

US Agricultural Exports to China during the Phase One Trade Deal: Larger Pie, Smaller Slice?

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THE UNITED States and China signed the Phase One trade deal on January 15, 2020. The deal ran from February 15, 2020, to February 14, 2022, and obligated China to purchase \$36.5 billion worth of US agricultural products in the first year (\$12.5 billion more than the baseline) and \$43.5 billion in the second year (\$19.5 billion more than the baseline) (He et al. 2020). While China fulfilled 81% of its agricultural purchase obligations and China's purchases of several products, such as corn and pork, reached historical levels, it is unclear if China's record purchases were driven by China's growing import demand or its trade deal obligations. We investigate whether China's agricultural imports from the United States grew in proportion to China's agricultural imports from all sources during the trade deal. We look at both total agricultural trade and trade for specific commodities that are important for the United States. We also compare the comparative advantage of the United States and major exporters of corn, soybeans, and pork using the normalized revealed comparative advantage (NRCA) index (Yu et al. 2009).

Figure 1 shows US monthly exports of total agricultural and related products to China. US exports during the trade deal in 2020 and 2021 far exceeded that in 2017, and total exports in 2020 and 2021 reached \$64.65 billion, which is 81% of China's obligated purchase of \$80 billion specified in the trade deal.

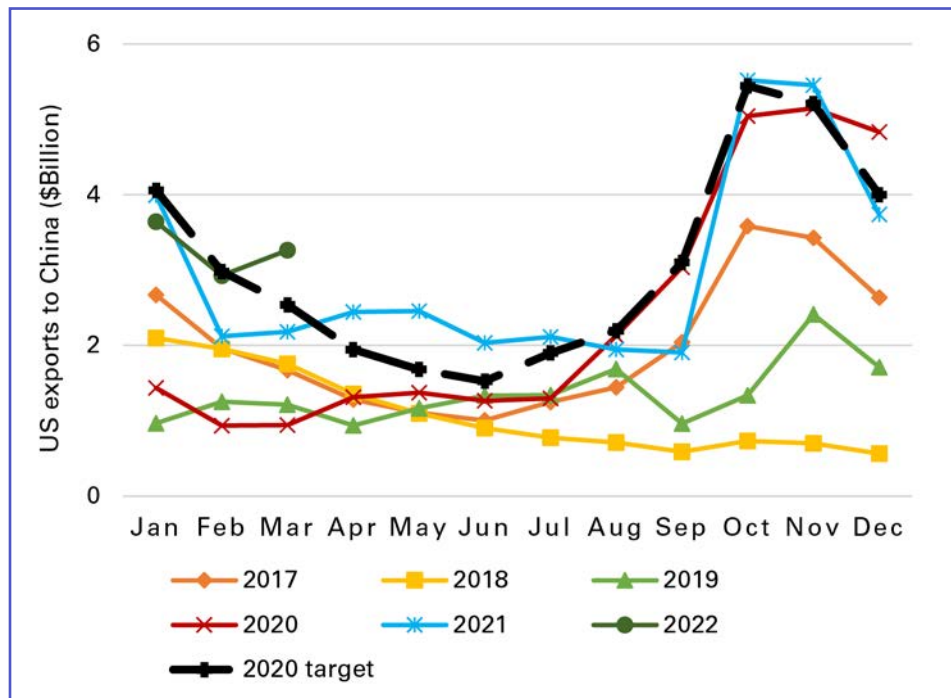


Figure 1. US monthly agricultural exports to China, January 2017 to March 2022.

Source: USDA GATS (2022).

Figure 2 shows US agricultural exports to China and the share of total US agricultural exports that went to China. US agricultural exports to China fell by almost 50% in 2018 and recovered and exceeded the pre-trade war levels in 2020 and 2021. In 2020 and 2021, the share of total US agricultural exports to China also slightly exceeded pre-trade-war levels in 2012–2014.

