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## **US-China Agricultural Trade: How Competitive are We?**

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Impact of US-China trade and investment on PNW industries

Washington State producers have long been dependent on international markets. As the most trade-dependent state in the nation; Washington was the fourth largest exporting state in 2003 with an export value of over \$34 billion. One-third of all jobs in Washington directly or indirectly relate to trade. The Washington Trade Office estimates that exports alone support more than 750,000 jobs in Washington.

The leading export markets for Washington agriculture are Japan, Canada, Mexico, China, Korea, Taiwan, the Netherlands, Germany, the United Kingdom, and Spain (Figure 1). While Japan has historically been Washington's largest export destination, exports to China have increased dramatically since 1995.

China's gross domestic product is projected to continue growing by about 8 percent per year. This growth will likely continue as barriers to trade decrease and foreign investment continues to increase. Increasing incomes and a population of 1.3 billion that is projected to grow by 350 million over the next 2 decades will result in a growing demand for food in the future.

Constraints on water and environmental resources will likely limit China's ability to continue to increase domestic production without advances in biotechnology or exploiting its inherent comparative advantage (Figure 2).

Measures of comparative advantage in international markets vary and are usually complicated. However, basic measures such as arable land per worker, agricultural output per worker and wage rates for agricultural workers can suggest longer run competitiveness.

Arable land per agricultural worker in the United States is about 2,500 acres per agricultural worker while China has about 15 acres per agricultural worker (Figure 3). While these measures do not distinguish between highly productive and marginally productive acres, the levels suggest

that China is relatively land poor and not likely to be competitive in the production of land intensive crops such as wheat or cattle. This would suggest that agricultural production of more labor-intensive crops, including fruits and vegetables, is likely.

Agricultural output per agricultural worker in the United States is over \$70,000 and about \$3,000 per worker in China (Figure 4). The productivity of United States agricultural workers is generally much higher than the productivity of agricultural workers in China. To some degree this reflects China's low wage rate of less than \$.70 per hour for agricultural workers (Figure 5). In comparison, the wage rate for agricultural workers in the United States is over \$9 per hour.

These measures suggest that China, with its relatively abundant and inexpensive labor supply, will have a comparative advantage in producing products that are labor intensive. In contrast, the United States with a relatively abundant supply of land and productive workers should have a comparative advantage in producing products that are land intensive.

How does this academic observation compare with reality? Comparative advantage estimates for apples from 1991 to 2000 indicate that China's comparative advantage in producing apples has increased dramatically, while the United States fluctuated, but has declined since 1995 (Table 1).

These results suggest that with China's large population and relatively limited land area China will likely increase production of crops that can be produced using large amounts of labor such as apples, or vegetables such as asparagus.

In contrast, with more productive and higher paid agricultural labor, the United States will likely be less competitive producing crops that require large labor inputs or that cannot be produced using high levels of mechanization or technology to substitute for labor. The United States will likely be more competitive with wheat or crops such as cherries or wine. This does not mean that we should abandon apple production in the Pacific Northwest. Instead, it suggests that in order to be competitive in the world marketplace producers need to improve efficiency and productivity, and produce apples that are well suited to consumer's preferences.

As China becomes more competitive in the production of labor intensive products, how will agricultural trade be affected? China is the fourth largest importer of U.S. horticultural products with citrus, grapes, potatoes, and apples as the largest individual commodities (Figures 6 and 7).

The top four U.S. horticultural imports from China are fruit juice, frozen vegetables, mushrooms and fruit parts (Figure 8). Note that the top U.S. exports to China are commodities while the top U.S. imports from China are processed products reflecting the lower processing costs in China.

If China allows its agricultural sector to reorient towards market forces and comparative advantage under WTO liberalization, as noted above, China's production should shift towards labor intensive products. However, under China's current fixed exchange rate system, it is not clear that comparative advantage will prevail. For example, while the U.S. dollar has depreciated against the Euro and other major currencies, it has also appreciated against the currencies of countries having economic or political difficulties (Figure 9). The falling value of the dollar has accelerated U.S. exports to countries with a falling exchange rate. In theory U.S. agriculture in particular should benefit.

