Modernizing Africa's Fresh Produce Supply Chains without Rapid Supermarket Takeover

Towards a Definition of Research and Investment Priorities

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Outline

- Supermarket revolution
  - Evolution of thinking
  - Evidence from Kenya and Zambia
  - Implications
- Current status & drivers of change in "traditional" systems
- Knowledge gaps
- Research and investment priorities

The Supermarket Revolution in Africa

- Early expectations of supermarket takeover, even in Africa
  - In 2003: "… (supermarket) requirements will … become those faced by the majority of farmers… in the next 5-10 years"
- Fueling concerns about exclusion of smallholders and small retailers
- And programmatic initiatives to help (mostly farmers)
- Lots of coverage in popular press
- And continued influence on thinking in many quarters

More Cautious Voices

- Goldman (2000) in Asia echoed by Ayieko et al (later) in Kenya: "selective adoption" of supermarkets
- Coca-Cola (2003): "… small retailers (in Latin America) have a sustainable business model"
- Farina and Nunez (2005): Rising shares of independent supermarkets and traditional retailers compared to supermarket chains in Brazil
- Humphrey (2006): "the extent of transformation of retailing (in Africa)… is overestimated".
- Tschirley and colleagues in Kenya and Zambia: low supermarket shares in FFV and tough challenges to grow them

More Cautious Voices (2)

- Reardon and Timmer (2007): "considerable uncertainty about the rate at which the supermarket sector will grow" in SSA
- Minten (Madagascar, 2008): "… agriculture for local consumption in poor countries will be largely bypassed by the global food retail revolution."

- This more cautious view is born out by patterns in Zambia and Kenya
  - Two countries of SSA (outside RSA) w/ greatest prospect for supermarket growth

Supermarket market shares by food group

Market share of retail channels by food group, Nairobi 2003 & urban Zambia 2007/08

Food Group	Super-market Chains	Small super-market	Duka/shop	Open Market	Kiosk	Butchery	Other minor outlets
	Kenya (Nairobi) 2003						
	---------------- % of total expenditure within the food group ----------------						
Staples	21.0%	12.9%	49.5%	6.4%	8.1%	0.0%	2.2%
Dairy	13.9%	2.1%	55.4%	0.0%	10.8%	0.0%	17.8%
Meat	3.9%	0.4%	8.9%	11.5%	3.9%	68.4%	3.1%
FFV	4.4%	0.3%	0.7%	56.4%	35.7%	0.0%	2.6%
Overall	11.5%	4.8%	28.7%	18.7%	14.3%	16.7%	5.4%

Food Group	Super-market Chains	Indep. Super-markets & Mini-marts	Grocers	Open Market	Ka Sector	Butchery	Other minor outlets
	Zambia (four cities) 2007/08						
	---------------- % of total expenditure within the food group ----------------						
Staples	8.8%	2.2%	43.8%	17.7%	22.0%	0.2%	5.3%
Dairy	19.6%	4.1%	38.7%	7.8%	23.4%	3.2%	3.2%
Meat	7.1%	1.6%	5.2%	37.8%	12.8%	28.0%	7.6%
Fresh Veg	1.0%	0.8%	0.4%	67.6%	27.9%	0.0%	2.3%
Fresh Fruit	11.1%	1.9%	0.9%	55.7%	28.1%	0.0%	2.2%
FFV	3.1%	1.1%	0.5%	65.5%	27.6%	0.0%	2.3%
Pulses	3.2%	1.2%	5.3%	74.6%	13.7%	0.0%	2.0%
Other	6.7%	1.6%	29.9%	17.6%	26.3%	0.0%	17.9%
Overall	7.3%	1.8%	21.8%	31.2%	21.7%	7.3%	9.0%

Sources: Kenya: Tegemeo Institute/MSU Urban Household Survey, 2003; Zambia: Central Statistical Office/FSRP/MSU Urban Household Consumption Survey, 2007/08

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Zambia (four cities) 2007/08

