

Improving Efficiency of the Fertilizer Supply Chain: A Comparative Analysis*

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**For the Third Annual Agricultural
Policy Conference, Serena Hotel,
Dar es Salaam
March 3, 2017**

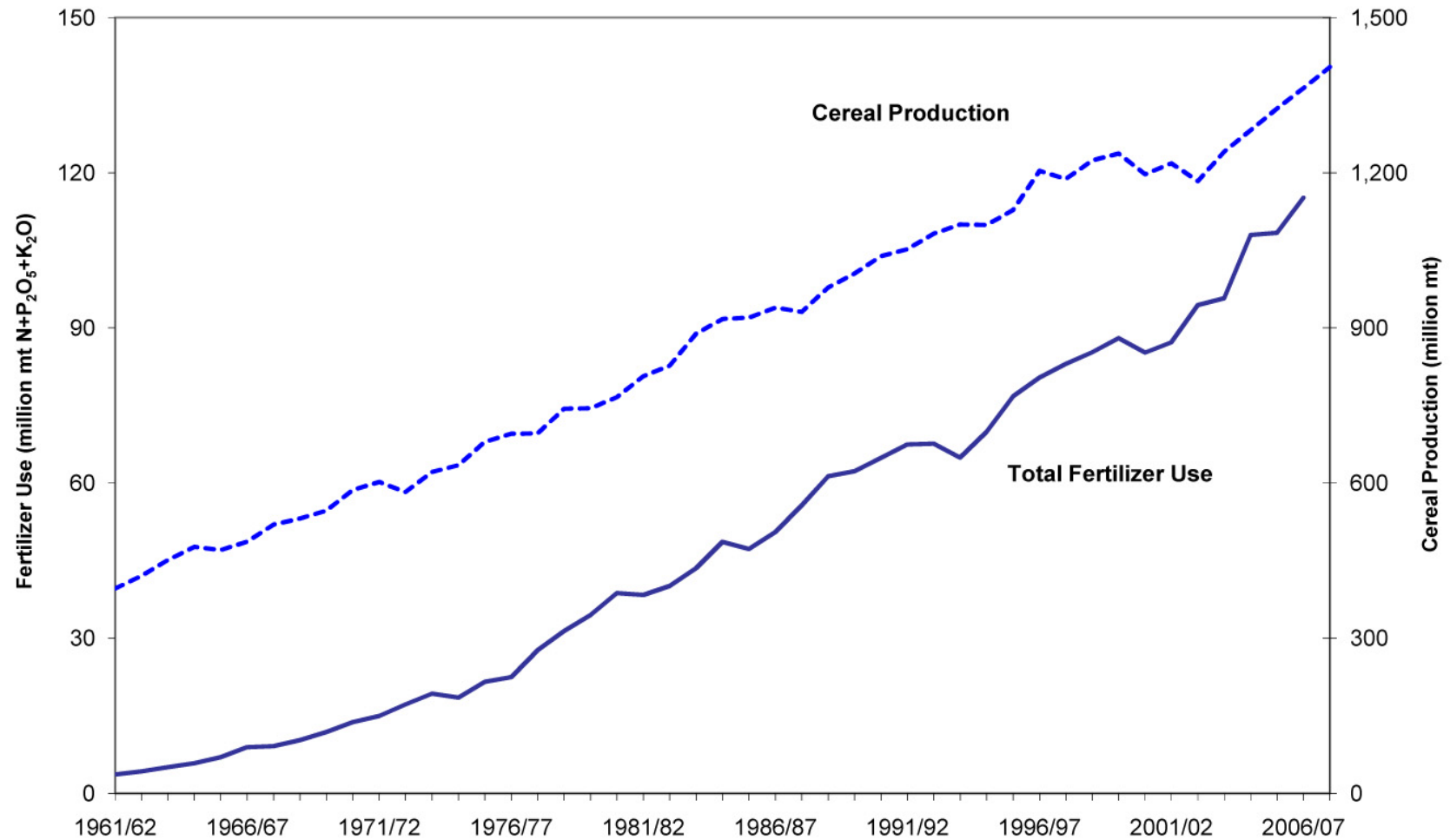
Outline of the Presentation

- Introduction: Why supply chain work?
- Analytical Framework
- Supply chain cost comparison in selected countries in Africa and Asia
- Economies of Scale in Procurement
- Lessons

Introduction

- Fertilizer use plays an important role in promoting food security and sustaining natural resources- soils who feed the world
- Fertilizer prices are generally higher in African countries than in Asian countries. Why?
- To understand that we look at the fertilizer supply chain- from the global market to farm gates in selected countries in Africa and Asia.

