Outline

- Introduction & framework
- Achievements
  - Implementation & distribution
  - Input market development
  - Benefit / cost analysis
  - Livelihoods, social protection & poverty reduction
- Lessons learnt & recommendations
- Challenges
1. Input subsidy implementation
   Scale, cost, modalities, timing, targeting

2a Effects on recipients (different households & household members)
   Farm & non-farm activities & productivity
   Labour hire in/out
   Crop purchases / sales
   Income
   Food security
   Welfare

2b Effects on non-recipients (different households & household members)
   Farm & non-farm activities & productivity
   Labour hire in/out
   Crop purchases / sales
   Income
   Food security
   Welfare

3. Effects on Input Supply System
   Private sector, ADMARC/ SFFRM
   Profits, cash flow, confidence, volumes, prices, investment, innovations, other services

4. Effects on Macroeconomy
   Fiscal balance
   Foreign exchange balance
   Health, education, infrastructure spending

Other Social Protection Measures

Other macro-economic management
Political & policy processes
Global & regional prices
Maize price policies
Previous season(s)’ events & outcomes
Weather
Disease (HIV/AIDS, malaria, etc)
Other rural economic activities

Other Social Protection Measures

UNSTABLE POLICIES
SLOW PRIVATE SECTOR DEVELOPMENT
POOR ROADS

UNSTABLE WEATHER

Unstable maize prices
Low producer investment
Low maize & agric productivity
Low & vulnerable real incomes

Consumer ‘lock in’ to low productivity maize
Low demand for non-agric goods & services
Scale of the 2006/7 AI SP

- Fertilizers: 174,688 MT of subsidized fertilizers mainly sold through ADMARC and SFFRFM with 49,215 MT sold through the private sector retail.
- Maize Seeds: 4,524 tonnes of subsidized maize seeds - 76% being hybrid seeds and 24% OPV seeds.
- In terms of coupons (base and supplementary):
  - 3.6 million Urea and NPK coupons
  - 0.4 million D Compound and CAN coupons
  - Under 2.0 million seed coupons
- Estimated coupons receipt balances coupons redeemed using MoAFS farm family figures but not with NSO figures

Financial costs of programme
- MK10.34 billion (MK9.01 by government against budget of MK7.2 billion
- Cost was 43% of MoAFS budget

Findings on Input Procurement

- Negotiations over modalities of private sector participation led to increased cost of importing fertilizers from $440 to $454 per tonne.

- Seed subsidy which was entirely handled by the private sector did not have procurement problems as was the case for fertilizers.

- Distribution was late & some districts were over supplied while others were under-supplied
Findings on Coupon Distribution

- Variations across districts on the procedures for allocation and distribution of coupons.
  - DDC was universal entry point at district level.
  - Varied TA involvement – stronger influence over the processes in the centre less so in the north.
  - Supplementary coupons using different channels – DADO and extension staff.

Targeting of Coupons

- Targeting varied and used a combination of poverty and productive indicators
  - with inclusion of poor and exclusion of poor
  - evidence of ability to purchase was precondition
  - access to land and labour, capacity to adopt/utilize technology
  - some cases on first come-first-served basis

- Female-headed households were less likely to receive fertilizer coupons, and also received less per household.
Targeting of Coupons (conti..)

- Subsidy recipients were more wealthy than non-recipients in terms of land size, assets, incomes and expenditures.

- The subsidy reached more productive full time farmers.

- Positive correlation between subsidy receipt and social safety net receipt especially in the central region.

Access to Inputs

- Most households used savings and wages from ganyu to finance their purchase of subsidized inputs.
  - In Mzimba, remittances from South Africa played an important role.
  - In Lilongwe, some households sold crops and livestock to obtain cash.

- Coverage of safety nets was patchy, but where there were safety nets - public works programmes that paid wages in cash - assisted households to redeem coupons.
  - However, timing of safety nets was critical - both vis-à-vis coupon redemption, and trade-off with own-farm activities.
Access to Inputs (conti...)

- Access to input markets was problematic – long queues, limited stocks, payment of tips.
  - Long distances
  - Private sector concentrating in urban and peri-urban areas
  - Poor road infrastructure

- Most of the coupons were received in November (49%) and December (30%) while some in January and February – with implications on appropriate use.

