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China's Vegetable Exports Peak as Attention Shifts to Domestic Market*

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China is the world's leading producer and consumer of vegetables and its boom in exports during the first decade of the 21st century was a major development in world vegetable markets. More recently China's explosive growth rate in vegetable exports has diminished as attention shifts to meeting domestic demand.

The volume of China's vegetable exports (Harmonized System codes 07 and 2001-2005) more than tripled from under 3 million metric tons (mmt) during the late 1990s to a peak of over 10 mmt in 2011 (fig. 1). Annual growth exceeded 20 percent during several years in the early 2000s following China's accession to the World Trade Organization in December 2001. But China's vegetable exports demonstrated little growth in most years after 2007. There was a brief resurgence in growth rate during 2011, but the volume fell 5 percent during 2012. Vegetables were the only one of China's major agricultural commodities that showed a decrease in export volume during 2012.

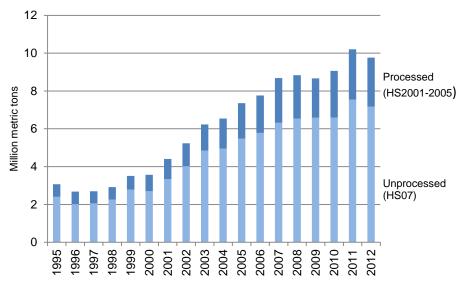
China's slowdown in vegetable exports coincided with slow economic growth worldwide, suggesting weak external demand is one factor behind the peak in exports (Zhang et al., 2012). Import barriers imposed in Indonesia and some other markets also played a role. However, structural changes in the Chinese economy and rising prices suggest that China's role in world vegetable markets may have peaked.

China's earlier surge was propelled by the low prices of the country's exported vegetables, but rising prices contributed to the recent slowdown by reducing demand. During the late 1990s and early 2000s, most commodity prices were declining and Chinese farmers and officials were eager to export. Prices began rising over the past decade as Chinese producers, traders and processors were affected by escalating costs of labor and farm inputs. The average value per kilogram of two of China's leading vegetable exports—garlic and dry beans—reflect these trends (fig. 2). The average unit value of these exports fell during

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1998-2003, suggesting a decline in prices. Since then, prices of both commodities have been more volatile, but their export prices more than doubled from 2003 to 2012. The export unit value of beans climbed at a relatively steady rate, although its export price displayed sharp increases and decreases each year. The export unit value of garlic was even more volatile. It rose to over 60 cents/kg during 2006 and 2007 but then fell to 35 cents/kg during 2008-09. The garlic price then rose as high as \$1.55/kg during 2010 before plunging to 84 cents/kg during 2012.

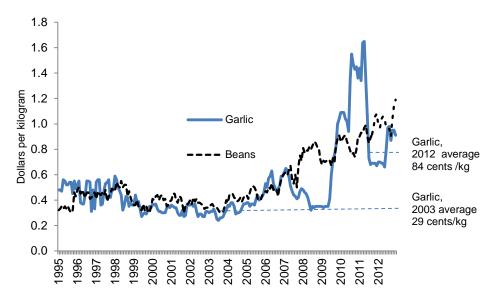
Figure 1 China vegetable exports, 1995-2012



Source: Estimated by USDA, Economic Research Service from Chinese customs statistics accessed through Global Trade Information Services, Inc., Global Trade Atlas.

Figure 2

Average unit value of China exports of garlic and beans, 1995-12



Note: Chart shows average value per kilogram of China exports for garlic and onions (HS0703) and dried and shelled legumes (HS0713).

Source: USDA, Economic Research Service calculations using China customs statistics accessed from Global Trade Information Services, Inc., Global Trade Atlas.

Exports Influenced by Rising Prices in Domestic Market

The volatility and rising trend in export prices reflects trends in China's domestic market. China's 10-mmt export total equals less than 2 percent of the country's vegetable production. China's rapid pace of urbanization and industrialization has disrupted traditional modes of supplying vegetables to domestic consumers and contributed to rising prices. High and volatile prices have become a matter of national concern in China during recent years.

