

Fertilizer Subsidies and Sustainable Agricultural Growth in Africa:

Current Issues and Empirical Evidence from
Malawi, Zambia, and Kenya



Isaac Minde, T.S. Jayne, Joshua Ariga,
Jones Govereh, and Eric Crawford

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Key challenges

1. How to raise incentives (i.e., profitability) of using fertilizer in a *sustainable* way
 - How to reduce costs of acquiring fertilizer (marketing)?
 - How to improve the efficiency of farmers’ use of fertilizer?
 - How to achieve reasonable output market stability?
 - How to promote access to input credit?

Key challenges (cont.)

2. Recognizing that progress on the above requires major public investments in crop science, extension, infrastructure, and nurturing of private input supply channels, then:

What is the appropriate balance between expenditures on these investments vs. input subsidies?

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Objectives of this presentation:

1. To highlight lessons from experience with fertilizer subsidies in Malawi and Zambia
2. To highlight lessons from Kenya's experience of rapid smallholder adoption of fertilizer without subsidies
3. To assess the implications of sharply higher world food and fertilizer prices in 2008
4. To provide guiding principles of a "smart" fertilizer subsidy program

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What I will show: factors that could raise the viability of fertilizer subsidies

1. Target relatively poor farming households
 - This will minimize displacement and have the most direct effect on poverty reduction
2. Involve full spectrum of private sector – don't restrict to 2-3 firms
3. Reduce fertilizer application levels – 200kg Compound D + 200kg Urea depresses the overall contribution of fertilizer to maize output

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What I will show: factors that could raise the effective demand for fertilizer generally

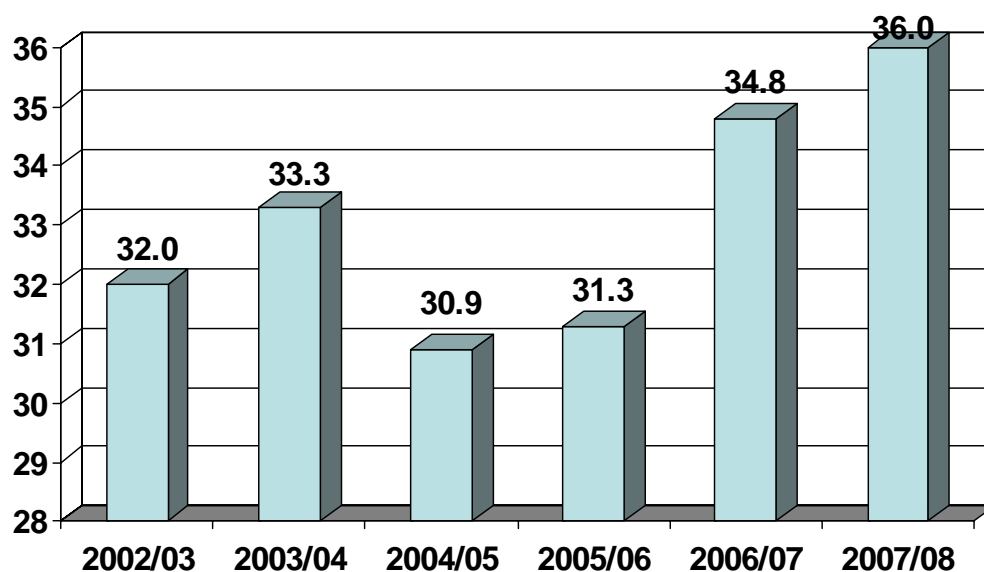
1. Prioritize R&D to generate improved fertilizer-responsive seeds
2. Open regional trade (especially in good harvest years) will raise and stabilize the price of maize → improve profitability of using fertilizer on maize
3. Invest in physical infrastructure, especially between countries in the region, to help stabilize output prices

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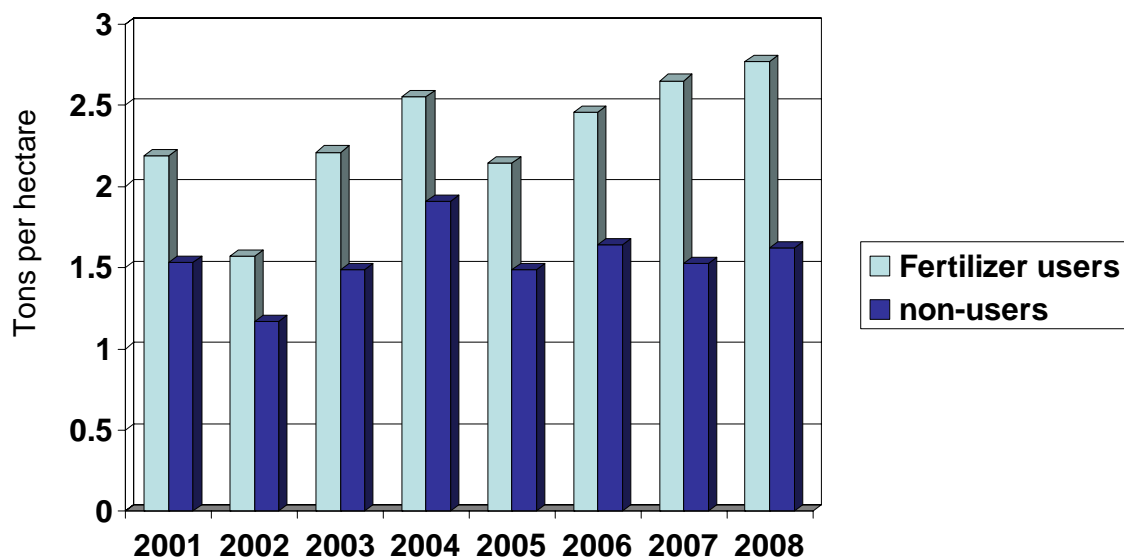
African Country-Level Situation and Policy Environment Really Counts !