Figure 3 shows China's agricultural imports from US and non-US sources from 2010 to 2021 and the first quarter of 2022. Before the trade war in 2018, China's agricultural import share from the United States had slowly declined from 25.5% in 2010 to 19.2% in 2017 and further

declined to 11.8% and 9.3% in 2018 and 2019, respectively, during the trade war. Although China increased its US agricultural purchases and its import share from the United States increased to 13.9% and 17.7% in 2020 and 2021, respectively, it did not recover to its 2017 level.

Figure 3 also shows that China's total agricultural imports have rapidly increased since 2016 and almost doubled from \$110 billion in 2016 to \$219 billion in 2021, with its purchases from non-US sources more than doubling during this period. China's rising imports from non-US sources suggests that China needed the imports. As a result, its record purchases from the United States

under the trade deal were more likely driven by its demand growth and not its trade obligations.

We further compare China's purchases of specific commodities from the United States with China's overall purchase of these commodities in table 1. Panel A in table 1 shows US exports to China in 2017, the trade war period (2018 and 2019), and the Phase One period (2020 and 2021), as well as the average growth rate in 2020 and 2021 relative to 2017. Panel B in table 1 shows these statistics for China's total imports of specific commodities. Panel B shows that China's imports of corn, beef, and pork in 2020 and 2021 surged relative to 2017 levels, while other products, such as wheat, seafood, and dairy products also grew. On the one hand, China's imports of corn and beef from the United States grew faster than China's total imports of these products. On the other hand, US exports of products like soybeans, pork, wheat, seafood, and dairy to China grew slower than China's total imports. Similarly, panel C shows that US share in China's total imports of corn and beef grew in 2020/21 relative to 2017, while the US share of China's imports of other commodities declined in 2020/21 relative to 2017. These patterns indicate that the United States gained a smaller share of China's growing import demand, except in several sectors, such as corn and beef.

Overall, the data analysis shows that while China increased its agricultural purchases from the United States in 2020 and 2021, its overall agricultural purchases generally outpaced its US purchases. As a result, it is fair to conclude that China's increased purchases from the United States in 2020 and 2021 were more likely driven by factors driving overall demand in China and, to a

