Trade and Agricultural Competitiveness for Growth, Food Security and Poverty Reduction: A Case of Wheat and Rice Production

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Outline

- Background
  - Justification
  - Objective of the study
  - Data and Methodology
- Results
- Key Finding and Policy Options

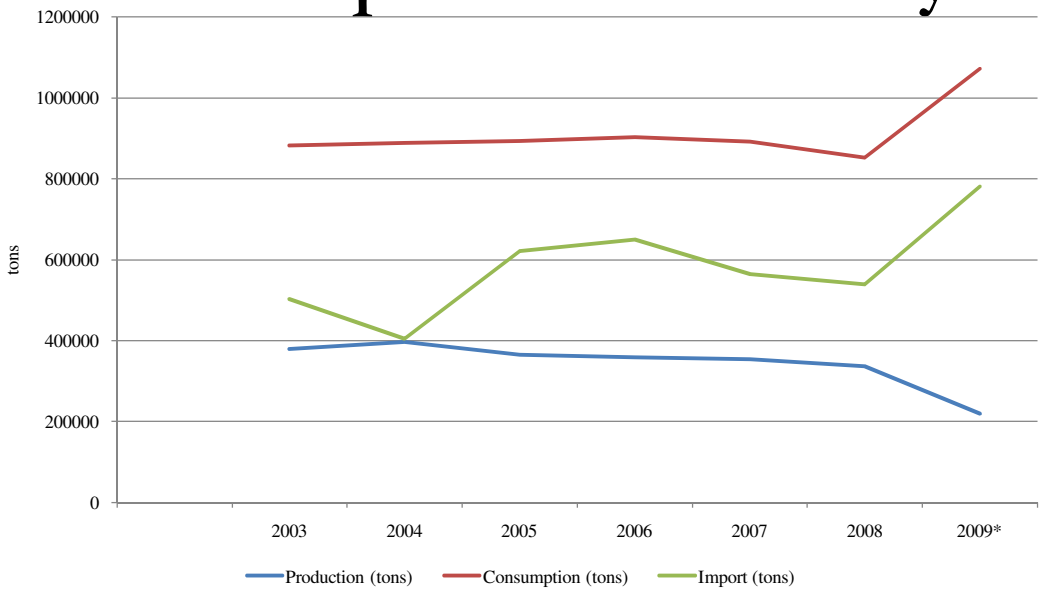
Why Wheat and Rice ?

- Wheat
  - Second most important staple after maize contributes 1.4% and 30% overall GDP and cereal GDP (Barasa, 2004)
  - Contributes over Ksh. 20 billion to the economy
  - Wheat sector employs 11.3% of the national population
  - Kenya only meets 40% of it requirement it has continued to faces structural deficit met through imports
  - Wheat and wheat products accounts for between 24% and 38% of total expenditure of main staples by urban households

- Rice
  - Third important staple after wheat
  - Kenya only meets 20% of it requirement it has continued to faces structural deficit met through imports
  - In the last six years consumption of rice has increased by 66%
  - Rice accounts for between 15% and 19% of total expenditure on staples in the urban households
  - The country has a potential of about 540,000 hectares for paddy rice and 1 million hectare for upland rice

