FARMLAND Insights

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FALL 2019 | Volume 2 | Issue 3

The Impacts of Trade Wars on the U.S. Agricultural Economy

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In 2018, we witnessed arguably the start of the largest trade war in human history as trade disputes between the U.S. and China quickly escalated to an unprecedented level. As of now, the U.S. has imposed tariffs on more than $250 billion worth of products from China, and China has retaliated with tariffs on more than $110 billion worth of U.S. products including substantial tariffs on U.S. agricultural products such as soybeans, pork, and ethanol.

After the on-and-off disputes and more-than-ten-rounds of trade negotiations, including the two Trump-Xi G20 summits, there is still significant uncertainty regarding U.S.-China agricultural trade. All tariffs, such as the 25% additional tariffs on soybeans, are still in effect and the negotiations still need to deal with more difficult items such as intellectual property protection, U.S. firms' market access into China, and China's industry subsidy policies.

In this article, I outline historical trade disputes involving U.S. agriculture, provide a broader context to the current U.S.-China trade war, and discuss the immediate and long-term implications for U.S.-China economic relations, especially U.S. agricultural exports to China.

A Brief History

Tariffs are not a new tool in U.S. trade policy, and there have been several contentious trade wars in U.S. history. From the 1850s to the early 1900s, the average tariff rates on U.S. imports were as high as 40%–50%, and remained at about 33% in 1913. The Smoot-Hawley Act of 1930 imposed tariffs not only on the agricultural imports planned by President Herbert Hoover, but on a slew of industrial imports as well. The act led to retaliations from Europe, Canada, and several other countries, and resulted in a 61% decline in U.S. exports in 1933 and prolonged economic recovery during the Great Depression.

The 1960s brought a chickens vs. trucks and brandy dispute with Europe, which started when France and West Germany imposed tariffs on chickens, leading to big losses in the U.S. poultry industry. The U.S. retaliated with 25% tariffs on Volkswagen buses, French brandy, potato starch, and dextrin. Interestingly, China also retaliated on U.S. broiler products when President Obama announced tariff increases on tires from China in 2009.

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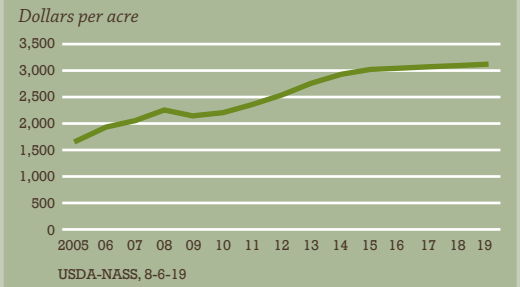
U.S. Farm Real Estate Increases 1.9% from 2018

The United States farm real estate value, a measurement of the value of all land and buildings on farms, averaged $3,160 per acre for 2019, up $60 per acre (1.9%) from 2018. Regional changes in the average value of farm real estate ranged from a 5.2% increase in the Pacific Region to a -0.2% decrease in the Corn Belt Region. The highest average farm real estate value was in the Corn Belt Region at $6,100 per acre. The Mountain Region had lowest average farm real estate value at $1,220 per acre.

Land values: Average farm real estate value by year, U.S.



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Many Midwest farmers still have vivid memories of the 1979 U.S. grain embargo against the Soviet Union following its invasion of Afghanistan. While studies attribute the post-embargo declines in U.S. grain exports to the appreciation of the U.S. dollar and a worldwide economic slowdown, it is worth noting that in the nearly 40 years since, the quantity of U.S. corn and wheat exports have never really exceeded the levels of the 1980s.

Previous trade wars demonstrate that our trading partners, such as Europe and China, are willing to target U.S. agricultural commodities, which the U.S. now tends to hold in trade surplus. In addition, the impacts of trade disputes can be long-term, in part because countries tend to target products that are substitutable.

For example, during the 2009/2010 chicken vs. tires disputes, China was able to largely shift away from U.S. imports, mainly in the form of chicken feet, to imports from other countries. A decade after the dispute, the U.S. has almost permanently lost $500 million in broiler exports.

