

# Theme Overview: U.S. Commodity Markets Respond to Changes in China's Ag Policies

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*JEL Classifications: Q17, Q18*

*Keywords: China, Agricultural trade, U.S.-China trade, Exports*

International trade deficits have recently been reputed as “bad” for the economy; however, agriculture has posted a trade surplus since 1959 (Cooke, Melton and Ramos, 2017). For U.S. agriculture, trade represents 20% of farmers’ income on average, and more for specific commodities—70% for cotton and tree nuts; 50% for wheat, rice, and soybeans; and almost 20% for meat and dairy products (Hafemeister, 2017). Thus, tossing trade would be comparable to U.S. farmers destroying 20% of their yields. China, which has advanced to become the United States’ largest agricultural export market in an unprecedented time frame, plays a key role in the economic wellbeing of U.S. agriculture.

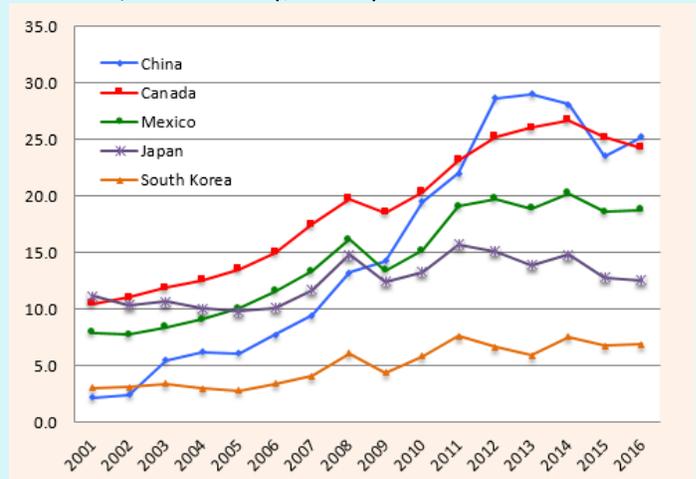
In 2012, China surpassed Canada to become the leading market for U.S. agricultural exports (see Figure 1). As China has one-fifth of the world’s consumers but one-tenth of the world’s arable land, the potential is considerable for China’s continued growth as an importer of U.S. agricultural products. From China’s perspective, the U.S. is its leading supplier of agricultural imports. China has adopted more open trade policies since joining the World Trade Organization while—at the same time—enacting policies that promote food security, price stability, and higher incomes for farmers. These policies have led to increased price distortions between Chinese and international markets.

This theme builds on a series of previous *Choices* articles on China. These timely articles are important for academic researchers, government officials, and export industries. They analyze recent changes to Chinese policies and their impact on global commodity markets, with a focus on U.S. impacts. These papers provide U.S. agribusiness exporters with information needed to evaluate potential risks and opportunities caused by differential agricultural and trade policies in China.

## Articles in this Theme:

- **China’s Evolving Agricultural Support Policies**  
*Mina Hejazi and Mary A. Marchant*
- **U.S. Agricultural Exports to China Increased Rapidly Making China the Number One Market**  
*James Hansen, Mary A. Marchant, Francis Tuan, and Agapi Somwaru*
- **Food Security in China from a Global Perspective**  
*Funing Zhong and Jing Zhu*
- **The WTO Dispute on China’s Agricultural Supports**  
*David Orden, Lars Brink and Mina Hejazi*

Figure 1: U.S. Agricultural Exports by Top Five Destination Countries, 2001–2016 (\$ Billion)



Source: Figure generated from USDA, 2017.

Several of the articles in this theme are based on detailed interviews with agribusiness leaders and government officials working to facilitate trade based on their actual experiences, challenges, and successes encountered while exporting to China. Interviews were conducted in China and the United States as part of the “Expanding U.S. Market Access in China’s Evolving Agricultural and Trade Policy Environment” project with USDA-NIFA.

Funing Zhong and Jing Zhu discuss the evolution of China’s food security objective and the impact of this deep-rooted policy priority on the formation of China’s agricultural policies, which subsequently affect its domestic production, market, and international trade, especially after its integration into the world economy, designated by its WTO accession in 2001.

Mina Hejazi and Mary A. Marchant summarize China’s agricultural support policies since China’s accession to the WTO, describe recent challenges due to the implementation of new agricultural policies, and explain China’s evolving policies and their impact on U.S. exports. The increasing gap between Chinese domestic and international prices is discussed, as are China’s growing commodity stockpiles and its newly adopted policies to address these issues.

James Hansen, Mary A. Marchant, Francis Tuan, and Agapi Somwaru provide an overview of U.S. agricultural exports to China, discussing major successes for U.S. exports to China and commodities that have faced a number of issues. Suggested reasons that exports to China have succeeded or failed range from the traditional trade theory of comparative advantage, China’s domestic and trade policies, China’s environmental policies for processed products, phytosanitary regulations, increasing diversity of food consumption, and increasing domestic consumer demand for products from countries with strong reputations for food safety. While some agricultural commodities exported to China have faced increasing constraints, many U.S. agribusiness exporters have achieved great success, even as they face numerous challenges as China strives for food security. Examples of successful products include alfalfa, dairy products, sorghum, distiller-dried grains, nuts, wines, beverages, hides and skins, and numerous retail processed consumer products.

David Orden, Lars Brink, and Mina Hejazi address one of the tensions in U.S.–China agricultural trade. They examine the motivation, issues to be adjudicated, and possible outcomes and implications of the September 2016 U.S. complaint that China’s domestic support for wheat, rice and corn exceeded its WTO commitments in the years 2012-2015. At issue is the level of China’s market price support. The article looks at measurement of this support under WTO rules and the relation of this measurement to the price gap between China’s domestic and international prices highlighted throughout this Choices theme.

## For More Information

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# China's Evolving Agricultural Support Policies

Mina Hejazi and Mary A. Marchant

*JEL Classifications: Q17, Q18*

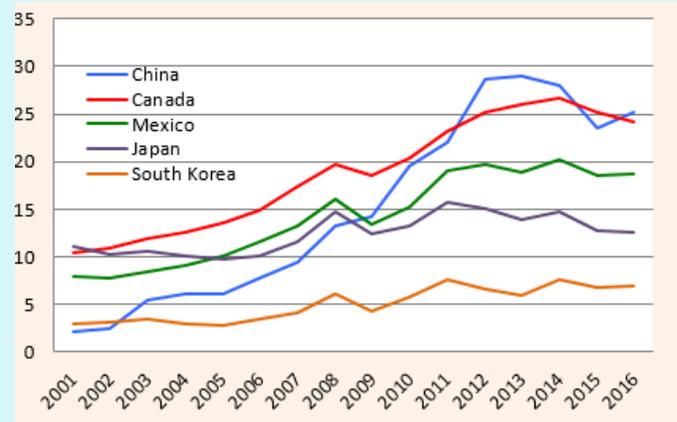
*Keywords: Agricultural commodities, Agricultural policy, China, Price supports, Target prices, U.S.-China trade*

China's agricultural imports—and policies affecting those agricultural products—have important implications for the United States because China has become the top agricultural export market for American goods (see Figure 1). Even though China's agricultural imports from the United States decreased from 2014 to 2015, the United States remains China's top supplier of agricultural goods (see Figure 2).

Agricultural policies implemented by the Chinese government steadily increased domestic support, raising farmer income levels and promoting long-term food security goals. To accomplish these goals, China's government intervened in the market by providing and then steadily increasing price supports. This intervention led to a price gap between domestic and international prices in agricultural commodity markets. Both this and China's openness to the world market (demonstrated after joining the WTO in 2001) resulted in a dramatic increase in imports of agricultural commodities and an accumulation of large stockpiles.

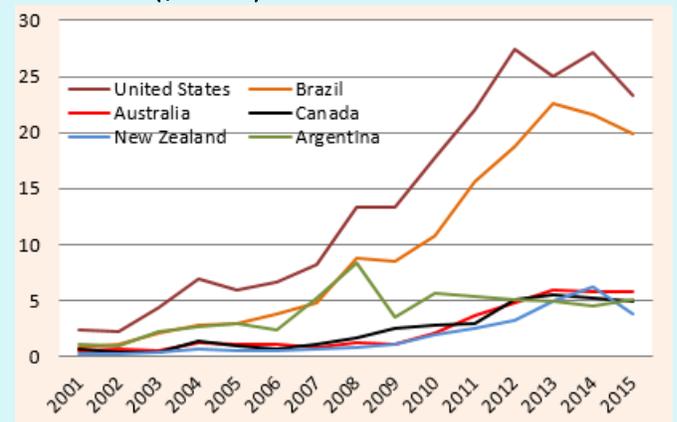
Most recently, the Chinese government strived to reduce its large stockpiles, especially for cotton and corn, and narrow the price gap between China's domestic and international markets by changing agricultural policies, particularly price support policies for cotton, soybeans, and corn. A new target price policy replaced the price support and temporary reserve programs for cotton to decrease production and reduce stockpiles in major cotton-producing regions. A new target price policy was also implemented for soybeans in four Northeast provinces to increase soybean production, and the Chinese government recently announced a pilot program to eliminate the corn

**Figure 1: U.S. Agricultural Exports by Destination Country, 2001–2016 (\$ Billion)**



Source: Figure generated from USDA, 2017.

