	2,065	0.03	0.1	180	751
4	0.07	0.23	936	2,947	0.03	0.17	297	1,115
Quintile 5 (sold most)	0.07	0.64	2,639	5,248	0.03	0.63	1116	2,642

Higher shares in income

Who and how many might benefit from market based tools?

Maize + exportable cash crops

Table 3. Concentration of combined maize and exportable cash crop sales among smallholder farmers in Zambia and Kenya

Group	Kenya				Zambia			
	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income
Did not produce	0.03			1,567	0.01			403
Did not sell	0.33			1,481	0.75			921
Quintile 1 (sold least)	0.13	0.01	23	1,370	0.05	0.01	14	390
2	0.13	0.03	97	1,946	0.05	0.04	46	496
3	0.13	0.07	240	2,261	0.05	0.08	106	641
4	0.13	0.19	638	3,031	0.05	0.17	210	882
Quintile 5 (sold most)	0.13	0.7	2,325	5,413	0.05	0.7	875	2,240

Still less concentrated

Who and how many might benefit from market based tools?

Maize + exportable cash crops

Table 3. Concentration of combined maize and exportable cash crop sales among smallholder farmers in Zambia and Kenya

Group	Kenya				Zambia			
	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income	Share of rural hhs	Share of sales	Mean value of sales	Mean HH Income
Did not produce	0.03			1,567	0.01			403
Did not sell	0.33			1,481	0.75			921
Quintile 1 (sold least)	0.13	0.01	23	1,370	0.05	0.01	14	390
2	0.13	0.03	97	1,946	0.05	0.04	46	496
3	0.13	0.07	240	2,261	0.05	0.08	106	641
4	0.13	0.19	638	3,031	0.05	0.17	210	882
Quintile 5 (sold most)	0.13	0.7	2,325	5,413	0.05	0.7	875	2,240

Meaningful income shares:

Kenya: ~ 40% where sales \geq 10% total hh income

Zambia: ~ 20%

Scope for use of market based instruments

Figure 1. Observations on the scope for use of market-based price risk management tools manage risks to smallholder farmers

		Instrument	
		Futures and Options Contracts	Forward and Minimum Price Contracts
Who directly uses the instrument?	Individual farmer	<p style="text-align: center;">A</p> <p style="text-align: center;"><i>No scope</i></p>	<p style="text-align: center;">B</p> <ul style="list-style-type: none"> • Resulting from intermediation (farmer organization or processor/buyer offers contracts, pools risks, and hedges aggregate risk using futures and options). • More feasible for export crops. <p style="text-align: center;"><i>Limited scope</i></p>
	Farmer organization	<p style="text-align: center;">C</p> <ul style="list-style-type: none"> • Organization uses futures/options market to manage their own price risks, then passes benefits back to smallholders via group marketing services. • More feasible for export crops. • Are any producer organizations in ESA currently capable of doing this? <p style="text-align: center;"><i>Limited Scope</i></p>	<p style="text-align: center;">D</p> <ul style="list-style-type: none"> • Organization uses physical forward and minimum price contracts (with processors/buyers) to manage their own price risks, then passes benefits back to smallholders via group marketing services. • More feasible for export crops. • May be more feasible than direct use of futures/options for farmer organizations, particularly smaller organizations. <p style="text-align: center;"><i>Greater Scope</i></p>
	Processor/buyer	<p style="text-align: center;">E</p> <ul style="list-style-type: none"> • Processor/buyer uses futures/options market to manage their own price risks, then passes benefits back to farmer organizations and smallholders via forward and minimum price contracts, possibly run through outgrower scheme. • More feasible for export crops. • Will processor pass reduced risk on to farmers? <p style="text-align: center;"><i>Greatest scope, but market structure, regulatory aspects are key</i></p>	<p style="text-align: center;">F</p> <ul style="list-style-type: none"> • Processor/buyer uses physical forward and minimum price contracts (with their buyers) to manage their own price risks, then passes benefits back to farmer organizations and smallholders via forward and minimum price contracts, possibly run through outgrower scheme. • More feasible for export crops. • Will processor pass reduced risk on to farmers? <p style="text-align: center;"><i>Greatest scope, but market structure, regulatory aspects are key</i></p>



WFP local/regional procurement

- Zambia: all procurement through Zamace
 - Buying warehouse receipts
 - No collateralization yet
 - Not sure yet how its working
- Uganda: Most (?) procurement through warehouse receipts
 - UCE not fully operating as of July 2010, may be now
 - Collateralization due to electronic clearance procedure
 - Anecdotal: 2/3 of grain moving through one warehouse bought by buyers other than WFP

Thank you