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92%

Zambia (four cities) 2007/08

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Staples	8.8%	2.2%	43.8%	17.7%	22.0%	0.2%	5.3%
Dairy	19.6%	4.1%	38.7%	7.8%	23.4%	3.2%	3.2%
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Zambia (four cities) 2007/08

Market expansion, not just capture

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… for fresh produce by income quintile

Fresh produce market share of retail channels by income quintile, Nairobi 2003 & urban Zambia 2007/08

Kenya (Nairobi) 2003

Total Per capita income quintile	Mean per capita income (USD)	Super-market Chains	Small Super-markets	Duka/ shop	Open Market	Kiosk	Butcher	Other minor outlet
		---------------- % of total expenditure over all FFV items ----------------						
1 (lowest)	96	0.0%	0.1%	0.2%	53.3%	42.9%	0.0%	3.6%
2	249	0.0%	0.4%	1.3%	56.7%	38.0%	0.0%	3.6%
3	436	0.0%	0.6%	0.0%	64.3%	33.9%	0.0%	1.1%
4	774	1.0%	0.1%	0.3%	59.3%	38.3%	0.0%	1.0%
5 (highest)	3,593	14.9%	0.1%	1.3%	48.9%	30.8%	0.0%	4.0%
Overall	1,027	4.4%	0.3%	0.7%	56.4%	35.7%	0.0%	2.6%

Zambia (four cities) 2007/08

Total per capita expenditure quintile	Mean total per capita expenditure (USD)	Super-market Chains	Indep. Super-markets & Mini-marts	Grocers	Open Market	Ka Sector	Butcher	Other minor outlet
		---------------- % of total expenditure over all FFV items ----------------						
1 (lowest)	256	0.4%	0.0%	0.2%	67.8%	29.0%	0.0%	2.6%
2	437	0.2%	0.0%	0.1%	69.4%	27.3%	0.0%	2.9%
3	638	0.7%	0.0%	0.6%	72.6%	23.9%	0.0%	2.2%
4	974	2.2%	1.1%	0.4%	63.4%	30.6%	0.0%	2.3%
5 (highest)	2,582	9.1%	3.1%	1.0%	57.7%	27.3%	0.0%	1.7%
Overall	977	3.1%	1.1%	0.5%	65.5%	27.6%	0.0%	2.3%

Fresh produce market share of retail channels by income quintile, Nairobi 2003 & urban Zambia 2007/08

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Top quintile!

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Fresh produce market share of retail channels by income quintile, Nairobi 2003 & urban Zambia 2007/08

Still 80% at top quintile

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Overall	1,027	4.4%	0.3%	0.7%	56.4%	35.7%	0.0%	2.6%

Less dependent on top, but lower overall

Total per capita expenditure quintile	Mean total per capita expenditure (USD)	Super-market Chains	Indep. Super-markets & Mini-marts	Grocers	Open Market	Ka Sector	Butcher	Other minor outlet
		Zambia (four cities) 2007/08						
		--------------- % of total expenditure over all FFV items ---------------						
1 (lowest)	256	0.4%	0.0%	0.2%	67.8%	29.0%	0.0%	2.6%
2	437	0.2%	0.0%	0.1%	69.4%	27.3%	0.0%	2.9%
3	638	0.7%	0.0%	0.6%	72.6%	23.9%	0.0%	2.2%
4	974	2.2%	1.1%	0.4%	63.4%	30.6%	0.0%	2.3%
5 (highest)	2,582	9.1%	3.1%	1.0%	57.7%	27.3%	0.0%	1.7%
Overall	977	3.1%	1.1%	0.5%	65.5%	27.6%	0.0%	2.3%

Fresh produce market share of retail channels by income quintile, Nairobi 2003 & urban Zambia 2007/08

