THE AUSTRALIAN NATIONAL UNIVERSITY

China's Agricultural Trade After WTO Accession

Chunlai Chen

Crawford School of Economics and Government
The Australian National University

13 July 2006

China's agricultural trade after WTO accession

- Introduction
- The importance of agriculture in China's international trade
- The classification of agricultural commodities
- Trend in China's agricultural trade
- Patterns of China's agricultural trade
- China's revealed comparative advantage (NER) in agricultural trade
- Explanations for the changes in revealed comparative advantages
- Conclusion

Fast economic growth after WTO accession

- With China's entry into the WTO in December 2001, China's economy has been growing very rapidly. The average annual growth rate of China's GDP was more than 9.8% in 2002-05.
- China revised its GDP growth rate for the period of 1979-2004 in January 2006.
- The revised GDP growth rate from 2002 to 2004 was 9.1%, 10.0% and 10.1% respectively, and the GDP growth rate in 2005 was 9.9%.

Substantial reduction in import tariffs

- As committed to the WTO, China reduced its import tariffs substantially
  - China's average tariff level has dropped to 9.9% in 2005 as against 15.6% in 2000.
  - The average tariff on industrial products dropped to 9.3% as against 14.8 in 2000
  - The average tariff for agricultural products dropped to 15.3% as against 23.2% in 2000.

Use of China's tariff rate quotas in 2004

Commodity	TRQ	Actual imports	use of quota
	--- million metric tons ---		percent
Cotton	0.894	1.9	>100
Palm oil	2.7	2.4	88
Soybean oil	3.1	2.5	81
Wool	0.288	0.221	77
Wheat	9.6	7.2	75
Sugar	1.9	1.2	63
Rapeseed oil	1.1	0.35	32
Long-grain rice	2.7	0.8	30
Medium-short-grain rice	2.7	0	0
Corn	7.2	<0.1	0

Within quota the tariff rate is low, above quota the tariff rate is much higher.
For example, wheat import in 2004, within quota tariff rate is 1%,
above quota tariff rate is 65%.

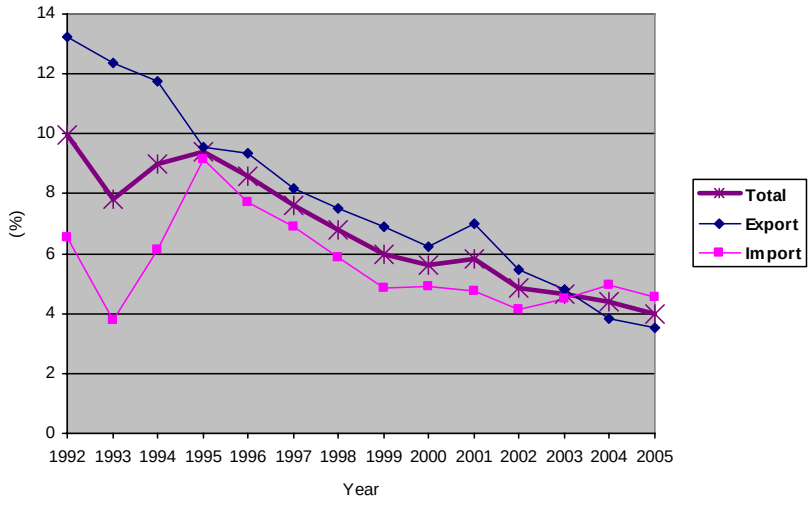
Fast expansion in international trade

- China's foreign trade has been expanding even more rapidly than its overall economic growth.
- The annual growth rate of the total value of China's foreign trade was 28.6% in 2002-05 compared with 9.4% during the 1990s.
- China's total foreign trade rose to US$1263 billion in 2005, increasing 177% than that in 2001.
  - Export rose to US$677 billion in 2005, increasing 208% than that in 2001
  - Import rose to US$586 billion in 2005, increasing 148% than that in 2001
- Undoubtedly, China's economy has benefited from the entry into the WTO, especially from a more open and liberalised international trade regime.

Changes in the importance of agricultural trade in China's international trade

- The importance of agricultural trade in China's total trade has been declining.
  - The share of agricultural trade in China's total trade declined from 5.8% in 2001 to 4% in 2005.
  - The share of agricultural export in China's total export declined even more rapidly from 7% in 2001 to 3.5% in 2005.
  - The share of agricultural import in China's total import declined marginally from 4.8% in 2001 to 4.5% in 2005.