**Figure 2: China's Agricultural Imports by Source Country, 2001–2015 (\$ Billion)**



Source: Figure generated from UN Comtrade Data, 2016.

Note: China's import data include products from two-digit chapters 01 through 24 as well as select codes in higher chapters, such as cotton.

price support policy in its Northeastern provinces and Inner Mongolia to reduce production and stockpiles. This new pilot corn price policy will impact the global agricultural market, including the United States, by temporarily reducing China's imports of sorghum and distillers' dried grains (DDGs), which are corn substitutes. Imports of these substitutes, especially from the United States, increased dramatically in recent years due to high corn prices caused by China's domestic agricultural policies.

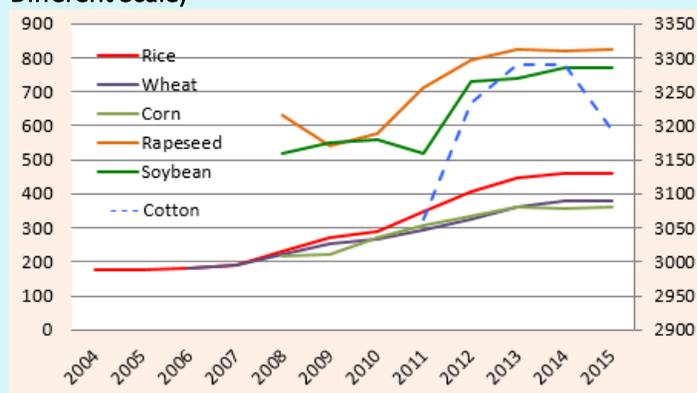
## China's Agricultural Support Policies Create Price Gaps and Large Stockpiles

Focusing on agricultural domestic policies to maintain grain self-sufficiency and rural income growth, the Chinese government encouraged farmers to increase production by shifting policies from taxing agriculture to providing production subsidies and price support programs (Huang, Wang, and Rozelle, 2013). The Central Government began a subsidy program in 2004 that included direct payments, improved seeds, and agricultural machinery purchases. The value of these subsidies doubled between 2008 and 2013 (Gale, 2013), reflecting a strategy of continuously increasing annual subsidies to China's farmers.

China's government introduced a minimum purchase price program to encourage production of targeted crops in major producing regions. This policy was applied to rice in 2004 and wheat in 2006. In 2008, a temporary reserve program was introduced for corn, rapeseed, soybeans, pork, and sugarcane (Tuan, 2015), and created for cotton in 2011 (see Figure 3). The minimum purchase price and temporary reserve programs guarantee producers a minimum price for their commodities. When the grain market price falls below the minimum, Chinese farmers can sell their commodities to state enterprises (e.g., COFCO and SINOGRain) at the minimum purchase price. The commodities are stockpiled (see Figure 4) with the intent to stabilize supply and consequently reduce imports (Gale, 2013; OECD, 2013).

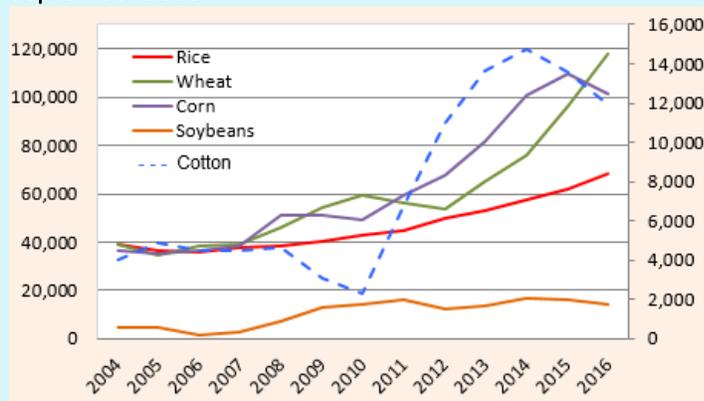
These policies were introduced to raise Chinese farmers' incomes and promote long-term food security goals, and the Chinese government has continuously increased minimum prices to protect Chinese producers from rising input costs and the appreciation of the yuan (OECD, 2013). Beginning in 2004, minimum commodity prices were set below world market prices. However, China's support prices increased annually through 2015, despite the fall in international prices in 2008. China's higher prices provided an economic incentive for Chinese farmers to increase production and created a price gap between domestic and world prices, encouraging lower-priced imports (see Figure 5).

Figure 3: China's Support Prices, 2004–2015 (\$/Metric Ton; Support Price for Cotton Is Shown on the Right Axis Due to Different Scale)



Source: Gale, 2013; 2011–2015 data were collected from various USDA-GAIN reports.

Figure 4: China's Stockpiles of Major Agricultural Commodities, Marketing Year from October 2004 to September 2016



Source: Figure generated from USDA-FAS, Market and Trade Data, Production, Supply and Distribution (PSD), 2016.

Note: (left axis: 1,000 MT and cotton is shown on the right axis 1000 bales (480 lb.))

China's production of major agricultural commodities increased in response to its support programs. Chinese authorities purchased large volumes of domestic commodities at support prices, leaving the government with excessive stockpiles. Stocks of corn, cotton, and wheat have increased dramatically since 2010, reaching record highs (see Figure 4). Lower-priced imports of the same commodities, which the Chinese government purchased under the price support and temporary reserve programs, also increased. Imports for feed substitutes, such as sorghum, barley, and DDGs also increased.

In total, China's grain production doubled between 1978 and 2013, while the use of fertilizer input (based on nitrogen equivalent) increased more than seven-fold (Zhong, Chen, and Zhu, in press). In 2013, the use of fertilizer in China's crop production was three times higher than the world average (Zhong, Chen and Zhu, in press), creating negative environmental impacts.

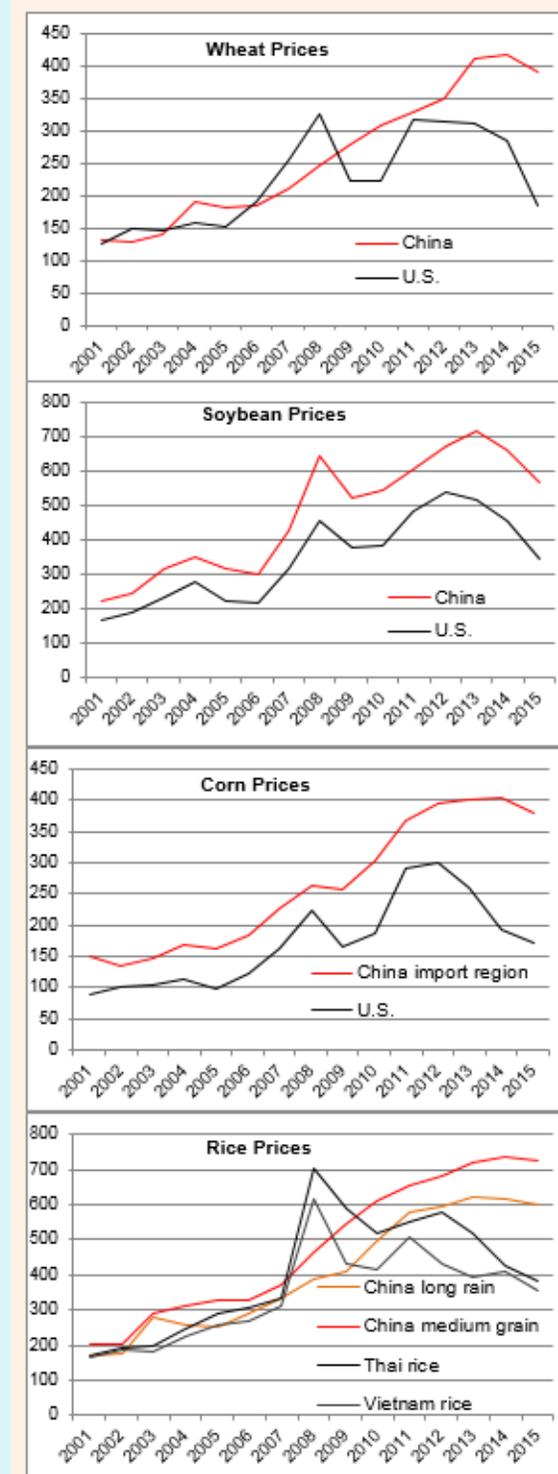
These policies distorted China's agricultural markets, creating a financial burden and new challenges for the Chinese government (Clever and Xinping, 2015). As other nations cut farm subsidies for agriculture, China's subsidies continued to increase, while subsidies already allocated to farmers reached WTO limits (*The Economist*, 2015). In a 2016 press release, the USDA claimed that China's government provided excessive domestic support to its farmers for producing agricultural commodities and failed to meet its commitment to the WTO (USDA, 2016a). China has recently been exploring other methods—like decoupled payments or other allowable agricultural support under the WTO regulations—to support farmers' incomes (Clever and Xinping, 2015; OECD, 2015).