Irregularities

- Coupons being sold, fake coupons – these may increase overtime and warrant changing security features every year

- Payment of ‘tips’ to access coupons and inputs
  - 5% of coupons were accessed with some payments to traders, traditional leaders and VDC members (Median MK600).
  - 20% of fertilizer coupons were redeemed by paying ‘tips’ with mean redemption price ranging from MK983 (ADMARC/SFFRFM) to MK1,223 (others).
Objective and Key Elements of Input Market Analyses

- Examine performance of and impacts on different types of actors
  - **Key actors:** ADMARC/SFFRFM, private sector importers, private sector distribution chains, cooperatives, independent agro dealers
  - **Indicators of interest:** sales volume trends, displacement of commercial sales, costs, confidence in the sector, investment, competition
- Solicit recommendations for improvements

Sources of Information

- Interviews of key actors in seed and fertilizer procurement (public and private)
- Collection/review of import and sales trend data for fertilizer: 1997/8 – 2006/07
- Survey of 271 retailer outlets in six districts:
  - Mzimba (50) and Rumphi (41) in North
  - Lilongwe (50) and Kasungu (50) in Center
  - Blantyre (38) and Machinga (42) in South
Strengths of 2006/07 Programme: March 2007

- Very efficient Logistics Unit
- Empowerment of the private sector
- GOM, donor, private sector dialogue
- Use of GOM infrastructure
- Seed program left choice to farmers
- Seed marketing opportunity
- Poor farmers benefited
- Sales for most improved over 2005/06

Weaknesses of 2006/7 Programme: March 2007

- VERY late design and implementation
- Poor tendering process
- Poor voucher design
- Low fertilizer redemption value
- MK rather than US$ redemption value
- Slow voucher processing by ADMARC
- Slow voucher redemption → poor cash flow
- Weak institutions for monitoring product quality
- Information campaign not adequate
- Appears to be significant “displacement” of commercial sales
**Signs of Confidence: Seed Sector**

- 67% of retailers reported increased OPV and hybrid sales, with variations by type of retailer
  - distributors and coops more than average
  - independent agrodealers less than average
- Increased demand for cash purchases of OPV and hybrid varieties in Nov/Dec 2007, prior to 2007/08 subsidy announcements
- Flexibility of seed voucher system is cited by suppliers as reason for increase in hybrid demand

**Signs of Confidence: Fertilizer Importers & Distributors**

- Most recent entrants in procurement are expanding their market share and distribution networks
- Distributors’ outlets in retailer survey increased sales volume by 70% over 2004/05 and 218% over 2005/06;
- Distributors report plans to expand distribution networks in near term by about 40 shops.
Signs of Stress: Independent Agrodealers Selling Fertilizers

- Small in volume terms but willing to sell small quantities
- Sales decline for 75% for independent ADs in retailer survey
- 2006/07 sales only 8% of 2004/05 levels
- 70% of 56 surveyed by CNFA anticipate “dismal” season if they are excluded from 2007/08 AISP

Expansion of Retail Supply

- Retailers’ perceptions of competition trends
  60% see competition increasing
- Serving under-served areas
  ADMARC and coops in the forefront with average of 1.8 and 2.7 competitors per market
- Central Region markets becoming concentrated
  Average of 5.5 competitors per retailer in Kasungu vs. 3.8 in overall sample

(implication: future private sector retail network expansion needs to take place in remote areas)
Displacement: Two Perspectives

- **Unsubsidized versus subsidized sales**: amount of fertilizer that farmers would have purchased for cash had the subsidy programme not been in place minus the amount they actually purchased.

- **Private supplier channel**: aggregate private sector sales anticipated without the programme compared to actual sales with the programme (whether subsidized or not).

What Are Implications of Unsubsidized Displacement?

- At 40% displacement, farmers reduce purchases of unsubsidized fertilizer by 40 kg on average for each 100 kg of subsidized fertilizer received.

- Assume 1 ton of fertilizer produces roughly 5 tons of additional grain (15kg grain/kg N; 33% N).

- With 40% displacement we get only 3 tons of additional grain instead of 5 tons.
Approaches Used to Estimate Unsubsidized Displacement

- National sales trends analysis to compare actual and estimated counterfactual sales of subsidized and unsubsidized quantities of maize & tobacco fertilizer: 30% displacement (20% in 2005/6)
- Comparisons of household data for subsidized vs. unsubsidized fertilizer use (34% - 48%)
- Displacement lower for poorer farmers compared to wealthier farmers
  - Poorest third of households 25%
  - Middle third of households 40%
  - Wealthiest third of households 58%

Private Supplier Channel Displacement Estimate for Fertilizer

- Analysis of relationship between private sector sales and sales through ADMARC/SFFRFM outlets with and without subsidy program indicate displacement of sales by private channels of 26% (32% in 2005/6)
Displacement of PS Seed Sales

- Lack of times series data on seed makes estimate of counterfactual infeasible
- Mentioned less frequently as an issue by seed suppliers (compared to fertilizer suppliers)
- Overall sales of unsubsidized seed represented a larger share of seed sales (17%) than of fertilizer sales (7%), suggesting a stronger private sector market for seeds.