Share of China's Agricultural Trade in Total Trade



Characteristics of China's resource endowments

- These changes have demonstrated that, with the rapid economic growth especially after China's entry into the WTO, the comparative advantage of China's agricultural sector has been declining in general, and the comparative advantage of China's farming sector has been declining in particular.

- This changing pattern of comparative advantage is consistent with China's resource endowments
  - China's per capita arable land is 0.11 hectare, only 43% of the world average.
  - China's per capita pasture land is 0.33 hectare, only one third of the world average.
  - China has abundant labour supply --- 1.3 billion population, nearly 70% living in rural area, and half of the labour force is in agricultural sector.

The classification of agricultural commodities

Product coverage in this paper	Product coverage in the URAA
• HS Chapters 1 to 24, plus • HS Headings 41.01 to 41.03 (hides and skins) • HS Heading 43.01 (raw furskins) • HS Headings 50.01 to 50.03 (raw silk and silk waste) • HS Headings 51.01 to 51.03 (wool and animal hair) • HS Headings 52.01 to 52.03 (raw cotton, waste and cotton carded or combed) • HS Heading 53.01 (raw flax) • HS Heading 53.02 (raw hemp)	• HS Chapters 1 to 24 less fish and fish products, plus • HS Code 2905.43 (mannitol) • HS Code 2905.44 (sorbitol) • HS Heading 33.01 (essential oils) • HS Headings 35.01 to 35.05 (albuminoidal substances, modified starches, glues) • HS Code 3809.10 (finishing agents) • HS Code 3823.60 (sorbitol n.e.p.) • HS Headings 41.01 to 41.03 (hides and skins) • HS Heading 43.01 (raw furskins) • HS Headings 50.01 to 50.03 (raw silk and silk waste) • HS Headings 51.01 to 51.03 (wool and animal hair) • HS Headings 52.01 to 52.03 (raw cotton, waste and cotton carded or combed) • HS Heading 53.01 (raw flax) • HS Heading 53.02 (raw hemp)

Sources: The Uruguay Round Agreement on Agriculture and author's own classification.

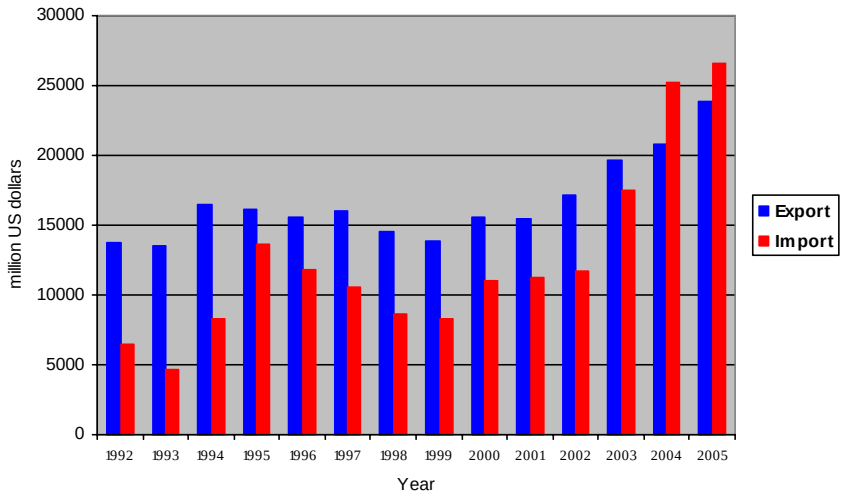
The classification of agricultural commodities

- First, agricultural commodities are grouped into five categories based on the nature of commodities:
  - The group of cereals, edible vegetable oilseeds and vegetable oils,
  - The group of horticultural products,
  - The group of animal products (including fish),
  - The group of processed agricultural products (including processed fish products), and
  - The group of raw materials for textiles.
- Second, the agricultural commodities are grouped into two categories based on the factor intensity of production:
  - The group of land-intensive agricultural products
  - The group of labour-intensive agricultural products

The aggregate trend in China's agricultural trade

- Despite the share of agricultural trade in China's total trade has declined, however, in terms of the absolute value, China's agricultural trade has increased dramatically during 2002-05.
- Before the entry into the WTO between 1992 to 2001, China's agricultural trade was stagnated with large fluctuations.
- After the entry into the WTO, the value of China's agricultural trade increased dramatically up to US$50.44 billion in 2005, an increase of 90% than that of 2001.

