

Impacts of the Trade War on the U.S. Cotton Sector

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Introduction

Just over a year after his inauguration (in March 2018), President Donald Trump announced that he was using existing authorities to impose tariffs on steel and aluminum imports from multiple countries. That same month, he also signed a memorandum to impose tariffs on Chinese goods of \$50 billion, which was based on Section 301 of the Trade Act of 1974 that gives the U.S. broad authority to respond to unfair trade practices (Muhammad and Smith, 2018). These were the first in a series of actions resulting in a major trade conflict with China that is still ongoing.

In July 2018, the U.S. government imposed tariffs on \$34 billion of Chinese goods, and in August 2018, they raised tariffs on an additional \$16 billion. That same month, the Chinese government imposed 25 percent retaliatory tariffs on U.S. goods, including many agricultural goods and food products (Hopkinson, 2018).

The implications of the U.S.-China trade war on the agricultural sector have primarily focused on the soybean sector, perhaps owing to soybeans being the largest U.S. agricultural export (\$21.6 billion in 2017) and China being the primary destination. In addition, the effects of the trade conflict on the U.S. soybean sector were both immediate and significant. U.S. soybean prices dropped significantly (about \$2 per bushel) relative to Brazilian soybean prices. U.S. soybean exports decreased considerably in the months that followed, with shipments to China falling to negligible levels (Hubbs, 2018; GATS, 2019).

The impact of the U.S.-China trade war on the U.S. cotton sector has received considerably less attention. Albeit smaller than U.S. soybean exports, cotton is a leading agricultural export for the U.S. (\$5.8 billion in 2017), with China being a major destination. Additionally, cotton is one of China's most important agricultural imports from the U.S. The Chinese government imposed 25 percent tariffs on U.S. soybeans and cotton, as well as many other agricultural products. For cotton, the final tariff is as high as 65 percent for out-of-quota imports when added to the existing tariff (40 percent), which has put the U.S. at a disadvantage relative to other exporting countries (Hopkinson, 2018).

Key differences between soybeans and cotton could explain why the impacts of the tariff on cotton were not as evident. For the most part, soybeans are a more homogeneous product that are bulk priced with limited quality differences. In contrast, cotton can be considered more heterogeneous based on qualities such as length and strength, but also based on harvest method (e.g., machine versus handpicked). These quality differences could limit the substitutability across supplying countries and dampen the effects of a tariff. Cotton also has a greater diversity of sources for both exports and greater diversity in importers than do soybeans. The U.S. and Brazil accounted for approximately 85 percent of all global soybean exports in 2018. For cotton, the U.S., Brazil, India and Australia accounted for 69 percent of global exports. From the perspective of importers, the top countries (Bangladesh, China, Vietnam and Indonesia) in 2018 accounted for around 60 percent of all imports. For soybeans, China alone accounted for nearly 60 percent (PSD Online, 2019).

While both cotton and soybeans have active export markets for processed products (soybean meal and oil; cotton yarn and fabric), soybean processing typically occurs in the country of origin or at the destination of final use. However, soybeans may be processed by an intermediary country (e.g., 2018 soybeans from the U.S. shipped to Argentina for crushing and then shipped as meal to China or another destination) in insignificant quantities or under unusual circumstances, such as the drought in Argentina in the 2017/18 growing year. For cotton, intermediary processing and re-exports are more common: Ginned cotton bales are shipped to one country for processing and then shipped as yarn to the fabric-producing country.

In this report, we discuss the implications of the U.S.-China trade war on the U.S. cotton sector. We further discuss developments in global cotton markets over the last decade, such as the increase in global yarn trade and China's demand for primary processing by foreign countries. It appears that global trends over the last decade might have lessened the impact of China's retaliatory tariffs on the U.S. cotton sector. However, recent data suggest that the U.S. cotton sector has still been disadvantaged relative to other cotton-exporting countries.¹

¹ References to cotton in this report are limited to raw cotton as defined by the Harmonized System (HS) classification 5201 — cotton, not carded or combed. References to yarn are limited to yarn manufactured from cotton for use in commercial production, HS 5205 — cotton yarn, other than sewing thread containing ≥ 85% cotton, not used for retail.

U.S. and Global Cotton Prices

Since 2016, the U.S. farm price has been relatively stable around \$0.700 per pound. In 2018, average U.S. farm prices increased from \$0.689 per pound in January to \$0.768 in July (**Figure 1**). The recent increase in price was due to three factors: 1) a continued reduction in global and Chinese cotton stocks; 2) strong global mill demand; and 3) dry conditions in Texas in the summer of 2018, creating concerns about projected 2018 U.S. production. However, 2018 also saw the intensification of the China-U.S. trade war, which provided downward price pressure. Due to these counteracting forces in the U.S. cotton market, it is difficult to determine the price impact of Chinese tariffs on U.S. cotton farmers.

Figure 1. Monthly average U.S. farm price, 2006-2019.



