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Supplying China's Growing Appetite for Poultry

Chaoping Xie^a and Mary A. Marchant[ⓑ]

^a*Ph.D. Student, Department of Agricultural and Applied Economics, Virginia Tech,
208 Hutcheson Hall (0401), 250 Drillfield Dr., Blacksburg, Virginia, 24061, USA.*

^b*Professor, Department of Agricultural and Applied Economics, Virginia Tech,
313 Hutcheson Hall (0401), 250 Drillfield Dr., Blacksburg, Virginia, 24061, USA.*

Abstract

Exports provide a valuable source of income for the U.S. poultry sector, where the U.S. is the world's second largest broiler meat exporter. Russia, a top market for U.S. broilers, recently declared a one year ban on U.S. agricultural products. To fill this void, China, the United States' leading agricultural trading partner, could be considered as an expanding market for the U.S. poultry industry. In this paper, we explore the potential for U.S. poultry export opportunities by examining China's demand, supply, food safety and trade barriers which affect poultry trade between the two countries. Results indicate that although China may not experience rapid growth in U.S. poultry exports in the short run as it meets Chinese consumers' demand, but that market opportunities exist in the long run as China confronts its supply constraints.

Keywords: China, poultry, exports, food safety, trade barriers

[ⓐ]Corresponding author: Tel: + 1.540.231.1674

Email: C. Xie: xiecp@vt.edu

M. A. Marchant: mmarchan@vt.edu

Introduction

In August 2014, the Russian government announced a one-year ban on agricultural products from the United States. While less than prior years, Russia remains one of the top markets for U.S. broiler exports with 7.5 percent of U.S. broiler shipments sent to Russia on a year-to-date basis in 2014 (U.S. Department of Agriculture (USDA), 2014). In fiscal year 2015, U.S. poultry exports are forecast to decrease by \$100 million to \$6.1 billion (USDA 2014). Given this decline, and with expected increases in production, U.S. exporters are likely to search for alternative markets for their products.

China, neighbor of Russia, is the largest international market for U.S. food and agricultural products (Figure 1), accounting for nearly 20 percent of all U.S. farm exports. U.S. agricultural exports to China reached a record \$26.7 billion in fiscal year 2013 (Gale, Hansen and Jewison 2015; USDA 2014). As discussed in Stuart and Fritz (2013), China has been viewed as the “market of the future” for decades. The future is now, when China overtook Canada as the leading market for U.S. agricultural exports in 2012 and remained so since then.

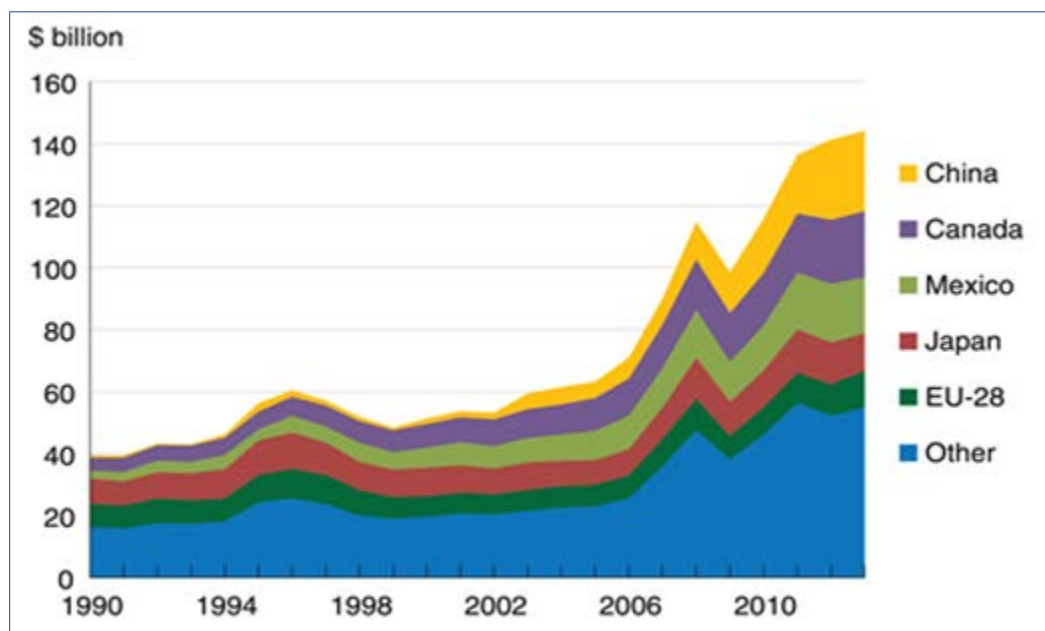


Figure 1. Top Markets for U.S. Agriculture Export

Source. USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Database.

Given China’s dramatic impact on U.S. agricultural exports overall, it makes sense to consider China as a potential poultry export market, especially after the U.S. poultry sector increased its export market share to China from 12 percent in 2012 to 37 percent in 2013 (USDA-GAIN Report 2014).

The main objectives of this research are to (1) provide an overview of China’s continuously evolving marketplace as determined by changing urban-rural demographics, rising incomes and

subsequent changing diets including increased demand for poultry; (2) examine policy changes that restrict U.S. poultry trade with China, e.g., use of safeguards and (3) assess food safety issues and how this may create opportunities for U.S. poultry exporters.

Overview of China’s Poultry Market

China’s Evolving Market-Demand Side

Historically, poultry and eggs were not an important part of the Chinese diet and considered luxury goods for special occasions, e.g., century eggs (Pi et al. 2014). In contrast, China is currently the world’s second largest poultry consumer after the U.S. (Figure 2; USDA-FAS-PSD). Chinese per capita consumption of poultry products has increased continuously over the past two decades with rapid income growth (Tables 1 and 2).

Tables 1 and 2 reveal three key points:

- Chinese urban households consume much more poultry than rural households (National Bureau of Statistics of China 2013; Zhou et al. 2014).
- Since 1990, Chinese urban and rural consumers increased their poultry consumption by nearly three times and four times respectively (National Bureau of Statistics of China 2013).
- China’s poultry meat consumption grew faster than that of any other meat for both urban and rural households and its consumption share with respect to meat is increasing (National Bureau of Statistics of China 2013 and our own calculations).

These findings again indicate that market opportunities may exist for U.S. poultry exporters to China.

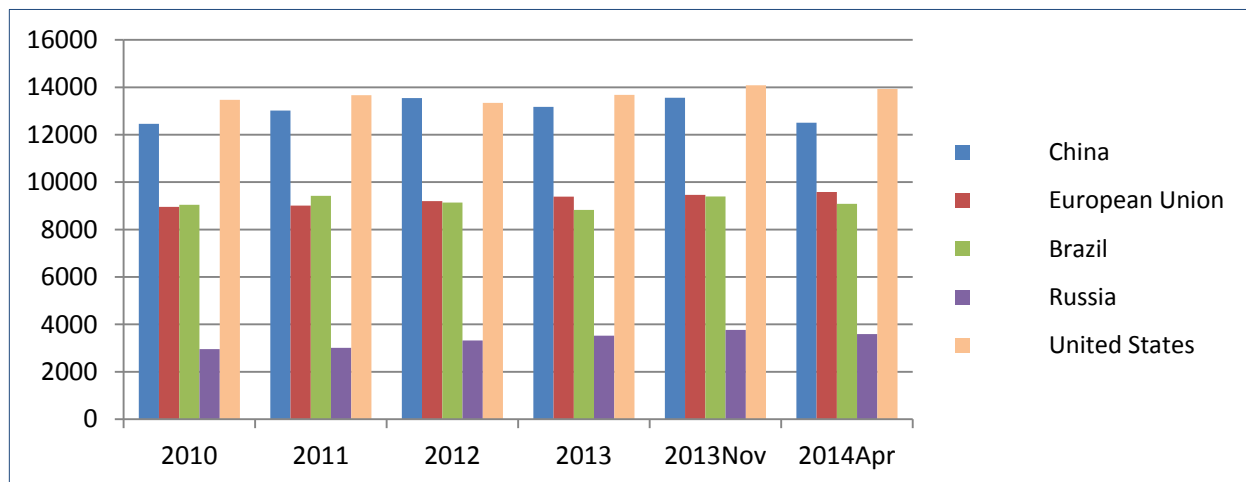


Figure 2. Global poultry consumption by country (1000 metric tons)

Source. USDA-FAS Production, Supply and Distribution Online Database, 2014.