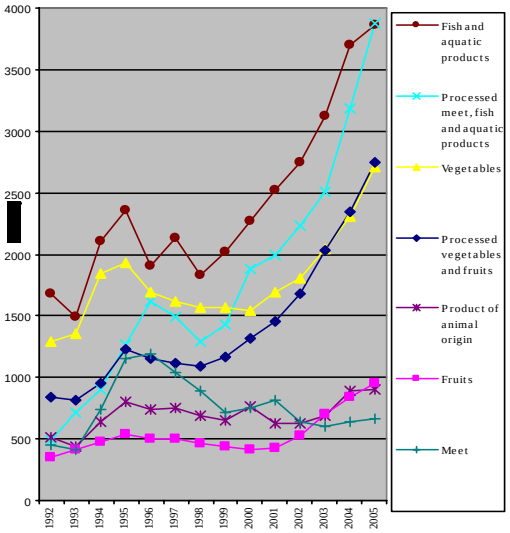
China's Agricultural Trade
(at constant 2000 US$ price)



The aggregate trend in China's agricultural trade

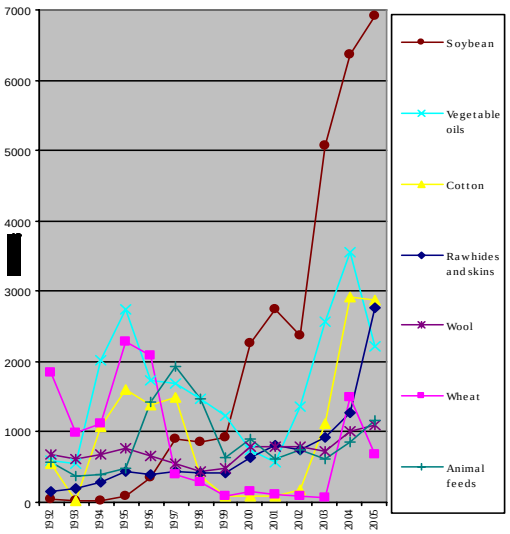
- After the entry into the WTO, agricultural import increased more rapidly than agricultural export.
- From 2002 to 2005, the annual growth rate of agricultural import was 31.5%, while that of agricultural export was 11.6%.
- As a result, in 2004 and 2005, agricultural import exceeded agricultural export and China has had two consecutive years of agricultural trade deficit since the 1990s. It is expected that the higher growth of agricultural import will continue.

China's Main Exports of Agricultural Products



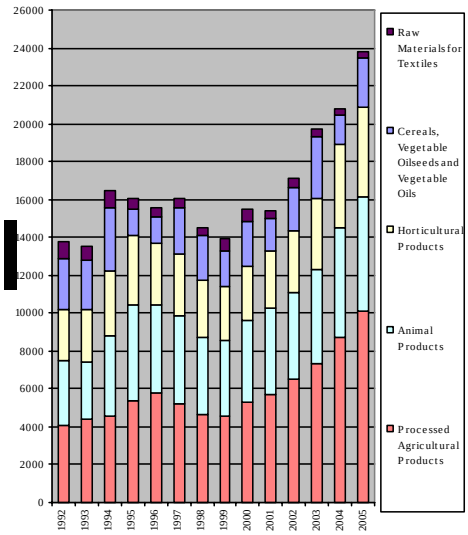
- China’s main exports of agricultural products are:
  - Fish and aquatic products, accounting for 16.5% of total agricultural export during 2002-05;
  - Processed meet, fish and aquatic products, accounting for 14.5%;
  - Vegetables, accounting for 10.9%;
  - Processed vegetables and fruits, accounting for 10.8%;
  - The exports of product of animal origin, and fruits are also increased after 2001, but meet export declined.

