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Midwest agriculture's ties to the global economy

by David B. Oppedahl, senior business economist

Over a number of decades, agricultural exports have become increasingly important to the bottom line of farmers in the Midwest and other parts of the nation. Moreover, imports of food products from around the world have helped increase business activity here and enhanced the lives of U.S. consumers. On November 28, 2017, the Federal Reserve Bank of Chicago held a conference to explore issues surrounding agricultural trade, particularly those pertinent to the Midwest economy.

According to data from the U.S. Census Bureau, 8.9% of U.S. exports in 2016 were food and agricultural products, with 12.7% of those exports coming from the five states of the Seventh Federal Reserve District.[1] Clearly, many farms and food manufacturers across the Midwest and elsewhere in the country have benefited from global trade; its benefits have also extended to Main Street businesses, such as grocery stores and restaurants, given that agricultural imports have tended to boost their sales. At the conference, experts from academia, industry, policy institutions, and government discussed trends in agricultural trade—including changes in global demand for certain farm products—and their impact on the nation and the District. The key goals of the conference were to better understand the relationship between agricultural exports and farm income; assess the primary drivers of agricultural trade; examine policies that affect agricultural trade; and discuss the impacts of agricultural trade on the midwestern economy.

Most materials presented at the 2017 Agriculture Conference are available online, https://www.chicagofed.org/events/2017/ag-conference.

David B. Oppedahl (Federal Reserve Bank of Chicago) set the stage for the day's discussions by highlighting the extensive media attention paid to agricultural trade in 2017. New foreign sources of demand (China in particular) for agricultural products helped sustain a rise in U.S. farm exports since around 2000, he stated. Furthermore, the World Bank projected global economic growth to have improved to 2.7% in 2017 from 2.4% in 2016, and forecasted annual growth of around 3% in 2018 and 2019.[2] According to Oppedahl, stronger world growth should boost trade—and midwestern agricultural exports. He emphasized that being able to better project farm exports' impact on farm income in the next generation would help rural communities decide which new facilities and public infrastructure projects to invest in. Farm exports and imports generate jobs and spur growth, so sound trade policies are vital to the future of agriculture and the rural Midwest, said Oppedahl.

Trends in agricultural trade and drivers of global demand for farm products

C. Parr Rosson (Texas A&M University) stressed the importance of trade to U.S. agriculture, as a third of production (on average) entered export channels during 2011–13, according to U.S. Department of Agriculture (USDA) data. The range of export shares for U.S. farm output over that span was wide—from 77% for cotton to 10% for beef; soybeans and corn—two key products for the Midwest—had export shares of 40% and 15%, respectively. When export markets soften, Rosson explained, stocks of commodities tend to accumulate and dampen prices for those commodities. Increasing competition among corn exporters has eaten away at the market share for the U.S., which fell from 60% in 2000 to 40% in 2016. For soybeans, the U.S. maintained 40% of the world export market between 2000 and 2016, even as Brazil's share grew to 43% in 2016. Moreover, the main competitors for exports of corn and soybeans—Brazil and Argentina—increased their productivity at a steady rate, as did the U.S. However, Brazil expanded its harvested area by 60% during the past decade or so, whereas Argentina and the U.S. only increased their harvested area by 20% each. So, output of soybeans rose 85% in Brazil over the period 2008–17, while it rose 49% in the U.S. and 44% in Argentina. Brazil's increased use of land for agriculture put pressure on its infrastructure for storing and shipping farm goods. Rosson contended that Brazil has the potential to expand its harvested area even more, subject to resolving its storage and transportation issues. According to Rosson, the U.S. has infrastructure problems of its own (most notably in Texas), which must be addressed for the nation's farmers to remain globally competitive. Rosson also touched on how exchange rates can hurt U.S. farm exports—for instance, as the Brazilian real weakened relative to the U.S. dollar in the past decade, prices for Brazil's products became more favorable in world markets. To close, Rosson illustrated the potential for U.S. food exports in Latin America with the example of Cuba, whose farm imports have trended upward since 2001 (with a setback in 2009 due to the global recession). Food imports from the U.S. to Cuba peaked in 2008; they have since fallen, mainly because of competition from the European Union and Brazil.