'Economic' or 'Social' Benefit / Cost Analysis

- Estimate of value of incremental benefits & costs of the programme to the national economy
- Static & limited estimate, largely ignores
  - Dynamic impacts on growth
  - Poverty reduction & social protection benefits
- Requires estimates of
  - Incremental costs to government & farmers
  - Incremental production
  - Value or prices of incremental production
- Primary value is in investigating the sensitivity of programme efficiency to external & management variables
**Incremental costs**

- Incremental fertiliser & seed costs to farmers & government (ignore displaced inputs)
- Farm labour & other costs
- Programme costs
- Incremental costs for displaced inputs (15%)

**Incremental production**

- Difficulties with survey data
- Focus on maize
- Fertiliser benefits
  - 12, 15 or 18 kg grain yield per kg N
  - affected by timeliness and method of application, maize variety, and rainfall
- Seed benefits
  - 71, 118 or 163 kg grain yield per kg seed
- Incremental production estimates range from 344,000 to 778,000 mt depending on above assumptions and displacement
Maize prices

- Economic analysis should use average of ‘with’ and ‘without’ prices without any interventions
- Difficulties
  - Repeated interventions generally lowering prices
  - Regional (Mozambique) or International import prices?
  - High prices give a high benefit cost ratio but are bad for the poor and for growth
  - Low prices (not too low) give a low benefit cost ratio but are good for the poor and for growth

Benefit / Cost Analysis Results & Conclusions

- Benefit cost analysis for both 2006/7 & future
  - can be highly favourable or unfavourable
    - 2006/7: 0.75 to 1.36
    - Future: 0.65 to 1.59 (with 30% fertiliser price increase & range of rainfall & maize price scenarios)
  - sensitive to yield increments & to maize & fertiliser prices
  - fiscal efficiency also sensitive to displacement rates
- Government financial analysis: other instruments may be more efficient & effective for price stabilisation (but not for growth etc)
- *Livelihood & growth analysis is critical*
Livelihood / poverty / food security achievements: **Headline**

**OUTCOMES:**
- Increased household food production
- Lower food prices
- Increased wage labour rates

**IMPACT:** Improved household food security

**EVIDENCE:** Qualitative Quantitative Modelling

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Livelihood / poverty / food security: immediate impacts of 2005/6 and 2006/7 subsidy & weather

**Qualitative data:**
- Improved household food security (no of meals, no of malnutrition cases, food stocks)
- Increased access to cash resulting in investments in e.g. livestock, school clothes
- Improved community and household relationships

**Quantitative data**
- Rural household’s own subjective ranking of their economic well-being was 8% higher in 2007 than 2004
- Maize prices were lower in 06/07 than 05/06
- Median wage rates increased from MK100 to MK133 across the 05/06 and 06/07 years.

**What is the counterfactual?**
Separation of subsidy & weather effects? Wider effects on non-beneficiaries? How sustainable are these impacts?
**Sustainability and livelihoods:**

**breaking the low input - low output trap**

**Analyse complex processes and subsidy outcomes**

- increased land & labour productivity, soil fertility maintenance
- increased grain availability, lower maize prices, higher wages & real incomes, stimulation of non-farm demand
- domestic supply & demand stimulation to diversify out of maize to other crops & non-farm goods & services

**and their interactions across:**

- different levels (households / local economies / national economy)
- different timeframes (short, medium, long term)
- different contexts (agro-ecological zones, years with good (poor), (un)evenly distributed rainfall)
- different actions / development objectives

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**Livelihood and rural economy modelling**

- Cluster analysis of IHS2 data to define households types within MVAC livelihood zones
- Household livelihood models for different household types in the two largest zones
  - Kasungu Lilongwe Plain (KAS)
  - Shire Highlands (SHI)
- Examine effects of different subsidy & other scenarios
  1. on recipient households, whose response affects wages and maize prices, which then affect recipient and non-recipient households
- Confirms interplay between the input subsidy, *ganyu*, maize prices and subsequent impacts on household livelihoods and well-being of recipients and non recipients
- Illustrative but informative results
### Model results: comprehensive subsidy (2004 MK)

<table>
<thead>
<tr>
<th></th>
<th>KAS</th>
<th>SHI</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
<td>Year 2</td>
</tr>
<tr>
<td>Total subsidised Seed (MT)</td>
<td>1,482</td>
<td>0</td>
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<tr>
<td>Subsidised Fertiliser (MT N)</td>
<td>12,971</td>
<td>0</td>
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<tr>
<td>Wage change (% from base)</td>
<td>5%</td>
<td>20%</td>
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<tr>
<td>Maize price change (%)</td>
<td>0%</td>
<td>-26%</td>
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<tr>
<td>Real net income change</td>
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<td></td>
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<tr>
<td>Target hh</td>
<td>5%</td>
<td>15%</td>
</tr>
<tr>
<td>All hh</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Total cost / hhold (MK)</td>
<td>2,015</td>
<td>0</td>
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<tr>
<td>Total cost / target hhold (MK)</td>
<td>6,717</td>
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<td>Total benefit / hhold (MK)</td>
<td>506</td>
<td>310</td>
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<tr>
<td>Benefit / target hhold (MK)</td>
<td>1,193</td>
<td>3,648</td>
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</table>