China's Main Imports of Agricultural Products



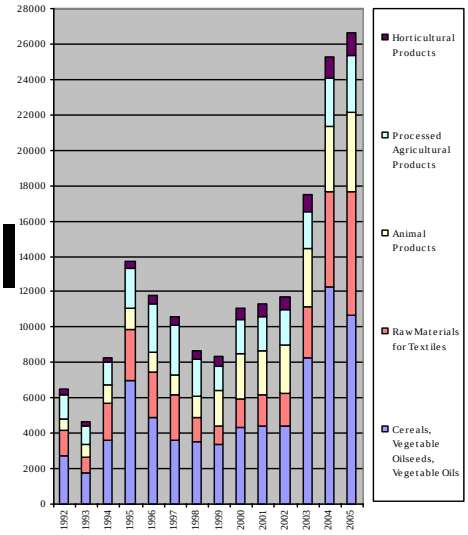
- China’s main imports of agricultural products are:
  - Soybean, accounting for 25.6% of total agricultural import during 2002-05;
  - Vegetable oils, accounting for 11.9%;
  - Cotton, accounting for 9.8%;
  - Raw hides and skins, accounting for 7%;
  - The imports of wool are also increased after 2001 with slower pace;
  - The imports of wheat and animal feeds fluctuated largely, but increased during 2004-05.

China's Agricultural Exports by Commodity Groupings



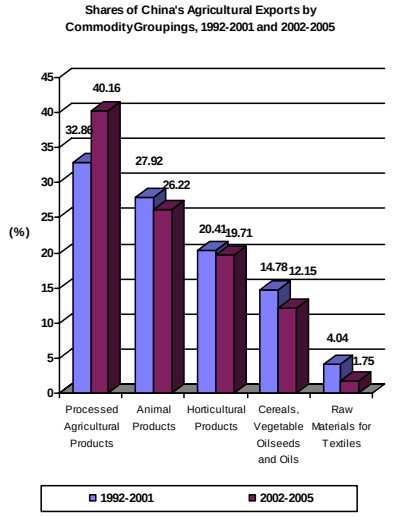
- China's agricultural exports by commodity groups:
  - Dominated by processed agricultural products, accounting for 40.2% during 2002-05;
  - Animal products, accounting for 26.2%;
  - Horticultural products, accounting for 19.7%;
  - Cereals, vegetable oilseeds and vegetable oils, accounting for 12.1%;
  - Raw materials for textiles, accounting for 1.8%.

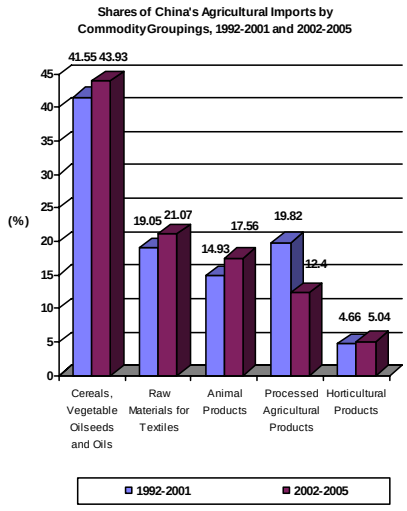
China's Agricultural Imports by Commodity Groupings



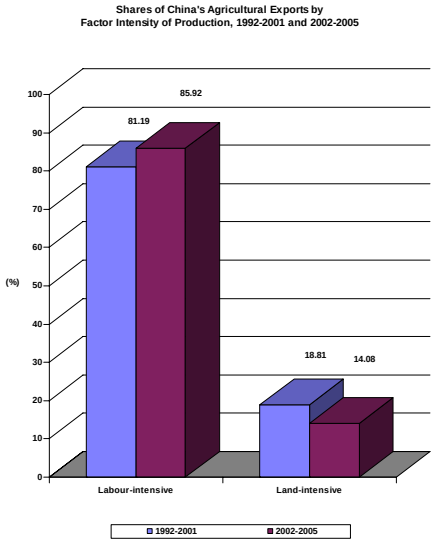
- China's agricultural imports by commodity groups:
  - Dominated by Cereals, vegetable oilseeds and vegetable oils, accounting for 43.9% during 2002-05;
  - Raw materials for textiles, accounting for 21.1%;
  - Animal products, accounting for 17.6%;
  - Processed agricultural products, accounting for 12.4%;
  - Horticultural products, accounting for 5%;