Intensity of fertilizer use (1996-2002)	% growth in fertilizer use intensity (kg/ha cultivated) (mean 1996-2002 / mean 1990-95)	
	< +30%	> +30%
< 25 kg/ha	DRC (0.5, -47%)	Uganda (0.6, +237%)
	Angola (0.7, -69%)	Rwanda (1.8, +89%)
	Niger (0.9, +5%)	Mozambique (3.2, +142%)
	Guinea (2.0, -4%)	Ghana (3.6, +68%)
	Burundi (2.3, -6%)	Chad (4.3, +93%)
	Madagascar (2.9, -8%)	Cameroon (5.9, +77%)
	Mauritania (4.0, -64%)	Togo (7.0, +30%)
	Tanzania (4.8, -47%)	Cote d'Ivoire (11.8, +53%)
	Gambia (5.2, +15%)	Botswana (11.8, +294%)
	Nigeria (5.6, -73%)	Senegal (13.2, +67%)
	Burkina Faso (5.9, -28%)	Ethiopia (14.4, +71%)
	Zambia (8.4, -34%)	Benin (17.6, +76%)
	Mali (9.0, +7%)	Lesotho (23.2, +35%)
	> 25 kg/ha	Swaziland (30.5, -40%) Malawi (30.8, +9%) Zimbabwe (48.3, +9%)

Zambia: trend in % of smallholders using fertilizer nationwide

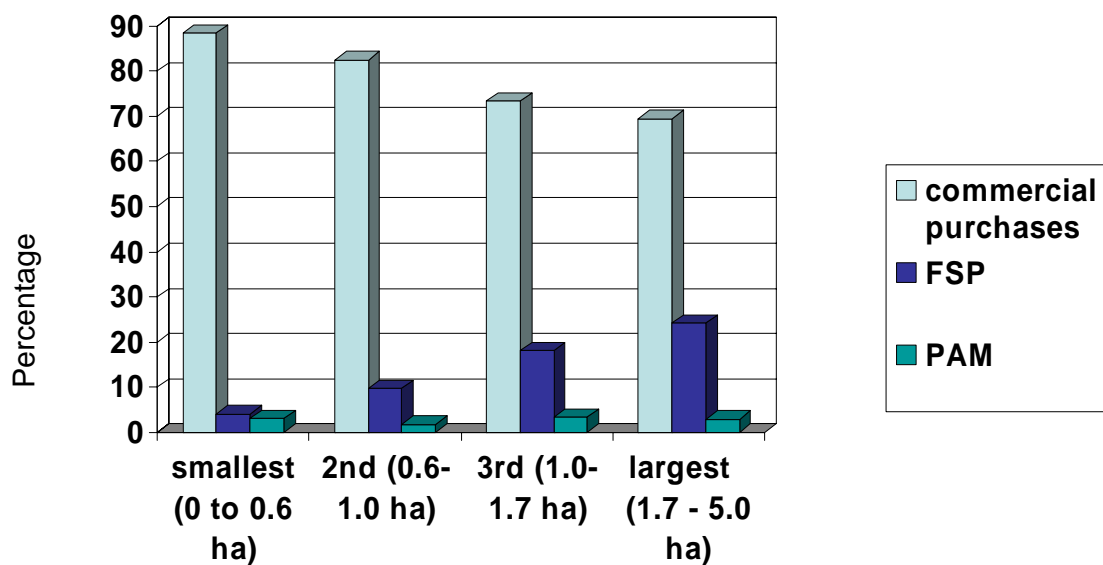


Zambia: Maize yields (mt per hectare of area harvested), fertilizer users vs. non-users