China is now debating how to reform its price support program to reduce price interventions, manage imports, and balance stockpiles of agricultural commodities (Gale, 2015). In response to environmental concerns, Chinese officials emphasized sustainable food production in their recent Five Year Plan and their No. 1 Document (an important document that addresses agricultural policies and the first document released by the Chinese Communist Party each year; Anderson-Sprecher and Bugang, 2015).

## New Target Prices for Cotton and Soybeans, but Termination of Corn Price Supports

A major agricultural challenge currently confronting the Chinese government is how to increase farmers' incomes and improve food security without distorting domestic market prices and accumulating massive stockpiles. The Chinese government introduced a constructive strategy in the

Figure 5: China's Domestic and International Prices of Wheat, Corn, Rice, and Soybeans (\$/Metric Ton)



Source: Data were obtained from various USDA-FAS GAINS reports, China statistical yearbooks, and ERS reports (Gale, 2015).

thirteenth Five Year Plan, announcing a market-oriented price formation system (Zhong, Chen, and Zhu, in press). In 2015, the Chinese government began abandoning its price support program for major agricultural commodities, except for rice and wheat, which the Chinese government continues to purchase at their respective minimum price support. However, this price policy for rice and wheat will no longer be based on continuously increasing minimum prices each year. Thus, the minimum price support will not be used as a tool for increasing farmers' incomes (Anderson-Sprecher and Ji, 2016). In 2014/15, the Chinese government replaced the old price support program with a pilot target price program for cotton and soybeans in selected provinces. In 2016, the Chinese government announced an end to the price support policy for corn.

### Target Price for Cotton and Soybeans – Pilot Programs

The Chinese government replaced the old price support and temporary reserve programs in 2014/15 by introducing a new target price policy pilot program for cotton and soybeans. Under this policy, farmers receive a direct payment from the Chinese government if the market price is lower than the target price; this payment is calculated based on total production and the difference between the target and market prices (Huang and Yang, 2016). Unlike the old price support policy, the Chinese government does not purchase and store commodities. This is particularly important given China's large cotton stockpiles (see Figure 4).

#### Cotton

The Chinese government also introduced a new target price policy for cotton to reduce its large stockpiles. Under the old price support program, the high domestic cotton price support encouraged farmers to produce more, while the surplus went to stocks. Simultaneously, low international prices increased cotton imports, even though the Chinese government had imposed limits on the amount of imports using tariff rate quotas (TRQs). The new target price policy covers cotton in China's key cotton-production area, the Xinjiang Autonomous Region (Clever and Xinping, 2015).

At the beginning of 2014/15, the new target price was set equal to the old price support (\$3,220/Metric Ton). However, the new target price decreased to \$3,081/ Metric Ton in 2016 and \$2,906/ Metric Ton in 2017, decreasing both cotton production (from 6.3 mmt in 2012/13 to 5.15 mmt in 2017/18) and stockpiles as a result (Figure 4; Clever, 2017a). This new pilot policy was considered successful for cotton in the first two years of its implementation "in terms of contribution to a market oriented cotton price formulation mechanism, a stable cotton acreage, and a reasonable income for farmers" (Clever and Xinping, 2016, p. 17).

#### Soybeans

The pilot target price program for soybeans was implemented to encourage production. Prior to implementation, many farmers preferred to plant corn because it was more profitable. The new target price covers soybeans in the four Northeast provinces of Heilongjiang (the largest soybean-producing province in China), Jilin, Liaoning, and Inner Mongolia (Anderson-Sprecher and Bugang, 2015).

To encourage farmers to produce soybeans, at the beginning of 2014 a new target price (\$770.50/ Metric Ton) was set slightly higher than the old price support (\$740/ Metric Ton) and has remained constant since its implementation. However, the new target price has not significantly impacted soybean production (12.1 mmt in 2014/15 to 13.8 mmt in 2017/18), and China still imports massive amounts of soybeans (Clever, 2017b).

### Eliminating Corn Price Supports – Pilot Program

At the end of March 2016, Liu Xiannan, Director of the Economy and Trade Office of China's National Development and Reform Commission, announced an end to the price support policy for corn. The main reasons for ending the corn price support included China's excessive stocks of corn, environmental concerns, and unsustainable farming practices, particularly excessive fertilizer use (Anderson-Sprecher and Ji, 2016). China experienced corn surpluses for consecutive years, causing stockpiles to grow (Figure 4). Some of these corn stocks deteriorated and could not be sold (Anderson-Sprecher and Ji, 2016).

To address these issues, the Chinese government introduced a new mechanism of market purchase for corn and ended the temporary reserve program in the Northeastern provinces and Inner Mongolia (Anderson-Sprecher and Ji, 2016). As a result of announcing the elimination of the corn price support policy, Chinese corn prices fell in

2016. Falling prices led to a paper loss of over \$10 billion for China's stockpiles and even larger total costs when considering the cost of storing corn and that some corn stocks had already molded (Anderson-Sprecher and Ji, 2016). On the other hand, the Chinese government encouraged increased corn consumption in industrial uses, such as processing and ethanol production (Gale et al., 2009).

Many Chinese farmers profited from producing corn because of its high domestic price. By ending the price support program, China's domestic corn price will likely continue to fall and producing corn may not be as profitable (Anderson-Sprecher and Ji, 2016). According to China's official statistics in the 2017 USDA report, China's overall grain production fell by 2.8% in 2016 compared to the previous year; approximately 83% of this reduction was due to the decline in corn production (Kim, 2017). The import level of feed substitutes such as sorghum, barley, and DDGs, rapidly increased beginning in 2012 because of China's high domestic corn price, but as of 2016, feed substitute imports decreased as a result of declining domestic corn prices.

## China's Evolving Corn Policy Impacts U.S. Exports of Sorghum and DDGs

U.S. exports of sorghum and dried distillers grains (DDGs) to China increased dramatically in response to China's high domestic corn price while China's price support program was in place. Prior to the surge in China's corn prices, the United States exported virtually no feed substitutes to China, but by the 2014/15 marketing year the United States was exporting 90% of its sorghum to China (Anderson-Sprecher and Ji, 2016; Wang and Malaga, 2016). Tariff rate quotas also limit corn imports into China, but up until recently no similar import restrictions on feed substitutes existed. However, China recently imposed anti-dumping duties and potential countervailing duties on U.S. exports of DDGs to limit their imports (Anderson-Sprecher and Ji, 2016).

Eliminating China's Northeastern corn price support—the recent pilot program—reduced U.S. sorghum and DDG exports. In the short-term, this new policy, which ends the price support for corn, reduced U.S. and world exports of feed substitutes to China due to the release of existing Chinese corn stock reserves. In the long run, when corn stockpiles decline to a certain level, domestic demand and supply for corn are expected to determine China's domestic corn price and imports of feed substitutes (Zhong, Chen and Zhu, in press). China's evolving agricultural policies should be closely monitored by the U.S. government and agribusiness exporters (Gale, 2015). Reviewing China's agricultural policy changes highlights how these policies play a role in U.S. agricultural exports to China.

Despite China's evolving agricultural policies and recent economic downturn, import expansion in China may be inevitable in the long run (Marchant et al., 2016). China has one fifth of the world's population but only one tenth of the world's arable land. China will likely not be able to avoid some dependence on global markets, including the United States, through either trade or foreign direct investment.

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# U.S. Agricultural Exports to China Increased Rapidly Making China the Number One Market

James Hansen, Mary A. Marchant, Francis Tuan, and Agapi Somwaru

*JEL Classifications: Q17, Q18*

*Keywords: Agriculture imports, China, Grain, Livestock, Policy, Trade, U.S. agriculture exports*

Since 2012, China has become the predominant market for U.S. agriculture exports, accounting for 16% of U.S. agriculture export value in 2016. The value of exports to China increased 25.6% per year from 2002 to 2013 and added \$23.4 billion to the U.S. agricultural export market over this time period. Exports to China in 2014 and 2015 declined slightly but began to rebound in 2016. In 2016, the four largest export markets for U.S. agricultural commodities and products—China, Canada, Mexico, and Japan—accounted for 52% of U.S. agriculture export sales (USDA, 2017a).