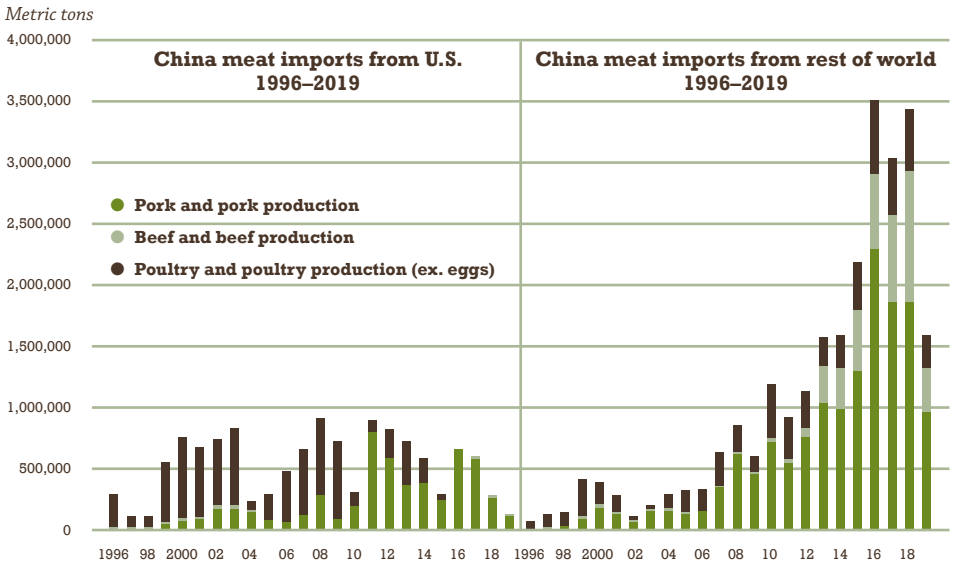
Immediate- and Long-term Impacts

China will undoubtedly incur greater economic loss from the trade war – our previous general equilibrium trade model analysis reveals that if the U.S. loses about 0.25% off its economy due to the tariffs effective as of January 2019, China's economy will suffer a 1.3% loss.

However, despite modest economic impacts for the U.S. economy as a whole, the U.S. agricultural industry and agricultural states such as Iowa suffer disproportionally large impacts from the trade disruptions.

A recent ISU Center for Agricultural and Rural Development analysis shows Iowa's economy will lose between 0.5% and 1%. In particular, the average estimated loss to Iowa's soybean, corn, hog, and ethanol industries are $545 million, $333 million, $776 million, and $105 million, respectively.

Figure 1. China's increasing diversification away from U.S. meat imports



Source: UN comtrade, General Administration of Customs of China

One long-term impact of the trade disruption is that it gives China even more strategic incentives to diversify away from the U.S. In 2016, China purchased more than 60% of U.S. soybean exports; but, even then, China was purchasing even more soybeans from Brazil. Due to China's strong and growing demand, Brazil's soybean acreage has risen from 25 million hectares in 2012 to 35 million hectares for the 2018/19 season.

Figure 1 shows that in 2006, the U.S. exported more meat to China than all competitors combined; however, over the past decade the U.S. has lost market share as China increased meat imports from the rest of the world. This is in part related to China's Belt and Road Initiative, also known as China's 21st Century Silk Road, which better connects European hog suppliers with China via new railroads.

It also represents China's active diversification in their meat exports even before the trade war – in 2016, Europe supplied more pork to China than the U.S., while Australia, Brazil, and Uruguay dominated China's beef imports. Intuitively, the trade disruptions could accelerate China's diversification away from the U.S., potentially benefitting our competitors.

Current trade disruptions also tie our hands in realizing the future growth opportunities resulting from China's domestic agricultural markets. For example, China's ongoing African Swine Fever outbreak has resulted in at least a 25%–30% reduction in their hog inventory, leading to major import demand from the global market. However, even with the recent dramatic hikes in U.S. pork exports to China, the U.S. supplied less than 8% of the total pork China purchased from the global market. In particular, five European countries (Germany, Spain, Denmark, France, and the United Kingdom) account for more than half of China's pork imports since January 2018. Narrowing to 2019 only, the U.S. still accounts for only 8% of global pork exports to China.

