Opportunities to Improve Household Food Security Through Promoting Linkages between Formal and Informal Marketing Agents: Experience From Eastern Cape Province, South Africa

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Outline

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- ❑ Model Results & Implications
- ❑ Case-Study Objectives
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- ❑ Conclusions
- ❑ Current Events

Background:

- In other countries in the region, during the control period, the marketing boards would supply maize to large "registered" millers to produce maize meal

- Informal small-scale milling was either illegal or incapable of developing due to controls on grain movement

- Liberalization removed these controls and made lower-cost maize meal available to consumers

[A] Lusaka-Zambia: Price trends

Linear trend(meal): -0.655***

Llinear trend (grain): 0.235**

US$ per ton

Year/Month

Wholesale maize grain — Retail maize meal
Linear-trend-grain — Linear-trend-meal

*** 1% ** 5% level of significance

Maize grain and maize meal prices, 1996-1999, informal vs. formal channels

Objectives:

1. to empirically access the impact of market deregulation on the size of the maize milling/retail margins within South Africa.

2. To consider the implications for food security policy

Marketing Margins Models

$$MM_t = F\{\mathbf{X}_t; T_t; \mathbf{D}_{mt}; REFORM\}$$

$\mathbf{X}_t =$ (Wages$_{t-1}$, RER$_{t-1}$, ER Volatility$_{t-1}$, Rainfall index)

$T_t =$ time trend

$\mathbf{D}_{mt} =$ Seasonal dummy variables

REFORM = categorical variable

Figure 1. Inflation-adjusted maize and maize meal prices, South Africa, May 1975 to December 2004

Table 1. Descriptive Statistics of Real Maize Grain and Maize Meal Prices

	Phase 1: Control Period 5/1976 - 4/1987 (n=132)		Phase 2: Partial Reform 5/1987 – 4/1994 (n=84)		Phase 3: Full Market Reform			
					5/1994 – 4/2001 (n=72)		5/2001-12/2004 (n=44)	
Producer price, maize grain (R/mt)								
Mean	1188	-30%	836	-22%	650	+3%	667	
CV (%)	7.7		9.8		19.1		20.1	
Wholesale price, maize grain (R/mt)								
Mean	1039	-9%	950	-12%	838	+7%	895	
CV (%)	10.9		7.0		13.1		25.6	
Retail price, maize meal (R/mt)								
Mean	2351	-0.6%	2336	+15%	2681	+6%	2835	
CV (%)	8.8		6.4		9.3		13.3	

Maize Meal Retail Prices: Actual vs. Simulated

Result Summary: Welfare Effects

- □ Rising Milling/Retailing Margins
  - ■ Linear Regression:
    - o Conditional mean increased by R173 per ton → 16%
  - ■ Piece-Wise Linear Regression:
    - o Milling margins increased by R6/month → 40%
- □ Transfer of Consumer Surplus
  - ■ Actual Retail Prices: 13% higher than simulated → $179 million/year
- □ Findings are robust to alternative model specification and estimation method

Conclusion

- □ Need to address the "why"?
  - ■ In other countries in the region, liberalization removed the barriers to investment in alternative milling channels, but not in South Africa – why?
- □ Study Objectives
  - ■ To understand why alternative milling channels have not developed in response to liberalization
  - ■ To determine consumer demand for small-scale milled maize
  - ■ To identify potential market barriers

Overview: Eastern Cape

Source: Municipal Demarcation Board South Africa; www.demarcation.org.za 2005

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Flow of Maize Grain & Meal within the Eastern Cape

Key Findings: Consumers' Willingness-to-pay

Percentage of hh's Preferring Straight-run Meal at Given Discounted Prices

Legend:
- Low-income
- Medium-income
- High-income

Price discount relative to sifted meal

Key Findings: Maize Grain Counterfactual Cost Build-up

Actual and Counterfactual Prices for 12.5kg bag of Maize Grain and Maize Meal: August – October, 2004					
		Maize Grain	Super-sifted Meal	Special Meal	Sifted Meal
Actual Price	Formal marketing system	11.08	36.71	30.54	24.30
	Informal millers	13.09	18.41	18.41	18.41
Counterfactual	Informal millers	13.02 – 14.46	21.31 – 22.89	20.88 – 22.46	21.41 – 22.99
	Price % Discount	-	37% - 42%	27% - 32%	6% - 12%

Key Findings: Cost Savings to Consumers from Sourcing Maize from Informal Millers

Percentage of Monthly Income Spent on Super-Sifted Meal: Aug – Oct 2004

Key Findings: Market Barriers

Main Reasons Stated by Small-millers for not Engaging in Production Milling

Customers bring their own grain	58.8%
Didn't think of it	43.2%
Consumers prefer commercial meal	35.3%
No access to credit	15.7%
Not profitable	13.7%

- Dumping Practice
- Food Fortification Legislation

Conclusion: Summary of Key Points

- Small-scale millers could make meal available to consumers at a significantly lower cost than the large millers
- Given likely price differentials, there is strong consumer demand for alternative maize processing/retailing channels
- The development of these alternative marketing channels could significantly reduce the cost of staple meal to consumers
  - Would effectively transfer roughly $180 million per year from large millers/retailers to consumers
  - Would reduce the magnitude of food crises during drought years and in the current environment of high world food prices

Summary of Key Points (cont.)

- But major market barriers currently prevent the development of these informal marketing channels:
  - Information Gap
  - Dumping Practice
  - Legislation
- Hence, government may wish to investigate:
  - potential dumping practices of large millers
  - Effects of exempting small millers from fortification regulations
  - Provide active support for the development of more competition at milling / retailing stage

Thank You

Marketing Margins Models

$$MM_t = F\{\mathbf{X}_t \; ; \mathbf{D}_{mt} \; ; T_t \; ; REFORM_t \; ; REFORM(T_t\text{-}T_d)\}$$

Prior to deregulation
$$E(MM_t) = \delta_0 + \mathbf{X}_t\beta_i + \delta_2 T_t + S^{11}_{m=1} \; \gamma_i\mathbf{D}_{mt}$$

δ_2 = monthly trend in the level of the margin
δ_0 = intercept

After deregulation
$$E(MM_t) = (\delta_0 + \delta_1 - \delta_3 T_d) + \mathbf{X}_t\beta_i + (\delta_2 + \delta_3)T_t + S^{11}_{m=1} \; \gamma_i\mathbf{D}_{mt}$$

δ_3 = measures the difference between the monthly trend of the margin
δ_1 = margin differential at the point immediately following reform

Results: Linear Regression

Margin (R/ton)

Slope = R1.3

05/1991

Time

} + R173

-212.7

Results: Piece-wise Linear Regression

Margin (R/ton)

Slope = R6.02

R1168

} + R55

Slope = - R0.8

05/1991

Time