Strong growth in U.S. exports to China reflects significant changes in China's domestic policies, which have created a more market-oriented economy with market-determined prices, and changing consumer preferences as incomes increased. China's policies on trade, domestic agriculture, and food security have greatly affected trade with the United States. In China, strong income growth, increasing urbanization, an emerging middle class, and growing concerns about food safety have meant more diverse U.S. exports, including greater numbers of valued-added products.

The greatest growth in U.S. exports to China has been in commodities that do not conflict with China's domestic policies for maintaining self-sufficiency and are in short supply. The best example is soybeans, which are needed for China's expanding livestock industry. Hides and skins also pose no threat to China's local industry. Consumer demand is strong for new products, especially those perceived to be healthy and have passed U.S. food safety regulations, particularly among higher income households in urban areas. Dairy imports, for example, increased after China's melamine food safety issue in 2008.

## Trade with China Is Concentrated on Bulk Commodities

U.S. agriculture exports to China continuously increased through 2013, reaching almost \$30 billion dollars, before declining the following two years (see Figure 1). The United States exported \$25.2 billion of agricultural products to China in 2016.

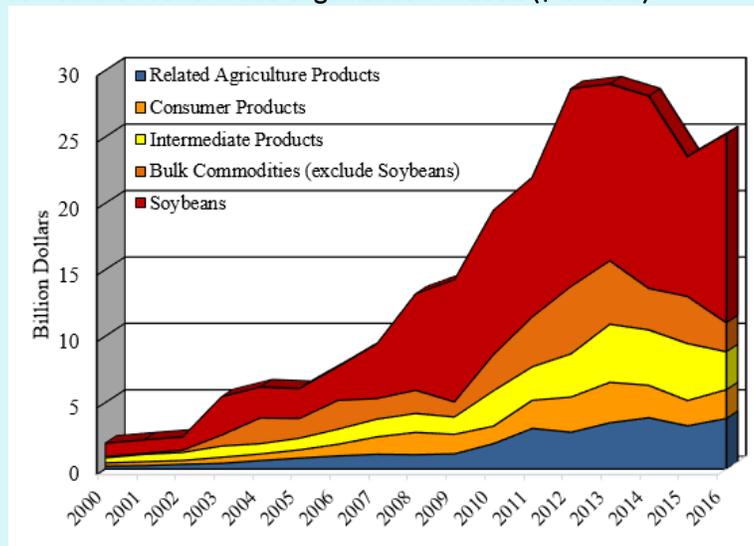
Bulk commodities, especially soybeans, are the largest export category, followed by related agriculture products and intermediate and consumer products. Bulk commodities—grains, cotton, tobacco, pulses, soybeans and other oilseeds—now account for about 65% of the value of U.S. exports to China. The value of U.S. bulk commodities exported to China from the 1980s through the 1990s averaged \$800,000 per year.

After China became a member of World Trade Organization (WTO) in December 2001, U.S. bulk commodity exports to China quickly increased from \$1.2 billion in 2002 to \$3.71 billion the following year. At the peak in 2012, bulk commodity exports totaled \$19.9 billion. In 2016, soybeans accounted for 87% of bulk commodity exports and 62% of total U.S. agriculture exports to China (USDA, 2017a). The growth in soybean imports was driven by

increased demand for meat and expanding livestock production resulting from the fast growth of China's economy and incomes since the early 2000s.

China's livestock sector has evolved from backyard production to large-scale commercialized operations, which increased demand for soybean meal in feed rations at a faster rate than the growth in domestic meat production. Although demand for soybean meal for livestock feed increased, China's soybean production has not expanded over the past 20 years, but decreased. Soybean yield growth stagnated from 1996 to 2016. The area planted to soybeans declined from 2009–2015 due to lower profitability compared to alternative crops, such as corn, which have been supported by government programs and policies. There have been almost no constraints or restrictions on soybean imports.

Figure 1: U.S. Exports to China Increased Significantly after China Joined the World Trade Organization in 2001 (\$ billions)



Source: USDA, 2017a.

Sorghum, cotton, and wheat are the next leading bulk commodities exported to China. Exports of sorghum increased due to China's recent high corn support prices and policies limiting imports of lower-priced corn from the global market. Livestock producers began seeking alternative feeds that could be imported at lower prices, such as distillers' grains, sorghum, and barley. China's imports of United States distillers' grains grew rapidly, reaching \$1.6 billion by 2015. Beginning in 2012/13, China increased sorghum imports from the United States; by 2015/16, U.S. sorghum exports to China totaled over \$2 billion.

However, exports of sorghum and distillers' grains dropped significantly in 2016. Prices of alternative feeds—especially corn—decreased, making imported sorghum less competitive with domestic corn for livestock feed rations. China's removal of price supports for corn led to lower domestic corn prices. Distillers' grain imports decreased in 2016 due to China's policy announcement of anti-dumping duties and potential countervailing duties on U.S. exports of dried distiller grains to China.

## Large Corn Exports to China Have Not Yet Materialized

Many commodity analysts expected China to be a major importer of corn due to increasing feed demand for its growing livestock sector and expectations of a limited ability to expand the area under corn production. However, China did not begin to significantly import corn until 2011/12, with 5.2 million metric tons. Since then, China has only averaged 3.8 million tons per year. In contrast, Japan and Mexico each import at about 14 million metric tons per year (USDA, 2017b).

Many analysts thought corn area could not be expanded, but since 2000/01, China's corn area increased from 23 million hectares to 38 million hectares by 2015/16. Corn production doubled over this time period. Expanded planting area was driven by government policies setting high procurement prices and import restrictions on corn, enabling corn to be more profitable than competing crops, such as soybeans. Much of the new corn area was achieved by expanding into marginal areas, especially in Northeast China.

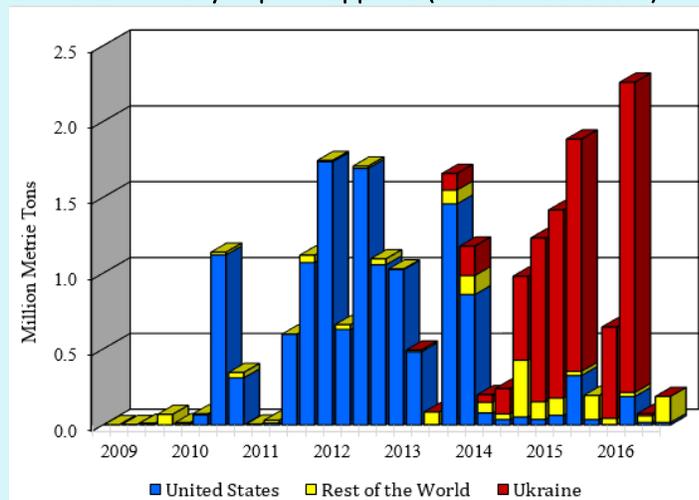
The United States also faces strong competition in exporting corn to China. Beginning in 2014, Ukraine became the major exporter of corn to China (see Figure 2). In 2012, Ukraine and China signed a loan-for-crops contract worth \$3 billion, which provided credit to Ukraine in exchange for corn supplies to China (Olearchyk and Blas, 2012).

Increased imports from Ukraine may also be part of China's new Silk Road plan, which is meant to revitalize trade with Europe and neighboring Asian countries and to diversify China's import suppliers. Even though U.S. corn was priced lower in late 2014 and 2015, China significantly increased corn imports from Ukraine due to the financial risk of U.S. corn imports being rejected due to unapproved biotech traits (Anderson-Sprecher, Wei, and Liwen, 2015; Shuping and Stanway, 2015).

China's corn imports are projected to increase to 6.1 million metric tons by marketing year 2026/27 (USDA, 2017c). Growing feed demand, new government policies reducing corn production on marginal land, and removal of high government support prices for corn will result in overall lower planted corn area and stock levels.

The United States faces competition to preserve and expand its market share of corn exports to China. This may prove difficult because, even given lower costs of production in the United States, Ukraine's agreements with China may continue to boost corn imports from Ukraine.

Figure 2: U.S. Exporters of Corn to China Hurt by China's Efforts to Diversify Import Suppliers (million metric tons)



Source: Global Trade Atlas, 2017.

## U.S. Exports Hides, Skins and Other Intermediate Agricultural Products to China

China has the world's largest leather-processing industry, which is driven by strong domestic demand for finished leather products, low environmental constraints for processing hides, historically low-priced labor, adoption of modern processing facilities, and a strong export market for finished leather products. China is the largest export market for U.S. hides and skins, accounting for 51% of the U.S. export world market share over the past five years. The next three largest export markets are South Korea, Mexico, and Canada. The United States exported \$227 million worth of hides and skins to China in 2000, increasing to \$1.65 billion by 2013. Exports in 2016 were valued at almost \$1 billion.

Distillers' grains and hay are the next largest categories of intermediate agricultural products exported to China. Hay exhibits strong export growth as China's dairy industry continues to expand.