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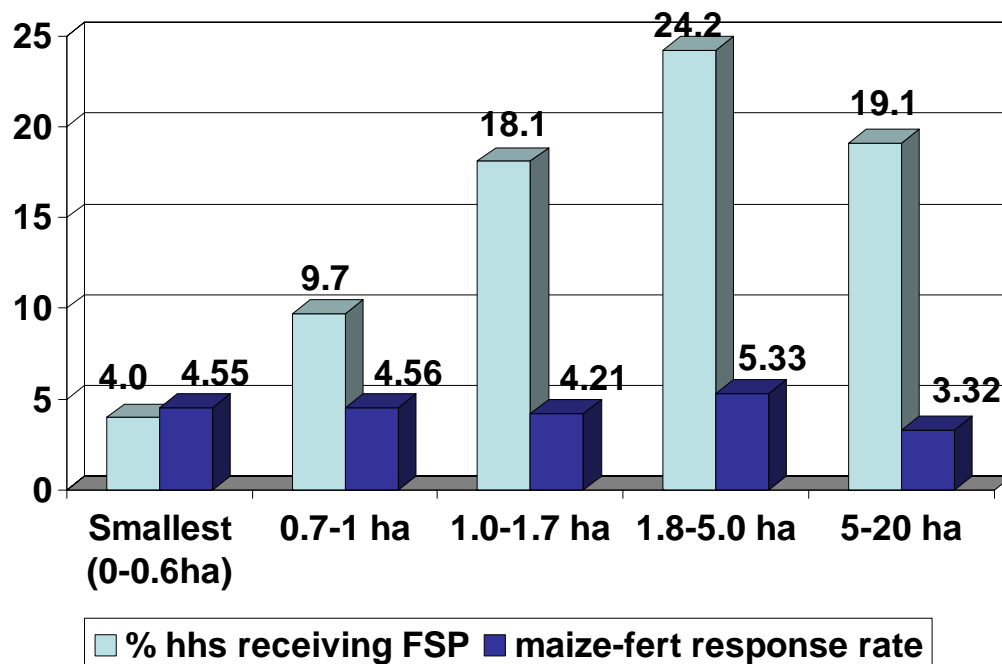
Zambia: Fertilizer acquisition sources among small-scale farmers using fertilizer on maize, 2003/04 and 2007/08**



** note: NGOs and other farmers account for less than 6% of primary fertilizer acquisition source by small-scale famers

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Zambia: % of farms receiving FSP and maize-fertilizer response rates, CFS, 2007/08



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Insight #1

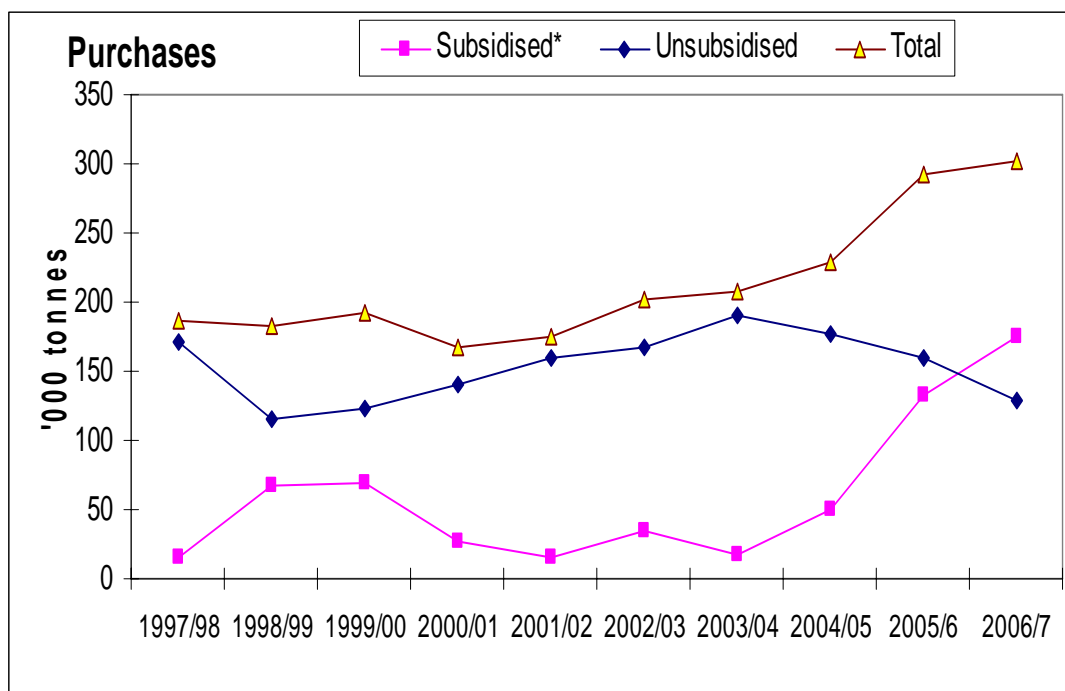
Efficiency of fertilizer use not appreciably different on small farms than on larger farms

