The Wheat Value Chain and Food Security in the Middle East and North Africa

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Center on Globalization, Governance and Competitiveness

Duke University Food Working Group
February 4th, 2015
Agenda

• Who we are
• GVC methodology
• Project overview: A Global Value Chain Analysis of Food Security and Food Staples for Major Energy-Exporting Nations in the Middle East and North Africa (MENA)
• Wheat value chain and food security in MENA
• Egypt case study
• Next steps
Who We Are

1. Global Value Chains & Development
2. Environment
3. Agriculture, Food & Health
4. NC in the Global Economy
5. Global Engineering & Entrepreneurship
6. Nanotechnology

Skills for Upgrading:
Workforce Development and Global Value Chains in Developing Countries

Research Reports
Nicaragua and the Apparel Value Chain in the Americas
This report explores how U.S. regional textile and apparel manufacturers are linked to the U.S. Industry through textile exports and apparel imports and the role of trade legislation in the past, present and future of the industry in Nicaragua and the United States.

View Report

The Economic Impact of the High Point Market
The Center on Globalization, Governance & Competitiveness at Duke University was engaged by the High Point Market Authority (HPMA) to conduct a comprehensive economic and fiscal impact of the High Point Market located in High Point, NC.

View Report

Highlights
Global Value Chain Analysis:
A Primer

Wheat Value Chains and Food Security in the Middle East and North Africa Region
August 2013
Ghada Ahmed
Danny Fennick
Andrew Giten
Ajamil Abdulmassed
Gary Gereffi

Cultural Value Chains in the Mexican Valley of Mexico
Main Producers and Buyers

Latest CGGC Videos
Gary Gereffi - COMEX Costa Rica 2013
View More Videos
Agri-food Value Chains
The GVC Approach

**Top down** – the global economy with a focus on lead firms and inter-firm networks, using varied typologies of industrial “governance”

**Bottom up** – a focus on countries and regions, which are analyzed in terms of various trajectories of economic and social “upgrading” or “downgrading”
GVC Analysis

- Trace the *geographic spread* of production
- Map the *competitive ecosystem* of firms
- Conduct *stakeholder analysis* of firms & organizations
- Analyze *governance structures* & enabling environment
- Identify *upgrading trajectories and bottlenecks*
Minerva Project Overview

- **Multi-year project** supported by US Dept. of Defense MINERVA Initiative and Army Research Office for University-Led Research
- **Collaboration with the Nicholas School of the Environment** to study food security in the Middle East and North Africa (MENA)
- **Rank food security of MENA countries** based on multiple variables and data sources
- **Apply GVC approach to identify vulnerabilities and leverage points** in key food commodities in MENA countries
- **Identify risks and strategic options** to improve food security in the region
What does the literature tell us about Food Security in the Middle East and North Africa?
Impact of Food Price Increases on Trade Balance (2007-2008)

Crop Prospects and Food Situation, April 2008 FAO.
### MENA Country Typology and Level of Food Insecurity

<table>
<thead>
<tr>
<th>Resource-Poor Labor Abundant</th>
<th>Resource-Rich Labor Abundant</th>
<th>Resource-Rich Labor Importing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comoros</td>
<td>Yemen</td>
<td>Libya</td>
</tr>
<tr>
<td>Djibouti</td>
<td>Syria¹</td>
<td>Bahrain</td>
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<tr>
<td>Mauritania</td>
<td>Algeria</td>
<td>Kuwait</td>
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<td>Somalia</td>
<td>Sudan</td>
<td>Oman</td>
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<tr>
<td>West Bank and Gaza</td>
<td>Iran</td>
<td>Qatar</td>
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<tr>
<td>Egypt</td>
<td>Iraq²</td>
<td>Saudi Arabia</td>
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<tr>
<td>Jordan</td>
<td></td>
<td>United Arab Emirates</td>
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<tr>
<td>Lebanon</td>
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<tr>
<td>Morocco</td>
<td></td>
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<tr>
<td>Tunisia</td>
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<tr>
<td>Israel*</td>
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</tbody>
</table>

Food Security is measured as total exports divided by food imports and food production per capita. Low Risk is defined as having one or both measures above global average. Moderate risk is defined as having one or both below global average. Acute risk is defined as one or both measures less than 50% the global average.

1 Syria’s food insecurity is acute due to the current civil war
2 Data not available

Source: CGGC based on data from world Bank Development Indicators and Breisinger et al, 2010
Different regions within MENA rely on different countries as their leading source of imported wheat. Depending on the country, these relationships have persisted since 2007.

- **Morocco** has imported **9.3%** of MENA’s wheat since 2007.
- **Algeria** has imported **16.6%** of MENA’s wheat since 2007.
- **Mauritania** has imported **No stickiness** of MENA’s wheat since 2007.
- **Egypt** has imported **25.9%** of MENA’s wheat since 2007.
- **Russia**
- **France**
- **Australia**
- **No stickiness**
- **Iran**
- **Iraq**
- **Syria**
- **Saudi Arabia**

**SOURCE:** FAO, total tonnage of wheat exported
What does the Wheat Global Value Chain Analysis add to Food Security Dialogues?
Wheat Global Value Chain

**Inputs**
- R&D
- Land
- Water
- Seeds
- Fertilizer
- Pesticide
- Machines
- Labor

**Production**
- Soft, Hard, Durum wheat
- Smallholders
- Large farms

**Processing**
- Elevators
  - Cleaning
  - Drying
  - Blending
  - Storage
- Mills
  - Flour Milling
  - Packaging
- Feed Milling
- Logistics