## U.S. Exports of Consumer Products to China Exhibit Strong Growth

The value of U.S. consumer-oriented food products exported to China increased from almost \$300 million in 2001 to \$3 billion by 2013 before declining to a little over \$2 billion in 2016 (see Figure 1). Consumer-oriented products include beef, pork, and poultry meats, dairy, fruits, vegetables, nuts, snack food, breakfast cereals, prepared foods, beverages, condiments, and other foods. Pork, dairy, tree nuts, and fresh fruits are major consumer food products exported to China. Exports of dairy products to China had been quite strong. In 2015, registration approval policies began to change, making it more difficult to export dairy products, as well as other food products, to China (Anderson-Sprecher, Wei, and Liwen, 2015).

U.S. exports of processed foods to China have increased significantly since 2001 and have remained relatively stable (see Figure 3). A number of processed foods exported to China benefit from strong domestic demand. Sales have continued to increase even as exports of traditional bulk commodities and intermediate products to China have slowed in recent years. Demand for processed products is supported by rising incomes, expanding

urbanization, an increasing middle class, growing health consciousness, convenience of processed foods, and easy access through retail outlets.

A major driving force in China's domestic market is consumer awareness of food safety and nutritional value. Imported foods are often perceived to be safer than domestically produced foods, are associated with a higher nutritional value, and have more trusted nutritional labels. A number of food safety incidents and rising levels of pollution in China's water, soil, and air have increased the level of concern many Chinese consumers have for food safety, especially for children's food products.

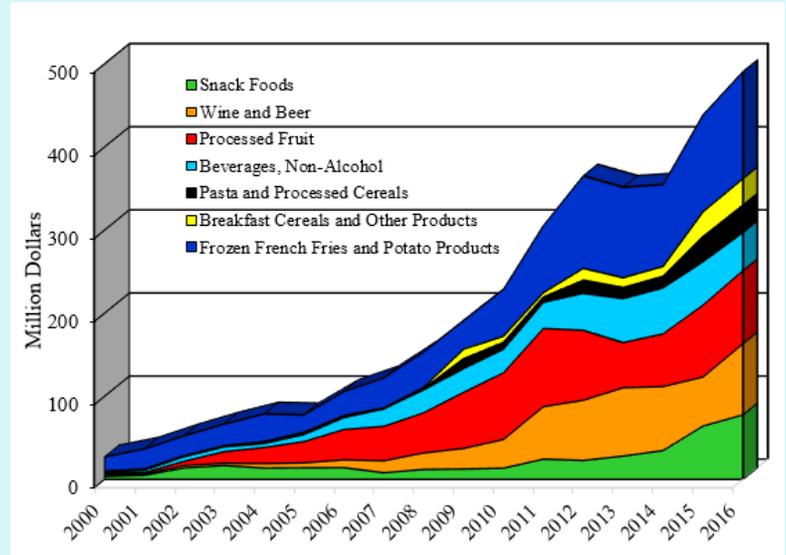
Current U.S. meat exports to China lost significant market share compared to exports in the early 2000s (see Figure 4). A number of countries placed a ban on U.S. beef imports based on the December 2003 bovine spongiform encephalopathy (BSE) case. China's Ministry of Agriculture lifted the ban in September 2016, which is the first of three steps required in an ongoing process before the United States will be allowed to export beef to China (Inouye, 2016).

Prior to the ban on U.S. beef exports to China, U.S. beef exports were small but grew about 30% annually from 1995 through 2003, reaching almost 46,000 metric tons in 2003. During this same time period, beef exports to China from the rest of world grew only 14% annually.

In China, long-term business relationships are important and were partially lost during this import ban period. Brazil, Uruguay, and Australia are the largest beef exporters to China. Brazil is gaining market share as a low-cost producer, and exports to China grew over time. The United States will likely be able to successfully compete in higher-quality markets with grain-fed beef for specialized retail outlets, hotel, and restaurant sectors.

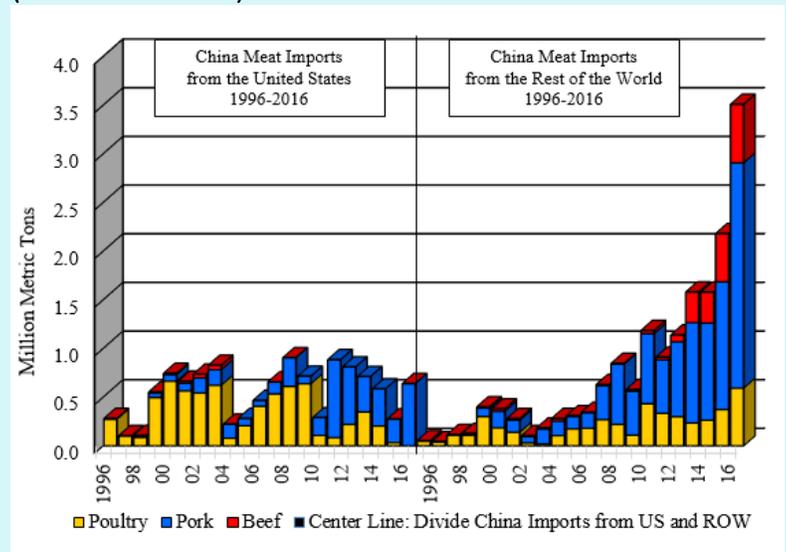
China produces and consumes half of the world's pork and in 2016 became the largest importer of U.S. pork, followed by Japan and Mexico. The European Union (EU) is the largest pork exporter to China, with Germany and Spain the largest suppliers. In 2016, U.S. pork accounted for about 20% of China's total pork imports.

Figure 3: U.S. Processed Food Exports to China Increased in Response to Greater Demand for Convenience Foods (\$ millions)



Source: USDA, 2017a.

Figure 4: United States Loses Market Share as China Increases Meat Imports from the World: The Impacts of Nontariff Barriers (million metric tons)



Source: Global Trade Atlas, 2017.

China delisted a number of U.S. pork plants following positive tests for ractopamine (a feed additive) in 2014. All U.S. pork exports to China must be ractopamine-free. To prevent commingling, the United States has separate pork production and processing facilities for products exported to China. Beginning in 2016, previously delisted U.S. pork plants have started to gain approval by China.

About 66% of U.S. pork exported to China is edible offal, which includes ears, stomach, feet, snouts, and other parts. U.S. exports of swine breeding stock to China increased significantly from the early 2000s, to \$19.8 million in 2013, as China's herd expansion continued. However, U.S. exports dropped to previous levels as China contracted pig herds in 2015 due to increasing losses in pork production.

U.S. poultry exports to China have faced numerous barriers. In February 2004, a ban on U.S. imports due to avian influenza lasted one year. In 2010, China imposed new import tariffs on U.S. poultry and another ban was imposed in 2015 on U.S. poultry due to avian influenza (Bean and Jianping, 2004; Woolsey and Zhang, 2010; Li and Frederick, 2015; Xie and Marchant, 2015).

U.S. poultry exports to China consist mostly of offal and feet, for which there is little demand in the United States. The United States has also been the major exporter of grandparent flocks (the final generation of breeding birds) to produce white-feathered broiler chickens and, to a lesser degree, layers. Exports of U.S. live breeder chicks for broilers and layers to China averaged about \$6.5 million per year in the 1990s. Exports grew to \$38.7 million for broiler chicks by 2013 and accounted for about 20% of U.S. exports (USDA, 2017a).

Broiler chick exports dropped to \$330,000 as China banned U.S. imports in January 2015 due to an outbreak of high pathogenic avian influenza (HPAI). South American countries have benefited from the continued import ban on grandparent stock for white-feathered poultry from the United States and some European countries, increasing their exports of broiler chicks to China.

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# Food Security in China from a Global Perspective

Funing Zhong and Jing Zhu

*JEL Classifications: Q17, Q18*

*Keywords: Food security, China, Farmer income, Grain production, Policy*

## Food Security in China from a Global Perspective

Food security, expressed in Chinese terms literally as “grain security” (which includes cereals, beans, and tubers) and measured solely by self-sufficiency, has long been declared one of China’s top policy priorities. This policy was reiterated in the “Grain Law (draft for public opinions)” (Legislative Affairs Office of the State Council, 2012), which declared grain to be a “specific commodity crucial to [the] national economy and people’s life” and emphasized that the state would continue to adhere to the principle of basic self-reliance. The document further stipulated that the state would “coordinate the market mechanisms linking grain production, marketing and consumption, in order to ensure basic balance in total demand and supply, as well as basically stabilized price.”

To achieve this policy objective, China has continued to invest in agricultural R&D and infrastructure on a large scale, stimulating production with subsidies and price incentives and intervening in market and trade of major grain crops. However, policy interventions aimed at food security are often mixed with other policies, resulting in outcomes other than intended. Facing a widening income gap between rural and urban areas and competition from low price imports, supporting farmers and the agricultural sector—especially grain production—have become once again a sensitive policy issue given the historical preference for food security in China.

