Food and Energy Demand: African Situation and Outlook

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Outline

Introduction: Global Demand and Africa

Africa’s Impact on World Food Demand
  Population
  Income
  Scale

World Food Demand’s Impact on Africa
  Economic
  Political
  Humanitarian

Conclusions:
  Alternative Scenarios
Global Demand

Recent price shocks were attributable to:

- Growing demand for Feed and Fuel in China
- Biofuels demand
- Poor Harvests in various countries
- Exacerbating effect of export restrictions

Will Africa contribute to demand shocks in the future?

Source: World Bank data and staff estimates
Africa’s Impact on Global Demand

Cereal Demand In Africa will be for food, not fuel (nor feed).

Energy demand remains low in Africa given low levels of income and industrialization.
Cereal Demand in Africa: Not for Fuel

Per capita energy use (Kg Oil equivalent)

Urbanization, Industrialization and Income Growth => increased energy use in China, not Africa

Source: World Bank, World Development Indicators
Per Capita Energy Use (Kg Oil Equivalent)

Source: World Bank, World Development Indicators
Cereal Demand in Africa: Food and Feed

Demand for food is driven by

Population
And
Income
Cereal Demand in Africa: Population

Does Africa’s projected population growth imply a demand shock in future?
## Projected Population Growth
(U.N. medium projections)

<table>
<thead>
<tr>
<th>Region</th>
<th>2007</th>
<th>2050</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>6,671</td>
<td>9,191</td>
<td>+ 38% (2.5 billion)</td>
</tr>
<tr>
<td>Africa</td>
<td>965</td>
<td>1,998</td>
<td>+ 107% (1 billion)</td>
</tr>
<tr>
<td>Asia</td>
<td>4,030</td>
<td>5,266</td>
<td>+ 31% (1.25 billion)</td>
</tr>
<tr>
<td>Latin America</td>
<td>572</td>
<td>769</td>
<td>+ 34%</td>
</tr>
<tr>
<td>North America</td>
<td>339</td>
<td>445</td>
<td>+ 31%</td>
</tr>
<tr>
<td>Europe</td>
<td>731</td>
<td>664</td>
<td>- 9%</td>
</tr>
<tr>
<td>China</td>
<td>1,300</td>
<td>1,484</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>1,130</td>
<td>1,600</td>
<td></td>
</tr>
</tbody>
</table>

Population Growth likely to be in Africa
African population likely to exceed China’s and India’s
Africa now the second most populous continent, and most rapidly growing.
Cereal Demand in Africa: Income

Population growth of 2% a year implies increased demand,

But income growth can be much greater than 2% a year and imply much greater increases in demand.

Poverty means low effective demand
Cereals Demand: Income

Per capita income (2005 PPP $)
Cereal Demand: Income

75% of the population earning less than $2/day
In most African countries
Cereals Demand: Income

At Incomes under $2/day...

Caloric needs are not reliably met

Diets are concentrated on starchy staples

Additional population implies little added

Food consumption

One week of food
For a poor family in Chad

Image from:
http://www.time.com/time/photogallery/0,29307,1626519_1373664,00.html
Cereal Demand: Income

• Income Growth over $2 => diets diversify, animal products are consumed
• Feed demand grows
• And markets are affected...
Mexico: The Casales family of Cuernavaca Food expenditure for one week: $189.09
Favorite foods: pizza, crab, pasta, chicken

Ecuador: The Ayme family of Tingo Food expenditure for one week: $31.55
Family recipe: Potato soup with cabbage

Images from:
http://www.time.com/time/photogallery/0,29307,1626519_1373664,00.html
Cereal Demand: Income Growth

**CHINA’S GROWTH**

China’s economic growth is outpacing that of the United States and other developed nations.