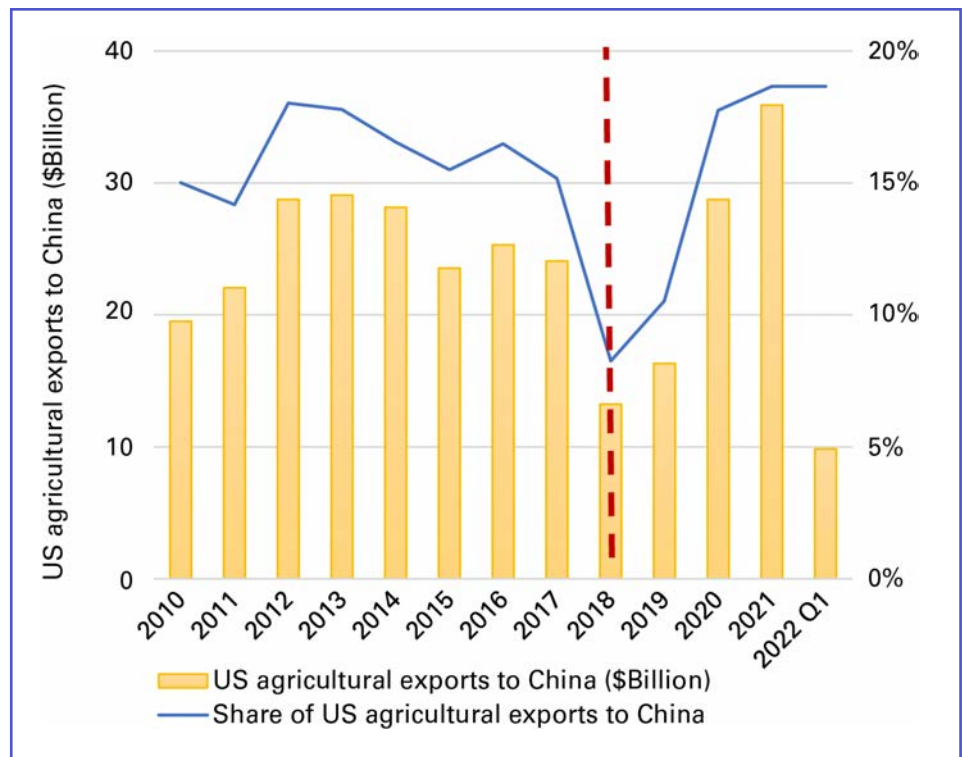


Figure 2. US agricultural exports to China.

Source: USDA GATS (2022). Data in 2022 is for the first quarter.

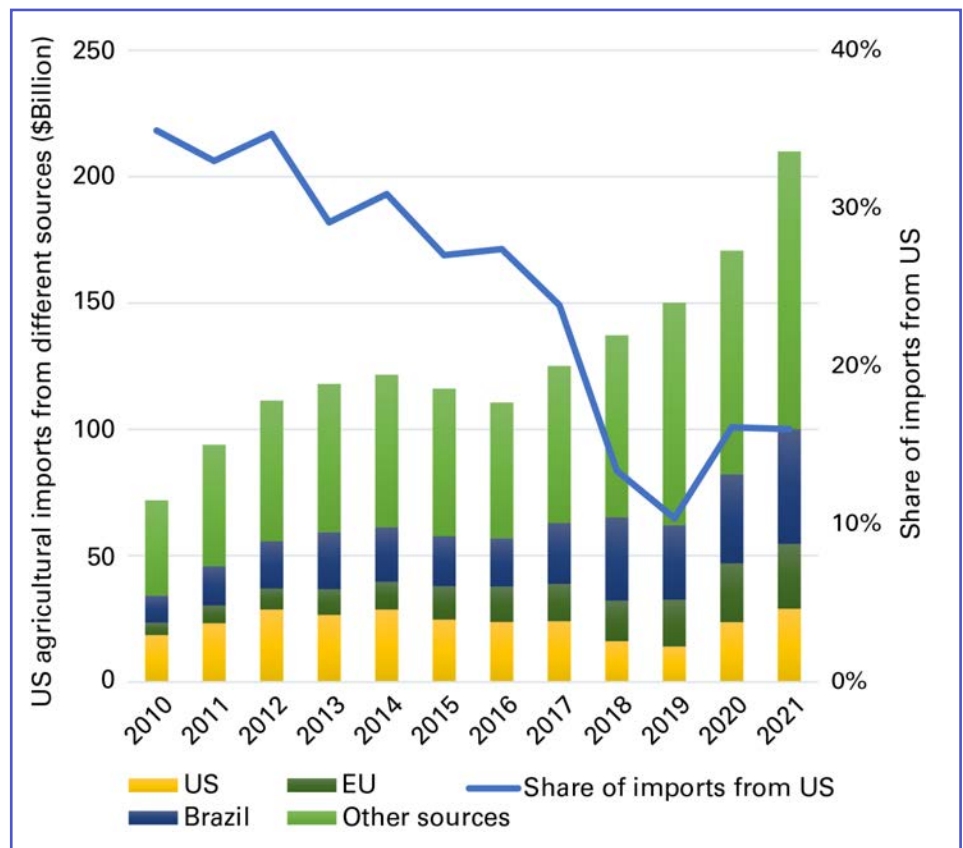


Figure 3. China's agricultural imports from the United States, EU, Brazil, and other sources.

Source: China's General Administration of Customs (2022).