Table 1. China's Rural Per Capita Consumption per Year (kg)

Year	Pork	Beef and mutton	Poultry	Eggs and products	Milk and products	Aquatic	Poultry/Meat
1990	10.54	0.80	1.25	2.41	1.10	2.13	10%
1995	10.58	0.71	1.83	3.22	0.60	3.36	14%
2000	13.28	1.13	2.81	4.77	1.06	3.92	16%
2005	15.62	1.46	3.67	4.71	2.86	4.94	18%
2010	14.40	1.43	4.17	5.12	3.55	5.15	21%
2011	14.42	1.90	4.54	5.40	5.16	5.36	22%
2012	14.40	1.96	4.49	5.87	5.29	5.36	22%

Source. National Bureau of Statistics of China, China Statistical Yearbook 2013.

Table 2. China's Urban per Capita Consumption per Year (kg)

Year	Pork	Beef and mutton	Poultry	Eggs and products	Milk and products	Aquatic	Poultry/Meat
1990	18.46	3.28	3.42	7.25	4.63	7.69	14%
1995	17.24	2.44	3.97	9.74	4.62	9.20	17%
2000	16.73	3.33	5.44	11.21	9.94	11.74	21%
2005	20.15	3.71	8.97	10.40	17.92	12.55	27%
2010	20.73	3.78	10.21	10.00	13.98	15.21	29%
2011	20.63	3.95	10.59	10.12	13.70	14.62	30%
2012	21.23	3.73	10.75	10.52	13.95	15.19	30%

Source. National Bureau of Statistics of China, China Statistical Yearbook 2013.

Drivers of Chinese poultry demand include income growth in both urban and rural areas, changing diets and demographic changes—growing population and urbanization. These drivers will be discussed below.

Income Growth of Urban and Rural Households

Since 1990, China's urban and rural residents experienced significant income growth by nearly 18 times and 11 times, respectively (Figure 3). In other words, per capita urban income doubled every ten years. This income growth directly affected Chinese consumption of meat products.

As documented in Bingsheng and Yijun's 2008 publication that reviewed numerous Chinese poultry demand studies, although specific results differ, researchers agree that the effect of income on Chinese poultry demand is large. The average income elasticity for poultry meat is 0.7 for China's urban households and 3.12 for rural households (Bingsheng and Yijun 2008).

More recently, Zhou, Yu, Abler and Chen (2014) conducted a meta-analysis of meat and cereal demand for China. They analyzed 143 income elasticity estimates for grains and 240 for meats from 36 primary studies. Results showed that income elasticities declined as per capita income increased, with the exception of wheat. Additionally for food demand forecasts that use income elasticities for projections, their results showed a gap between forecasts using time-varying versus constant income elasticities.

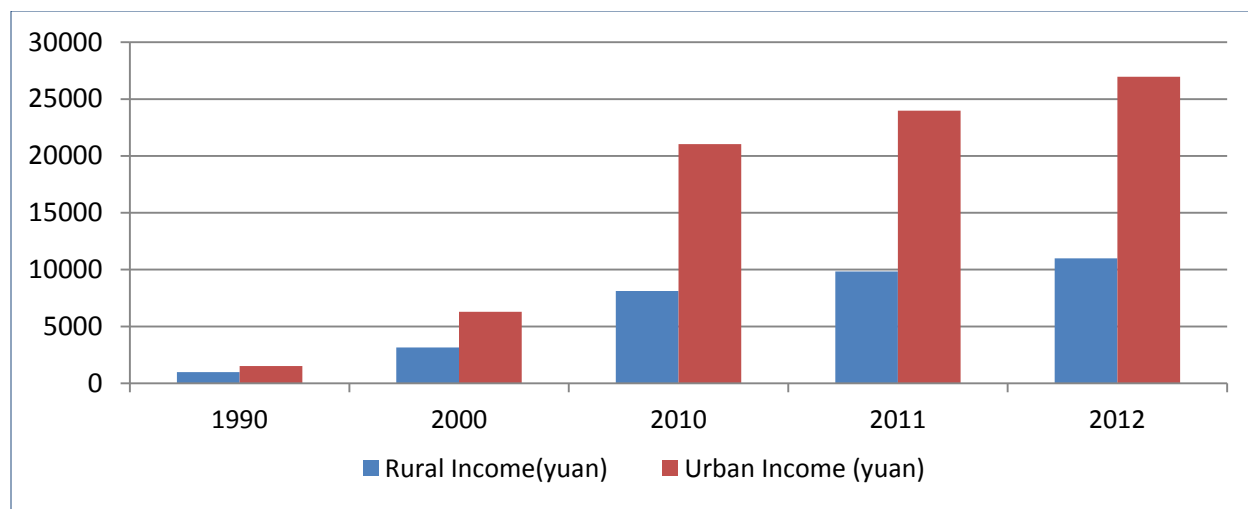


Figure 3. China's Urban and Rural Income

Source. National Bureau of Statistics of China, China Statistical Yearbook 2013.

Further results from Zhou, Yu, Abler and Chen (2014) show income elasticity for general meat were 0.53 overall from the 36 studies, and 0.72 for poultry. They also examined urban-rural sectors, where urban income elasticity was 0.56, while rural income elasticity was 0.74. They noted that urban consumers experience a wider variety of food products and have more restaurant options for dining out. Meals eaten away from home are more likely to include meat relative to meals eaten at home.

For both studies—Zhou, Yu, Abler and Chen (2014) and Bingsheng and Yijun (2008), positive income elasticity values implies that poultry demand will rise with income growth. Both studies have rural income elasticities exceeding that of urban areas. Thus, although urban incomes are rising faster than rural incomes, rural households have larger income elasticity. Therefore, even with a slower income rise, rural areas may see large increases in poultry consumption.

Additionally, the income gap between China's urban and rural residents is widening. The income growth rate of China's urban residents is much higher than that of their rural counterparts. In 1990, China's rural residential income was about 65 percent of their urban counterparts; while in 2012 this ratio dropped to 41 percent (Figure 3). This income gap transfers to Chinese poultry consumption directly.

Comparing Tables 1 and 2 reveals that China's urban population consumes nearly double the poultry meat than its rural population. And it is this urban sector, whose incomes are rising at a faster rate. With positive income elasticity, this again indicates a potential growth market for U.S. poultry exports.

Changing Chinese Diets

Changing Chinese diets also play an important role in increased poultry demand. As income grows, Chinese consumers demand more meat, including poultry. However, other factors also affect the increase in Chinese poultry consumption including the emergence of fast food and quick service restaurants (Pi et al. 2014).