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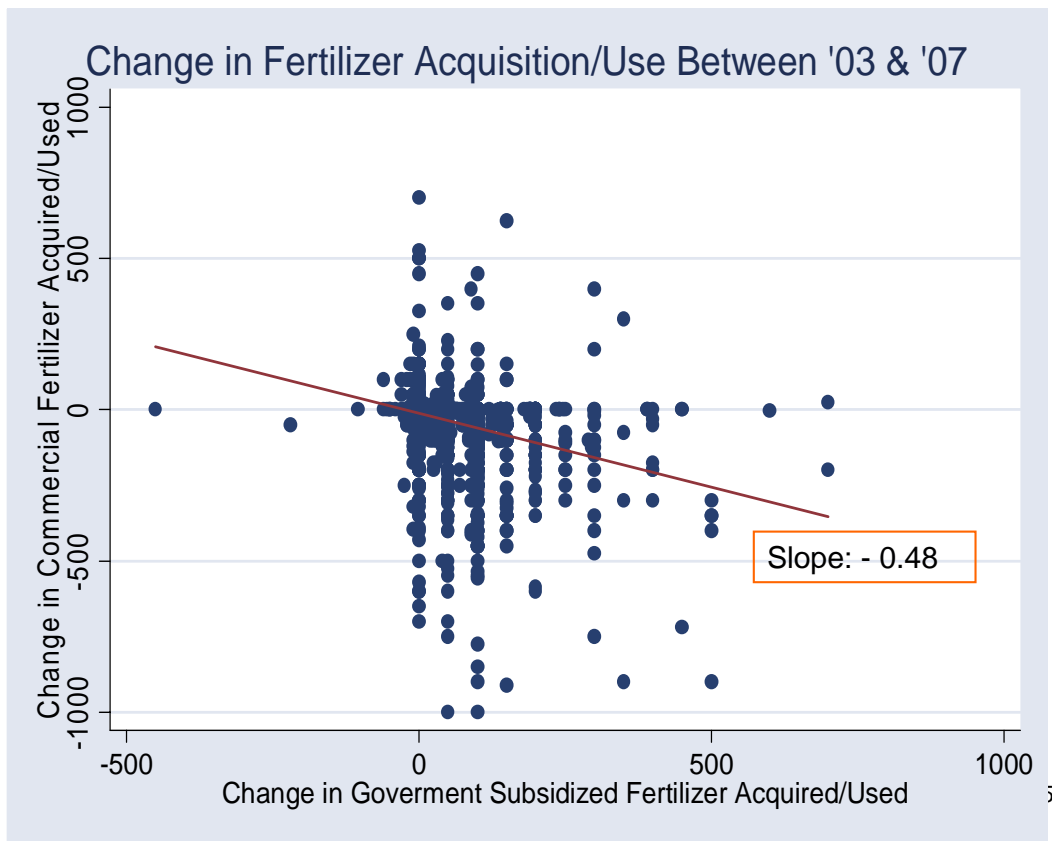
- Concept of incremental fertilizer use from a fertilizer subsidy programme:

How much additional fertilizer goes on farmers' fields per ton of subsidized fertilizer distributed?