However, China's fixed exchange rate provides a hidden subsidy to their export sector since products priced in dollars remain at the same price rather than having the price increase. The fixed exchange rate is also an implicit tax on imported products priced in dollars. Hence, while U.S. products should become less expensive in China and Chinese products should become more expensive in U.S. markets, they have not changed. However, China's products priced in Euros have become less expensive on the world market.

China's fixed exchange rate provides an interesting set of circumstances for U.S. agriculture. While U.S. products are less expensive on the world market in Euros so are China's products. For agriculture, the gains from a lower dollar have not materialized with China. However, the costs for U.S. importers of China's agricultural products have not increased. However, in relative terms, since European products are now more expensive, China's products are relatively less expensive.

China's increasing production of labor intensive products is in direct competition with some Pacific Northwest products such as apples and asparagus. China's apple production is the world's largest. Given the inexpensive (both in relative and absolute terms) labor costs; it is not surprising that China is one of the low cost producers. As the quality of Chinese apples continues to improve and international standards are more easily achieved, more Chinese apples will compete in North American and European markets.

While China's apple production has perhaps leveled off (Figure 2), it is likely that China will increase sales internationally, particularly in Asia, as the quality continues to improve. Most Chinese apples are Red Fuji's which are well suited to the Asian market as well as the U.S. market. Red and Golden Delicious apples have historically been the primary varieties grown and exported from the Northwest. However, in recent years as consumer tastes have shifted and prices have declined, some Northwest producers have shifted to new varieties including Fuji and Pink Lady. These varieties compete directly with Fuji's from China. Thus, it is likely that Pacific Northwest apple producers will continue to lose market share to China unless they significantly reduce costs or find new varieties that appeal to a broad base of consumers.

Asparagus exports from China have increased rapidly reaching 1,687,209 kilograms in 2003, which was approximately equal to Washington's total production of asparagus. Organic asparagus is being produced for the international marketplace and in some cases exclusively for international markets. Low labor costs have contributed to increasing exports of Chinese asparagus at competitive prices. Increased exports of other fruits and vegetables from China have resulted in reduced exports of U.S. product to Japan and other Asian destinations.

A portion of the increased Chinese production is a result of joint ventures with Japanese, Taiwanese, and U.S. companies. In the past, these joint ventures have been difficult to form requiring significant Chinese ownership. Recently foreign ownership requirements have been relaxed in China. In addition, as Chinese farmers are able to secure long-term transferable agreements to control plots of land, development of processing companies that have secured control of those plots has increased. Farmers may now sell their control outright or sublease. Villages that own the property have encouraged development by facilitating the aggregation of a number of plots to secure sufficient production capacity. In many cases the subleasing farmers are employed by the processor. These ventures have significantly increased the ability of Chinese agriculture to respond to price signals at competitive prices, although production targeted solely at specialized international markets such as certified organic may price themselves out of the local marketplace.

Competing with low cost Chinese labor will require improving efficiency, reducing costs, and improved marketing. Pacific Northwest producers of products that are direct competitors of

Chinese products in the international marketplace will need to increase the use of technology to further increase the productivity of high cost labor as well as explore the potential alternatives that utilize biotechnology solutions to reduce cost, improve efficiency or increase consumer demand. Increased research in these areas will benefit all of the U.S. as increased agricultural exports offset a growing trade deficit.

(Data sources include the US Dept of Commerce, Bureau of Census; CIA World Factbook; International Labor Organization ([www.ilo.org](http://www.ilo.org)); China Customs Statistics Yearbook; China Statistical Yearbook and author's estimates.)