Land Value Implications

Put simply, land value equals income divided by interest rate. Farm income in the U.S. has fallen by half of the 2013 peak and records from the Iowa Farm Business Association show that one-quarter of producers are experiencing liquidity problems and low working capital. The heightened uncertainty about the

U.S.-China trade relations also dampens the commodity and land market outlook. The U.S. Federal Reserve, however, is likely to hold off on raising interest rates, which helps ease the downward pressure on the land market; and, despite the significant negative income shocks due to the trade war, tight farmland supply (less farmland available for sale) and government support from the Market Facilitation Programs have helped float the farmland market.

Table 1 shows land value predictions by 150 agricultural professionals at the May 2019 ISU Soil Management Land Valuation conference. Overall respondents expect a 2% decline in land values in their local area from May to November 2019. Table 1 also shows that these agricultural professionals expect the land market in Iowa to remain flat from November 2019 to November 2020.

To summarize, agricultural professionals expect an immediate, modest decline in land values, followed by stable to slightly rising land markets. It is important to note that the annual inflation rate over the next few years will likely be close to 2%, so even a 1% bump in nominal land values from 2020 to 2021 would be a modest decline in inflation-adjusted terms.

Concluding Thoughts

China is and will continue to be one of the most important trading partners for U.S. agricultural commodities, and the trade disruptions suggest that we need to understand China economically, culturally, and politically. Stakeholders in U.S. agriculture should examine the long-term implications of the trade wars.

If you would like to learn more about the political and cultural background, please check out our article on Ag Decision Maker *Seven things to know about China to understand the trade war* https://www.extension.iastate.edu/agdm/articles/zhang/ZhaFeb19.html or publications from the new ISU China Ag Center.

Table 1. Estimated land and commodity price forecasts for Iowa at the May 2019 Soil Management Land Valuation Conference

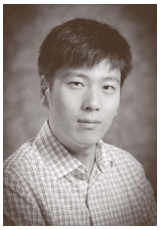
	AVG ESTIMATE OF PERCENT CHANGE SINCE MAY 2019 (IOWA)				
LAND	NW	NE	SW	SE	STATE
Nov 2019	-2.3%	-2.6%	-1.5%	-1.1%	-2.1%
Nov 2020	-2.1%	-3.1%	-1.7%	-1.4%	-2.2%
Nov 2021	-0.7%	-2.1%	-0.6%	0.1%	-1.0%
Nov 2025	11.5%	7.8%	9.7%	8.4%	9.5%
Nov 2040	46.8%	43.6%	49.5%	40.1%	45.0%

COMMODITY CASH PRICES ($/BUSHEL)		
	CORN	SOYBEAN
May 2019	$3.41	$8.08
Nov 2019	$3.45	$8.15
Nov 2020	$3.65	$8.58
Nov 2021	$3.85	$9.67

Dr. Wendong Zhang is an assistant professor in the Department of Economics at Iowa State University since August 2015. As an applied economist and extension farm management specialist, he is interested in land use, land management, land values and land ownership in the agro-ecosystem, as well as the interplay between agriculture and the environment. Dr. Zhang is also affiliated with Center for Agricultural and Rural Development (CARD).

Dr. Zhang is the leading researcher of the Iowa Land Value Survey, the Iowa Farmland Ownership and Tenure Survey, as well as the ISU Soil Management and Land Valuation Conference. He also led the development of the new, interactive Iowa Land Value Portal.

Dr. Zhang received his Ph.D. in Agricultural, Environmental and Development Economics from the Ohio State University in July 2015, and holds a BSc in Environmental Science from Fudan University in China. He can be contacted at wdzhang@iastate.edu, 515-294-2536.



U.S. Farm Real Estate continued from page 1

2019 Farm Real Estate Value by State
Dollars per acre and percent change from 2018