Katherine R. Baylis (University of Illinois at Urbana–Champaign) started her talk with an assessment of the growth in food demand, especially in Asia. She said that populations, average incomes, and urbanization have all been increasing in many countries—notably in India and China (the two most populous nations). In conjunction with the growth in incomes, there has been a shift in diets from cereals, such as rice, to meats and other more expensive foods. Also, urbanization has shifted consumption toward more processed and prepared foods. These nutritional transitions are still in the early stages for many nations, so there remains room for further shifts in food demand, explained Baylis. These trends have been key drivers of investments in local agriculture. However, even with improved production from domestic farm investments, there will continue to be a role for trade to fill in the gaps between food supply and demand around the world, especially in Asia and Africa. Baylis commented on the rapid growth of U.S. agricultural exports in the past two decades, with exports of consumer-oriented products generally growing faster than exports of bulk commodities.[3] Yet, underneath the raw numbers, Baylis showed that *implicit* bulk exports were actually much higher given that a significant portion of livestock feed was converted into meat for export. For example, in 2015, 13% of the corn crop was exported in bulk; however, that share would have about doubled if corn feed for exports of beef, pork, and broilers had been counted, according to Baylis's calculations. She concluded by emphasizing the importance of trade agreements in boosting agricultural exports. For instance, the U.S. agreement with South Korea (which went into effect in 2012) increased the share of U.S. goods entering South Korea duty-free to 80% from 13% while lowering tariffs on other key products and expanding market access for dairy products. New agreements like this could stimulate future growth for U.S. food exports, she indicated.

In his keynote address, Tom Vilsack (U.S. Dairy Export Council) argued that the U.S. needs to make a stronger case for other nations to import more of our agricultural products. Given that domestic consumption of dairy products hasn't kept up with output, the incredible productivity of dairies in the U.S. has underscored the need for more exports. Without trade, the U.S. dairy

industry would be in trouble: Vilsack attributed $1.25 per hundredweight (i.e., 100 pounds) of the price of milk ($18.10 per hundredweight in November 2017, according to the USDA) to a boost from exports. The trade channels afforded by the North American Free Trade Agreement (NAFTA) remain important for dairy exports, he noted, as Mexico has been the largest importer of U.S. dairy products and Canadian markets are seen as a potential source of growth. In addition, Vilsack commented that Asian markets offer tremendous opportunities for increased U.S. dairy exports, as the middle class there blossoms and Asian diets include more dairy products. The U.S. Dairy Export Council's plan to lift dairy exports from 15% of production to 20% involves developing new products and forging more foreign partnerships, in order to showcase U.S. dairy to the world. Vilsack noted that there are challenges to achieving the "next 5%" goal, including the relatively strong value of the U.S. dollar, competition from other producers, and concerns about trade policy changes. Even so, Vilsack said there is a bright future ahead for the dairy industry, as long as producers here can respond quickly and effectively to new sources of demand from abroad.

U.S. agricultural trade policy and the impacts of trade barriers

Joseph W. Glauber (International Food Policy Research Institute) began his talk on NAFTA by stating that world agricultural trade has risen dramatically since 2000. NAFTA has greatly assisted in the takeoff in global farm trade, he said, as seen in the strong growth of agricultural exports and imports between the U.S. and both Canada and Mexico since the agreement took effect in 1994. Glauber shared his analysis of the bilateral trade flows between the U.S. and its two NAFTA partners for 2014–16, noting that consumer-oriented products (see note 3) were traded much more than products in other categories. Although the top U.S. farm exports to Mexico were corn and soybeans, these bulk products were overshadowed by consumer-oriented products in the aggregate. Imports of fresh fruit and vegetables, Mexico's top (consumer-oriented) farm exports to the U.S., demonstrated how well the North American value chain[4] for farm products operates today. Most of these imports occurred during the winter months of the U.S. (or involved fruits and vegetables not produced here). The seasonality of these imports illustrates how trade can be beneficial to U.S. consumers, who would have otherwise faced fewer choices and/or higher prices for such goods during certain times of the year. There are also nutritional gains from this trade, as Americans consumed larger quantities of fresh vegetables per capita with the assistance of imports under NAFTA. Glauber mentioned the livestock industry as another example of how well the North American value chain can work (livestock enter the U.S. and leave as meat for Canadian and Mexican consumption). NAFTA lowered tariff barriers and enabled more efficient supply chains for food producers, which created value (e.g., greater availability and lower costs of farm products) for consumers. Glauber viewed NAFTA renegotiations as potentially helpful with regard to modernizing some of the agreement's provisions (e.g., harmonizing standards to reduce regulatory barriers to trade), but said there was a risk that other parts of the process could harm agricultural trade. He argued that the agricultural lobby played a major role in preventing the U.S. from withdrawing from NAFTA in 2017. Glauber said gains in market access were unlikely through NAFTA renegotiations. He expressed concerns that these renegotiations would become mired in redressing trade imbalances of the past when instead, all parties might benefit from seeking new opportunities to boost agricultural trade even further in the future.