Although Western-style fast food in China is a relatively recent phenomenon, dating back to October 1987 when Kentucky Fried Chicken (KFC) opened its first outlet in Beijing, it has greatly changed Chinese eating customs. Since then, KFC has become the most popular fast food restaurant in China with 4,200 KFCs in 850 Chinese cities as of 2013 (Lin and Patton 2013). In fast food restaurants, poultry is the most common meat ordered mainly due to the poultry meat characteristics: relatively low price; ease of cooking and good taste. And Chinese fast food restaurants have historically obtained poultry meat domestically, within China. The emergence of fast food restaurants in China strongly contributes to China's increased demand for poultry (Pi et al. 2014).

In regards to health issues and food safety outbreaks, Chinese consumers have placed a higher priority on these issues in recent years. From a health point of view, chicken meat has many advantages. Compared with most cuts of red meat, chicken has much less saturated fat and more omega-3 fatty acids (FAO 2013). Chicken meat is considered a healthier meat, which may also increase consumption of poultry meat in China. Food safety outbreaks will be discussed subsequently in the constraints of the Chinese poultry production section.

Demographic Changes and Increasing Urbanization

In addition to rising incomes, population growth has been one of the primary forces driving rising demand for poultry products in China. China's total population increased from less than 1 billion in 1980 to more than 1.3 billion in 2013 (Figure 4). Although China's population growth may slow (World Bank 2014), the impact of urbanization is the next major driving factor for Chinese poultry consumption.

The size of China's urban population has risen much faster than that of its total population (Figure 4). Urban population (including rural migrant workers) has more than doubled over the past two decades. This growth trend is expected to continue, and the urban share forecast to reach 77.3 percent by 2050 (World Bank 2014).

This rapid urbanization has direct implications for poultry consumption—more demand for meat including poultry products. As discussed above, urban Chinese consume more meat than do rural Chinese. The difference in meat consumption between rural and urban Chinese can be seen from Tables 1 and 2 above, as well as documented in Zhou, Yu, Abler and Chen (2014), where both use data sources from the National Bureau of Statistics of China.

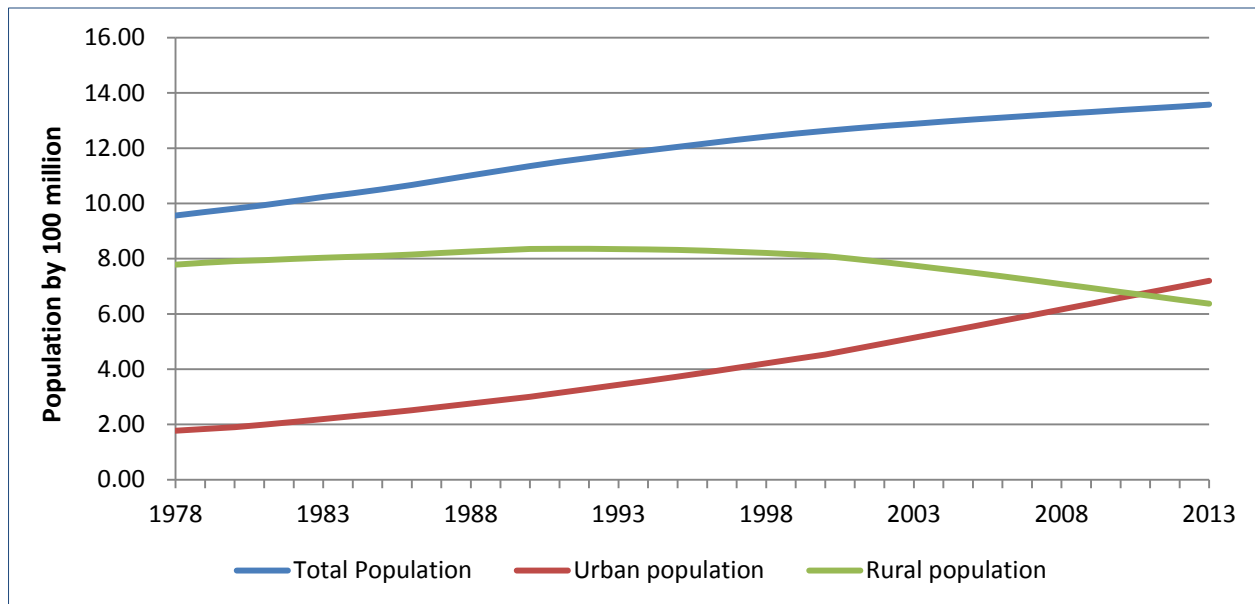


Figure 4. Population Growth in China

Source. National Bureau of Statistics of China, China Statistical Yearbook 2013.

Combining the three major driving factors for Chinese poultry consumption (urban growth, rising incomes and changing diets), it appears that the Chinese poultry consumption growth rate will maintain a high level in the future and, therefore, may provide opportunities for U.S. poultry exporters. That is, if these factors continue to change as in the past—which they may not. Additionally, as Chinese incomes rise, income elasticities may decline.

China's Evolving Market-Supply Side

China's poultry industry experienced rapid growth from 28 million tons in 1989 to 160 million tons in 2009, due to an increase in China's own poultry industry (Figure 5). Pork and poultry are China's primary livestock products produced domestically. Figure 6 shows the relative share of each product and the growth of poultry, from less than 10 percent of total livestock production in 1984 to over 20 percent in 2009.

China's poultry industry has undergone rapid structural change from a large number of small-scale farmers—smallholders—to large-scale industrialization with horizontal and vertical integration (Bingsheng and Yijun 2008; Pi, Zhang and Horowitz 2014). As recent as two decades ago, China's poultry sector consisted of hundreds of millions of smallholders, each with a limited number of chickens or ducks. No large-scale commercial poultry farms existed, with the exception of a few state farms located near cities (Bingsheng and Yijun 2008).

