FERTILIZER SUBSECTOR DEVELOPMENT:
COMPARATIVE ANALYSIS OF ETHIOPIA, KENYA & ZAMBIA

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Major Questions for Rural Development Policy

• Why do African farmers pay more for fertilizer than in most other parts of world?
  – Transaction cost explanations – in vogue
• What is the magnitude of realistically achievable cost reductions in the fertilizer marketing systems?
• What would be the impact of reducing fertilizer marketing costs on the profitability of using fertilizer?

What do we want to see in a well-performing fertilizer delivery system:

• Sustainably Increase Intensity of Use
• Use driven by strong commercial demand
  – Reduce costs of delivery to farmers
• Want to minimize use in areas where the cost of supplying fertilizer > additional value of crop output
• Sustainable mechanisms for financing inputs

What Determines Whether Fertilizer Use is Profitable?

\[ \text{WTP}_i > \text{Cost of Fertilizer}_i \]

Cost of Fertilizer Determined by

• Transaction costs
• Physical costs of transport, handling, storage
• Mark-ups by traders
• Government behavior imposing costs on business
  – Taxes
  – Indirect effects on businesses (e.g., Zambia case of “double handling”)
• What is the relative importance of these factors?

Case Studies of Kenya, Zambia, Ethiopia

Kenya:
• Case where fertilizer distribution completely in hands of private sector
• 6 years after reform in 1993:
  – 12 importers
  – 500 wholesalers
  – 7,000 retailers
• Fertilizer use: 21 \rightarrow 32 \text{ kgs per ha}
Case Studies of Kenya, Zambia, Ethiopia

Zambia:
• case where government legalized private distribution but continues to run large-scale government programs
• Use: 15.2 $\rightarrow$ 7.9 kgs per ha

Ethiopia:
• case of de jure reform and de facto state control
• Use: 3.87 $\rightarrow$ 15.11 kgs per ha

Examples of Urea Cost Structure, 1998/99

<table>
<thead>
<tr>
<th></th>
<th>Malawi</th>
<th>Zambia</th>
<th>Ethiopia</th>
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</thead>
<tbody>
<tr>
<td>CIF price at import point (US$)</td>
<td>126.50</td>
<td>133.00</td>
<td>125.00</td>
</tr>
<tr>
<td>Taxes</td>
<td>2.94</td>
<td>2.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Port handling</td>
<td>8.50</td>
<td>5.50</td>
<td>12.57</td>
</tr>
<tr>
<td>Bagging</td>
<td>21.00</td>
<td>17.00</td>
<td>4.55</td>
</tr>
<tr>
<td>Port storage</td>
<td>1.50</td>
<td>3.00</td>
<td>0.74</td>
</tr>
<tr>
<td>Inland transport, handling, and storage</td>
<td>82.60</td>
<td>166.50</td>
<td>99.91</td>
</tr>
<tr>
<td>Financing/capital costs</td>
<td>41.89</td>
<td>12.90</td>
<td>7.03</td>
</tr>
<tr>
<td>Markup/margins</td>
<td>113.83</td>
<td>27.00</td>
<td>5.80</td>
</tr>
<tr>
<td>Farm-gate price</td>
<td>398.86</td>
<td>368.00</td>
<td>255.60</td>
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</tbody>
</table>

Source: Jayne et al., 2003.

Impact of Marketing Cost Reduction on Maize Profitability

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<thead>
<tr>
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<tbody>
<tr>
<td>% Δ fertilizer price to farmer</td>
<td>-4.7%</td>
<td>-8.62</td>
<td></td>
</tr>
<tr>
<td>Δ maize product. Costs</td>
<td></td>
<td></td>
<td>-7.38</td>
</tr>
<tr>
<td>Remove Mombasa port taxes/fees</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>20% Reduction in Transport costs (Kenya)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eliminate Double-Handling (Zambia)</td>
<td>-12.0%</td>
<td></td>
<td>-17.53</td>
</tr>
</tbody>
</table>

Conclusions:
• Domestic marketing costs account for over 50% of cost of fertilizer to farmers
• Over 50% of domestic fertilizer marketing costs are transport+ handling+ storage
• Traders’ mark-up margins generally < 10% of total domestic marketing costs

Conclusions - II
• Changes in policies and public investments could appreciably reduce the cost of fertilizer to farmers
Conclusions - III

• Low fertilizer use in a given area doesn’t mean “market failure”:
  – Need to be more analytical about causes of low fertilizer use
  – Start with examination of profitability
  – Recognize the wide range of factors influencing profitability

Conclusions - IV

• Key role for the public sector:
  – Focus on reducing costs
  – Focus on raising farmers’ ability to use fertilizer profitably:
    • Invest in port and rail rehabilitation
    • Road networks
    • R&D to generate more fertilizer-responsive varieties
    • Extension – how to improve farmers’ management practices

Not New, Not Sexy, but Necessary to Address the Problem

• Lower domestic transport costs
• Consider reducing import taxes on capital (vehicles, spare parts)
• Diesel fuel tax in Zambia and Kenya
• Reduce uncertainty of government operations in the market
• Improve farmers’ management practices to raise profitability of input use (e.g., conservation farming)