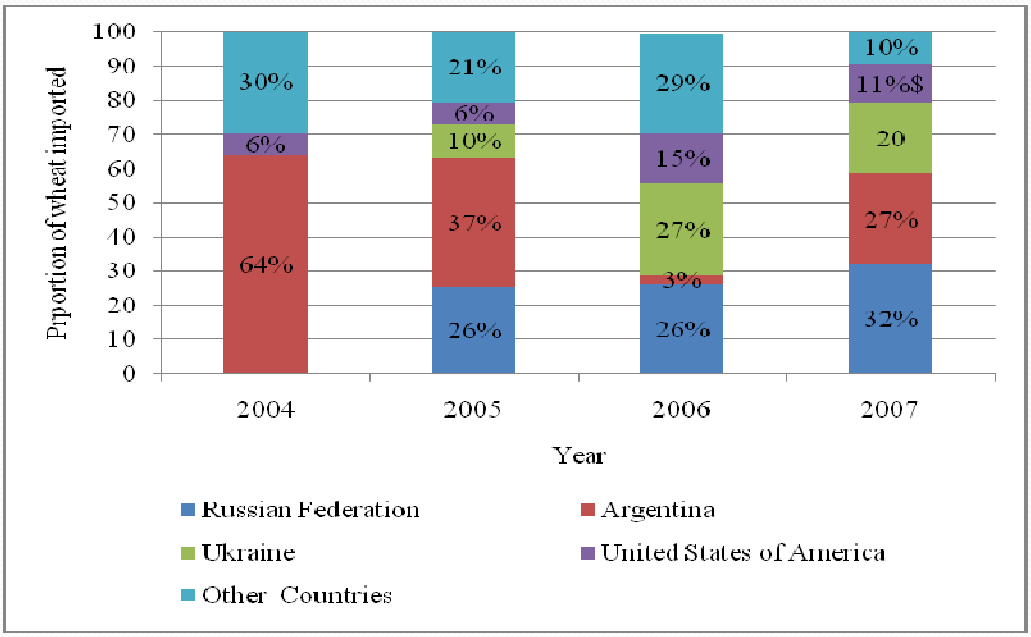
- **WHEAT**

Wheat production in Kenya



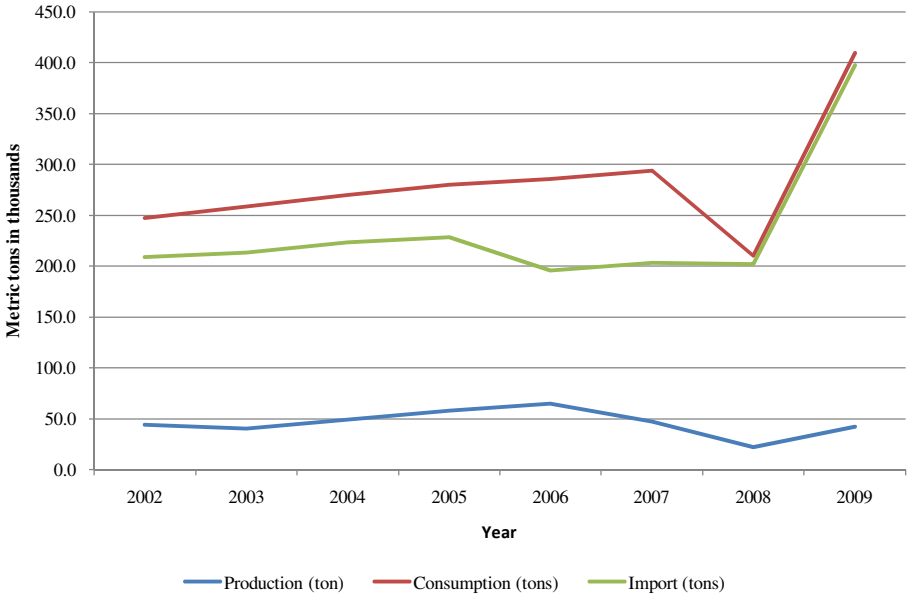
- Production of wheat declined between by 6%
- Consumption increased by 21%
- Importation increased by 58%
- Import expenditure increased by 128%

Proportion of total wheat imported to Kenya by country of origin



- **RICE**

Rice production in Kenya



- Slight decline in production by 6%
- Consumption increased by 66%
- Imports increased by 90%

Objective

- Establish cost of production at the farm level
- Establish where inefficiencies lies along the value chain
- Explore policy option that may address inefficiency along the value chain

Data

- Wheat farmer in Narok, Nakuru and Uasin Gishu (n=129)
- Traders and transporters along the wheat value chain(n=16)
- Rice farmers in Mwea and Ahero Schemes (n=40)
- Rice farmers in Mbale and Iganga in Eastern Uganda (n=20)
- Traders and millers along rice value chain in both Kenya (n=20) and Uganda (n=10)
- Tegemeo urban survey, 2009
- Import parity prices for wheat and rice

Methodology

- Production cost at the farm level
- Compute technical and efficiency scores
- Costs and margins along the value chain
- Comparing local cost versus import costs
- Evaluate competitiveness of locally produce wheat and rice compared to imports