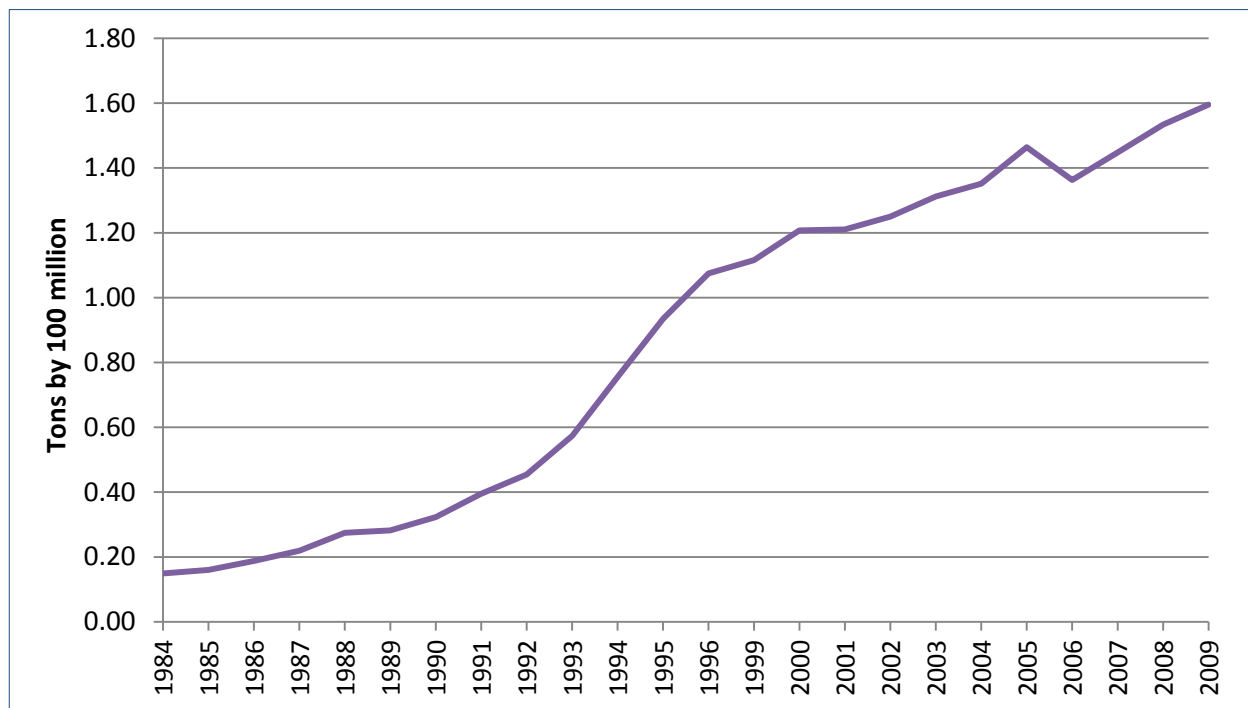


Figure 5. China's Total Poultry Production (100 Million tons)

Source. USDA-ERS China Section 2014.

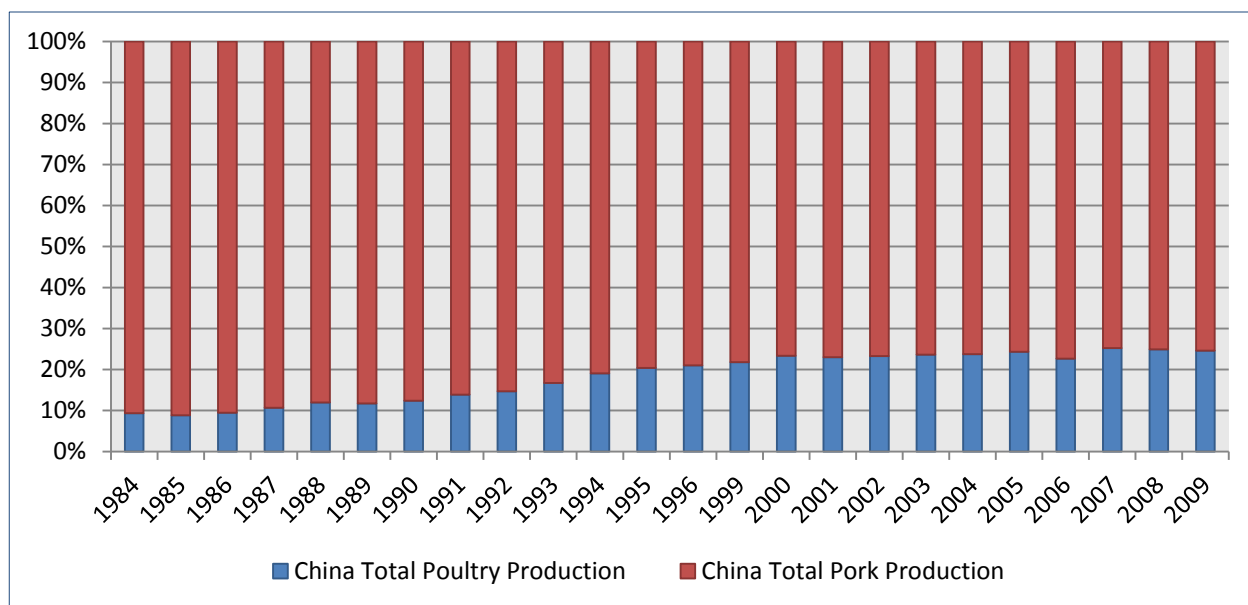


Figure 6. Poultry's Relative Share of Livestock Production in China—Poultry vs. Pork

Source. USDA-ERS China Section 2014.

According to Pi et al., between 1985 and 2005, 70 million small poultry farmers left the sector and within a period of fifteen years (1996–2011), the total number of broiler farms in China decreased by 75 percent. China's small farmers (less than 2,000 birds) totaled 62% of total poultry farms in 1998 and 30% in 2009. Between 2007 and 2009, the number of China's small

farmers declined by two million to 26,609,204 farms, even though they continue to be the dominant type of poultry farm. Concurrently, the number of broiler farms producing more than one million birds annually rose by nearly 60 percent from 128 to 202 farms (Pi, Zhang and Horowitz 2014). Part of this structural change is due to food safety concerns as discussed below.

China is now the second largest producer of poultry products, behind the United States (Pi et al. 2014). The main production areas are in the eastern and central regions of China, with the east dominant and near high-income consumers on China's East coast. Technological and managerial improvements are the main drivers for China's poultry supply increase. "Of all the factors affecting the input side of poultry production, technology is by far the most important. New breeds with higher productivity, new feeding systems, new raising facilities and new methods of poultry production management have all contributed to the improvement of poultry production efficiency, and have pushed the sector towards intensification." (Bingsheng and Yijun 2008).

Pi, Zhang and Horowitz (2014) describe four stages of production growth: slow growth from 1961 to 1978, fast growth from 1979 to 1996; standardization and scaling-up from 1997 to 2009; and restructuring and upgrading since 2010. The "grow out" model of production is increasing in an effort to counter food safety problems, control the supply chain and increase traceability—where a company owns and manages the supply chain from feed production, breeding, hatching, fattening, slaughter and processing, and is even more integrated than U.S. contract poultry farming.

Constraints of Chinese Poultry Production

Although China is experiencing rapid growth in poultry production, constraints remain for China's poultry sector development. Constraints include high feed costs (Figure 7), particularly maize and soybeans. Environmental regulations that promote sustainable economic development may increase feed costs. Avian influenza and other diseases may have a major effect on the development of poultry sector in China. Food safety issues in China may lead Chinese consumers to switch to imported food. These constraints will be discussed below.

High Feed Costs

One of the most potentially unfavorable factors for the future development of the poultry sector in China is the supply and price of feed, in particular for maize and soybeans (Gale, Hansen and Jewison 2015). As shown in Figures 7 and 8, maize production in China has steadily grown in the past decade, and reached a historic record of 177.25 million tons in 2010 (almost a 60 percent increase since 1995). However, China's production of soybeans in 2009 is almost the same as it was 25 years ago, far from the amount needed today as witnessed via large volumes of soybean imports, with the U.S. being a major supplier to China.

About two-thirds of China's maize production growth was achieved by expansion of the cropping area and one-third by yield improvement (Bingsheng and Yijun 2008). However, the potential to further expand China's maize cropping area is limited due to China's arable land constraint. China is feeding more than 22 percent of the world's population on less than seven percent of the arable land available worldwide. The main hope for increasing production is yield improvement, which takes time.