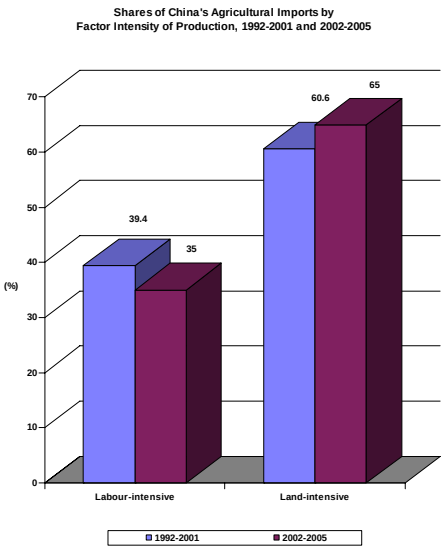
Patterns of China's agricultural trade by commodity groupings





Patterns of China's agricultural trade by factor intensity of production





Patterns of China's agricultural trade

- By commodity groups:
  - China's agricultural export is dominated by processed agricultural products, animal products and horticultural products;
  - China's agricultural import is dominated by cereals, vegetable oilseeds, vegetable oils, and raw materials for textiles.
- By factor intensity:
  - China's agricultural export is dominated by labour intensive agricultural products;
  - China's agricultural import is dominated by land intensive agricultural products.

- These patterns of agricultural trade have been strengthened after China's entry into the WTO.
- The entry into the WTO has helped China move more closer to its comparative advantage in agricultural trade with the rest of the world.

Net Export Ratio (NER)

- The net export ratio (NER_{ij}), which is defined as:

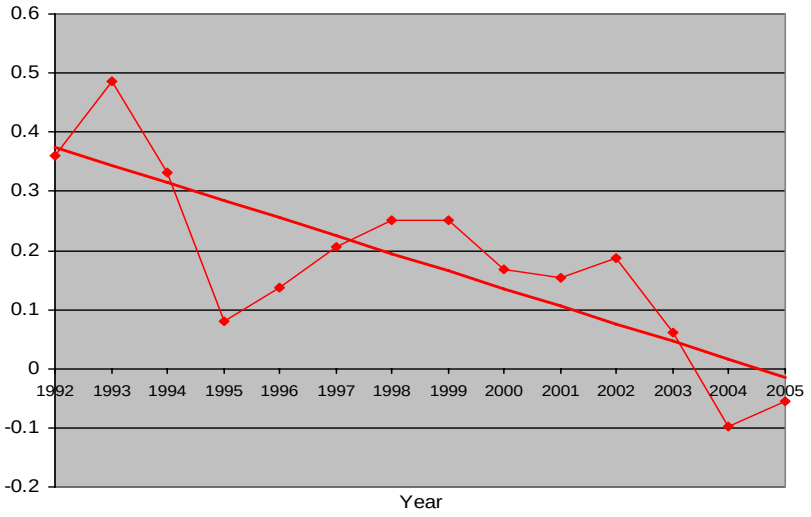
  $$NER_{ij} = (X_{ij} - M_{ij}) / (X_{ij} + M_{ij})$$

  where X_{ij} is the exports of good i by country j and M_{ij} is the imports of good i into country j.

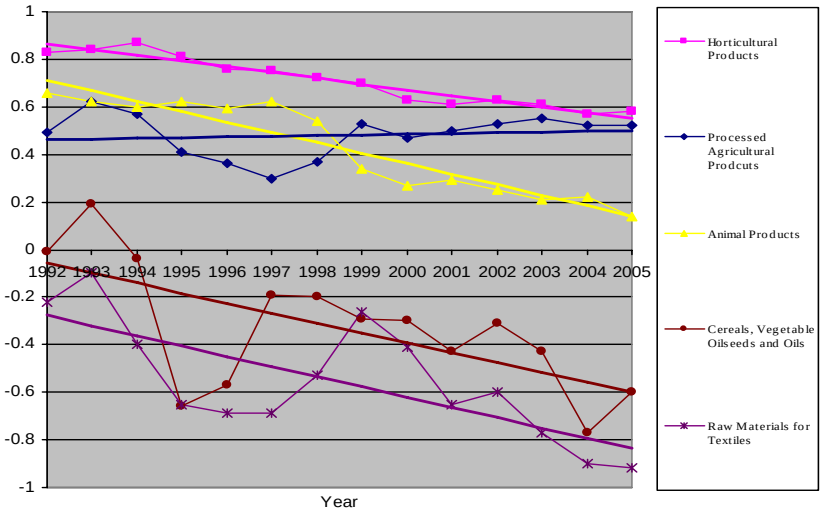
- Net export ratios have a minimum value of –1 (the country only imports the good concerned) and a maximum value of +1 (the country only exports the good).