Table 1. China's Imports and US Exports of Major Commodities to China before the Trade War and during the Phase One Trade Deal

Commodity	2017	2018	2019	2020	2021	Average growth rate in 2020 and 2021 relative to 2017
Panel A: US exports to China (Million metric tons)						
Soybeans	31.69	8.24	22.61	34.23	27.38	-2.8%
Corn	0.81	0.29	0.31	7.05	18.82	1494.8%
Pork & Pork Products	0.31	0.22	0.58	1.00	0.72	177.9%
Beef & Beef Products	0.00	0.01	0.01	0.04	0.19	3795.0%
Seafood Products	0.47	0.38	0.34	0.30	0.30	-36.7%
Wheat	1.51	0.40	0.24	2.25	2.74	64.8%
Dairy Products	0.39	0.36	0.20	0.34	0.44	0.9%
Export value of selected commodities (\$Billion)	15.31	5.546	10.76	19.774	24.89	45.9%
Panel B: China's total imports (Million metric tons)						
Soybeans	95.53	88.03	88.51	100.33	96.52	3.0%
Corn	2.83	3.52	4.79	11.30	28.35	600.5%
Pork & Pork Products	1.22	1.19	2.11	5.73	5.00	339.8%
Beef & Beef Products	0.70	1.04	1.66	2.14	2.36	221.4%
Seafood Products	2.94	3.40	4.44	4.02	3.63	30.1%
Wheat	4.42	3.10	3.49	8.38	9.77	105.3%
Dairy Products	2.54	2.74	3.06	3.37	3.95	44.1%
Import value of selected commodities (\$Billion)	24.52	31.18	42.54	55.419	65.18	145.9%
Panel C: US Share in Total Chinese Imports (%)						
Soybeans	33.2%	9.4%	25.5%	34.1%	28.4%	
Corn	28.7%	8.3%	6.5%	62.4%	66.4%	
Pork & Pork Products	25.3%	18.5%	27.3%	17.4%	14.5%	
Beef & Beef Products	0.4%	0.7%	0.6%	2.0%	8.1%	
Seafood Products	16.1%	11.3%	7.7%	7.4%	8.3%	
Wheat	34.3%	12.8%	6.8%	26.9%	28.0%	
Dairy Products	15.2%	13.0%	6.6%	10.1%	11.1%	
Share of US in China's import value of selected commodities	62.4%	17.8%	25.3%	35.7%	38.2%	

Source: USDA GATS (2022) and China's General Administration of Customs (2022).

lesser extent, the Phase One deal.

Figure 4 presents the NRCA indices of US and other major exporters of corn, soybeans, and pork. NRCA measures the degree of deviation of a country's actual exports from its comparative-advantage neutral level in terms of its relative scale with respect to the world export market and provides a proper indication of the underlying comparative advantage (Yu et al. 2019).¹ A country has a comparative advantage in a good if its NRCA is greater than zero and does not have a comparative advantage if its NRCA is less than zero. Higher NRCA indices indicate relatively competitive positions. Figure 4 shows that while the United States has a comparative advantage over Ukraine for corn, this advantage declined in 2019 and slightly rebounded in 2020. Brazil's comparative advantage over the United States in soybean has been growing. US comparative advantage in pork has been growing since 2019 and almost reached that of Germany, indicating US pork has become more competitive since the trade war.

The bright side of the Phase One agreement is that China removed some of its non-tariff barriers to the United States in the beef and poultry sector. The ongoing Russia-Ukraine conflict will likely reduce Ukraine's corn production and exports, and the United States and Brazil will remain the primary source of China's corn imports. With China's growing food import demand induced by its limited land resources, US agricultural exports to China are likely to continue, but whether the United States can get a larger share of China's growing food import demand remains uncertain and depends critically

1. Yu et al. (2009) define country i 's NRCA index of commodity j as: $NRCA_{ij} = E_j/E_i (E_{ij}/E_i - E_j/E)$, where E_j is the world's exports of commodity j ; E is the world's exports of all agricultural commodities; E_{ij} is country i 's exports of commodity j ; and, E_i is country i 's exports of all agricultural commodities.