Total Per capita income quintile	Mean per capita income (USD)	Super-market Chains	Small Super-markets	Duka/ shop	Open Market	Kiosk	Butcher	Other minor outlet
		Kenya (Nairobi) 2003						
		--------------- % of total expenditure over all FFV items ----------------						
1 (lowest)	96	0.0%	0.1%	0.2%	53.3%	42.9%	0.0%	3.6%
2	249	0.0%	0.4%	1.3%	56.7%	38.0%	0.0%	3.6%
3	436	0.0%	0.6%	0.0%	64.3%	33.9%	0.0%	1.1%
4	774	1.0%	0.1%	0.3%	59.3%	38.3%	0.0%	1.0%
5 (highest)	3,593	14.9%	0.1%	1.3%	48.9%	30.8%	0.0%	4.0%
Overall	1,027	4.4%	0.3%	0.7%	56.4%	35.7%	0.0%	2.6%
		Zambia (four cities) 2007/08						
Total per capita expenditure quintile	Mean total per capita expenditure (USD)	Super-market Chains	Indep. Super-markets & Mini-marts	Grocers	Open Market	Ka Sector	Butcher	Other minor outlet
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Overall	977	3.1%	1.1%	0.5%	65.5%	27.6%	0.0%	2.3%

Still 85% at top quintile

From econometric analysis …

- Determinants of purchase in supermarket
  - Income (+)
  - Processed foods (+)
    - Coordinated relationships with others in modern sector
  - Ownership of car (+)
  - Ownership of refrigerator (+)
  - ***Proximity*** (+)
    - Big advantage for informal sector
  - ***City size*** (-)
    - Lower shares in larger cities

Retail Modernization: Summary

- Much slower supermarket growth than some expected 5-8 years ago
- Though tipping points are possible …
  - Highest urban growth rate of any developing area
  - GDP growth 4.3% 2000-05
  - Both favorable to supermarket growth, but a long way to go
- Systems will remain heterogeneous for decades to come, w/ traditional sector central

Retail Modernization: Summary (2)

- Private investment in modern, integrated supply chains
  - Won't transform these systems in time frame acceptable to most policy makers & donors
  - 20/20/20 challenge for vast majority of continent
- Rapid population growth
  - More and more consumers subjected to these dysfunctional systems
- Public engagement crucial
  - How ensure that this facilitates private investment?
  - Need for changed attitudes!

Outline

- Supermarket revolution
  - Evolution of thinking
  - Evidence from Kenya and Zambia
  - Implications
- ***Current status & drivers of change in "traditional" systems***
- Knowledge gaps
- Research and investment priorities

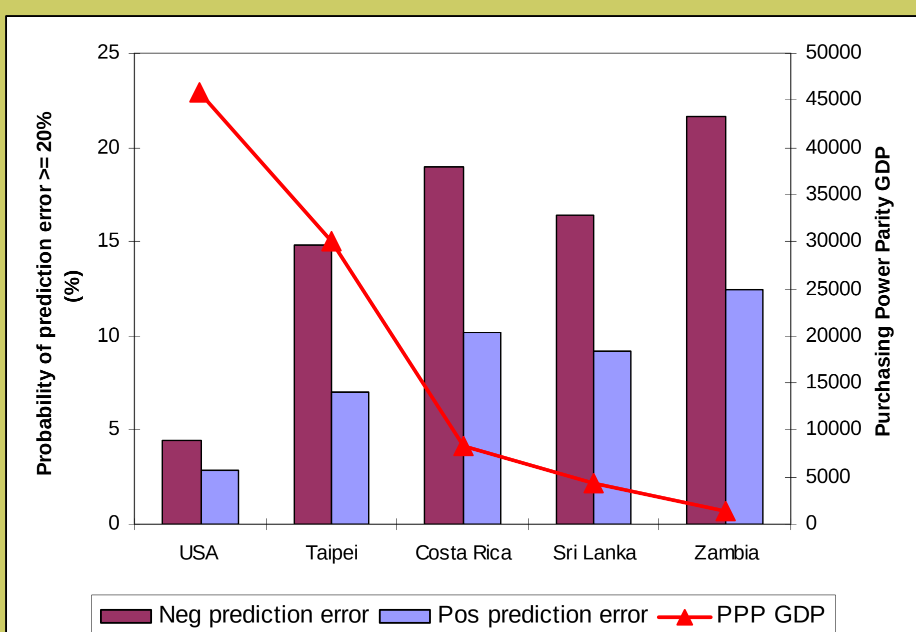
Current status (local/regional systems)