- Positive values are taken to reveal a comparative advantage and negative values are taken to reveal a comparative disadvantage.

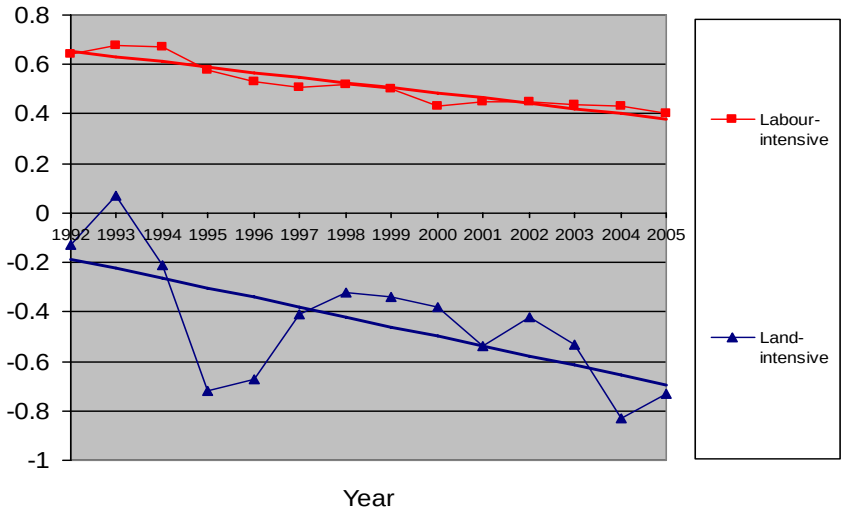
China's Revealed Comparative Advantage Indices (NER) of All Agricultural Products



China's Revealed Comparative Advantage Indices (NER) of Agricultural Products by Commodity Groups



China's Revealed Comparative Advantage Indices (NER) of Agricultural Products by Factor Intensity of Production



Changing comparative advantage in China's agriculture

- China's overall comparative advantage in agriculture has been declining, especially quickly after the entry into the WTO.
- China has a comparative advantage in labour intensive agricultural products. However, apart from processed agricultural products, whose comparative advantage increased marginally, the comparative advantage of horticultural products and animal products declined rapidly after the entry into the WTO.
- China has no comparative advantage in land intensive agricultural products, and their comparative advantages declined quickly and dramatically.

Reasons for the changes in comparative advantage in China's agriculture

- What are the reasons for the changes of China's revealed comparative advantage in agriculture?
- Undoubtedly, the changes of China's revealed comparative advantage in agriculture after the entry into the WTO are mainly the results of the fast economic growth and dramatic structural changes happened in China.

Reasons for the changes in comparative advantage in China's agriculture

- Since the entry into the WTO in 2001, China's economy has been growing rapidly with an average annual growth rate of 9.8%.
- This rapid economic growth has led to changes in the structure of China's economy. The growth of manufacturing and services sectors has been much faster than the growth of agricultural sector.
- Consequently, the share of agricultural sector in China's economy has been declining. The share of agricultural GDP in national total GDP declined from 15% in 2001 to 13.8% in 2004.

Reasons for the changes in comparative advantage in China's agriculture

- China's remarkable industrial growth played a large part in driving up agricultural imports.
- Over 30% of the growth in China's agricultural imports in 2004 came from raw materials used in production of non-food manufactured products: cotton, wool, animal hides, as well as other agricultural-derived products used in industrial production.
- In particular, growing textile production is generating demand for cotton and wool that is beyond China's production capacity.
- China's exports of clothing and footwear categories grew in double digits during 2004, and its domestic retail sales of clothing, shoes, and textile rose 18.7%. Chinese yarn production grew 13.9%, and cloth production grew 18.8% during 2004.