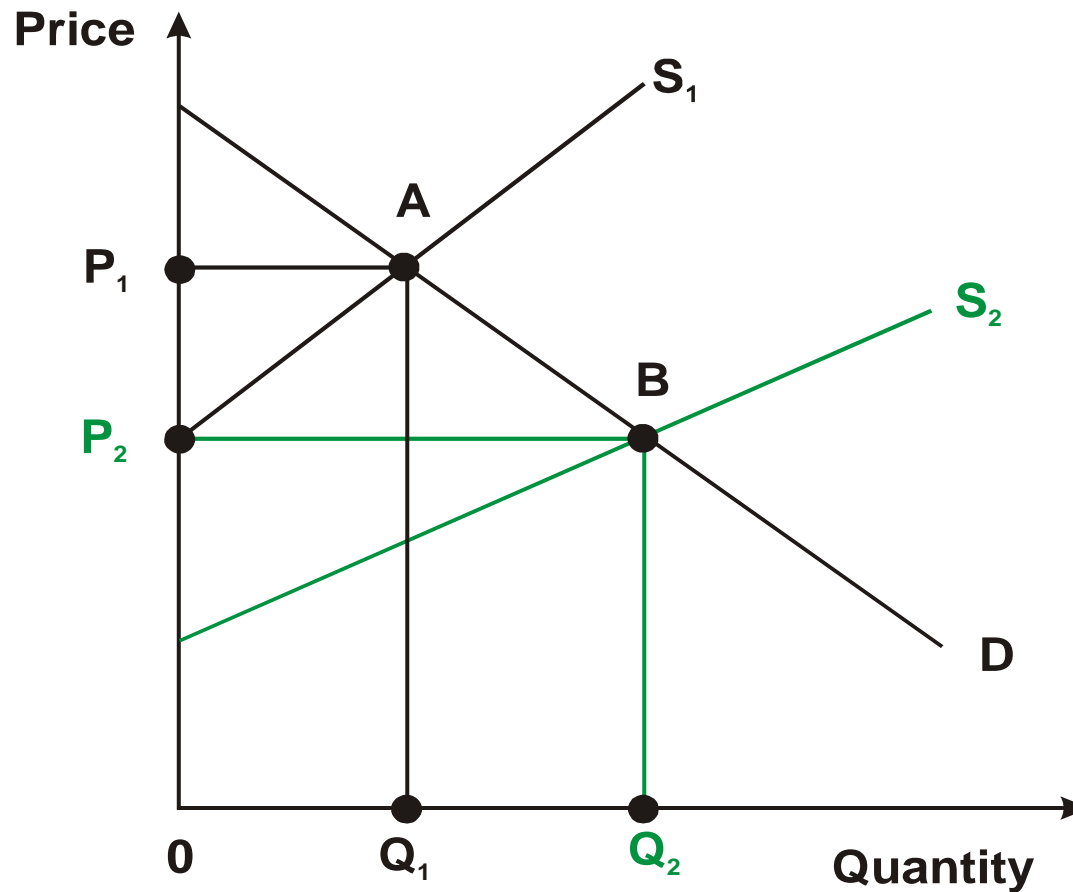
Developing Countries: Total Cereal Production and Total Fertilizer Use, 1961/62 – 2007/08



Analytical Framework

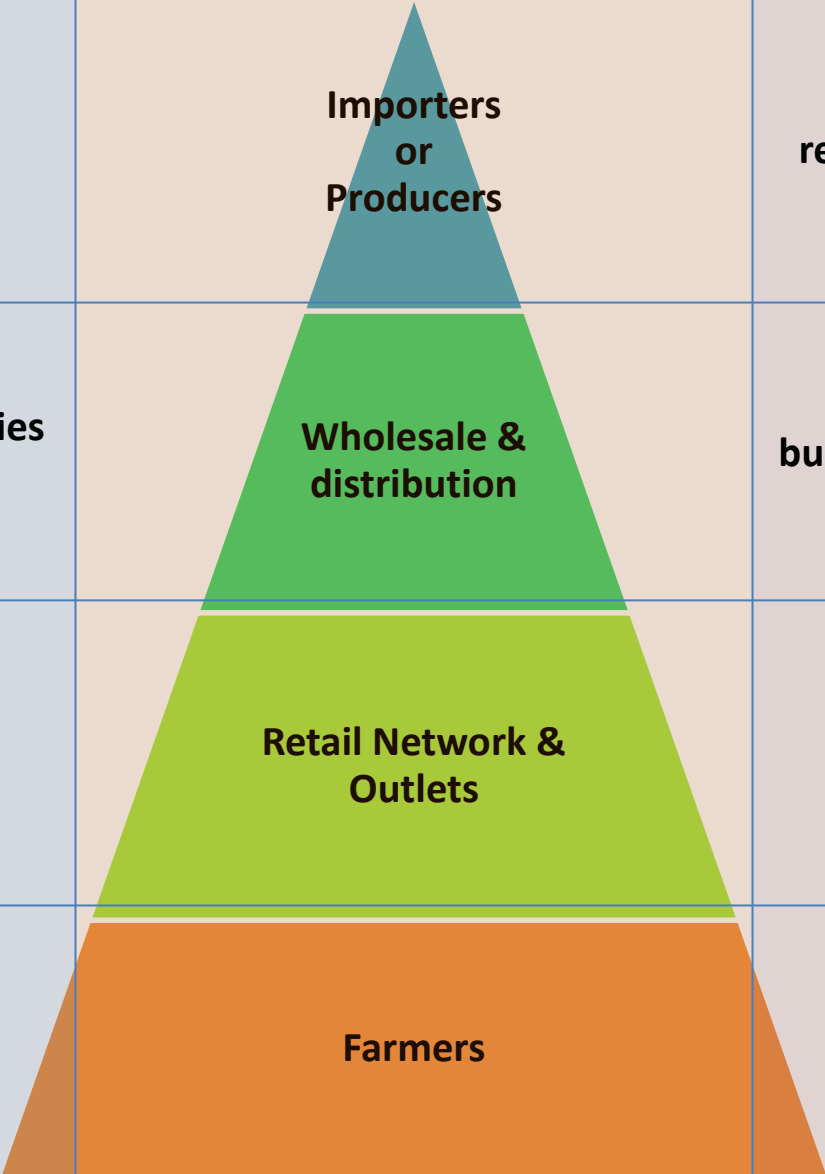
- Fertilizer prices can be reduced either by subsidies or by shifting the supply curve to the right (SSCR).
- Subsidies involve price controls which distort the market.
- SSCR improves the efficiency of the supply chain and thereby strengthens the functioning of the market