China is the largest producer and consumer of food in the world. With more than 120 mmt of net cereal imports (including oil seeds) annually, any change in China’s food security policy could have a significant impact on the world market. We discuss the evolution of China’s food security objectives and the impact of this deep-rooted policy priority on the formation of China’s agricultural policies, which subsequently affect its domestic production, market, and international trade.

## Ensuring Equal Access to Basic Food, 1949–78

Market intervention had been the primary tool used to achieve grain security (in terms of equal access to food for all people) since the founding of the People’s Republic. State control of food marketing was a crucial measure taken to fight hyperinflation after a decades-long war (Xu, 1983) but it gained more long-term importance when China adopted a Russian-style “heavy industry first” development strategy. Under the “unified procurement and rationing system,” producers of major farm produce—especially grain crops—were assigned compulsory delivery quotas at low ministered prices, while urban consumers were entitled to rationed quantities at low prices. This system permitted wage rates to be kept at low levels and transferred agricultural surplus into investment funds in the form of industrial profits (Carter and Zhong, 1988; Zhong, 2014).

As the purposely depressed price could not provide adequate production incentives, China tried to increase yields and hence output by investing intensively in agricultural R&D and mobilizing massive numbers of people to construct infrastructure such as irrigation systems. China was among the first countries to develop and adopt dwarf and semi-dwarf rice and wheat varieties in the 1960s, and hybrid rice varieties were introduced and widespread since the 1970s. At the same time, a nationwide extension system was established to encourage the adoption of new varieties and field practices.

Irrigation is crucial to intensive smallholder farming. The communal system established in the late 1950s provided a way to mobilize massive numbers of people to build irrigation systems with a little financial support from the government. As a result, the total area of farmland under irrigation increased from about 20 million hectares in 1952 to 45 million hectares by 1978, covering almost 45% of the total arable land (NBS, 1984).

However, even with the great efforts expended on agricultural R&D and infrastructure, and accompanied by heavy pressures on farmers through the procurement scheme, grain output was insufficient to ensure adequate supplies for the growing population. In practice, the administered quota price had to be raised periodically and a premium had to be added to encourage delivery above the quota. Over time, economic rewards were recognized as better tools for achieving fast economic growth and food security, and the policy of extracting agricultural surplus gradually gave way to one of stimulating grain production.

## Providing Greater Incentives with Economic Rewards, 1978–1996

The reform launched in December 1978 increased procurement prices by 20% by 1979, and the above-quota premium was raised from 30% to 50%. The volumes of the procurement quotas gradually reduced while the quota price increased periodically. The “unified procurement” system was formally replaced with a “contracted purchase” scheme in 1986, but the policy of compulsory delivery at below-market prices remained in place until the mid-1990s. Under either scheme, increasing procurement prices were a relief to depressing farm-gate prices, and might stimulate food supply for the benefit of urban consumers while simultaneously increasing farmers’ income and wellbeing. The only constraint was the budgetary burden, as the government did not raise retail prices for rationed food until 1991/92; the subsidy to food marketing accounted for more than 10% of total government budget expenditures during the 1980s (Carter and Zhong, 1988). At the same time, income increased rapidly, and more and more urban consumers shifted to the free market in order to enjoy better quality food, despite higher prices. As a result, rationing prices were substantially raised in both 1991 and 1992, and the entire rationing system itself was abolished shortly thereafter.

Another major step in improving production incentives was the initiation of various “production responsibility” schemes, linking economic rewards to actual efforts made by individual members within the collective farming system. By 1984, the now well-known “household responsibility system” (HRS) was adopted nationwide, and the communal system was formally abolished. Farmland was still collectively owned by farmers in a small village of roughly 20–30 households, but the right to use farmland was contracted to individual households (Carter and Zhong, 1988).

Despite impressive increases in grain production during the first years of reform, annual imports of grain (basically wheat) were double those of the previous ten years. The increase in imports coupled with increasing domestic production allowed some farmers to shift from grain to cotton or sugar production. As China was also a major importer of cotton and sugar, this shift led to higher income for farmers and lower import costs for the government.

Thanks to fast and continuous growth in grain production, China reduced its grain imports in the second half of the 1980s and became a net exporter of grain crops in the early 1990s, with corn exports exceeding 10 mmt in 1992 and 1993. In the domestic market, farmers periodically complained of “difficulty in selling grain” and that “contracted purchasing” was no longer a channel to extract agricultural surplus but a pool to absorb surplus production. At the same time, reserve stock and risk management programs were initiated to absorb the surplus. As the domestic price was below the prevailing price in the world market, these measures did not invite challenges from major trading partners at that time.

## Supporting Agricultural Production and Farmers, after 1996

The grain market situation changed dramatically in December 1996 as prices for major grain crops declined by 40% in a single month and stayed there for several years. As a result, grain production declined by 16% over five years from the 1998 peak (NBS, 2016). Alarmed by the possibility of serious shortages in domestic production, the government initiated a new package of policies at the end of 2002. Minimum price schemes were introduced in 2004 for selected grain crops in selected areas, while a “temporary stock” program was periodically executed for

corn produced in Northeast China. Agricultural taxes were phased out in 2004–06; grain producers benefited more than others as the tax had been levied on land, more than 60% of which was devoted to grain crops.

The new package also included subsidies to input uses and agricultural insurance. Farmers received “agricultural input comprehensive subsidies” when purchasing fertilizers, pesticides, plastic film, and diesel, and when purchasing farm machinery and high-quality seeds. Agricultural insurance in China is not designed to support current production or to smooth farmers’ income; rather, its objective is to restore normal production after big losses. Under the guideline of “low premium and low indemnity,” only part of the material costs is eligible for compensation when yield losses exceed trigger levels. Agricultural insurance premium subsidies have been provided since 2007, and coverage has been extended from cereals, soybeans, and cotton to cover many other crops as well as some animal products.

Although adequate food supply remained one of China’s major objectives, rural income and farmer welfare has attracted increasing attention among policy makers. The price support for grain producers may have negative effects on livestock producers. The costs for large-scale commercial livestock producers will increase, while the impacts to backyard producers could be null, as they mainly produce their own feed. In addition to production support, new programs providing a social safety net, such as healthcare and pension systems, were initiated in some places and soon expanded to cover almost all rural residents.

Major grain crops were protected by the Tariff Rate Quota (TRQ) system established at WTO accession, allowing China to levy higher tariffs on imports above specified quantities. After 2004, the quotas were 5.3 mmt, 7.2 mmt and 9.6 mmt for rice, corn and wheat, respectively, with above-quota tariffs of 65% against in-quota tariffs of 1%. However, following strong increases in labor and other costs, administered and domestic market prices rose above prevailing prices in the world market. Additionally, imports of those cereal crops have increased continuously to above 10 mmt, along with over 20 mmt of unprotected feed substitutes such as barley, sorghum, and DDGs, in addition to 80 mmt of soybeans. As a result, stocks of rice, wheat, and corn piled up as state agencies could not resell those cereal crops in domestic markets after purchasing them at protected prices and/or through the “temporary stock” program.

The new problem in pursuing food security is the so-called “three highs”—high outputs, high imports, and high stocks. Major cereal crops are still protected by TRQ system, but what would happen if this protection were lost? As the price gap approaches the tariff rates permitted for above-quota imports and domestic production costs continue to rise, the current TRQ system will no longer be an effective protection. On the other hand, public expenditures are wasted if procured grain is only stored and then disposed of later.

In order to deal with the “three highs” problem, target price programs similar to those previously implemented in the United States were recently initiated. In marketing year 2014/15, the temporary procurement for reserve program for cotton was replaced with a trial target price system. A pilot target price program with a direct subsidy for soybean producers was introduced in 2014 in four northeast provinces. A similar program to separate subsidies from pricing has been under consideration and might replace the minimum price and temporary reserve programs currently applied to major cereal crops if the experiments succeed. However, it is still too early to determine whether the new policy tools will work well.

## Summaries and Perspectives: Challenges and Implications

Food security has been one of China’s top policy objectives for a long time. However, as the objective of food self-sufficiency at the 95% level has become more and more unrealistic, the definition of “food” is changing. “Food security” in Chinese literally is “grain security,” with cereals, beans, and tubers defined as grain crops in official statistics. Due to strong increase in soybean imports, the definition of grain has been debated with regard to “grain/food security,” and cereals seem to be a candidate to substitute for grain. As future imports of corn and other feed grains are projected to increase, a definition limited to food grains or staple grains (rice and wheat) seems to fit real-world situations better. As food security is still a politically sensitive topic in china, changes to the definition of food influence not only domestic policy, but also the mix of food imports.