- **RESULTS**

Cost of wheat production at farm level

Items	Efficient	Average	Least Efficient
Yields (90 kg bag)/acre	16	12	9
Price per bag	2,800	2,800	2,800
Gross Output	**44,800**	**33,600**	**25,200**
Cost of Production/acre			
Machinery operation	5,400	4,200	4,200
Seed fertilizers and chemicals	12,180	11,380	9,180
Labor cost	1,060	920	815
Harvesting costs	2800	2600	2450
Return to Capital	1,577	1,385	1,211
Land rent	4000	4000	4000
Transport to Nairobi	120	150	150
Total production cost	**27,137**	**24,635**	**22,006**
Cost per bag (own land)	**1,446**	**1,720**	**2,001**
Cost per bag (rented land)	**1,696**	**2,053**	**2,445**
Profit margin per bag (own land)	**1,354**	**1,080**	**799**
Profit margin per bag (rented land)	**1,104**	**747**	**355**

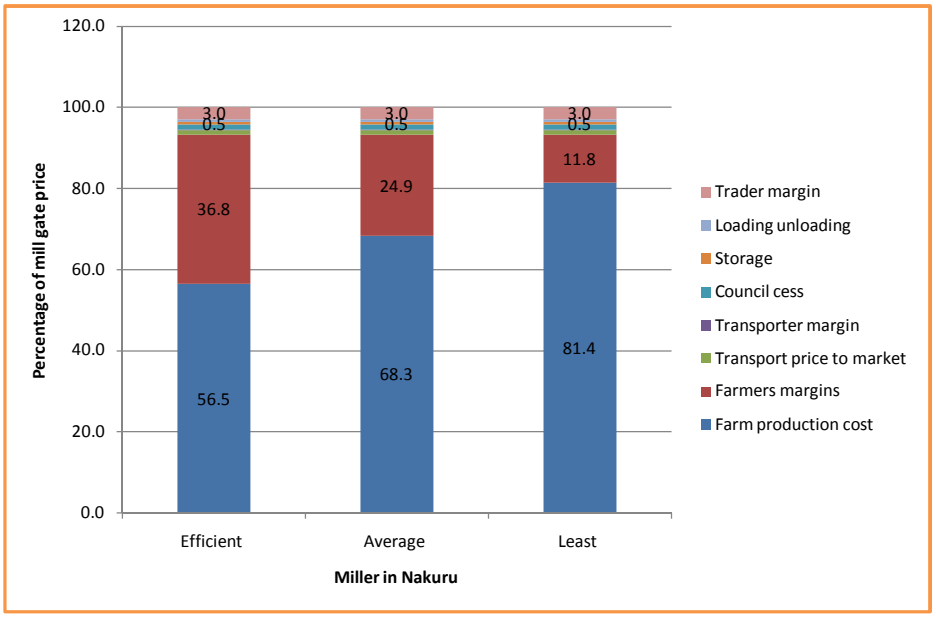
Wheat producers divided into 3 categories based on their efficiency scores ,Least efficient mean acres =7.5,Average mean acres=25 acres,Efficient producers =150

- The efficient farmers' cost of production per bag was 28% less than least efficient
- Yields for efficient producers was 78% higher compared to the least efficient farmers.
- Profits by efficient producers per bag was 55% more compared to least efficient farmers when producing on their own land.
- Where farmers were renting land the cost of production per bag increase by 17%, 19% and 22% while profit margin per bag declined by 16%,26% and 44% for the efficient, average and least efficient farmers respectively.

Cost component in wheat production

- Production costs
  - Input costs highest about 44% of total costs
  - Highly mechanized about 29% of total cost
- Marketing costs
  - Transporters
    - Variable cost constituted 75% of total costs
    - Overall fuel contributed 69% of the total costs
  - Traders
    - Council cess payment 38% of total costs
    - Transport charges 29% of total costs

Cost build-up from farm gate to miller



- Production cost accounts for 56%,68% and 81% of the mill gate price
- Margin made 37%,25%and traders 12%%

Competitiveness of domestically Produced Wheat

		Cost in Ksh/90 Kg bag		
Ex Us gulf	Landed price in Mombasa store		2,037	
July 2010	Landed price Nairobi (with 10% duty)		2,306	
	Landed price Nairobi without duty		2,143	
		Efficient	**Average**	**Least**
Domestic	Landed price Nairobi	1,696	2,053	2,445

- 10% import duty
  - Only efficient and average producers are competitive
- Zero rated
  - Only efficient and average producer are competitive with average producer having a slight margin
- By end of September the price of ton of wheat was US$ 310 thus landed price Nairobi with duty 2,982 and 2,758 without duty
  - All producers will be competitive at this price under the two scenarios
  - These prices are short term (due to export ban in Russia).