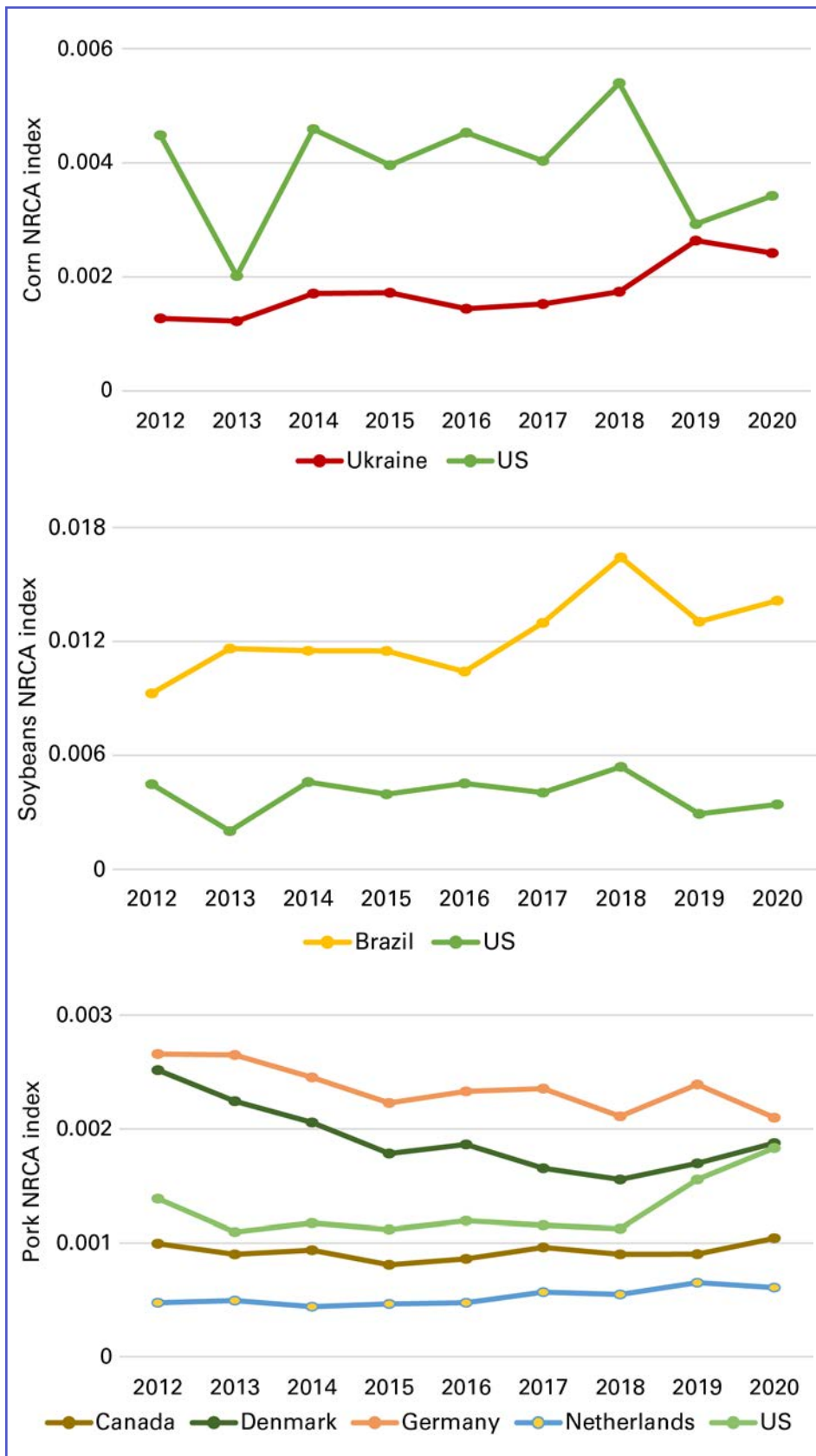


Figure 4. NRCA indexes of corn, soybeans, and pork.

Source: UN Comtrade Database.

on China's imports diversification strategy and a complicated and uncertain US-China relationship.

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