- Domestic & regional system > export
  - Even in Kenya (5x-6x in 2003; > 20x in Zambia?)
  - Major difficulties for smallholders to remain in export market
- Concentrated production
  - Well under 10% provide 80% of marketed surplus
- Input cost major barrier for most smallholders
  - Over $1,000 on typical cropped areas in Zambia
  - Lack of credit
  - Low MVP due to poor technical knowledge?

Current status (local/regional systems) (2)

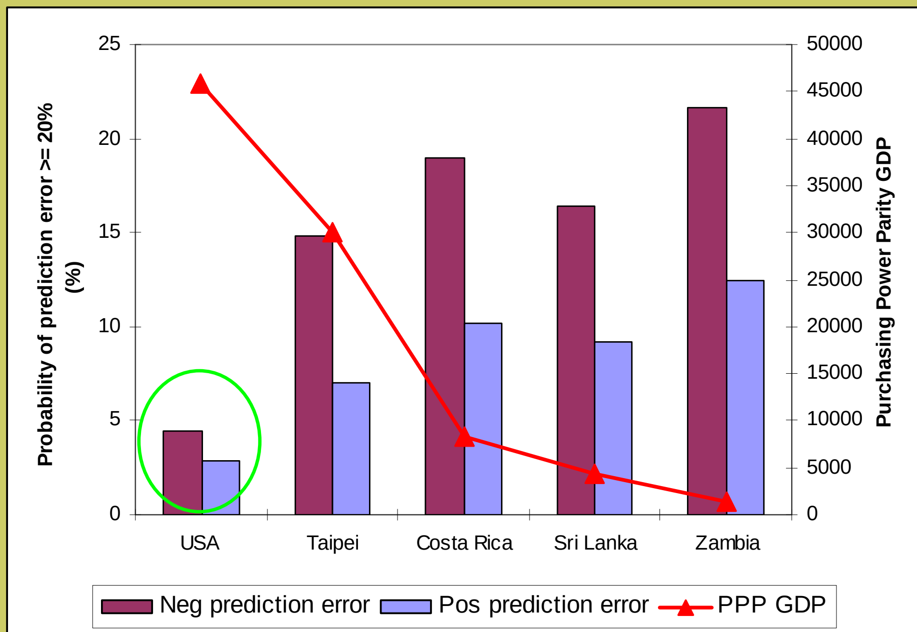
- Dilapidated physical infrastructure
  - Spontaneous, chaotic decentralization
  - Congestion, crime, higher costs, food safety concerns
- Dysfunctional ownership & management structures
  - Conflict between traders and city authorities
  - Lack of transparency in use of funds
    - Little evidence of fees being reinvested in markets
- Typically absent soft infrastructure
  - Timely market information, grades & standards, food safety
  - Very poor vertical information flow
- Enormous price variability