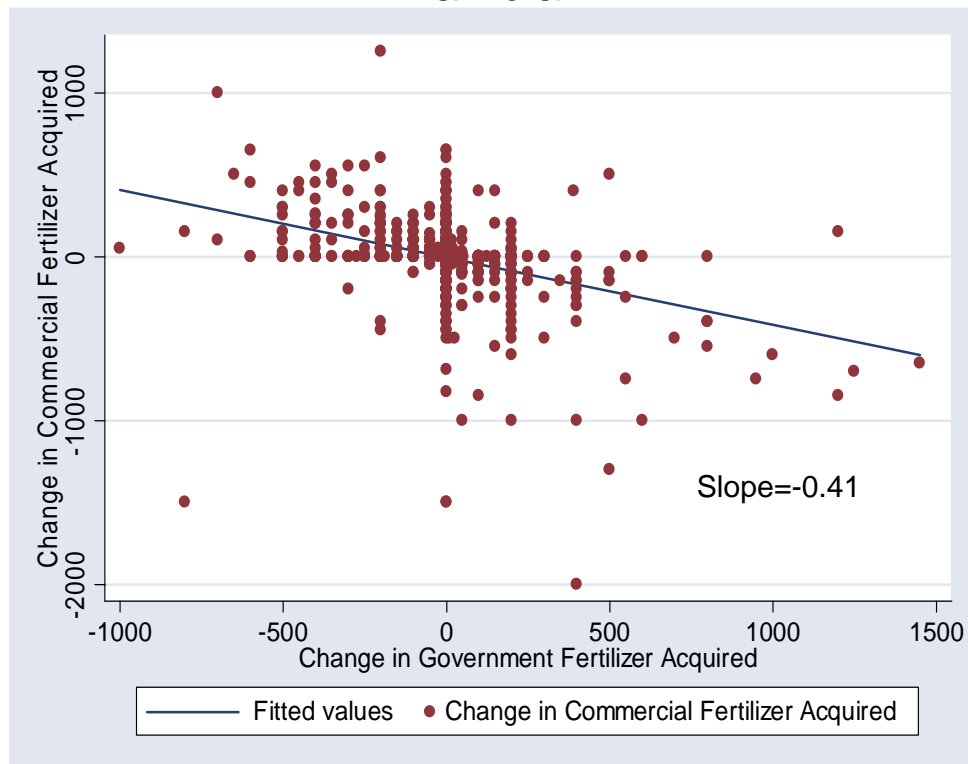
Farmer fertilizer purchases, Malawi



Malawi



Change in smallholder fertilizer use, 2000 vs 2004, Zambia



Insight #2

Few poor households can afford to buy fertilizer – incremental fertilizer use is high for them.

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Insight #3

Relatively non-poor households tend to buy fertilizer if profitable. For them, incremental fertilizer use is relatively low.

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Upshot:

Targeting poorer households will simultaneously contribute to many government policy objectives:

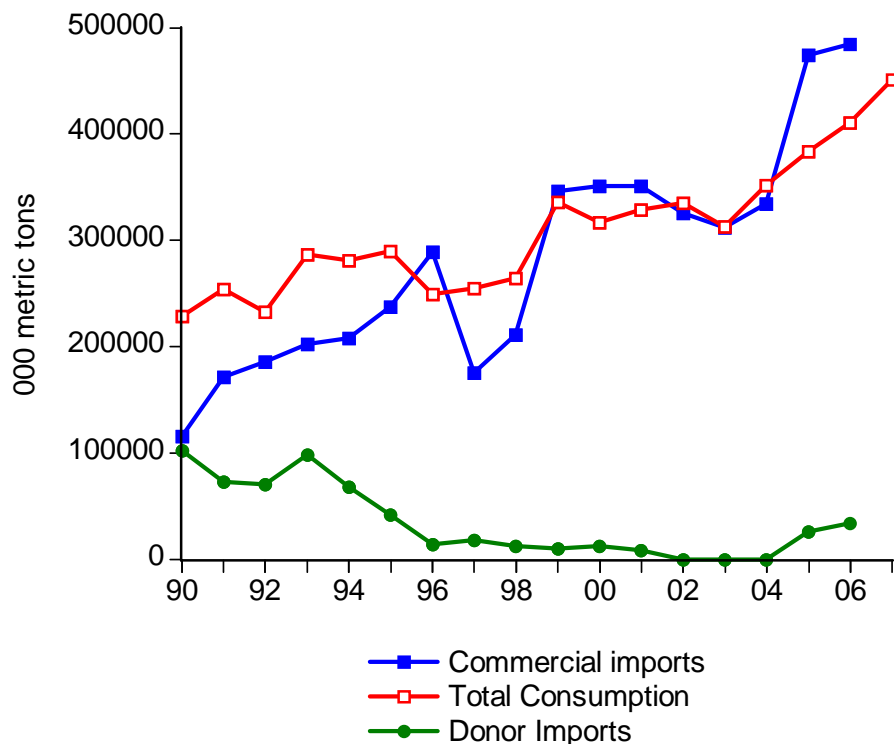
1. Achieve more maize output per unit of subsidized fertilizer distributed
2. Contribute more to national food security
3. More effectively reduce hunger by allowing the poor to produce more for themselves
4. Promotes equity and reduces the widening rift between the “haves” and “have-nots”

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Insights from Kenya

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Fertilizer use trends in Kenya, 1990-2006



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Percent of Households using Fertilizer (all crops)

<i>Agro-ecological zone</i>	1995/96	1996/97	1999/00	2003/04	2006/07
Coastal Lowlands	2%	3%	5%	6%	12%
Eastern Lowlands	19%	30%	37%	46%	57%
Western Lowlands	2%	3%	4%	8%	30%
Western Transitional	29%	32%	59%	61%	88%
High-Potential Mz Zone	67%	69%	86%	90%	93%
Western Highlands	52%	57%	73%	74%	95%
Central Highlands	63%	78%	90%	93%	98%
Marginal Rain Shadow	12%	20%	22%	27%	54%
National total	43%	51%	64%	69%	76%

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Reasons for the Upsurge in Fertilizer Use in Kenya

1. GoK has maintained a stable fertilizer policy stance since 1990
 - Eliminated import licensing quotas
 - Foreign exchange controls
 - Retail price controls
 - No large subsidy programs to undercut private investment in fertilizer distribution system

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Reasons for the Upsurge in Fertilizer Use in Kenya

2. Private sector investment in fertilizer distribution has expanded rapidly
 - 10-11 importers
 - 500 wholesalers
 - 8,000 retailers