The minimum price and procurement of temporary stock reserves might be replaced by other schemes depending on the outcome of experimental “target price” schemes for cotton, corn, and soybeans. The objective of these programs is to provide grain producers with adequate incentives in order to achieve food security while still allowing the market price to decrease, which would encourage consumption of domestic products and reduce costs to food/feed processors and livestock producers. At the same time, it is expected that imports may be reduced, and the government would not have to cover the costs of procurement and storage.

It is likely that the Chinese government will have to make a decision about pursuing food security and farmers’ welfare. In the long run, China must decide whether increases in food imports are desirable in order to make better use of limited resources and allow farmers to shift to more profitable crops. In the short run, it must find more effective and efficient approaches to raise agricultural productivity, support the agricultural sector and farmers’ income, and allow moderate increases in food imports in a way that is politically less sensitive.

Future imports of foodstuffs will likely continue to increase. However, considerations of food security, farmer income levels, and TRQ protections may cause further increases in food imports, (1) soybeans and other oil seeds; (2) animal products; (3) non-grain feed and non-grain foodstuffs; (4) non-TRQ feed grains; (5) TRQ feed grains; and finally (6) staple-food grains such as rice and wheat.

Population and income growth will continue to raise China’s total food consumption, pushing imports of food items increasing continuously. As eating away from home and consumption of fast foods will likely continue to increase, poultry consumption is also likely to experience an increasing trend, as fast food chains seem to favor inexpensive meats. Among food items, meat consumption will likely see stronger increases in the decades to come, resulting in increases to meat and feed imports, which are less sensitive to food security considerations.

The target price policy experiment of has just been introduced; its impact has yet to be assessed. However, the potential reduction in imports might be a short-term effect resulting from the release of existing stock reserves. After the stock reserve level reaches a normal level, a long-run demand/supply situation will prevail in the market.

While total imports of foodstuffs may continue to increase, China may seek diversified sources for food imports or link food imports with other development strategies. The long-run trends in agricultural trade between China and its major trading partners may be influenced by political issues and macro-situations in the world economy as well as disputes in non-farm trade.

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# The WTO Dispute on China's Agricultural Supports

David Orden, Lars Brink and Mina Hejazi

*JEL Classifications: Q18, F13, K33*

*Keywords: Agriculture, China, Domestic support, U.S.-China dispute, WTO*

Domestic agricultural policy can affect trade and motivate trade disputes. In September 2016, the United States launched a World Trade Organization (WTO) case claiming that China's yearly government support to producers of wheat, corn, and rice in 2012–15 had exceeded China's Agreement on Agriculture (AA) commitments. Subsequently, the WTO established a dispute panel for this complaint on January 25, 2017. Assuming this dispute case goes forward, three individuals who are not from the United States or China will be selected to be on the panel, which then will proceed with an assessment.

In WTO disputes, the parties' arguments are usually not made public until a panel issues its report. To shed light on some of the possible arguments, we examine the key issues at stake in the case *China – Domestic Support for Agricultural Producers*. A dispute settlement outcome on these issues may be crucial to determining whether the legally effective stipulations of the AA can serve to limit certain kinds of economic producer support. One possible outcome could create pressure on some countries to limit certain types of economic support currently provided or at least employ different policy instruments to deliver support. Whatever the outcome, this case could also strengthen many countries' motivation to engage—offensively or defensively—in further WTO negotiations on new rules for domestic support that distorts international trade.

Market price support (MPS), which is based on a price gap calculation, is the key component of China's support to agricultural producers. The MPS measured under the rules of the WTO AA differs from the economic MPS measured by, for example, the Organization for Economic Cooperation and Development (OECD). The WTO MPS measurement hinges on several technical terms of the AA, and the panel will likely face related arguments in determining how to measure China's support. A central point of contention will be the quantity of China's annual production of each grain counted as eligible for price support. MPS calculations using total production of each grain, and in line with other arguments the United States is likely to make, show China's support to be above its WTO limits during 2012–15. MPS as measured by the OECD is also relatively high during these years. In this situation, the WTO rules may help rein in the use of certain support instruments and associated economic support levels.

## Technical Terms and Issues

When China acceded to the WTO in 2001, some of its domestic support for agricultural producers became subject to limits that apply to support measured through Aggregate Measurements of Support (AMSs) for individual products. China's commitments set a *de minimis* percentage of 8.5% of the value of production as an annual upper limit on each product's AMS (non-product-specific AMS is similarly limited). A product's AMS consists of MPS and certain payments.

The U.S. complaint focuses on MPSs for wheat, corn, and rice, though other support may also be challenged (Brink and Orden, 2017; WTO, 2017). MPS is measured under the AA by multiplying the gap between the current year "applied administered price" (AAP) and a "fixed external reference price" (FERP) by the "quantity of production eligible to receive the applied administered price" (Annex 3 of the AA).

China's WTO accession documents calculate MPS for 1996–98 and state that "Eligible Production for State Procurement Price refers to the amount purchased by state-owned enterprises from farmers at state procurement price for the food security purpose." The quantity of wheat, corn, and rice procured annually at procurement (administered) prices since China's accession has been only a portion of total production. China may argue that procurement takes place only in designated regions and only for part of the year and that significant grain production is consumed on-farm and not marketed. Each of these situations reduces the quantity potentially procured at the support price. For corn, which has a different program than wheat and rice, China may also argue that certain purchases are not made at an applied administered price.

The United States, in contrast, may argue that in the absence of a pre-announced maximum procurement quantity, all production of wheat, corn, and rice is eligible to receive China's announced administered prices. In this view, the announced support price would be the AAP, and it would apply to total production in the MPS calculation.

## The Panel's Evaluation Task

The panel will have to address these issues to reach a determination in the case. Several questions will arise in interpreting the AA. Article 1 of the AA requires an AMS to be calculated "in accordance with the provisions of Annex 3" and "taking into account the constituent data and methodology." The 1996–98 calculations in China's WTO accession documentation, which use procured quantities as eligible production, are its constituent data and methodology. China might argue that its 1996–98 calculations, using procured quantities, are in accordance with Annex 3. A U.S. counter-argument might rest on interpreting the rules in Annex 3 to say that a larger quantity of production should be counted and that the Annex overrides the methodology of the accession document.

The Panel may consider a precedent in assessing these issues. In *Korea – Various Measures on Beef*, concluded in 2000, the panel introduced the concept of "total marketable production," a possible opening for China's argument that grain used on-farm is not eligible for procurement. The WTO Appellate Body (AB), which hears appeals of panel findings on legal grounds, held that "in accordance with" reflects a more rigorous standard than "taking into account." The AB then reasoned that the quantity Korea had declared it would procure constituted "eligible production" for the MPS calculation, even though Korea actually procured less. This precedent might suggest that if China declared the procurement quantity in advance, this would be the quantity of eligible production for the MPS calculation, even if less were actually procured. It does not, however, clarify a situation in which the quantity to be procured has not been declared.

Calculation of rice MPS faces an additional technical issue. China's annual domestic support notifications (submitted only for 1999–2010, as of April 2017) calculate the price gap using an administered price of unmilled rice (an unprocessed product) but a FERP of milled rice (a higher-priced product). The United States has asked in the WTO Committee on Agriculture that China use an administered price for milled rice comparable to the reference price. This would make the price gap much larger, since converting the administered price to its milled-rice equivalent raises the price considerably. China's 1996–98 constituent data and methodology are not explicit on the prices used but seem to have used milled administered and reference prices, which could strengthen the U.S. argument. China's announced domestic support prices during 1997–98 were only around 70% of the administered prices used to calculate MPS in its accession document, which is close to the conversion coefficient between milled and unmilled rice. The administered prices used for rice MPS dropped sharply in China's notification for 1999, when unmilled prices clearly began to be used.

If a milled price was used for 1996–98, the United States may argue that taking this into account requires using milled administered prices for rice in 2012–15 and also that this is consistent with calculating AMSs in accordance with Annex 3. China might argue that the requirement to calculate support in accordance with Annex 3 overrides taking into account the constituent data and methodology. Thus, both China and the United States in their arguments might find the AB's characterization of "in accordance with" as the more rigorous standard to be useful: the United States for eligible quantity and China for applied administered prices. China might invoke the Annex 3 provision for support to be calculated "as close as practicable to the point of first sale of the basic agricultural product" (i.e., for unmilled rice). The Annex 3 provision for adjusting the fixed reference price "for quality differences as necessary" might also be brought to bear when the price observations relate to different qualities, such as milled and unmilled rice, which would favor the U.S. argument for using comparable prices.

Decisions that the WTO has made since 2013 concerning food stock acquisition in developing countries may also affect the assessment of the dispute settlement outcome. Under the heading “public stockholding for food security purposes,” the 2013 Bali Ministerial Decision designed an interim mechanism that essentially allows developing countries with existing support programs to provide unlimited MPS for traditional staple food crops without fear of legal challenge, provided that they meet conditions regarding notification and transparency. A 2014 decision allows the interim mechanism to remain in place until a permanent solution “is agreed and adopted.” The U.S. challenge of China’s support includes years following the 2013 Ministerial Decision and subsequent food stock decisions but seems to be independent of their contents and any arguments China might make under those decisions.