Peyton Ferrier (USDA Economic Research Service) delved into the role of technical nontariff measures (NTMs) in agricultural trade. As tariffs have been lowered, there has been greater recognition that NTMs can hinder trade too, he said. He explained that there are two main types of technical NTMs: 1) technical barriers to trade, or TBT (involving labeling requirements and quality standards), and 2) sanitary and phytosanitary, or SPS, measures (involving animal and plant health certifications, food safety, product inspections, and environmental standards). Specific examples of NTMs include mandatory border treatments (such as fumigations), commodity prohibitions, regional restrictions, quarantine requirements, production facility registration/inspection, and tolerances for residues of pesticides, as well as for genetically modified products. Ferrier demonstrated that

SPS measures in particular have had a big impact on agricultural trade—in many cases as large as or even larger than tariffs.[5] In principle, NTMs should be science-based and nondiscriminatory while having a minimal impact on trade. However, Ferrier noted that the incidence of disputes over NTMs has been growing since the mid-1990s: Research on specific trade concerns (STCs)[6] lodged by World Trade Organization (WTO) members shows a rising trend from 1995 onward (both in the number of occurrences and nations involved).[7] Breaking down the WTO STCs in 1995–2015 by SPS categories revealed that 32% were due to animal diseases, 16% to tolerances, and 15% to customs and certifications, with smaller shares of other types. STCs can take many years to resolve. In closing, Ferrier observed that while some consumer preferences (e.g., for the availability of certain produce year-round) have helped drive up food imports, other preferences (e.g., for products grown without genetic modification or certain pesticides) have also helped increase the number of NTMs, which can limit agricultural trade.

How will the Midwest economy and agriculture adjust to changing trade patterns?

Philip I. Levy (Chicago Council on Global Affairs) contended that a satisfactory agreement for all parties to the NAFTA renegotiations was the least likely outcome. No matter the outcome, agricultural trade remained at risk. Counterbalancing this risk would be an anticipated depreciation in the U.S. dollar. James Hansen (USDA Economic Research Service) noted that the U.S. dollar is predicted by the USDA to depreciate slightly over the next ten years, which would make U.S. commodities more competitive in world markets. Hansen went on to discuss some of the changes in global demand for food that are expected to boost future consumption of fruits, vegetables, vegetable oils, processed cereal products, meats, and dairy products at the expense of staple grains, roots, and tubers. USDA forecasts[8] through 2026 (made under the assumption of no changes to NAFTA and other trade agreements) showed continued growth in agricultural trade and increased U.S. exports, particularly for products originating in the Midwest. Hansen reasoned that midwestern farms will remain competitive producers of corn, soybeans, and wheat, although the U.S. market share of exports worldwide would likely drift down for each, as other nations, particularly Brazil and Argentina, ramp up their farm exports over the next decade or so. Steven Elmore (DowDuPont) emphasized the importance of these three products for the Midwest, given that they were the nation's top farm commodity exports by U.S. dollar value in the period 2007–16. Elmore illustrated that the value of agricultural exports as a share of farm receipts has been at a higher level in the past decade than in previous decades. This share increase was sustained despite the growth in biofuel production for domestic use in 2007–16 and the above-trend global yields for grains and oilseeds (and consequently lower commodity prices) in 2013–17. Farmers will plant what works financially, and Elmore viewed exports as even more critical for U.S. farmers in the future. Elmore also mentioned the importance of updating and expanding the U.S. infrastructure for exports, as other countries have gained market share at least in part through their own infrastructure improvements. As the U.S. competes with other nations to supply grains and oilseeds to the world, a falling U.S. share of global farm exports will exert pressure on both rural areas and Main Streets of the Midwest. Ernest P. Goss (Creighton University) addressed this repercussion of shifting trade patterns. Goss reported on the results of a monthly survey conducted among CEOs of banks located in small towns (average population of 1,300) across ten states, including Illinois and Iowa. Creighton's Rural Mainstreet survey results[9] indicated that rural areas have been struggling during the recent downturn in agriculture—represented by four consecutive years of declining net farm income. The slowdown in farm cash receipts was linked to softness in the value of agricultural exports in 2015–16. Though exports may be underperforming lately, Goss said agricultural trade remains vital to many midwestern states (especially to Iowa, Kansas, Nebraska, and South Dakota—each with over a third of its exports from agriculture). Despite the disappointing recent results for the farm sector, Goss said he was hopeful because manufacturing has surged in the U.S. over the past year, providing opportunities for hiring in the rural Midwest.