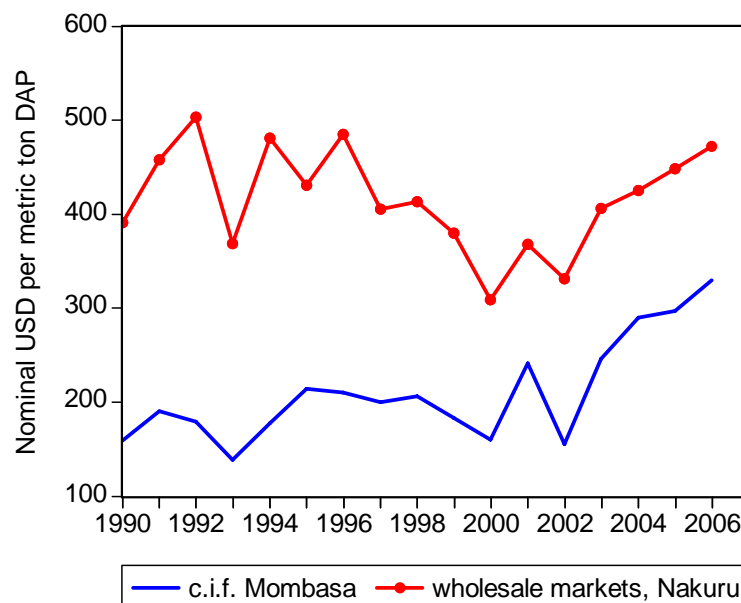
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Reasons for the Upsurge in Fertilizer Use in Kenya

3. Small farmers' are now much closer to fertilizer retailers
 - 1997: 8.4kms
 - 2004: 4.3kms

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4. Large decline in fertilizer (DAP) marketing margins



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How has the private sector been able to reduce fertilizer marketing margins?

1. Greater competition has led to lower margins
2. Emergence of brokerage services for exploiting opportunities for cheaper backhaul transport, e.g., linking upcountry fertilizer supply with trucks transporting cargo from Rwanda and Congo to the port of Mombasa;
3. private importers are increasingly using international partners to source credit at lower interest and financing costs than are available in the domestic economy
4. mergers between local and international firms in which knowledge and economies of scope are being passed onto local firms to achieve cost savings in local distribution (e.g., Mea partnering with CONAGRA)

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How has the private sector been able to reduce fertilizer marketing margins?

1. These cost reductions directly benefit smallholder farmers
2. These cost reductions occur as a result of market development and a stable policy environment for private sector investment

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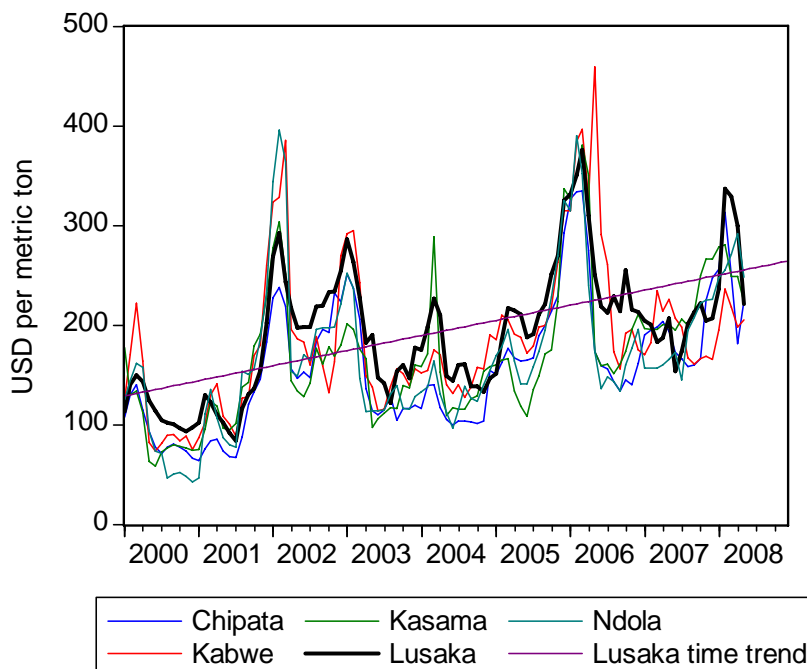
Insight #4:

If subsidy programs are to be implemented, design them in ways that involve the full range of private importers, wholesalers, and retailers.

Providing tenders to only 2-3 firms can entrench their position in the market, cause other firms to cease making investments in the system or drop out altogether, leading to a more concentrated input marketing system and restricted competition when the input subsidy program comes to an end.

