Fresh Fruit and Vegetable Consumption Patterns and Supply Chain Systems in Urban Kenya: Implications For Policy and Investment Priorities

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Road Map

- Introduction
- Data and methods
- Consumption patterns
- Shopping patterns and Supply chain systems
- Implications for government and donor policy and investments

Introduction

- Most attention to date has been on export horticulture
  - But domestic system is much larger
    - 4-5 times larger in value; 88% of production is consumed domestically
    - 70% of farmers sell fresh produce, but only 2% do so for export
- Within domestic, most attention to:
  - Production issues
  - "Rapid growth" of supermarkets
- Less attention to:
  - Traditional channels
  - Consumption issues

Introduction (2)

- We provide information on
  - Consumption patterns for FFV in Nairobi
  - Shopping patterns of consumers
  - Relative importance of alternative channels, now and over next 10 years
- Implications for government and donor policies and investments

Data and Methods

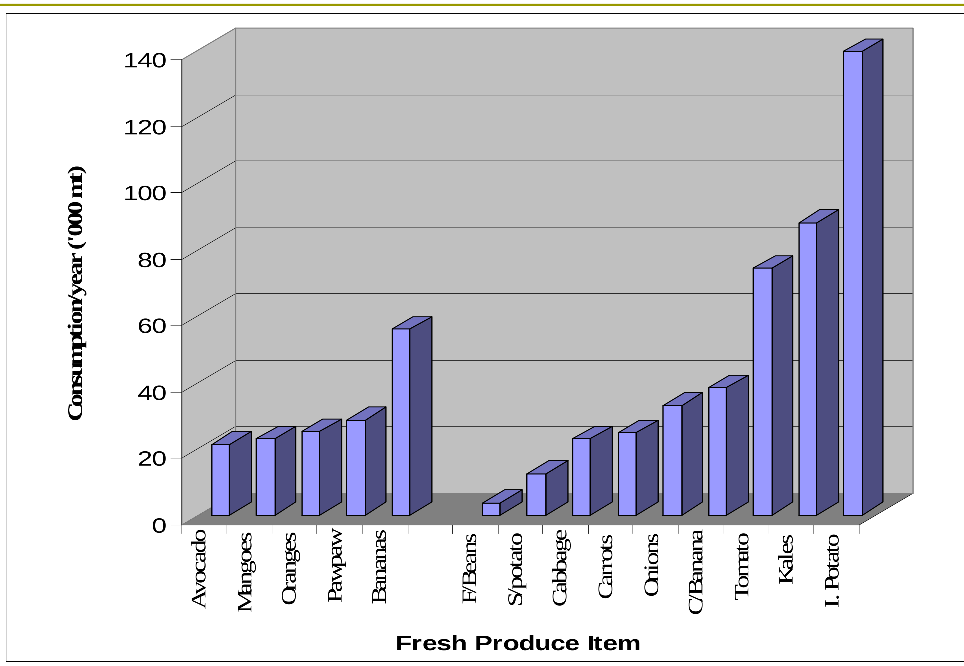
- Urban consumer survey in Nairobi (N=542; statistically weighted)
- Nairobi retail trader survey (N=143)
- Wholesale market monitoring survey
  - Flow of commodity into four wholesale markets in Nairobi, December and March

Consumption Patterns

- Most consumed FFV items
- Income and expenditure on food groups
- Urban FFV consumption and WHO/FAO standard

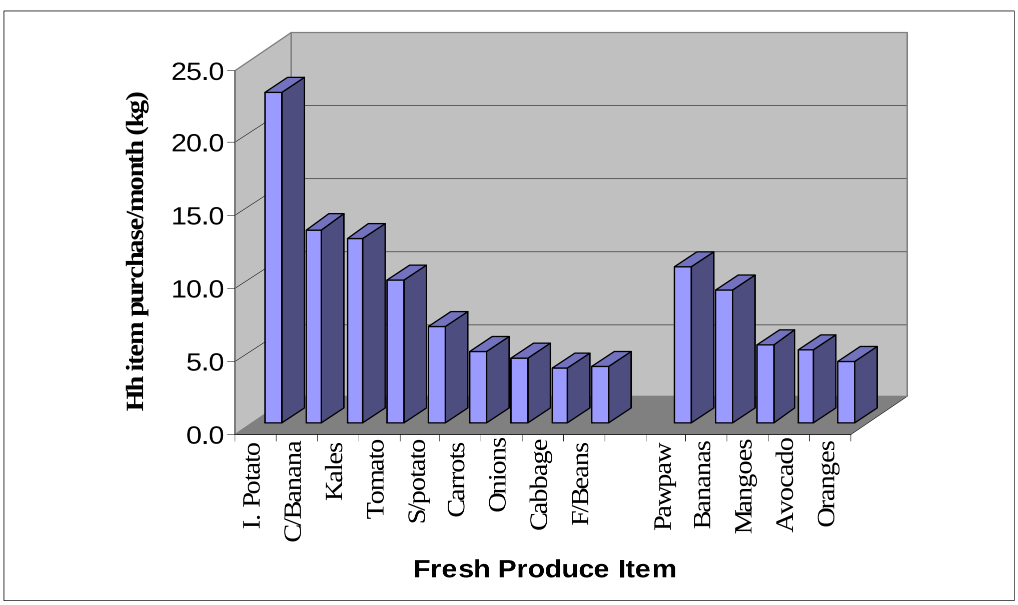
Market Level

Estimated Total Annual Consumption of Selected Fresh Fruits and Vegetables in Nairobi, October 2003