**Table 1. Estimates of Revealed Comparative Advantage for Apples**

Country	1991	1995	2000
Canada	0.48	0.45	0.43
China	0.23	0.53	1.23
Hong Kong	0.13	0.29	0.28
France	3.72	3.25	3.61
Germany	0.19	0.13	0.16
Japan	0.03	0.05	0.04
Korea, Republic	0.40	0.19	0.03
Mexico	0.00	0.00	0.00
United Kingdom	0.14	0.08	0.10
USA	0.82	0.93	0.88

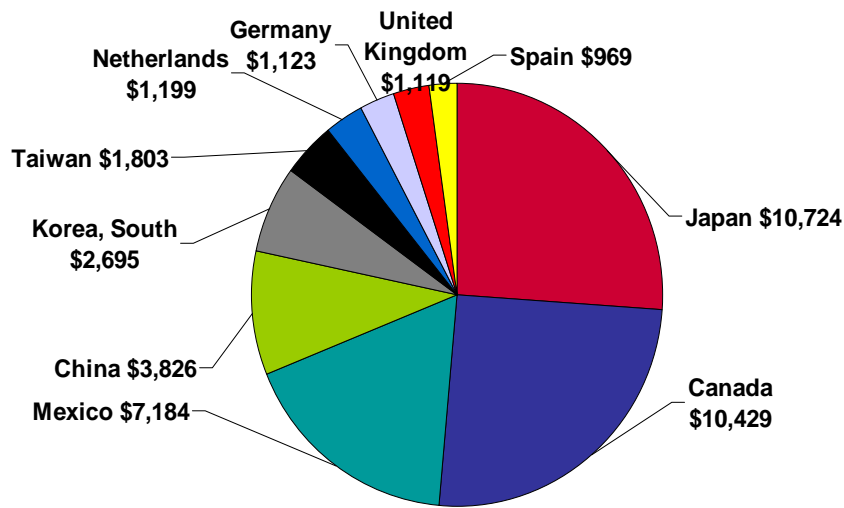