**Marketing**
- Bakeries
- Supermarkets & Grocers
- Food manufacturers
- Wholesale
- Livestock production

**Supporting activities and institutions**
- Government Regulations
- Futures Trading
- Food aid
- Trade Policies
- Financial Intermediaries
- Infrastructure

**Domestic**
- Offshore production

**Trade**
- Trading companies
### Key Risk Factors Affecting Food Security in MENA

<table>
<thead>
<tr>
<th>Productive Capacity</th>
<th>Infrastructure &amp; Services</th>
<th>Business Environment</th>
<th>Trade &amp; Investment Policy</th>
<th>Institutional Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>Transportation</td>
<td>Country &amp; regional stability</td>
<td>Trade policies</td>
<td>Public-private coordination</td>
</tr>
<tr>
<td>Water</td>
<td>Storage</td>
<td>Public governance</td>
<td>Foreign reserves</td>
<td>Subsidies &amp; price controls</td>
</tr>
<tr>
<td>R &amp; D</td>
<td>Ports</td>
<td>Grain tenders</td>
<td>Market access</td>
<td>Monitoring &amp; accountability</td>
</tr>
<tr>
<td>Access to inputs</td>
<td>ICT</td>
<td>Access to finance</td>
<td>Export-import procedures</td>
<td>Marketing</td>
</tr>
<tr>
<td>Agricultural Policies</td>
<td>Energy</td>
<td></td>
<td>Border transit times</td>
<td></td>
</tr>
<tr>
<td>Standards &amp; certifications</td>
<td>Government Coops</td>
<td>Industry specific policies</td>
<td></td>
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</tbody>
</table>

#### Government Control
## Primary Ownership across Wheat GVC

<table>
<thead>
<tr>
<th></th>
<th>Inputs</th>
<th>Farms</th>
<th>Elevators</th>
<th>Mills</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
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<tr>
<td>Iran</td>
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<tr>
<td>Saudi Arabia</td>
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<tr>
<td>Syria</td>
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<td></td>
<td></td>
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<tr>
<td>UAE</td>
<td></td>
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</tbody>
</table>

**Ownership characteristics:**

- State
- Private
- Both
Lead Firm Capabilities

70-90% of grains traded internationally are managed by the ABCDs

ADM
Bunge
Cargill
Louis Dreyfus
Glencore

Financial Services
- e.g. credit and derivatives

Input Suppliers
Grain Farms
Grain Traders
Grain Facilities, logistics & Terminals
Bulk Grain Buyers
Grain Millers
Processors

Source: CGGC based on company reports, literature review & interviews
Wheat GVC Governance in MENA

Global traders drive the flow of wheat & are involved in most of the VC

Governments influence the chain through policy, grain standards, subsidies, marketing & trade but highly depend on traders

- TNCs: strong
- Government Agencies: weak
How is the CGGC applying the GVC in country cases studies?
EGYPT CASE STUDY

Bread, Freedom and Social Justice
EGYPT GVC 2000s and 2013

**2000s**

- **Production**: Small & Medium Farms
  - 8 million tons
- **Processing**
  - Storage: 6 months
  - Mills
- **Consumption**
  - **Bakeries**
    - < $.01/ loaf (govt. subsidized price)
    - No enforcement of rationing at 7 loaves
  - Storage <3 months
  - **Currency Reserves**: $36 billion
  - Importing 10 million tons
  - Available bread $0.7/loaf

**2013**

- **Production**: Small & Medium Farms
  - 9.5 million tons
- **Processing**
  - Storage <3 months
  - Mills
  - Importing 4 - 5 million tons
- **Consumption**
  - **Bakeries**
    - Bread rationing at 3 loaves
    - 5.5% price increase in wheat flour
    - 2.3% price increase in bread
    - Available bread $0.7/loaf
  - **Currency Reserves**: $18.9 billion
  - Red: Acute disruption points in wheat GVC
Egyptian Bottlenecks and Leakages

**Inputs**
- Resource Scarcity
  - Water
  - Seed
  - Fertilizer

**Production**
- Market Access
  - Aggregators
  - Diverted Utilization
  - Lack of technology

**Processing**
- Infrastructure Deficit
  - Storage
  - Transport
  - Mills

**Marketing**
- Lack of Transparency
  - Black Market
  - Monitoring
  - Bread Weight

*Inputs:* Resource Scarcity - Water, Seed, Fertilizer

*Production:* Market Access - Aggregators, Diverted Utilization, Lack of technology

*Processing:* Infrastructure Deficit - Storage, Transport, Mills

*Marketing:* Lack of Transparency - Black Market, Monitoring, Bread Weight
Egyptian Bottlenecks and Leakages

Inputs
- Resource Scarcity
  - Water
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  - Fertilizer

Production
- Market Access
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Processing
- Infrastructure Deficit
  - Storage
  - Transport
  - Mills

Marketing
- Lack of Transparency
  - Black Market
  - Monitoring
  - Bread Weight
Egyptian Policy Response

Lack of Transparency

- Black Market
- Monitoring
- Bread Weight

Marketing
Next Steps

• Research:
  – Black Sea Wheat GVC: Russia, Ukraine & Kazakhstan
  – MENA Corn GVC
  – Food security in Maghreb countries

• Working Papers:
  – Food Security and Wheat Value Chains in MENA
  – Shifting Governance Structures in the Wheat Value Chain: Implications for Food Security in the Middle East and North Africa
  – Egypt Case Study

• 2015 Middle East Dialogue Conference in Washington DC
Questions?

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