Probability of prediction error > 20%



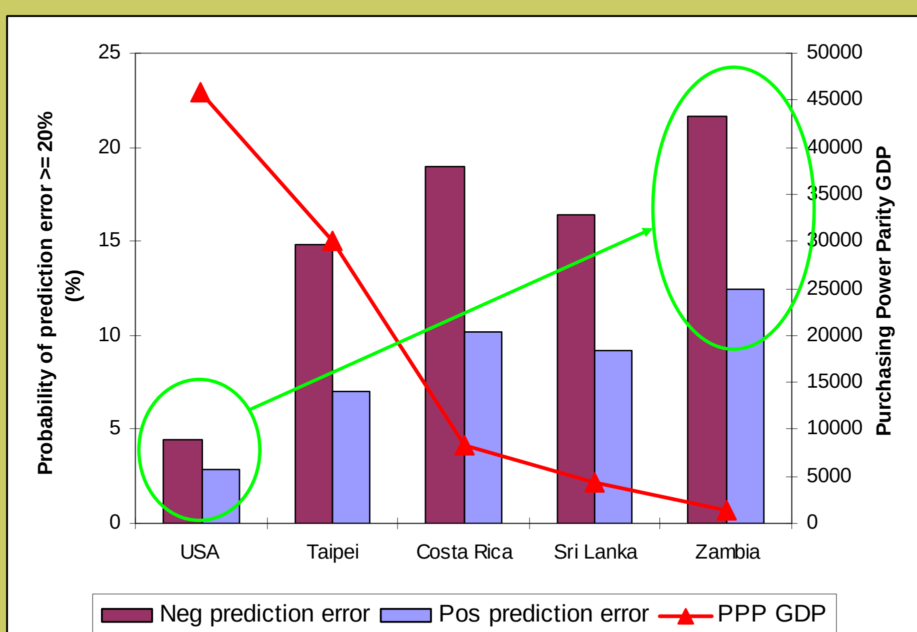
Source: Mwiinga, 2009

Probability of prediction error > 20%



Source: Mwiinga, 2009

Probability of prediction error > 20%



Source: Mwiinga, 2009

Drivers of change

- Urbanization
  - Highest rate in world
  - Urban pop to grow by 170% over 30 years
  - Urban share to rise above 50%
- GDP growth
  - 4.3% per year on average 2000-2005
  - ~ 2% per capita
- Together could drive > 5% per year increases in demand for fresh produce
  - Doubling in 14 years

Drivers of change (2)

- Falling costs and widening reach of mobile phones
  - Cell phone ownership in SSA 160m by 2006
  - > 50% farmers in Kenya owned cell phone in 2007
  - 25% in rural Zambia; 69% own or have access (2008)
  - 75% of tomato growers (nearly all smallholders) selling in Lusaka owned, 100% had access
  - Falling cost of service (SMS)
  - Money transfer services
    - Cross border transfer services being designed now
  - ***Huge, growing, and largely unexploited – and unresearched -- opportunity***

Knowledge gaps

- Comparative price behavior across countries
  - Level, variability, and predictability
  - Gross margins
  - Vertical information flow and its effects on price behavior
  - Role and impact of brokers on price behavior

Knowledge gaps (2)

- Wholesale market logistical efficiency
  - Enormous variability across countries
  - Need common metrics, link variation in these to variation in hard infrastructure and management approaches
- Market ownership and management models
  - Document the models
  - Relate them to objective performance indicators
  - Impact of legal framework on scope for greater private sector participation

Research & Investment Priorities

- The mobile phone revolution
  - Has already dramatically improved access to information on market prices
  - How can public investment add value?
- Improved production environments
  - Germplasm: help close huge yield gaps on exotics?
  - Can information through SMS on input availability and prices bring those prices down?
  - How to improve access to reliable technical information in absence of public extension?

Research & Investment Priorities (2)

- Improved hard infrastructure + improved mgmt models + service delivery
  - Especially at wholesale ➔ leverage points in system
  - Must be conceived jointly
  - How to ensure active private sector engagement
    - Avoiding white elephants
  - Does legislation need to be modified?
  - Learning from successes
    - South Africa
    - New markets in Tanzania developed in collaboration w/ national farmers' organization

Summing up

- Supermarkets not going away
  - But also not quickly transforming these systems
  - "Traditional sector" will dominate for many years
- Woefully inadequate investment in traditional systems
  - And increasing pressure from urbanization & GDP growth
  - Must redefine legal frameworks and roles of public sector
- Lack of comparative knowledge of market performance
  - Linked to programmatic investments
  - Need for performance metrics
  - Focus on wholesale level as leverage point

Summing up (2)

- The mobile phone revolution
  - Huge potential
  - Many unknowns ➔ research opportunities

Thank you!