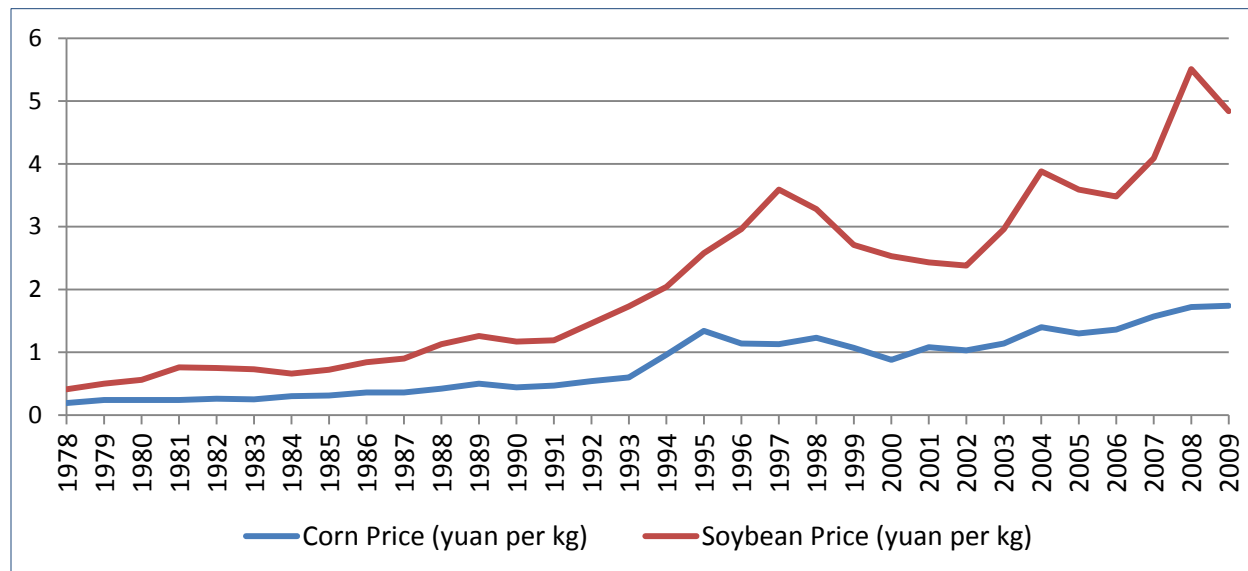


Figure 7. China's Maize and Soybean Prices

Source. USDA-ERS China Section, 2014.

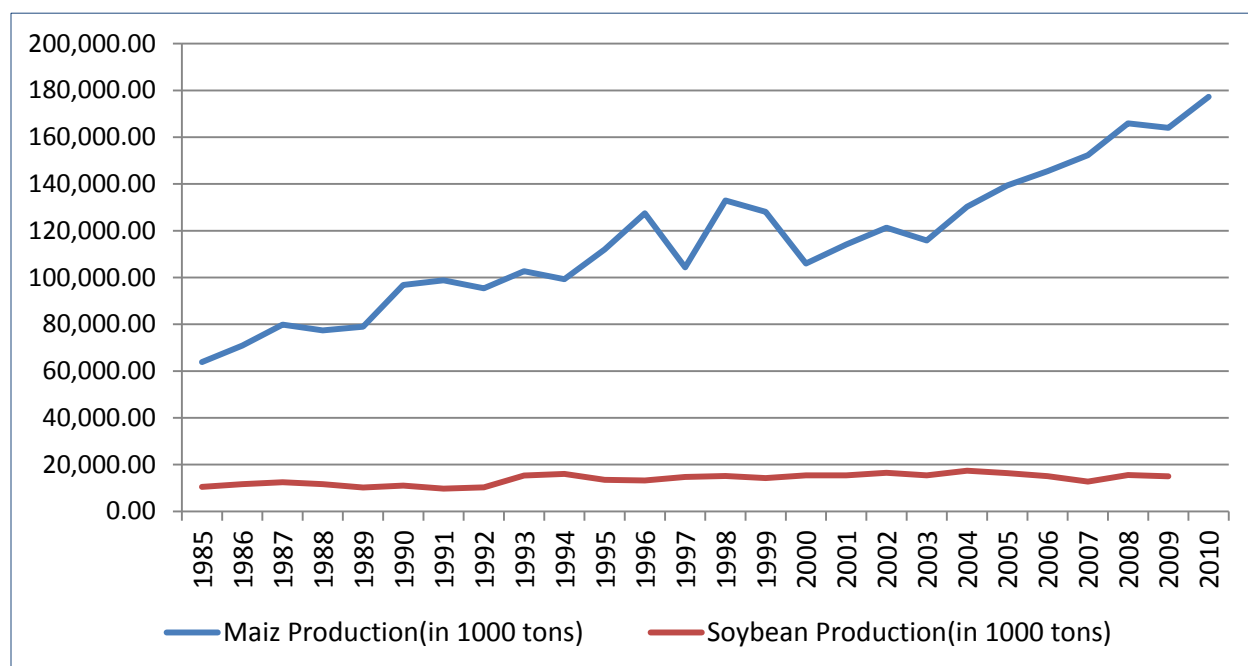


Figure 8. China's maize and soybean production

Source. USDA-ERS China Section, 2014.

Food Safety—Avian Influenza

Another limiting factor in China's poultry production is disease. China's first outbreak of the Avian Flu (AF) occurred in China in 1996 when the highly infectious H5N1 was found in Guangdong Province (Pi, Zhang and Horowitz 2014). This occurred concurrently with China's growing poultry sector. Since then, AF has been reported in 60 countries. In China, AF has been

reported every year except 2011. In 2013, Avian Flu (H7N9) was reported in China's major cities including Beijing and Shanghai, and resulted in 44 human deaths and 135 infections. China's poultry industry's economic loss was estimated at RMB 60 billion (\$9.68 billion) (USDA 2013, GAIN Report). Much of the blame was on China's wet markets—open-air stalls where many Chinese consumers have traditionally shopped for fresh meat and produce, including live birds—as well as China's poultry smallholders (Pi et al. 2014; Peng, Marchant, Qin and Zhuang 2005) for a discussion on China's evolving retail food markets from wet markets to super/hyper markets).

Most recently, AF affected several southern major poultry producing provinces, such as Guangdong, Zhejiang, Jiangsu, and Fujian. Since the beginning of 2014, China's poultry industry experienced losses of at least RMB40 billion (\$6.5 billion), compared to the 2013 losses of RMB60 billion (\$9.8 billion); Guangzhou's largest poultry wholesale market announced that in January, 2014 it lost RMB10 million (\$1.6 million) (USDA- GAIN Report 2014a).

“For the first time in nearly 40 years, this market's live bird sales (per day) dropped from 60,000 to 30,000 birds. Hangzhou, the capital city of Zhejiang Province, closed its major live bird markets on February 15, 2014. Other major cities in Zhejiang Province will follow suit starting in July 2014. The reopening dates for Zhejiang's live bird markets have not yet been determined. In place of live-bird markets, sources note that processors are now providing more fresh/chilled broiler carcasses to local supermarkets and specialty shops....Given ongoing H7N9 virus detections, sources note that China's 2014 broiler meat consumption will likely fall by six percent to 12.7 million tons” (USDA-GAIN Report 2014a).