Inefficiencies along the wheat value chain

- Production
  - High cost of inputs (seed, fertilizer and chemical) contributing to 44% of total cost of production
  - Low yields, only 50% of the farmers interviewed used purchased seed, Over 21 varieties have been released by KARI , farmer interviewed growing 6 varieties.
  - Kenya heroe or yombi varieties -32 bag/acre cost will reduce 61% and at this price farmer would be competitive)
  - Wheat farming require mechanized operation (30% of total production costs-high cost of fuel, old machinery frequent maintaince-high cost of spare parts

- Transporters
  - high cost of fuel. From the survey fuel cost constitute 69% of the total transport costs
  - Poor state of the roads especially the roads connecting the farming communities to the markets
  - High maintaince costs-due top the poor infrastructure and age of the lorries transporter do undertake frequent repairs on their vehicles
  - Roads blocks- Delays in terms of time . Incurs bribe to pass through the road blocks
- Traders
  - Multiple taxation-payment of cess to various municipal council especially where wheat was transported through different municipalities.
  - High cost of transport-as a result of high fuel prices, poor states of the roa
  - Unharmonized licenses charges-by bo local and central government

- **RICE**

Cost of rice production at farm level

Item	Least efficient	Average	Efficient
Rice Yields (50 kg bags)	20	25	33
Price/bag	4,400	4,400	4,400
Gross output	**88,000**	**110,000**	**145,200**
Costs of production			
Land preparation	4,300	4,200	4,300
Seeds, Fertilizers and chemicals	12,500	13,150	13,410
Labor costs	17,900	18,100	18,950
Rent	25,000	25,000	25,000
Gunny bags	700	875	1,155
Transport from farm	1,000	1,250	1,650
Milling cost	2,000	2,500	3,300
Total cost	63,400	65,075	67,765
Overheads (10%) of total cost	6,340	6,508	6,777
Total cost of production per acre	**69,740**	**71,583**	**74,542**
Revenue per acre	**18,260**	**38,417**	**70,658**
Cost per bag	***3,487***	***2,863***	***2,259***
Revenue per bag	***913***	***1,537***	***2,141***

- Using MIAD input recommendation paddy producer were categorized into three group, least, average and efficient producers
- Efficient producers incurred 6% more cost per acre and got 33% higher yields to least efficient.Cost of producing a bag of milled rice was 54% lower and profit per bag was 57% higher for efficient producers compared to least efficient

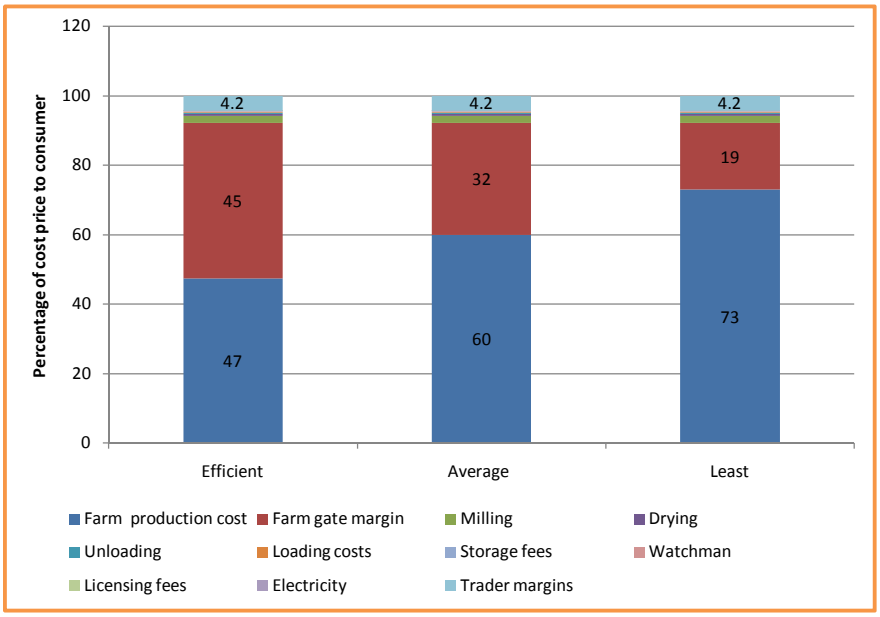
Comparison of production cost of NERICA between Kenya and Uganda