Reasons for the changes in comparative advantage in China's agriculture

- The continued increase in per capita income in China has led to not only a rise in food consumption, but also a change in the structure of food consumption.
- Since the late 1990s, China has dramatically increased import of vegetable oilseeds (mainly soybeans) and vegetable oils (mainly soybean oil and palm oil).
- Soybeans are crushed to produce vegetable oil for human consumption and animal feed to help the rapid growth in animal production.
- Driven by consumer and food industry demands, since the early 2000s, China has also largely increased imports of meets, fish, milk, cheese, wines, and fruits.

Reasons for the changes in comparative advantage in China's agriculture

- Apart from the economic factors discussed above, other factors could also affect China's revealed comparative advantage in agriculture.
- Admittedly, after the establishment of the WTO and the implementation of the Uruguay Round Agreement on Agriculture (URAA), liberalisation of trade in agriculture has sufficiently advanced.
- However, significant trade barriers in agricultural products still exist. In particular, the developed countries have increasingly resorted to sanitary and phytosanitary (SPS) measures for animal and plant health and technical barriers to trade (TBT) to block agricultural imports, especially from developing countries.

Reasons for the changes in comparative advantage in China's agriculture

- According to Chinese government official sources, SPS and TBT have resulted huge direct losses for China's agricultural exports. The indirect losses are even more enormous.
- In 2001, about US$7 billion worth of Chinese exports were affected by SPS and TBT.
- In early 2002, the EU began to ban imports of Chinese animal derived food, seafood and aquatic products, resulting in a 70% slump in China's aquatic product exports during the second half of that year (MOFCOM, 2005).
- Also, according to an investigation by China's Ministry of Commerce (MOFCOM), about 90% of China's exporters of foodstuffs, domestic produce, and animal by-products were affected by foreign technical trade barriers and suffered losses totalling US$9 billion in 2002 (China Daily, 2003).

Reasons for the changes in comparative advantage in China's agriculture

- China's recent experiences with SPS barriers have been mainly with the EU, Japan, and the United States.
- These three economies on average accounted for 52% of China's total agricultural exports in the period of 2002 to 2004, of which Japan accounted for 31%, EU accounted for 11% and USA accounted for 10%.
- However, these three economies accounted for 41%, 30% and 24% respectively of China's trade losses attributed to SPS measures in 2002.
- Because failure to pass SPS inspection often leads to closer inspection of future exports, China's agricultural products have confronted much stricter inspection in these markets following several of the SPS-related problems.
- The followings are some examples in recent years.

Reasons for the changes in comparative advantage in China's agriculture

- In November 2001, 300 metric tons of shrimp shipped from Zhoushan in Zhejiang province to the EU were discovered to contain 0.2 parts per billion of chloramphenicol. As a result, the EU suspended imports of Chinese products of animal origin intended for human consumption or for use in animal feeds.
- Later, other countries, including Hungary, Russia, and Japan, implemented stricter inspections of poultry meat from China. As a consequence, exports of poultry meat from China declined by about 33% in 2002 compared with the previous year.

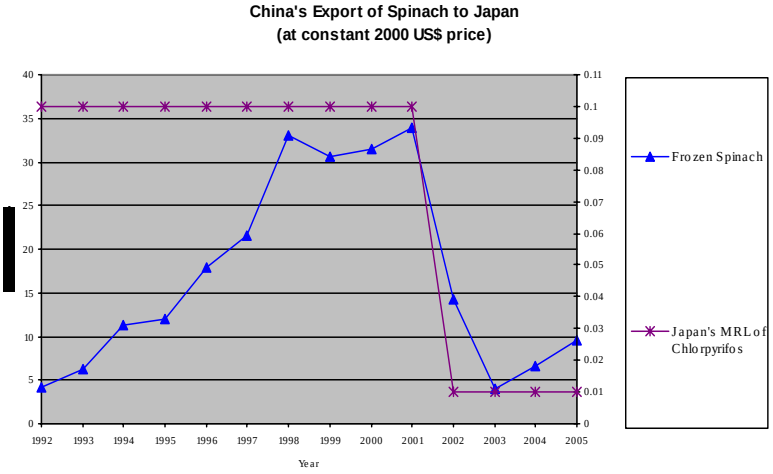
Reasons for the changes in comparative advantage in China's agriculture

- In February 2002, the EU banned imports of honey from China after finding chloramphenicol at levels higher than 0.1 parts per billion.
- Following the EU ban, the United States and Japan increased controls and tests of honey from China.
- China's honey exports decreased by 25% in 2002 and continued to fall in 2003.

