Impact of alternative input subsidy exit strategies on Malawi’s maize commodity market

Mariam A.T.J. Mapila

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Introduction

Positive impact of input subsidies on maize commodity market in Malawi - undoubted
Why exit strategies?

• Input subsidies intended to be short term strategy

• Resistance to scaling down or removal from:
  • Beneficiaries
  • Non-beneficiaries
  • Politicians

• FISP Skeptics - budgetary burden of farm input subsidies, macroeconomic fall out, crowding out of private sector, lack of clear exit strategies
Objective of study

• Analyze the impact of exit from the Farm Input Subsidy Program (FISP) on Malawi’s maize commodity market.
Methodology – Malawi maize model

Key:
- Exogenous variable
- Endogenous variable
- Lag

Local economy

- Local maize price
- Local rainfall
- Trend
- Local maize production
- Local maize consumption

Trend
- Per capita GDP
- Population
- Per capita maize consumption

Area
- Yield
- Price of fertilizer
- Rainfall

Domestic production
- Aggregate supply

ADMARC maize price

Net exports
- Aggregate demand
- Domestic maize consumption

Trend

Parity prices
- Malawi policy instruments

Domestic production/consumption

Household income (with maize income)

Source: Mapila, 2011
Methodology - maize model (2)

Domestic Maize Supply Block

Production \( QP_t = AM_t \times YM_t \) \hspace{1cm} (1)

Area  \( \log AM_t = a_0 + a_1 \log AM_{t-1} + a_2 \log NPM_{t-1} + a_3 DAG_1 \) \hspace{1cm} (2)

Yield

\( \log YM_t = a_0 + a_1 \log Rn_t - a_2 \log PF_t - a_3 DAG_2 + a_4 S06 + a_5 Dsub \) \hspace{1cm} (3)

Beginning stock  \( BS_t = ES_{t-1} \) \hspace{1cm} (4)

Domestic Maize Demand Block

Consumption  \( QC_t = PCC_t \times PP_t \) \hspace{1cm} (5)

Per capita consumption

\( \log PCC_t = a_0 - \log NPM_t + a_2 \log pGDP_t - a_3 TN_t + a_4 DR - a_5 DXP \) \hspace{1cm} (6)

Ending stock  \( ES_t = a_0 + a_1 BS_t + a_2 QP_t - a_3 NPM_t \) \hspace{1cm} (7)
Methodology – maize model (3)

Price Block

**ADMARC maize price**

\[
\log NPM_t = b_0 + b_1 \log IPP_t - b_2 \log \left( \frac{Q^P}{Q^C_t} \right) + b_4 DI - b_5 DLIB
\]  

(8)

Model Closure

**Imports**

\[
\log IM_t = a_0 - a_1 \log NXP_t - a_2 S06 + a_3 Dpvt + a_4 DNF
\]  

(9)

**Net exports**

\[
NXP_t = QP_t - QC_t + BS_t - ES_t
\]  

(10)

**Exports**

\[
XP_t = NXP_t + IM_t
\]  

(11)
Methodology- model simulations

A) Baseline scenario – FISP continues

B) Exit from FISP:
   1) Complete removal of subsidy program
   2) Scale down amount of subsidized fertilizer
   3) Scale down number of targeted beneficiaries
   4) Complement exit strategies with improved Agricultural Extension Services
Baseline scenario- FISP as in current status

Domestic maize consumption and ADMARC price

US Dollars / mt

Domestic maize consumption

ADMARC maize price

Agricultural season


Thousand mt
Baseline scenario (con’t)

Domestic maize production and ADMARC maize price

US Dollars / mt


Maize Production

0 1000 2000 3000

Thousand mt

ADMARC maize price

Agricultural Season
Baseline scenario (con’t)

Domestic maize production and acreage

Domestic Maize production and yield

Maize Production

Yield

Hectares

mt / hectare

Agricultural season

Agricultural Season

Maize Production

Area
Exit strategy – simulation results
Complete removal of subsidy

Impact multiplier (2012/13)  Total long run dynamic multiplier
Complete removal + improved extension services

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<thead>
<tr>
<th>% change</th>
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</thead>
<tbody>
<tr>
<td>Impact multiplier (2012/13)</td>
<td>-20</td>
<td>-40</td>
<td>-60</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Total long run dynamic multiplier</td>
<td>0</td>
<td>0</td>
<td>0</td>
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Reduce amount of subsidized fertilizer

Impact multiplier (2012/13)
Total long run dynamic multiplier

Yield: -60%
Domestic production: -40%
Domestic consumption: 0%
ADMRAC maize price: 0%
Reduced fertilizer + improved extension services

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Impact multiplier (2012/13)

Total long run dynamic multiplier
Reduce number of beneficiaries

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Conclusions

• Complete removal of farm input subsidies is not a feasible option
  • Negative impacts on maize commodity market
  • Entrenchment of subsidies in policy dialogue

• Scaling down more likely to occur using more ‘practical’ options:
  • Scaling down number of targeted beneficiaries
  • Scaling down amounts of subsidized fertilizer
Conclusions

• Considerations in designing scale down strategies:
  • Gradual implementation
  • Need for complementary strategies to minimize losses
  • Duality of smallholder farmers – producer and consumer
  • Entrenchment of fertilizer subsidies in the African political agenda

• Other areas of research – impact of exit on households, private sector input markets and networks