- Upland rice cost of production lower than paddy rice by 55%
- Comparison of NERICA rice production in Kenya and Uganda
  - In both country yields were 30 bags/acre
  - Kenya cost of production per acre was 21% higher compared to Uganda
  - Revenue per bag in Kenya was 9% higher compared to Uganda

Marketing Costs

- Traders
  - highest costs incurred by traders was milling costs
  - In both margins made countries
    - in Kenya 68% and 67% for both small and large scale traders
    - In Uganda 8% for the small scale traders
- Millers
  - Labour was the highest cost incurred in Kenya (50%) while in Uganda it was electricity (82%)
  - Millers in Kenya incurred 143% more overhead costs compared to their counterparts in Uganda

Cost build up from farm-gate to consumer through traders



- Cost of production lowest for efficient 47% and highest for the least efficient 73%
- Efficient makes the highest margin 45% and while least efficient margin was 19%

Competitiveness of domestically produced rice

Imported		Cost in Ksh.		
Pakistan rice	Landed price in Mombasa store 50 kg bag	3,014		
August 2010	landed price Nairobi (with 35% duty) 50 kg bag	3,146		
	Landed price Nairobi (without duty) 50 kg bag	2,445		
Domestic		**Efficient**	**Average**	**Inefficient**
	Cost of producing 50 Kg bag	2,259	2,863	3,487
	Transport to Nairobi 50kg bag	40	40	40
	Landed price Nairobi 50kg bag	2,299	2,903	3,527

- With a 35% import duty levied
  - only efficient and average farmers are competitive
- Zero rated
  - only the efficient farmers are competitive with a mark-up of 6%.
- If we were considering duty import before the reduction from 75%
  - import rice with duty landing Nairobi would have been Ksh. 3,970 thus all farmers would be competitive

Inefficiencies along the rice Value chain

- Production
  - Paddy rice production is labor intensive as most activities are done manually (contributing to 56% of total costs)
  - Increase prevalence rate of water borne diseases (malaria and bilharzias) in the schemes has affected the availability of labor force which is critical as rice production is labor intensive
  - High input costs-farmers don't use the recommended rate of application thus leading to low yields
  - Water rationing in schemes affecting production
  - Poor irrigation infrastructure requiring rehabilitation

- Traders
  - high cost of electricity-translating to high cost of milling
  - Labor use for drying-increase costs for trader this was common in Kenya
- Millers
  - high cost of electricity-high milling costs
  - Unutilized capacity-stiff competition many mills opened
  - High cost of maintaince-compound mills owned by millers (medium scale) were old. Thus broke down regularly interfering with operations as some of the spare parts were not easily sourced locally

Key Finding

- Wheat
  - High cost in producing wheat
  - Low wheat yields by producer about 1.98 tons/ha compared to Egypt 6 tons/ha
  - Inefficiencies along the value chain
  - Only efficient and average wheat producers are competitive at 10% import duty
- Rice
  - High cost of producing rice
  - High marketing costs especially milling
  - Inefficiencies along the value chain
  - Only efficient and average rice producer are competitive at 35% duty

Policy Options

- Inefficient wheat producers are uncompetitive they comprise of small scale farmers average acreage 7.5 who are majority
  - Increased investment in research and technology to develop high yielding and drought tolerant varieties
  - Promote for adoption by farmers high yielding varieties already developed –linkages between extension and research
- In long run if they don't produce wheat efficiently they can diversify to other high value crops
- In marketing, harmonization of cess paid to local authority
- Investment in irrigation infrastructure
- Investing in fertilizer production at the national or regional level

Policy Option cont'd

- Inefficient rice producers are not competitive
  - Increase funding in research and technology to produce high yielding varieties
- Campaigns to eradicate water borne diseases in the schemes
- Adoption of simple technology from Asia to assist in paddy production- reduce costs of labor , pressure on availability
- In reducing marketing costs invest in alternative and cheap source of energy-solar, wind
- Investing in processing, branding and marketing activities in the rural rice growing to create employment opportunities

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