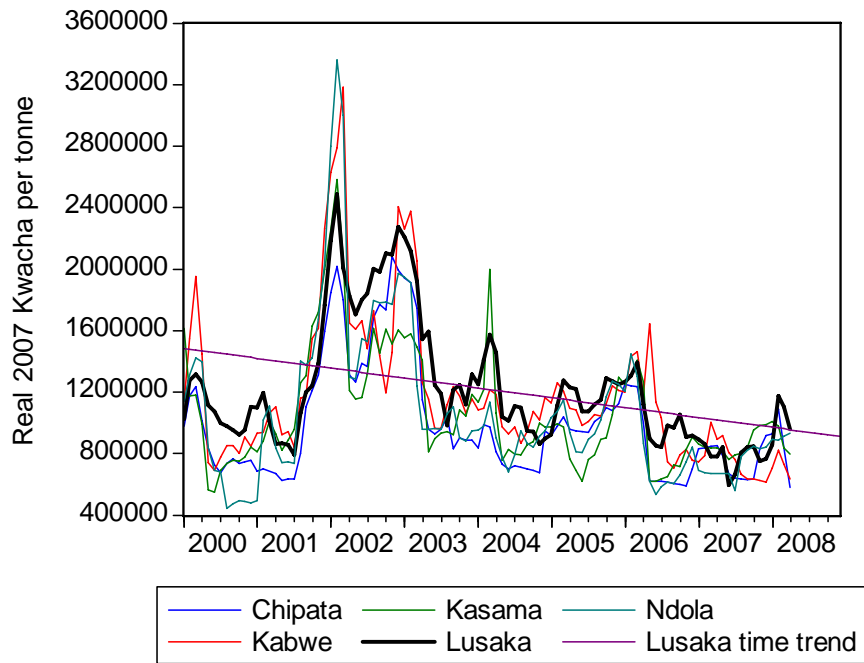
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The emerging situation in 2008: Zambia



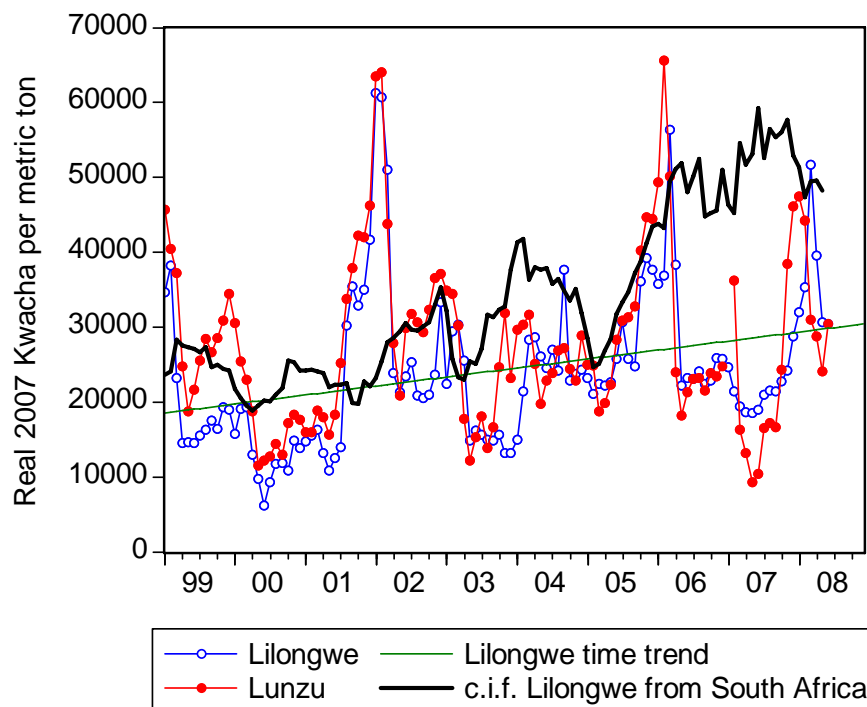
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Zambia: maize prices in real kwacha per tonne



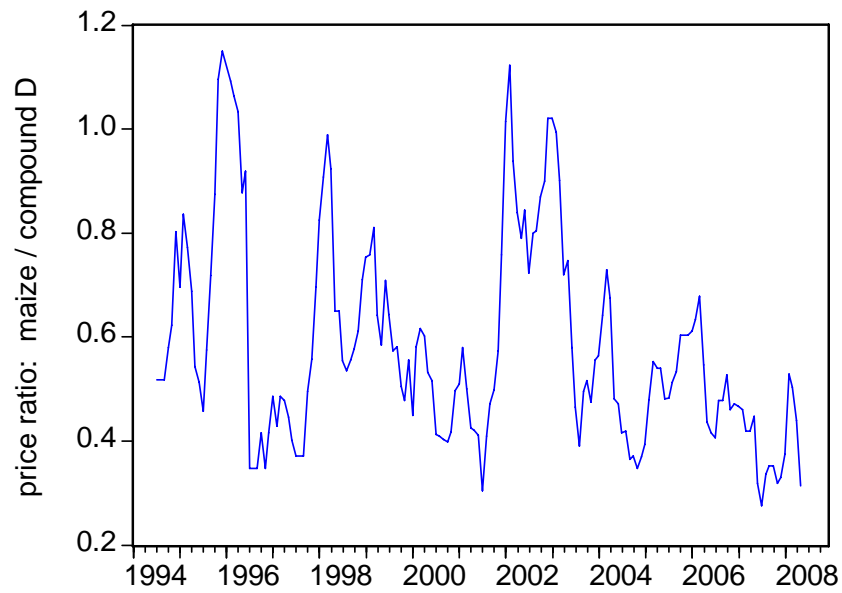
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Malawi: maize price trends