Household Level

Estimated Monthly Consumption per HH of Selected Fresh Fruits and Vegetables in Nairobi, October 2003



* Among those consuming

FFV Expenditure by Income Level

Overall Share of Major Food Groups in Total Basic Food Expenditure per adult equivalent Income Quintile in Nairobi

Per Adult Equivalent Income Quintile	Mean Monthly AE Income	*Food Category*			
		Staples	Dairy	Meat and eggs	Fruits and Vegetables
		-------------% of Total Expenditure of over 40 food items------------			
1	749	37.2	18.6	17.6	26.7
2	1,890	37.6	17.0	19.0	26.4
3	3,314	34.6	18.9	19.0	27.5
4	5,599	32.0	17.8	23.8	26.4
5	23,654	30.1	19.7	27.5	22.7
Total	7,039	34.3	18.4	21.4	25.9

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This share is relatively steady as income rises. But does this vary by item?

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Overall share of vegetables, fruit, and potatoes in total HH expenditure on "Basic Foods", by Income/AE quintile

Per AE Income Quintile	Mean monthly Income per AE	% Share of Food item		
		Vegetables	Potato [a]	Fruits
1	749	17.1	2.8	6.5
2	1,890	15.8	3.2	7.3
3	3,314	17.3	3.2	6.9
4	5,599	15.2	2.3	9.1
5	23,654	11.0	2.5	9.1
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Vegetables share declines as fruit share increases; potato share steady across the income quintiles

Percent consumers below the WHO/FAO fruit and vegetable Consumption Levels by AE income quintiles

Per Adult Equivalent income Quintile	*Per Adult Equivalent Income (Ksh)*	*% of consumers below WHO/FAO Recommended level of consumption*		
		Fruit Consumption	Vegetable Consumption	Overall FFV* Consumption
1	749	70	53	51
2	1,890	64	56	53
3	3,314	62	41	45
4	5,599	43	35	32
5	23,654	33	44	32
Total	7,039	55	46	42

As income increases, consumers tend to move closer towards WHO/FAO targets

Summary of FFV Consumption Patterns

- Expenditures on fruit, potatoes, and vegetables all rise with income
- But fruit rises much more rapidly
  - Greatest potential for growth over time
- Further econometric analysis shows:
  - Years of education of household head has positive effect on fruit and meat purchase
  - Female headedness has positive effect on fruit and dairy purchase and through these two, on overall basic food
    - Importance of nutrition education and awareness
- Nearly 600,000 MT of fresh produce through markets
  - Where is this purchased?

Shopping Patterns: Where and How FFV is Purchased

- Diversity of shopping patterns
- Retail shares of various channels
- Wholesale market shares

How do Consumers Shop? Frequency of Number of Retail Outlet Types Used during past Month, by Food Group

Number of Retail Outlet Types Used Last Month	Food Group				
	All Food Items	Staples	Dairy Products	Meat and Eggs	Fresh Produce
	% of Households				
1	0.2	21.6	83.9	23.5	58.6
2	5.7	48.0	15.2	55.2	34.6
3	19.9	28.7	0.8	21.3	6.8
4	41.7	1.6	0.2	0.0	0.0
5	24.0	0.0	0.0	0.0	0.0
6	7.9	0.0	0.0	0.0	0.0
7	0.7	0.0	0.0	0.0	0.0

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Over 90% households used two outlets or less for their fresh produce purchases – less diversity

Who Shops Where for FFV? FFV Market shares of various retail outlet types, by quintile of income per AE

Per AE Income Quintile	Mean Income per AE (Ksh)	Market Outlet							
		Super-market Chain	Small Super-market	Duka	Open Air Market	Kiosk	Hawker	Green Grocer	Total
		---------------- % of total FFV expenditure ----------------							
(lowest)	749	0.0	0.1	0.2	54.7	41.5	3.6	0.0	100.0
	1,890	0.0	0.0	1.3	60.6	34.4	3.7	0.0	100.0
	3,314	0.4	0.7	0.0	60.7	36.4	1.8	0.0	100.0
	5,599	1.7	0.1	0.3	59.5	38.0	0.4	0.0	100.0
(highest)	23,654	13.7	0.4	1.3	47.8	32.6	2.4	1.7	100.0
Overall	7039	4.4	0.3	0.7	56.1	35.9	2.2	0.5	100.0

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Despite relative specialization by individual households, at least 7 outlet types sell FFV