The SSCR Approach



*Shifting the Supply Curve to the Right

Policy Environment and Market Structure

<u>Policy</u>	<u>Market Structure</u>	<u>Outcome</u>
<p>Tariffs and producer Subsidies</p>	 <p>Importers or Producers</p>	<p>Uncertainty in the market; reduced supply, competition and rent seeking</p>
<p>Regulatory, institutional environment , and capacities</p>	<p>Wholesale & distribution</p>	<p>Finance costs for operating business and marketing along the domestic supply chain.</p>
<p>State control & other interventions, regulatory, Market development</p>	<p>Retail Network & Outlets</p>	<p>Timely access to quality fertilizers, prices</p>
<p>Price subsidies, R&D and extension, coordination</p>	<p>Farmers</p>	<p>Fertilizer cost to farmers; efficiency of fertilizer Utilization</p>

Countries selected

Sub-Saharan Africa

- Ghana, Mali, Malawi and Tanzania

Asia

- Thailand, Myanmar, Nepal, and the Philippines

Supply Chain Cost Components: Africa, 2006 (% Share)

Cost	Ghana	Mali	Malawi	Tanzania
CIF	70	57	49	69
DMC	30	43	51	31
Total	100	100	100	100

Source: IFDC/Chemonics Study , 2006

Supply Chain Cost Components: Asia, 2012-14 (% share)

Cost	Thailand	Philippines	Myanmar	Nepal
CIF	87	84	77	76
DMC	13	16	23	24
Total	100	100	100	100

Supply Chain Cost Components: Africa, 2006 and 2015 (% Share)

Cost	Mali		Tanzania	
	2006	2015	2006	2015
CIF	57	51	69	53
DMC	43	49	31	47
Total	100	100	100	100

Supply Chain Cost Components: Domestic Marketing Costs (%)

Cost	Tanzania 2015	Myanmar 2013	Philippines 2013
Port , storage, and bagging	9	7	2
Transportation	19	3	4
Finance	4	5	*
Taxes	1	0	0
Mark-up	14	8	10
Total (DMC)	47	23	16
*Included in mark-up			

Bulk Procurement: Global G. Urea Prices by Size of Contract, 2016

- | • Size ('000 tons) | Number | Price (US\$/ton) |
|--------------------|--------|------------------|
| • <10 | 14 | 216.8 |
| • 10-30 | 28 | 213.9 |
| • 30-50 | 20 | 209.9 |
| • Over 50 | 5 | 210.1 |
- Source: Prepared by the author from Argus FMB Data: April and Oct 2016 Reports

Fertilizer Cargo Discharged, Dar Port, 2016

Size of ship (^{'000} tons)	Number of Cargo	Share
<5	10	29%
5 to 10	9	26%
10 to 15	4	12%
15 to 20	8	24%
20+	3	9%
Total	34	100%

Shipments in Tanzania

- Increasingly, Tanzania importers are getting larger shipments but with a caveat.
- Fertilizer demand is seasonal; and fertilizer imports are capital intensive; therefore to minimize the cost of tied-capital in carry-over stocks, they prefer to order 10-15K shipments, while combining it with multi-country cargo and staggered shipments.