Figure 1. Top US Agricultural Export Destinations, 2003

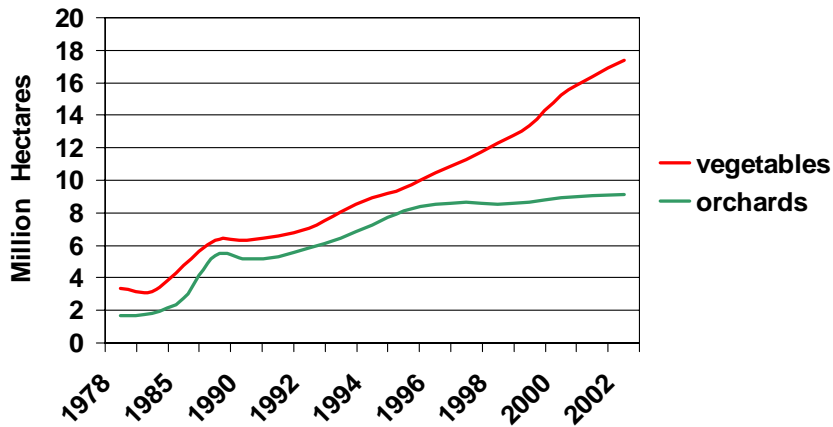


Figure 2. China's Planted Area

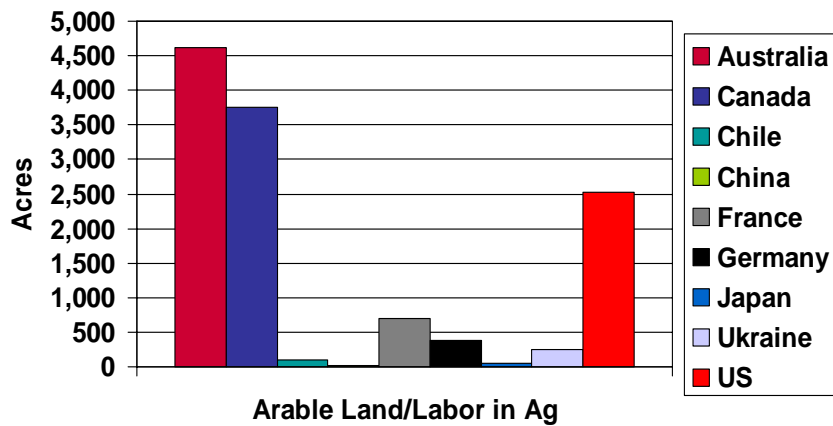


Figure 3. Arable land per ag worker

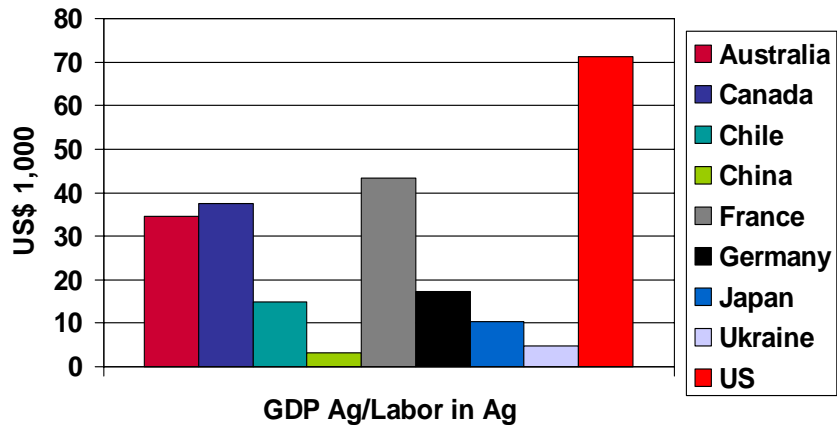


Figure 4. Ag GDP per ag worker

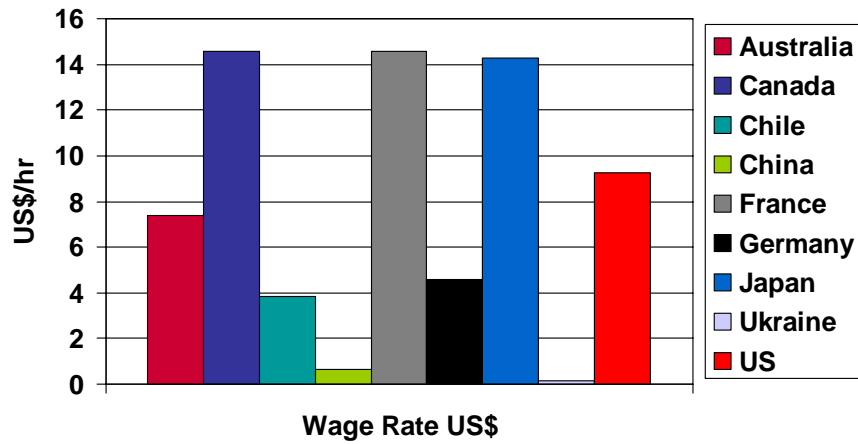


Figure 5. Estimated ag wage rates