Vegetables have traditionally been considered one of China's most cost-competitive agricultural products because their production is labor intensive. However, labor costs have been soaring as off-farm employment opportunities improved. Farms and processors must now pay higher wages and often have trouble attracting enough workers. For example, production cost statistics indicate that labor costs for garlic rose nearly ten-fold during 2001-11, rising from under \$15 to \$142 per acre. Costs of fertilizer, pesticides, high-quality seeds, fuel, and rents for stores and market stalls are all rising as well. Farmers who produce on a large scale must pay land rents of \$500 or more per acre, much higher than in past years.

The rapid expansion of Chinese cities has encroached on fields on city outskirts that traditionally supplied vegetables to cities. City vegetable supplies now commonly come from distant regions and pass through multiple levels of traders and distributors before reaching retail markets, adding costs, as well as losses from waste and spoilage (*Farmers Daily*, 2011; Hu, 2010).

USDA/ERS estimated a China retail vegetable price index for 2001-12 to illustrate the growth in domestic vegetable prices. The index is based on national average city prices for a selection of vegetables reported monthly by China's Price Bureau from 2001 to 2008 and China's National Bureau of Statistics for 2009-12. The index shows wide swings in domestic vegetable prices and a general rising trend that is consistent with the pattern in export prices.

Like the per unit export values shown in figure 2, the seasonally adjusted index began rising in 2003 (fig. 3). From 2005 to 2012 the adjusted index rose about 130 percent. The adjusted index—which uses a moving-average technique to smooth seasonal and unusual fluctuations in prices—rose at a relatively steady pace. The unadjusted index shows regular price spikes including a period during 2010 when a combination of supply factors and alleged speculation led to soaring prices of garlic, mung beans, ginger, and chili peppers and during 2008 when cold weather and ice storms disrupted production in southern China (Yan, 2010).

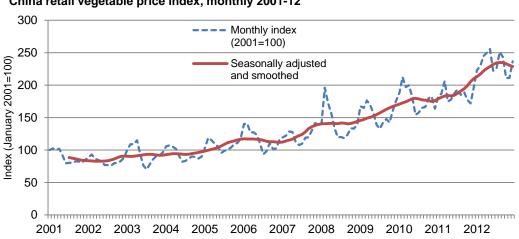


Figure 3
China retail vegetable price index, monthly 2001-12

Note: Estimated from average urban retail vegetable prices reported by NDRC (2001-2008) and NBS (2009-2012) using a Jevons index based on a geometric average of relative price changes. The adjusted index is a simple moving average of the Jevons index.

Source: Estimated by USDA, Economic Research Service from China National Bureau of Statistics (NBS) and National Development and Reform Commision (NDRC) data.

Volatility in the Domestic Market

The fluctuations in per unit garlic export values shown in figure 2 are the most prominent example of a "roller coaster" pattern that has become common in many vegetable markets in China. Garlic prices in China's Jinxiang County, the leading garlic-producing area, fell to less than 10 cents/kg during 2007-08 and many farmers cut back on production. By 2010, supplies had shrunk due to reduced area and weather problems and soaring garlic prices became a topic of national attention. That year the average wholesale price soared to over \$2 per kg. News media also reported that speculators sought to manipulate prices on electronic commodity exchanges and stockpile garlic in warehouses. (A number of the exchanges have now been closed by officials.) The high price stimulated more production but prices fell to under 50 cents/kg in 2011.