### Changing subsidy impacts on households & markets

**RURAL HOUSEHOLDS**
- Poorer households
  - Resale
  - Incremental use
  - Displacement use
- Less-poor households

**RURAL ECONOMY**
- Input service demand & investment
- Farm/ non farm demand & investment

**Farm/ non farm investment**
- Y1 Increased real incomes
- Y2 Reduced maize prices
- Y2 Increased wages
Low producer investment
Low maize & agric productivity
Consumer ‘lock in’ to low productivity maize
Low & vulnerable real incomes
Low demand for non-agric goods & services

MAIZE PRICE & TRADE POLICY
CREDIT, RESEARCH, EXTENSION, CASH & OIL CROPS
INPUT SUBSIDY
SOCIAL PROTECTION

UNSTABLE POLICIES
UNSTABLE WEATHER
SLOW PRIVATE SECTOR DEVELOPMENT
POOR ROADS

UNSTABLE
PRIVATE
ROADS

Coordination of policies

Trade Openness?
Instruments?
Floor / Ceiling Prices?
Transition Management?
Market Information?
Poor/Remote Areas?

Maize Price and Trade Policy
Input Subsidy
Other Agric. Productivity Policies
Social Protection

Extension, Research, Credit, Roads, Non-Farm Growth
Timing? Conditions?
Types of Transfers?
Targeting?
**Issue / Recommendations**

**Programme Objectives**

- Targeting
- Policy Coordination
- Private Sector

**Information Requirements**

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**Issues / Recommendations (1)**

*Programme Objectives*

**Issue:**
Different stakeholders have different views of the objectives of the programme

**Recommendation:**
Establish a more comprehensive and consistent framework of programme objectives that:

- encompasses long-term food security, growth and poverty reduction
- resolves conflicting objectives
- supports target setting and budget allocations
**Issues / Recommendations (2)**

*Targeting*

**Issues:**

i) There are contradictions in targeting criteria

ii) Geographical targeting was based on cultivated areas rather than poverty and vulnerability data

**Recommendation:**

Strengthen targeting strategy and criteria to enable:

- a more coherent / better balance between productive and poverty criteria; and
- more effective area targeting – based on numbers of poor farming households

Continue with voucher based programme (not clubs)

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**Issues / Recommendations (3)**

*Policy coordination*

**Issue:**

There are strong complementarities between input subsidies and other policies and programmes at both design and implementation level.

**Recommendation:**

Improved coordination between input subsidy and other programmes will maximise positive synergies and improve outcomes

**Examples:**

- Public works timing; types of transfers;
- Linking extension coverage and timing to input subsidy;
- Maize prices stability for producers and consumers
**Issues / Recommendations (4)**

**Private sector**

**Issue:** The private sector can play a key role in delivery of input subsidies (and reduce the cost of the programme to government).

**Recommendation:** Ensure engagement of the private sector to reduce costs and promote business development via:

- consistent, timely & transparent planning & implementation
- private sector commitment to systems supporting integrity and performance
- commitment from all stakeholders to development of mutually beneficial ‘transition strategy’ for greater private sector involvement in input markets.
- reduction of government involvement in well served areas
- design of policies and programs to support private sector expansion to under-served areas and more effective use of independent agrodealers.

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**Issues / Recommendations (5)**

**Information**

**Issue:**
Improving targeting and policy coordination requires good information

**Recommendation:**
Establish systems to identify and ensure collation of required information

**Examples:**
- Smallholder agriculture: No of farm families, yields, storage losses, areas, input use, sales, wages
- District / livelihood zone info on poverty and vulnerability levels, assets etc
- National and regional markets (staple production, consumption, stocks, prices, regional trade flows; input marketing costs)
Challenges

- International fertiliser prices
- Cost control
- International maize prices
- Climate change
- Displacement
- Targeting
- Timing
- Stability and transparency
- Fraud
- Exits & sustainability

Historical and forecast oil & fertiliser prices

- Crude oil: Actual
- Crude oil: Forecast (World Bank)
- Urea: Actual
- Urea: Forecast (World Bank)
- DAP: Actual
- DAP: Forecast (World Bank)
- CAN: Actual
Historical and forecast international maize prices

- Maize: Actual
- Maize: Forecast (World Bank)
- Maize: Forecast (FAO)