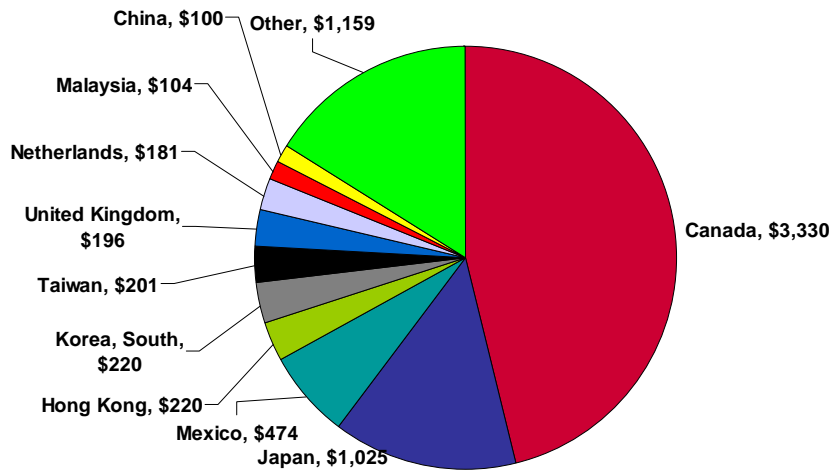


Figure 6. US Horticultural Exports, 2003

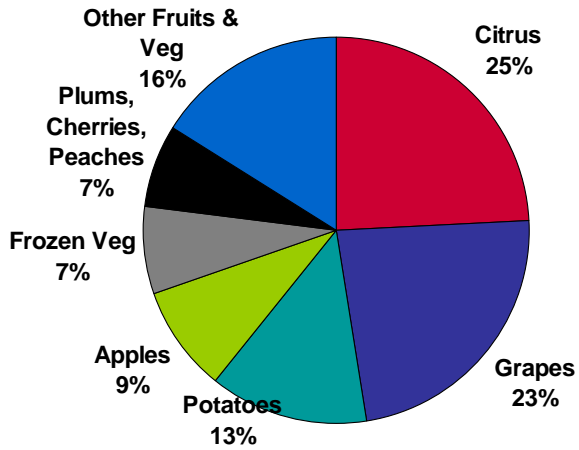


Figure 7. US Horticultural Exports to China, 2003

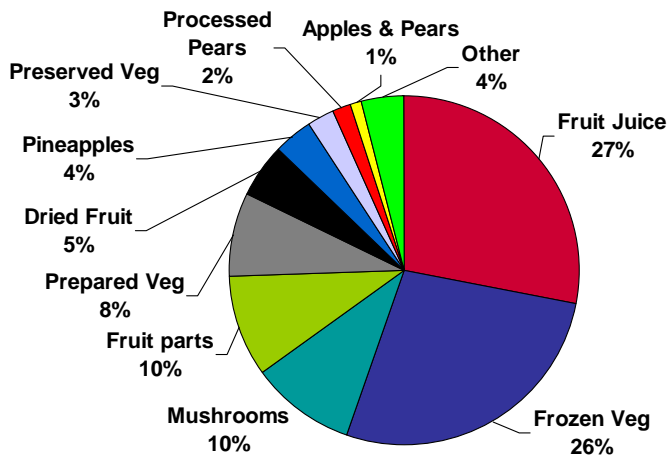


Figure 8. US Horticultural Imports from China, 2003

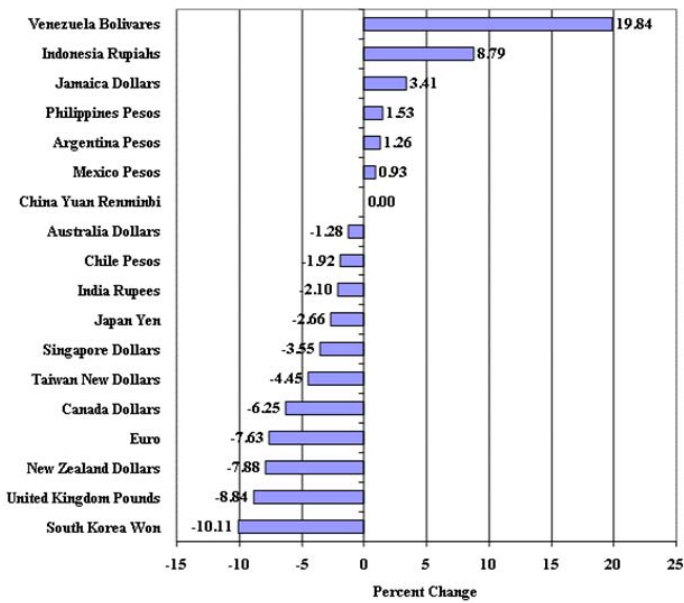


Figure 9. Percentage Change in the Value of the US Dollar, 12/2003 to 12/Dec 2004.