Reasons for the changes in comparative advantage in China's agriculture

- In 2002 Japan increased the Maximum Residual Limit (MRL) of Chlorpyrifos for spinach from 0.1ppm to 0.01ppm. As a result, in July 2002, Japan blocked imports of frozen spinach from China after finding pesticides. Japan's restriction on Chinese exports of frozen spinach lasted for about eight months (until February 2003).
- In May 2003, after detecting higher-than-permitted pesticide residue, Japan again advised importers not to import Chinese frozen spinach. This import ban was not lifted until June 2004.

Reasons for the changes in comparative advantage in China's agriculture



Reasons for the changes in comparative advantage in China's agriculture

- In 2006, Japan introduced the 'Positive List System for Agricultural Chemical Residues in Foods', which takes effect on 29 May 2006. In the Positive List System, the agricultural chemicals include pesticides, feed additives and veterinary drugs in total of 797 categories. The system sets 53862 standards of the maximum residue limits (MRLs). The uniform limit will be applied to agricultural chemicals for which MRLs are not established. The uniform limit is 0.01ppm, which means for 100 tons of agricultural products, the agricultural chemical residuals can not exceed 1 gram.

- Japan is the largest market of Chinese exports of agricultural products. The introduction of the Positive List System will definitely have significant impact on China's agricultural exports to Japan. From January to April 2006, the growth rate of China's agricultural exports to Japan declined substantially, because many agricultural product export companies were worried that their agricultural products will be refused due to the much stricter standards (*Cai Jing*, 2006).

Reasons for the changes in comparative advantage in China's agriculture

- From August 2002 to July 2003, the United States Food and Drug Administration (U.S. FDA) refused 1,285 shipments of Chinese foodstuffs from entry into the United States. Agricultural and aquatic products accounted for 630 of these shipments, or nearly half of all refusals.
- Most recently, from June 2005 to May 2006, the U.S. FDA refused 1925 of Chinese shipments from entry into the United States, of which 945 shipments are agricultural products, accounting for 49% of the total refusals (U.S. FDA, 2006).
- Most refusals result from violations of SPS measures. Excessive pesticide residues, low food hygiene, unsafe additives, contamination, and misuse of veterinary drugs have been major issues.

Reasons for the changes in comparative advantage in China's agriculture

- Although the WTO's SPS Agreement requires members to ensure that SPS measures are based on sufficient scientific evidence, there are some well-founded concerns that countries may abuse SPS measures by using them as trade barriers.
- Because of very low production and labour costs, some agricultural products exported from China are very competitive in world markets.
- Consequently, importing countries may look to restrict imports from China by setting relatively high standards or strict inspections in order to protect domestic markets.

Reasons for the changes in comparative advantage in China's agriculture

- Admittedly, China itself should first increase and strengthen SPS level to meet the international standards in order to increased its exports of animal and horticultural products to international markets, especially to developed countries' markets.
- On the other hand, as China faces more SPS conflicts, the government should participate in bilateral negotiations to resist unfair trade restrictions and discrimination and could use the WTO to coordinate and resolve trade disputes.
- As a member of the WTO, China can participate in the negotiation and establishment of international regulations and standards to obtain a more equal position for its agricultural exports.

Conclusion

- The entry into the WTO has boosted China's agricultural trade, especially its agricultural imports.
- The pattern of China's agricultural trade is consistent with its resource endowments.
- After the entry into the WTO, this pattern of agricultural trade has been strengthened, indicating that China is moving more closer to its comparative advantage in agricultural trade with the rest of the world.

Conclusion

- China's has a comparative advantage in labour intensive agricultural products, while has a comparative disadvantage in land intensive agricultural products.
- However, the level of the comparative advantage in labour intensive agricultural products has been declining especially quickly after the entry into the WTO in animal and horticultural products.
- Fast economic growth, structural change, per capita income increase, all played significant role in driving the changes in comparative advantage in China agriculture.
- However, TBT and SPS measures may also contribute to the rapid decline of China's comparative advantage in labour intensive animal and horticultural products.