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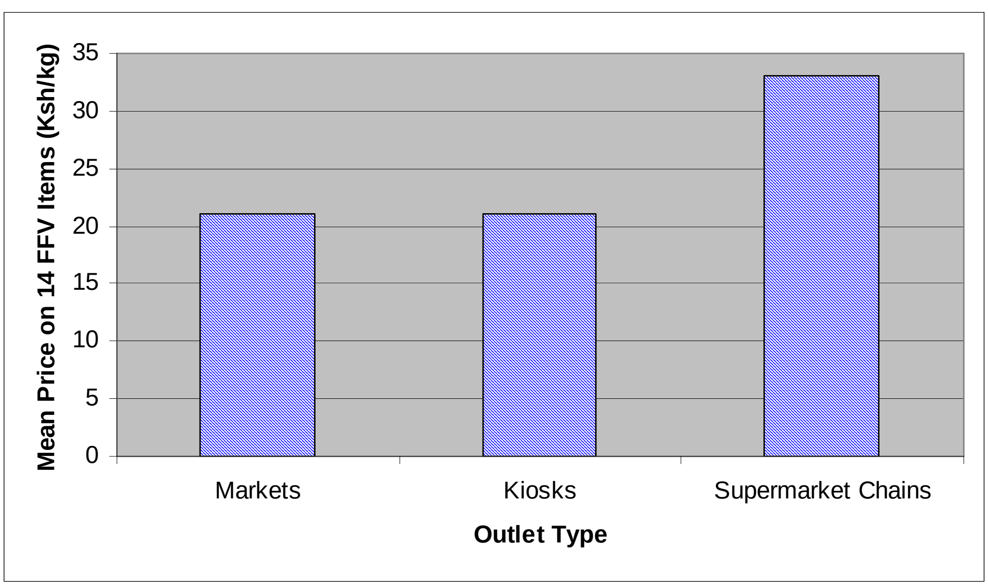
… but open air markets and kiosks dominate … … over all income groups

Why are traditional marketing channels preferred by urban consumers?

Prices are much lower



Why are traditional marketing channels preferred by urban consumers? (2)

- Locational convenience
  - Fewer than 20% of consumers in Nairobi own a car or a refrigerator
  - So need to make small, regular purchases in places easily reached
- Product diversity and perceived freshness
- Related services
  - Credit
  - Purchase delivery
  - Slight value addition

Growth Scenarios

- Traditional channels currently have >95% share in Nairobi, 98% nationally
- What about in 10 years?
  - For this share to fall to 90%, supermarket FFV sales would have to grow 22% per year in real terms for a decade
  - To fall to 80%, supermarket sales would have to grow 31% per year in real terms
- Growth in supermarket FFV sales over past 5 years has been much lower than this, despite somewhat rapid overall growth

Traditional markets will hold a dominant FFV market share for the foreseeable future …

… and they have real problems that need to be addressed

Challenges in Traditional Markets

- In both wholesale and retail markets:
  - Very poor hygiene
    - Recent cleaning of Wakulima and Gikomba
  - Tremendous congestion
  - Lack of security
  - No public market information
  - Lack of transparent grades and standards
- At wholesale, has lead to diversion of product out of Wakulima

Wholesale market shares of various fresh produce items in selected wholesale market outlets in Nairobi, December 2004 – March 2005

Fresh Produce Item	*Average Daily Quantity Entering all Markets (tons)*	*Share of market in commodity delivery (%)*			
		Wakulima	Gikomba	Kibera	Kangemi
Irish potatoes	348	**95**	1	3	2
Cabbage	57	**45**	26	3	25
Tomatoes	51	8	**76**	5	12
Carrots	44	**99**	<1	<1	1
Bananas	39	15	**77**	1	6
Onions	36	**98**	<1	1	1
Mango	27	**85**	1	4	9
Sukuma wiki	16	5	**65**	16	15
Oranges	8	**100**	<1	<1	<1
Total (tons)	666	491	117	21	40
Total (%)	100%	74%	18%	3%	6%

Key Points on Wholesale Markets

- Wakulima still the largest, but …
  - Substantial diversion to Gikomba
    - It dominates for some products
  - These data account for only about one-half of all fresh produce consumed in Nairobi
    - Perhaps 1/3 goes direct to retail markets from farmers
    - Small scale wholesaling in many other markets, bypassing Wakulima
- All this a reflection of problems listed earlier

Implications

- Evidence suggests that traditional marketing channels will continue to carry the vast majority of fresh produce for the foreseeable future
- So the performance of these channels will be the key determinant of real prices and quality of fresh produce for consumers
- To increase fresh produce consumption in quantity and quality, we must invest in these channels

Implications (2)

- Invest in wholesale and retail (and assembly) market places
  - Keep them clean
  - Improve traffic flow
  - Simple value-added (washing, slicing & dicing, packaging)
- Market information, grades & standards, packaging
  - Extension throughout the chain
- All of this takes time, information, consensus among players, and money

Implications (3)

- Invest in a ***decision making process*** informed by applied research
  - A ***partnering approach*** with public officials (including municipal authorities), traders, farmers, donors, NGOs
    - Supply chain development task force