Growth in gross domestic product, compared with the year-ago quarter

- **March 2000**
  - China: 8.1 percent
  - U.S.: 4.1 percent

- **June 2006**
  - China: 11.3 percent
  - U.S.: 3.6 percent

Source: Bloomberg News

**China’s meat consumption set to grow further**

Meat consumption per person per year, kg

- **USA:** 130 kg/person in 2005
- **China:** 50 kg/person in 2005

Source: USDA
Derived Demand for Feed Grain

Change in diet (from starchy staples to diverse)
Plus change in livestock production (from range to feedlot)
(3 to 8 kg feed for a kg of meat)
Leads to rapid growth in total demand for grains
often out-stripping supply

Derived Demand for Grain: Income

China’s economy grew at 7 to 12% for last 10 years.
Recent income growth in Africa (< India China), but sustainability in question.
Investment low, deficits high, industrialization not pronounced.
Resource based
Cereal Demand in Africa: Not For Feed

Calories Per Capita from Animal Products

Source: FAO, Food Balance Sheets
Cereal Demand in Africa: Not For Feed

Source: FAO, Food Balance Sheets
Cereal Demand in Africa: Not For Feed

Cereals used for animal feed, 1000 MT

Source: FAO, Food Balance Sheets
Cereal Demand in Africa: Not For Feed

Cereals used for animal feed, 1000 MT

Source: FAO, Food Balance Sheets
Feed to Food Ratio: Cereals

African demand is for FOOD, not FEED.

Source: FAO, Food Balance Sheets
Cereals Demand: Scale

Africa remains a small and shrinking part of global Cereals Demand Cereals Trade
Africa’s Share of World Agricultural Trade

Just 2-3 percent and not changing much

Source: FAO: Tradestat
China’s Share of World Agric Trade

Source: FAO: Tradestat
Africa and Global Food Demand

Because of its

• Small scale in world markets
• And low income

Africa is unlikely to drive global food demand shocks in the near future

But, Africa remains highly vulnerable to such shocks
Global Food Demand and Africa

Widespread poverty

⇒ Food is a large share of household budgets (60-75% of expenditures)

⇒ Demand shocks caused externally are felt deeply in Africa
Global Demand and Africa: Political Impacts
Global Food Demand and Africa: Macroeconomic Impacts

Role of Net Food Trade in Food Consumption *
2003 - 05

Source: FAOStat
Global Food Demand and Africa: Macroeconomic Impacts
Global Food Demand: Household Impacts

Budgets of the poor are dominated by food.

Diets of the poor are dominated by staples with low micronutrient quality.

Poverty => Malnutrition

Global Food Demand and Africa: Human Costs

Increasing grain prices mean
- Real incomes fall
- Diets get less diverse
- Micronutrient malnutrition worsens
- Economic and human losses grow

10% increase in food price => 9% fall in real income in Nigeria, 3% fall in real income in USA.

Pinstrup-Andersen, Per (1989) “Macroeconomic adjustment policies and human nutrition: available evidence and research needs.” International Food Policy Research Institute, Washington, D.C., USA
Conclusions

Africa not likely to Affect Global Food Demand
Africa Affected by Global Food Demand

3 Scenarios...
Conclusions: 3 scenarios

1. Global Cereal Demand Stops Growing
   Would only occur if global economy stagnates.
   Absence of economic growth would imply greater poverty (and hunger) in Africa.
Conclusions: 3 scenarios

2. Global Cereal Demand Continues Growing in scale and volatility.
Would occur if we have:
   Global economic recovery and growth
   Continued link to petroleum via biofuels.
Would imply increasing prices and price volatility undermining economic and human development in Africa.
Conclusions: 3 scenarios

3. Global Cereal Demand Continues Growing in scale and volatility AND is outpaced by growing Supply

Would occur if we have:

- Global economic recovery and growth,
- Continued link to petroleum via biofuels,
- And

Technology change to sustainably raise cereal yields globally. (...plus institution and infrastructure for access)
Conclusions: 3 Scenarios

Food Security in Africa may require the world achieve scenario number 3.

Thanks.