Supply Chain Cost Components: Summary of Different Experiences

- Domestic marketing and distribution costs account for a larger share of total cost in African countries (AFCs) than in Asian countries (ASCs)
- Mark-ups (not margins) are higher in AFCs than in ASCs. That means markets are less competitive in African countries than in ASCs
- Although finance accounts for a smaller portion of total cost, access to finance is more difficult in Africa than in Asia.

Lessons

A: Logistics Improvements

- Port Handling Charges Reduction
- Transportation Improvements: Rail vs. Road
- Improved access to finance

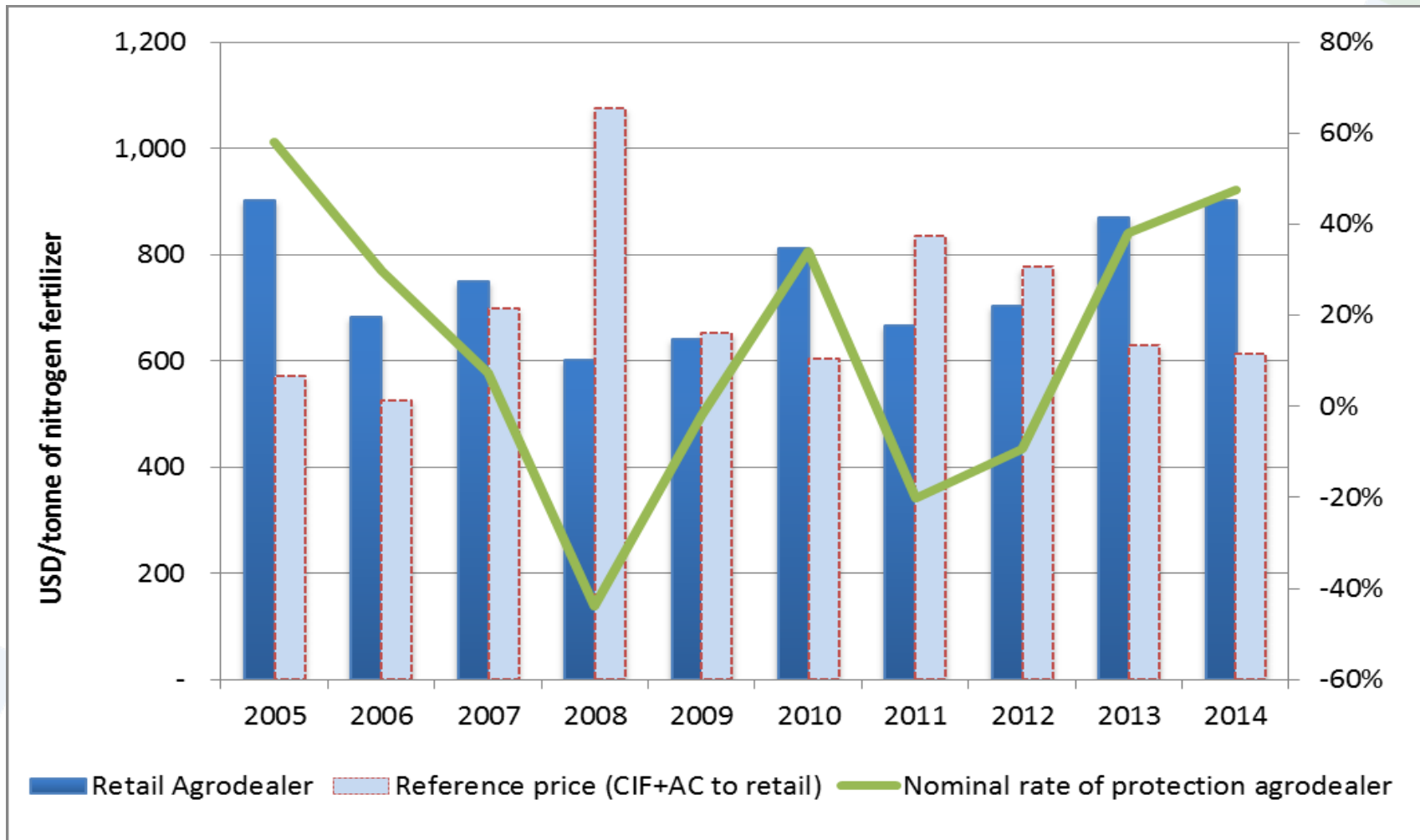
B: Market Improvements

- Promote Competition
- Disseminate information
- Regulation
- Procure for Multi-country markets

Acknowledgement

FAO's support for facilitating the participation and research support provided by P. Fuentes and J. Ariga of IFDC is gratefully acknowledged. IFPRI's partial support for work in Asia in the past is also recognized.

Retail vs Reference price of fertilizer, 2005-2014



Source: MAFAP, 2016