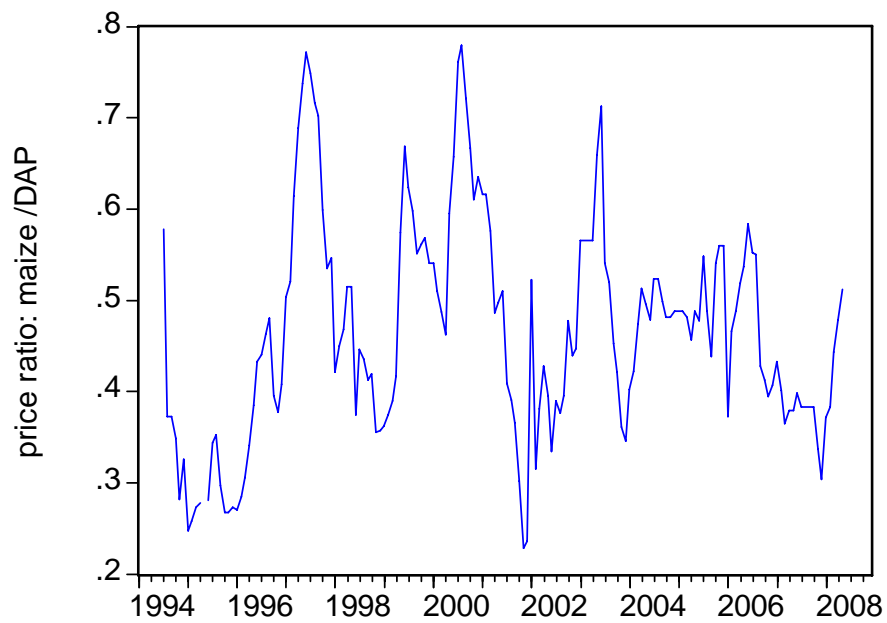
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Zambia: maize-comp.D price ratios



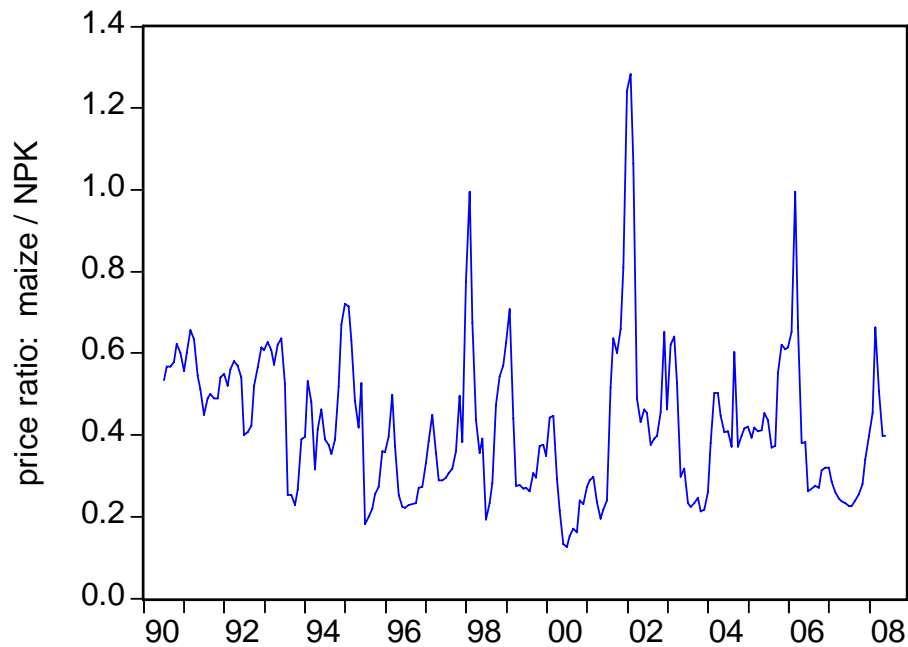
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Kenya: maize-DAP price ratios



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Malawi: maize-NPK price ratios



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Insight #5:

Maize-fertilizer price ratios are relatively low in 2008, but not abnormally low when compared to the past 10 years.

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Factors that could raise the viability of fertilizer subsidies

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Factors that could raise the effective demand for fertilizer more generally

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Zikomo Kwambili,
Natotela sana,
L'i tumezi ahulu,
Twalumba kapati,

**Thank you– we welcome
questions and comments**

<http://www.aec.msu.edu/fs2/>