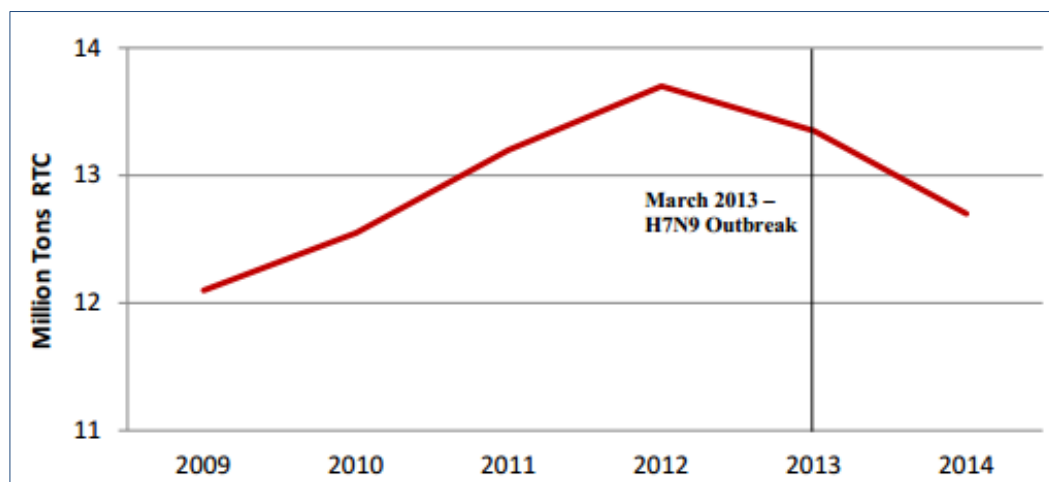


Figure 9. China's 2013 Avian Influenza outbreak

Source. USDA-FAS Livestock and Poultry 2014b.

Food Safety—Processing

In addition to Avian Flu, in 2012 China experienced the KFC “Instant Chicken” scandal (Pi, Zhang and Horowitz 2014). A Chinese TV station reported that small holders who were KFC suppliers were feeding chickens antiviral drugs and hormones to speed growth. Both AF and this scandal resulted in decreased profits and increased public attention to food safety. As a result in 2013 KFC cut contracts with 1000 small holders to “enhance quality control” and support the “grow out” production model.

In December 2013, a USDA audit of poultry meat from China found that China’s poultry slaughter system was not yet equivalent to that of the United States in terms of food safety. “PRC will have to make changes to ensure that every carcass receives adequate inspection” (USDA 2013).

Meanwhile in China, a website called “Throw it Out the Window” (www.zccw.info), tallying China’s food safety outbreaks since 2004 (reporting 3,449) is getting more attention from Chinese consumers. A recent news story highlighted a Chinese food processing scandal. On July 27, 2014, the Chinese government suspended operations at Shanghai Husi, a subsidiary of OSI Group LLC, that supplies meat to many global brands operating in China. It was accused of repackaging old beef and chicken with new expiration dates.

Shanghai Husi’s main cooperators included McDonalds, Yum! Brands (KFC, Pizza Hut and Taco Bell) and Starbucks. As the Chinese government investigated Husi, some McDonalds’ restaurants did not have beef or chicken. Yum! Brands also warned that the bad publicity has “shaken consumer confidence” and resulted in a “significant, negative impact” at its KFC and Pizza Hut chains in China. “Yum said KFC sales in China plunged 37 percent the following month” (McDonald 2014). One month later, McDonalds China, Burger King, KFC and 7-Eleven officially terminated its partnership with Husi and obtained new Chinese suppliers. OSI spent over two decades and US\$750 million to build its business in China, which collapsed after the expired meat scandal.

The above food safety examples resulted in decreased profit and increased public attention to food safety issues. In response, China sought to improve food safety through investment, greater control of the supply chain through vertical integration, encouragement in changing Chinese consumers’ preferences from fresh poultry sold in wet markets to chilled/frozen poultry sold in a super/hypermarkets (Pi et al. 2014). These constraints, high feed costs, and food safety issues, provide the U.S. an opportunity to export its low priced, high-quality poultry products to China.

U.S. Poultry Exports to China

Overview

U.S. firms began exporting poultry to China beginning in the 1990s. The U.S. was the largest supplier of poultry exports to China consisting mostly of less valuable poultry cuts such as chicken paws (feet), frozen chicken cuts, and offal (internal organs), viewed as complimentary by-products of chicken breasts for the U.S. domestic market (Zhang and Gunter 2004; Zhang 1996). U.S. broiler parts accounted for 60 percent of China’s total poultry imports. Han and Hertel (2003) discussed interesting aspects of analyzing trade data with China including which

areas to include, e.g., Hong Kong for transshipment; which units to use given that China imports low-value by-products such as chicken feet yet exports high-value processed products such as skewered meat; and which type of meat products to include. For this analysis, we rely on the Foreign Agricultural Service's Production, Supply, and Distribution database (USDA 2014) and the Economic Research Service's (USDA 2012) China section databases.

The 2015 publication *China's Growing Demand for Agricultural Imports* by Gale, Hansen and Jewison provides an excellent overview of U.S.-China trade patterns and summarizes alternative projections for future agricultural imports from the U.S. to China. Key points include

- the existence of a “strong agricultural trading partnership” that will likely continue, while acknowledging that “Chinese interventions to preserve self-reliance create volatility and uncertainty that can disrupt markets” (Gale, Hansen and Jewison, 2015)
- with China joining the World Trade Organization (WTO) in 2001 came lowered trade barriers and increased trade opportunities
- imports of meat and dairy products surged as China faced increased costs for feed and forage and
- projections by USDA and other sources anticipate continued growth in Chinese agricultural imports through 2023, with soybeans being China's dominant agricultural import, and imports of corn and meat expected to rise as well.

By looking at the trend of U.S. poultry exports to China (Figure 10), key declines occurred in 2004 and 2009. U.S. poultry exports to China decreased significantly. These two years represent two important scenarios due to food safety and trade policy issues respectively—U.S. avian flu outbreaks (2004) and China's imposition of antidumping and countervailing measures (2009). In this section, we will explain how the two scenarios happened.

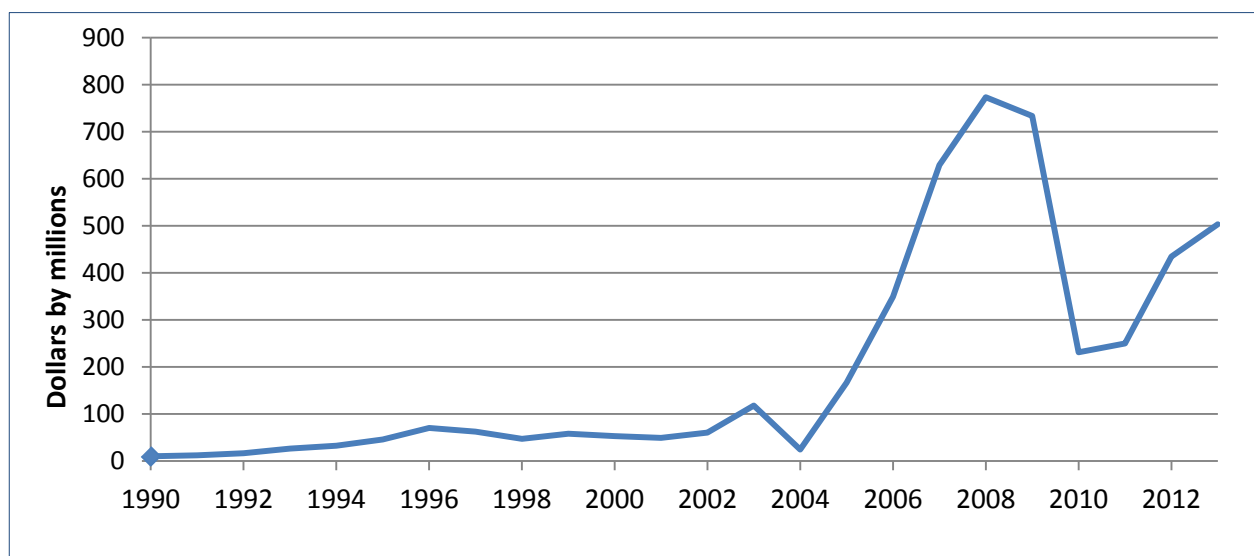


Figure 10. U.S. Poultry Export to China

Source. USDA-ERS China Section, 2014

Exports to China

In the first 15 years of U.S. poultry exports, beginning in 1990, China was not a very important market to the U.S. poultry industry (Figure 11). However since 2005, due to China's increasing domestic demand, open market policies and favorable U.S. prices (especially chicken feet), U.S. poultry exports to China began expanding.

