Farm Foundation Forum

China's Future Economic Performance in Agriculture

Colin Carter, UC Davis, Mar. 2012
Overview of China’s Ag

- China is world’s largest agric. economy & #1 producer of pork, wheat, rice, tea, cotton, fish, etc.
- Farms are very small (approx. 1 acre).
- Almost 300 million workers “remain” in agriculture.
- Highly intensive use of labor, water & fertilizer.
- Most farmers remain poor (per capita < $1,000/yr).
- After joining WTO in 2001, China has played a greater role in the world agric. trade.
- Food self-sufficiency remains a policy priority.
China’s Share of World Food Production: 2009

- Pork
- Tobacco
- Eggs
- Fruits & Vegetables
- Cotton
- Rice
- Wheat
- Corn
- Chicken
- Beef
- Soybeans
- Milk
- Population
- Cultivated Land

Source: compiled from FAO data.
Average Annual Growth Rates: China’s Agric. & Components: 1978-2009

Source: NBS, China Statistical Yearbook 2010
Share of Agric. Output Values

Shift from low value to high-value agriculture

Source: NBS, China Statistical Yearbook 2010
# Food Consumption in China (kg/capita)

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
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<tbody>
<tr>
<td>Food Grain</td>
<td>130.7</td>
<td>77.0</td>
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<tr>
<td>Vegs.</td>
<td>138.7</td>
<td>118.6</td>
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<tr>
<td>Edible Oil</td>
<td>6.4</td>
<td>9.3</td>
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<tr>
<td>Meat</td>
<td>25.2</td>
<td>32.8</td>
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<tr>
<td>Eggs</td>
<td>7.3</td>
<td>10.4</td>
</tr>
<tr>
<td>Fish</td>
<td>7.7</td>
<td>12.6</td>
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<tr>
<td>Milk</td>
<td>4.6</td>
<td>17.9</td>
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<tr>
<td>Melons/Fruit</td>
<td>41.1</td>
<td>56.7</td>
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Urbanization will be a key driver of changing consumer diet

*Source: NBSC, China Statistical Yearbook*
China’s position in world agric trade reversed

Source: China’s Customs Statistics. DRC.
Make-Up of China’s Agric. Imports (%): 2010

Source: China’s Customs Statistics.
U.S. Ag. Trade with China

• Bilateral relationship has grown. U.S. enjoys ag. trade surplus with China > $13B.

• China is #1 market for US ag exports & 3rd most important supplier US ag imports.

• Trade disputes: garlic, mushrooms, apple juice, honey, shrimp, poultry, fertilizer, DDGs.

• China is an emerging competitor for USA in many specialty crops.

• “Since when did we start importing organic broccoli from China? Why should I believe this product is "organic" given the melamine and banned antibiotics in wheat & catfish? What is going on?” anonymous blogger
China’s Fertilizer Use Has Grown Sharply

China Uses 2.9 \times U.S. fertilizer in total & almost 5 \times more per acre

China’s global share of Chem. fertilizer use is 3 \times its share of ag. land

Source: FAO
Low Labor Productivity in Ag. remains a Problem

- China’s farmers make up 38% of the national labor force but produce about 10% of the GDP.
- Labor productivity in agric. < 1/4\textsuperscript{th} that of industry & < 1/3\textsuperscript{rd} of that in service sector.
- Labor does not move freely between rural & urban employment.
Ageing Farmers May Solve the Problem

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<tr>
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<th>2009</th>
<th>2035</th>
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<tbody>
<tr>
<td>Ag. Labor Force</td>
<td>297 million</td>
<td></td>
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<tr>
<td>Dedicated Ag. Workers</td>
<td>100 million</td>
<td>25 million</td>
</tr>
<tr>
<td>Dedicated Farmers as % of Labor Force</td>
<td>13%</td>
<td>3%</td>
</tr>
<tr>
<td>% Dedicated over 45 yrs age</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>% Dedicated under 35 yrs age</td>
<td>14%</td>
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Ageing will speed up decline in ag. labor force & allow for larger farm size
Water

- With 20% of the world’s population & 7% of its fresh water, China faces water issues.

- 76% of the country’s water is used by agric., but is facing greater competition from urban areas.

- In the south there is $10 \times$ more water available per capita than in the north. But the north produces 50% of China’s wheat & 30% of its corn—which means that water efficiency must be improved.

- Pricing of surface water & groundwater must play a greater role in the allocation.
Key Policy Issues in China

• Food/grain security vs. farmers’ incomes (e.g., land tenure & size of farms).

• Rural-Urban income gap & growth in income inequality.

• Management of natural resources, technology, & institutions – water scarcity.

• Resource depletion, heavy use of chemicals, & rising agric. pollution are major concerns.

• Role of International Trade; state trading etc.

• Role of Biotechnology/GMOs?