## China’s WTO Market Price Support

The United States has not made public its MPS calculations by product and year. The upper rows in Table 1 present MPSs (labeled WTO MPS) for China’s wheat, corn, and rice calculated using one possible interpretation of the WTO rules. These MPSs are based on the assumption that the total production of each grain constitutes eligible production, as the United States may argue, rather than any smaller or nil quantities that China may see as eligible production. The MPSs also presume that China’s administered prices are “applied administered prices” under the AA for this eligible total production. The analysis is limited to MPS and does not include any product-specific budgetary AMS components, which have been a relatively small part of China’s AMSs compared to MPS. The MPSs are given as percentages, which makes it easier to see when the nominal limits, which vary from year to year as the value of production changes, are exceeded and relatively by how much.

Table 1: China’s MPS for Wheat, Corn, and Rice, Percent of Value of Production, 2008–2015

	Year							
	2008	2009	2010	2011	2012	2013	2014	2015
	Percent							
<b>WTO MPS</b>								
Wheat	-12.6	0.1	3.1	12.6	15.8	23.0	27.4	27.7
Corn	21.5	19.9	33.9	37.1	40.6	48.1	47.9	49.6
Rice (milled AAPs)	-12.3	-1.3	5.6	15.1	26.3	34.9	36.5	35.9
Rice (unmilled AAPs)	-57.1	-41.7	-30.4	-16.6	4.6	3.7	6.2	6.1
<b>Economic MPS</b>								
Wheat	34.7	30.6	28.2	12.3	28.0	26.7	31.9	35.6
Corn	-15.5	16.3	15.9	1.6	13.8	23.3	26.5	36.2
Rice (milled)	-65.8	-43.6	-0.5	-9.4	29.7	32.6	32.8	39.1

Sources: WTO MPS: Authors’ calculations; Economic MPS and value of production used to calculate the percentages: OECD. AAPs are applied administered prices.

During 2012–15, using total production as eligible production and applying China’s administered prices to this quantity, China’s WTO MPSs exceed the limits of 8.5% of value of production, as the United States claims. For wheat they are larger than 15% of value of production in all years and for corn they are larger than 40%. An additional critical factor for rice is the adjustment of the administered prices to a milled basis. The WTO MPSs for rice are as large as 26% or more of the value of production in 2012–15 when the administered price is on a milled basis but are less than the limit of 8.5% using the unmilled rice administered prices. For the preceding period, 2008–11, WTO MPSs for corn are well above the limit of 8.5% in all years. The WTO MPSs for wheat and rice (with milled administered prices) change from negative to positive but exceed their limits only in 2011.

An example of the calculations of nominal values of WTO MPSs is shown for 2015 in Table 2. The WTO MPS amounts in 2015 sum to \$86.4 billion, with each crop’s limit exceeded. The limits (not shown) sum to \$19.0 billion, resulting in AMSs in excess of the limits of \$67.4 billion.

**Table 2: China's 2015 WTO MPS Estimated Under Certain Assumptions**

Crop	Administered	FERP	Price gap	Production	MPS	
	price					
	RMB/tonne			million	billion	billion
				tonnes	RMB	dollars
Wheat	2,360	1,698	662	130.2	86.2	13.9
Corn	2,250	1,199	1,051	224.6	236.1	38.1
Rice (milled AAP)	4,168	2,659	1,509	141.6	213.7	34.4
Rice (unmilled AAP)	2,834	2,659	175	208.2	36.5	5.9

Note: MPS in RMB converted at an exchange rate of 6.2 RMB/\$.

The WTO MPSs in the two tables are based on total production, but it is uncertain how a panel or the AB might establish the proper level of eligible production for calculating China's support. Thus, it is informative to calculate the share of total production of a crop that would generate an MPS large enough to equal its AMS limit. Eligible production corresponding to shares of production less than these levels would, as China may argue, result in AMSs not exceeding China's commitment. Based on the calculations in Table 1, and depending on the year and crop, eligible production will need to account for at least a range of 17% of total production (corn, 2015, calculated as the 8.5% limit divided by 49.6% MPS using total production) to 54% (wheat, 2012) for the United States to prevail in its argument that China has exceeded its AMS limits, assuming that no other support is included.

## Comparing China's WTO MPS and Economic MPS

While the determination of whether China's AMSs have exceeded their limits will be made on the legal grounds of the WTO rules, an underlying objective of the AA is to limit agricultural support to reduce distortions in world markets. One measurement of distorting support that arises through policies that affect domestic prices is the economic MPS calculated by the OECD (2016). Economic MPS utilizes the difference between annual observed domestic market prices and contemporaneous border (international) prices. This observed difference results from myriad underlying policies—not only domestic policy instruments but also border instruments such as tariffs, including high over-quota tariffs, and non-tariff measures. The difference, whatever its causes, applies to total output. The economic MPS, which measures the policy-related incentives for producers compared to international prices, contrasts with the WTO MPS, which uses the applied administered price, FERP, and eligible production.

The economic MPSs from OECD are reported in the lower part of Table 1. While specific annual values differ, an alignment occurs during 2012–15: both the WTO MPSs (except rice with unmilled AAPs) and the economic MPSs for wheat, corn, and rice exceed the level corresponding to 8.5% of value of production. Economic MPS is not subject to WTO limits, but exceeding the limit can be considered an indicator of whether economic MPS is relatively high or low.

The instance of the WTO MPS and economic MPS both exceeding 8.5% in 2012–15 is a specific occurrence. In the four preceding years, wheat support in economic terms is at similar levels, but the WTO MPS only exceeds its limit in 2011. If the presumed U.S. interpretation of the WTO rules were to prevail, they could still not have served in 2008–10 to constrain the economic support for wheat. For rice, the WTO MPS also exceeds its limit only in 2011 (with milled AAPs). But, opposite of wheat, rice is a situation where a WTO challenge would not have been motivated on economic grounds in 2008–11, since the economic MPSs shows that rice was disprotected.

## Context of China – Domestic Support

The WTO dispute on domestic support was initiated following several years of heightened concerns about market distortions from China's agricultural policies, even as China has become the top destination for U.S. agricultural exports. Of 20 dispute cases the United States has initiated against China since its accession to the WTO in 2001, only the domestic support case and two others—*China – Broiler Products* and *China – Tariff Rate Quotas for*

*Certain Agricultural Products*—exclusively concern agriculture. The United States requested the establishment of a compliance panel in its case against China’s anti-dumping and countervailing duties on U.S. broiler products on May 27, 2016. This dispute traces back to China’s imposition of high duties in 2010 and is one of several issues between the United States and China over such measures, including the imposition in 2016 by China of duties on certain feed imports from the United States, which so far has not escalated to a WTO dispute. The United States requested consultations with China on its administration of tariff rate quotas (TRQs) for wheat, corn, and rice on December 15, 2016. The United States alleges, *inter alia*, that China does not administer its TRQs for these grains on a transparent, predictable, and fair basis and alleges deficiencies in China’s administrative procedures and requirements. It bears emphasizing that *China – Domestic Support for Agricultural Producers* is a complaint about compliance with the AA, not adverse effects under the WTO Agreement on Subsidies and Countervailing Duties, as was the case in the well-known *United States – Upland Cotton* dispute brought by Brazil. A domestic support complaint under the AA requires the complainant to demonstrate that the respondent has exceeded a limit on certain domestic support but does not require demonstrating adverse effects.

The relatively high levels of China’s economic MPS since 2012 coincide with the possibility that China’s WTO MPSs have exceeded their limits. This raises the prospect that the WTO rules on domestic support may effectively limit certain economic support. To meet its WTO commitments a country would in these circumstances need to limit the amount of economic support, or at least resort to different policy instruments than applied administered prices. In March 2016, China announced that it was modifying its price support program for corn. Lowering or eliminating China’s administered prices for wheat or rice could also be a policy response to reduce future vulnerability to legal challenges. In short, China may itself see merit in an alternative policy direction that relies less on administered prices and MPS.

Reducing the amount of MPS as measured under WTO rules does not automatically reduce economic support. Another possible implication is therefore that the outcome of *China – Domestic Support for Agricultural Producers*, along with the earlier ruling in the *Korea-Beef* case, could legitimize a policy landscape in which more WTO members design price support policies specifically to measure only modest support for announced procurement quantities under the rules of the AA without this limitation on the quantity having much effect on the economic MPS provided. The scope of implications from the present case will also depend on the interim WTO decisions taken since 2013 and those eventually given permanent legal effect for food stock acquisition and support measurement in developing countries. In short, the stakes in this case are substantial.

## For More Information

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