Chicken feet, nicknamed “phoenix talons,” is one of the major U.S. export poultry types to China. Until the mid-2000s, chicken feet were considered a castaway item and removed at U.S. processing plants even before reaching USDA inspection stations. As reported by Time Magazine (2010), “In 2008 the U.S. exported \$677 million worth of chicken to China, according to the USDA, a fraction of the total \$36 billion U.S. poultry market. Roughly half of those exports were chicken feet, worth \$0.60 to \$0.80 per pound on the Chinese market but just pennies in the U.S.” Thus, providing a market for chicken parts that most U.S. consumers would not eat can be profitable.

However, this U.S. leading market share for Chinese poultry imports was eroded by South American competitors, especially Brazil, mainly due to China's restrictive trade policy and food safety issues toward the United States as discussed in the food safety section below. For example, for the first half of 2013, USDA reported that the U.S. poultry export price to China was \$1,729 per ton, 44 percent cheaper than its South American competitors (USDA-GAIN Report 2014). Despite this favorable price, U.S. exports were impacted by China's decision to reinstate a ban on Arkansas poultry and impose restrictions on Wisconsin poultry, due to low pathogenic detections in poultry from both states (USDA-GAIN Report 2013).

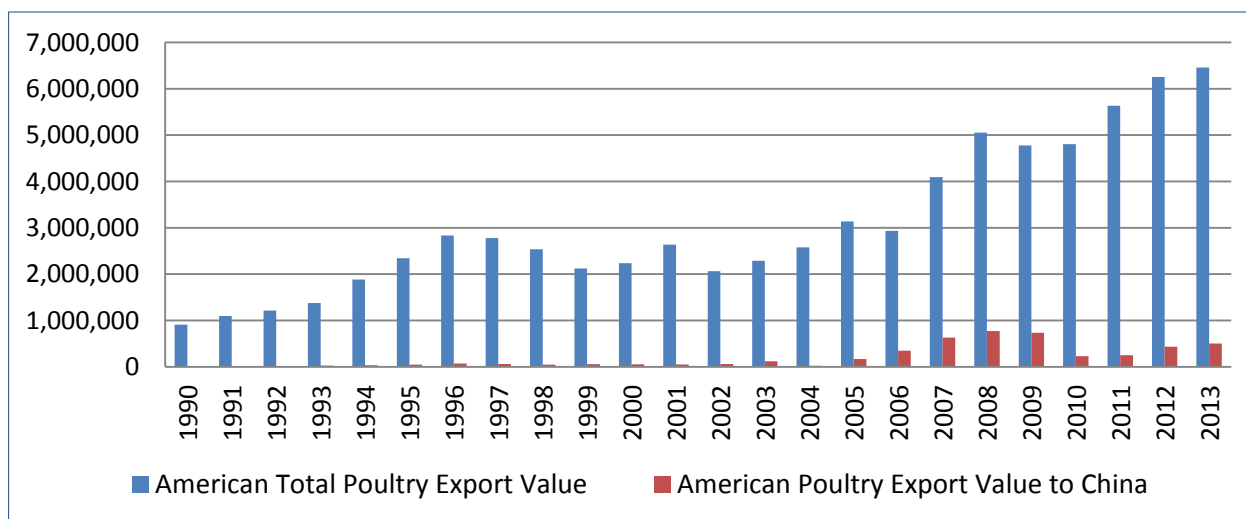


Figure 11. Poultry Exports to the World and China (in thousands of dollars)

Source. USDA Production, Supply, and Distribution database, 2014

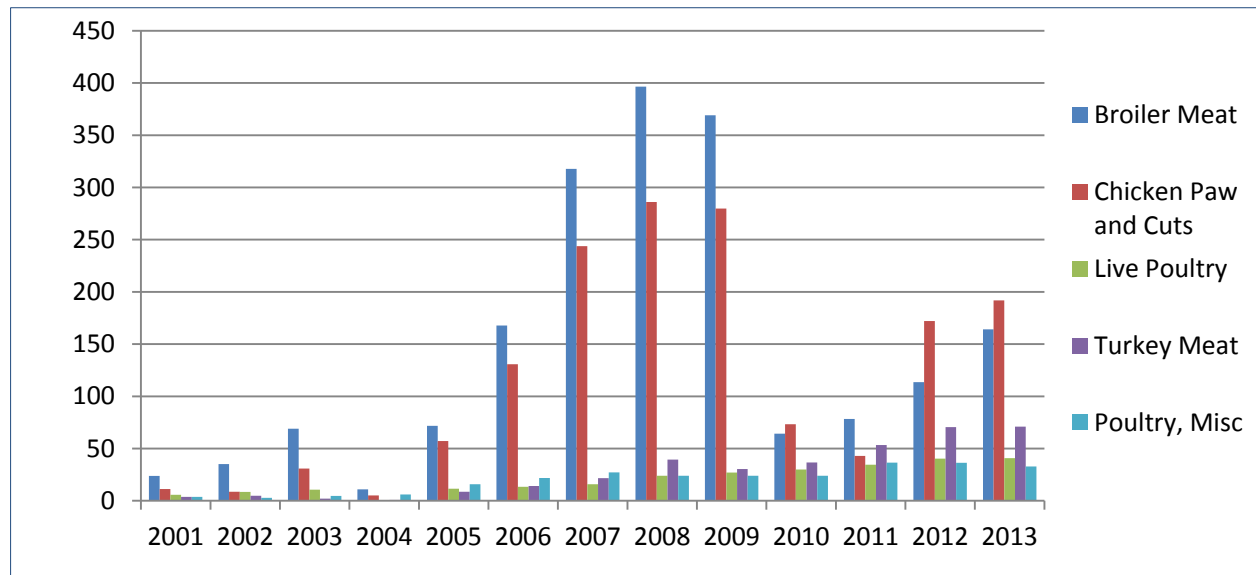


Figure 12. U.S. Poultry Exports to China by Type (in one million dollars)

Source. USDA Production, Supply, and Distribution database, 2014

U.S. Trade Barriers: Food Safety

On February 6, 2004, avian flu (virus subtype H7) was discovered at a farm in Delaware, where 12,000 chickens were culled, suspected to be infected. In accordance with the “Law of the People’s Republic of China on the Entry and Exit Animal and Plant Quarantine,” to prevent transmission of the disease into China, protect the safety of husbandry industry and public health, the Chinese government suspended U.S. poultry imports (USDA-FAS, GAIN Report 2004a).