Agricultural trade and the deteriorating infrastructure of the U.S.

Scott J. Sigman (Illinois Soybean Association) explored the contributions of transportation and logistics infrastructure to agricultural trade, specifically in the context of the soybean supply chain. U.S. soybean trade involves inland transportation via roads, railways, and waterways before international shipment. Sigman reported that in 2016, Illinois's exports of soybeans (worth around $3 billion) were the second-largest category of all exports for the state. According to an Illinois Soybean Association survey of soy producers, 86% thought the infrastructure of Illinois had a significant impact on the profitability of their farm operations, although only 16% had publicly voiced their transportation challenges. With crop yields increasing steadily, resulting in bumper harvests and mounds of crops to move during peak delivery periods, the logistical challenges have grown for Midwest agriculture. Most of the crops must be trucked for the first stage of the journey for export. Road systems need maintenance, but funding for some road repairs has been constrained by a rigid federal fuel tax and declining numbers of taxpayers in rural areas, said Sigman. In addition, locks and dams have aged to the point that barges on waterways can get backed up, contributing to spikes in freight rates. Estimates by the American Society of Civil Engineers (ASCE) put the infrastructure spending need at $1.7 trillion for surface transportation and at $30 billion for inland waterways and ports over the period 2013–20, with much of the work unfunded.[10] Sigman contended that deteriorating transportation infrastructure harms the competitiveness of agribusinesses. Additionally, growing volumes of transported products would stress the already decaying infrastructure even more in the future.

Conclusion

Increased agricultural trade has connected more food producers with more consumers across the globe, with benefits accruing to both. As the world's population continues to grow, incomes move higher, and urbanization expands, farm exports are expected to rise further. The Midwest's share of U.S. agricultural exports has been relatively large, especially for products such as corn and soybeans, and has helped boost the incomes of farmers in the region. Farm trade has also generated food sector jobs and Main Street business activity, which contribute to the prosperity of rural communities and cities of the Midwest. Regardless of the risks posed by renegotiated trade agreements and depreciating infrastructure, agricultural trade will remain vital to the Midwest economy.

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[1] Author's calculations based on data from the U.S. Census Bureau, available online, https://www.census.gov/foreign-trade/statistics/state/index.html. The Seventh Federal Reserve District comprises parts of five midwestern states—all of Iowa and most of Illinois, Indiana, Michigan, and Wisconsin.

[2] World Bank forecasts published in June 2017 are available online, https://openknowledge.worldbank.org/bitstream/handle/10986/26800/9781464810244.pdf.

[3] Consumer-oriented agricultural products are foods ready (or easily made ready) for immediate use by consumers; examples include fresh or processed red meats and fruits. Bulk agricultural products are high-volume raw commodities—which have received little to no processing and, as such, are not ready for final consumption; examples include wheat, soybeans, and unprocessed corn (often used for livestock feed).

[4] A value chain (which can be regional or even global in geographic scope) is a set of linked activities that contribute value to a product; it is made up of actors and actions that improve a product while connecting producers to processors and markets.

[5] Some of these cases are discussed in greater detail in Shawn Arita, Lorraine Mitchell, and Jayson Beckman, 2015, "Estimating the effects of selected sanitary and phytosanitary measures and technical barriers to trade on U.S.-EU agricultural trade," U.S. Department of Agriculture, Economic Research Service, report, No. ERR-199, November, available online, https://www.ers.usda.gov/webdocs/publications/45459/54377_err199.pdf?v=42396.

[6] STCs about NTMs are raised by member states with WTO committees that are convened three times a year. STCs may be escalated, as formal WTO cases, if they are not resolved.

[7] Jason Grant and Shawn Arita, 2017, "Sanitary and phyto-sanitary measures: Assessment, measurement, and impact," International Agricultural Trade Research Consortium, commissioned paper, No. 21, May, available online, https://ageconsearch.umn.edu/record/259417/files/IATRC%20CP21%20-%20Grant%20Arita.pdf.

[8] These projections, published in February 2017, are available online, https://www.ers.usda.gov/webdocs/publications/82539/oce-2017-1.pdf?v=42788.

[9] The survey's reports, historical data, and methodology are available online, https://www.creighton.edu/economicoutlook/mainstreeteconomy/.

[10] The ASCE report with these estimates is available online, https://www.asce.org/uploadedFiles/Issues_and_Advocacy/Our_Initiatives/Infrastructure/Content_Pieces/failure-to-act-economic-impact-summary-report.pdf.

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