Small-scale farmers often have no means of storing their harvest, and their earnings are vulnerable to constant fluctuations in price. Following the 2012 harvest, the garlic price in Jinxiang rose from 56 cents/kg in May to \$1.50 in mid-June, before falling to 75 cents/kg in late July. Farmers say their breakeven price is about 95 cents/kg, so most would have made no profit unless they timed sales during the peak period. ¹

Domestic Market Gets More Attention

China's export-oriented supply chains are often set up to supply overseas markets and are weakly integrated with domestic markets. Perhaps the clearest example is the processed-tomato industry. China is one of the world's three largest tomato-processing countries and accounts for one-fourth of global trade, but domestic consumption of tomato paste and canned tomatoes is minimal. The industry was developed in Xinjiang Autonomous Region in China's far northwest in the 1980s and is dominated by three Chinese companies (Tuohuti, 2011). Processed tomato output grew at annual rates of 50 percent in the early 2000s. Growth slowed as off-farm opportunities made tomato production less attractive for Xinjiang farmers, and the costs of raw materials and labor increased for processors. Exports from Xinjiang fell about 25 percent in 2012 as the global market faced a glut of tomato products (Xinjiang Net, 2013).

Tomatoes, garlic and other vegetables are still predominantly grown by small farmers, purchased by small traders and brokers and then delivered to processing companies, but the character of marketing links is gradually changing. With strong impetus to gain control over raw material supplies, processors, trading companies and supermarket chains are developing backward linkages with "production bases." Forming such bases was a common strategy for exporters but is now spreading to domestic market suppliers as well (Gale and Hu, 2012).

Stark differences in the character of supply chains for exports and domestic markets are gradually narrowing as the domestic market becomes more lucrative. The large volumes purchased by supermarket and restaurant chains and distributors are attracting more companies to vegetable production. Many farmers have formed cooperatives to supply such customers, and some sell directly to supermarket chains or operate their own shops or "wet market" stalls in cities (Hu, 2010). A few community-supported agriculture (CSA) organizations have been set up in Chinese cities (Gale, 2011). Some urban consumers are now willing to pay higher prices for vegetables with organic or other certifications.

Policies Aim To Reduce Domestic Vegetable Costs

In recent years, policy focus has shifted from boosting exports to supplying domestic markets. When China entered the WTO in 2001, agricultural officials identified vegetables as one of the country's most competitive agricultural subsectors and formulated plans to form "export bases" to boost exports. More recently policy has shifted toward the domestic market to address concerns about high domestic prices. The Chinese Government has enacted numerous measures to respond to the rapid increase in domestic vegetable prices. Initiatives intended to boost domestic vegetable production and reduce marketing costs since 2010 include:

¹Prices were gathered by one of the authors during field research in Jinxiang County.

"Green channel" waivers of taxes, tolls, and market-entry fees and expedited inspections for trucks carrying fresh produce

- A renewed "vegetable basket" supply and marketing system that encourages local authorities to subsidize
 greenhouses, extension, farmer cooperatives, marketing and processing companies, and market facilities to
 ensure city food supplies
- A waiver of value added tax (VAT) for vegetable traders and processors serving the domestic market beginning January 2012 (most producers of vegetables were already exempt from VAT)
- VAT rebates for exports of vegetables were eliminated beginning March 2012
- Encouraging supermarkets, cafeterias and restaurants to purchase produce directly from farmer cooperatives.
- Reduced electricity and water rates for vegetable distributors, market stalls and storage facilities
- Setting up local vegetable reserves and compensation systems to curb price fluctuations and help producers cope with market risks
- Building centers for trading, storing and distributing vegetables in major production regions through a network of "vegetable garden" projects
- Close monitoring of supermarket entrance and shelf fees charged to vegetable suppliers

While the domestic market is attracting more policy attention, officials have not given up on exporting. During 2012, Shandong Province—China's leading vegetable export region—designated several multicounty "agricultural export safety and quality demonstration prefectures." These projects plan a broad set of investments in infrastructure, testing facilities, safety-related certifications and traceability systems to facilitate exports by increasing the confidence of foreign buyers in Shandong's products. This follows a "green card" plan formulated by Shandong agriculture officials in 2004 to overcome "technical barriers" to agricultural exports by spreading awareness of standards, safe pesticide use and setting up demonstration farms that use "good agricultural practices."

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