Following the above ban on poultry imports, on November 8, 2004 China lifted its import ban on U.S. live poultry and poultry products (USDA-FAS, GAIN Report 2004b). U.S. poultry products from all states, except Connecticut and Rhode Island, processed on or after November 9, 2004 were now permitted entry into China. Due to the ban, U.S. poultry exports to China experienced a dramatic fall in 2004, which increased thereafter (Figure 10).

Since then, China has imposed and lifted numerous import bans on poultry from selected states. For example, on May 15, 2013, China lifted its ban on Arkansas poultry that had been imposed since June 2008 due to an outbreak of H7N3 low pathogenic bird flu virus in Arkansas. A mere two months later, on July 22, 2013 China’s Ministry of Agriculture (MOA) reinstated the ban on Arkansas poultry due to a H7N7 bird flu outbreak. China also banned Wisconsin poultry due to H5N2-B bird flu outbreak. Most recently, in May 2014, China lifted its seven-year ban on Virginia’s poultry exports stemming from avian flu. Gov. Terry McAuliffe announced China’s decision to lift the ban, saying that it could boost the state’s poultry exports by \$20 million or more a year (Virginia.gov 2014). Unfortunately as of this writing (July 14, 2015), China re-instituted its ban on U.S. poultry imports (Polansek 2015).

From the above cases, a food safety ban can be a crucial issue in the future of U.S. poultry exports to China requiring an understanding of Chinese food safety regulations and communicating effectively to minimize unwarranted food safety bans in the future.

U.S. Trade Barriers: Trade Distorting Policy

Poultry was one of China's top four agricultural imports from the U.S. during 2005-09, growing at an average annual rate of over 50 percent. The United States' share of China's poultry imports rose from 53 percent in 2005 to 80 percent in 2009, gradually edging out poultry imports from Argentina and Brazil (U.S. International Trade Commission 2011).

However in 2010, the U.S.'s market share of China's imports fell significantly— down 80 percent from 2009 due to trade distorting policies (USDA-GAIN Report 2013). In 2009, Beijing accused Washington of “rampant protectionism” for imposing heavy duties on imported Chinese tires and threatened action against imports of U.S. poultry and vehicles (Dyer and Braithwaite 2009). On September 27, 2009, China's Ministry of Commerce (MOFCOM) initiated antidumping and countervailing investigations of imports of so-called “broiler products” from the United States. Broiler products include most chicken products, with the exception of live chickens and a few other chicken products such as cooked and canned chicken.

China's MOFCOM imposed antidumping and countervailing duties on these products on September 26, 2010 and August 30, 2010, respectively. The antidumping duties ranged from 50.3 percent to 53.4 percent for the U.S. producers who responded to MOFCOM's investigation notice, while MOFCOM set an “all others” rate of 105.4 percent. In the countervailing duties (CVD) investigation, China's MOFCOM imposed countervailing duties ranging between 4.0 and 12.5 percent for the participating U.S. producers and an “all others” rate of 30.3 percent.

On September 20, 2011, the U.S. requested dispute settlement consultations with China concerning the conduct and results of MOFCOM's antidumping and countervailing duty investigations. After consultations proved unsuccessful, the U.S. requested that the WTO establish a panel to hear U.S. claims that China violated numerous procedural and substantive obligations under the WTO's Antidumping Agreement and Agreement on Subsidies and Countervailing Measures (Office of the U.S. Trade Representative 2013).

On August 2, 2013, the WTO issued the panel report in the dispute “China — Anti-dumping and countervailing duty measures on broiler products from the United States.” The WTO panel agreed with the U.S., finding that China violated numerous WTO obligations in conducting its investigations and imposing antidumping duties and countervailing duties on chicken imports from the United States.

On December 25, 2013, the Chinese Ministry of Commerce announced its reinvestigation of China's anti-dumping/countervailing measures against U.S. broiler meat products, based on the WTO ruling on the case. Most recently on July 8, 2014, China lowered its anti-antidumping and anti-subsidy duties. New anti-dumping levies range from 47 to 74 percent, down from 105 percent. Now anti-subsidy levies are 4 percent, down from 30 percent (Reuters 2014). These duties impacted China's imports of U.S. poultry exports as seen in the dramatic decrease in U.S.

exports starting in 2009 (Figure 10). With the recent reduction in levies, this further provides opportunities for U.S. poultry exporters.

Future Forecasts—USDA and Rabobank

In regards to the future, USDA forecasts that China's 2014 broiler imports from the U.S. will reach 270,000 tons, a four percent increase from its updated 2013 estimates (USDA 2013, GAIN Report). And in 2014, import estimates are expected to be the highest over the past four years. However, this is far below the record high import level of 480,000 tons in 2007, before China imposed its antidumping duties and countervailing duties on U.S. poultry and poultry products.

USDA's 2015 projections through 2023, along with those from other sources--OECD/FAO, China's Academy of Agricultural Sciences (CAAS) and China's Research Center for Rural Economy (RCRE)--all predict continued growth of varying magnitude in China's imports of corn, soybeans and meat (Gale, Hansen and Jewison 2015).

And for Rabobank, as cited by Pi, Rou and Horowitz (2014), "Despite a declining overall trend in imports in recent years, Rabobank (2013) believes that China's poultry imports will increase because of China's complementary market for offal compared to the rest of the world." Rabobank (2013) states that although poultry "has been, in many cases, in the shadow of pork"...it "will likely develop its own growth path, which will be independent from the pork market. China's poultry market has more growth potential than pork or beef or mutton..."

Conclusions

From China's poultry demand side, domestic poultry consumption growth is clear. Three main reasons (rising incomes, changing diets and increasing urbanization) explain this dramatic growth. As incomes rise, Chinese consumers consume more meat overall with poultry consumption increasing fastest among meats. For increased urbanization, per capita poultry consumption is higher than rural consumption, tripled over the past two decades (Tables 1 and 2) and also experienced the rise of fast food in urban areas. With continued increases in these same demand determinants, China's domestic poultry consumption is expected to continue to grow in the future.

On the supply side, China can still produce enough poultry products in the short term to meet Chinese consumers' demand. However, from a long-term perspective, China's domestic supply may not keep pace with the rapid growth of China's domestic demand due to supply constraints--high feed costs, limited arable land to grow feed, and food safety issues via Avian Flu on the production side and food safety outbreaks in poultry processing plants. As discussed in the Food Safety section, China continues to face food safety issues and seeks to solve these issues through rapid structural change via removing small holder poultry producers, vertical integration to control the supply chain using a "grow out" production model, and in changing Chinese consumers' preferences from fresh poultry sold in wet markets to chilled/frozen poultry sold in super/hypermarkets.

U.S., poultry exports to China increased over time, only to drop significantly in 2004 and 2010 due to China's imposition of import bans. Starting in 2004, U.S. avian flu outbreaks on

individual U.S. farms led to import poultry bans for entire states, e.g., Virginia. And in 2009, China imposed antidumping and countervailing measures on poultry imports from the U.S., later ruled in violation of WTO rules, resulting in the most recent lowered duties on Chinese imports. This new action provides an opportunity for U.S. poultry exporters.

Although China is not one of the top U.S. poultry export destinations (Figure 11), it is still a very important potential market to the U.S. especially for complementary products—chicken feet and offal. China may not have the rapid expansion of U.S. poultry exports in the short term because it can currently produce enough for its own consumers. However, in the long run, China's poultry sector may be limited more from its constraints. This provides the U.S. poultry industry with an opportunity to benefit from the potential world's largest poultry market. In order to promote U.S. poultry exports to China, it is essential to maintain a positive dialog and understanding between the two countries for the benefit of each.

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