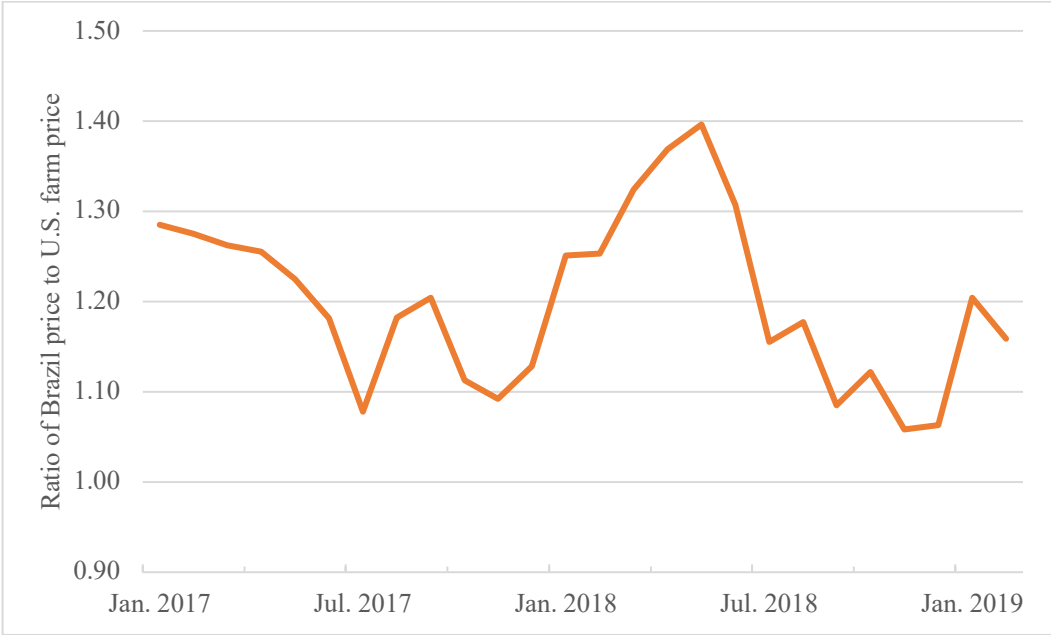
Source: USDA-NASS, 2019.

Brazil is a major competitor for the United States in global cotton markets. Both countries are export-oriented producers of high-quality machine-picked cotton. Shifts in the price ratio for these two countries could be a good indication of how China's retaliatory tariffs have affected U.S. prices. **Figure 2** shows the ratio between the price of cotton in Brazil (University of Sao Paulo's Luiz de Queiroz College of Agriculture Escola Superior De Agricultura Luiz De Queiroz [ESALQ] index) and the U.S. monthly farm price from January 2017 until April 2019. In the second half of 2018, the ratio (ESALQ index divided by the U.S. farm price) fell from 1.40 to around 1.10 to 1.20, remaining essentially constant since the start of the trade war.

In recent years, the relationship between U.S. and Brazilian cotton prices is, in part, affected by substantial changes to Brazil's cotton production. Cotton production in Brazil has been increasing due to improved domestic prices, making cotton an attractive alternative to corn and soybeans. From 2013/14 to 2016/17, total harvested acres averaged 2.5 million acres per year. In 2017/18, acres harvested increased to 2.9 million, and in 2018/19, harvested acres increased to nearly 4.0 million acres (CONAB, 2019). Cotton acres harvested in northern and

northeastern Brazil have remained relatively consistent, averaging 774,000 acres harvested per year, with a range of 588,000 (2016/17) to 969,000 (2018/19) acres. In central and southern Brazil, cotton acres have increased from 1.6 million in 2014/15 to almost 3.0 million in 2018/19. The state that experienced the most dramatic increase in acres harvested is Mato Grosso, increasing in acres from 1.6 million in 2016/17 to 2.7 million in 2018/19. Driving the increased acres have been improved domestic prices and an increase in safrinha acres, due to early soybean plantings in September 2018 allowing for increased cotton acres in January/February 2019 (Ustinova, 2019). Under these circumstances, it is difficult to draw apt comparisons between Brazil and U.S. prices.

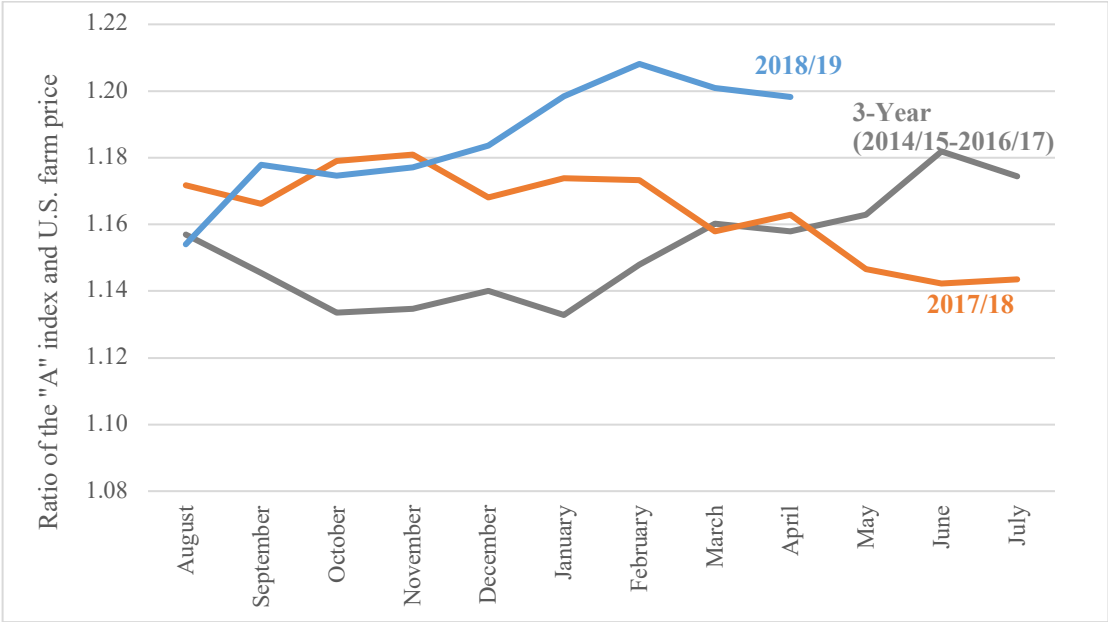
Figure 2. Ratio of Brazil Cotton Price to U.S. Farm Price: Jan. 2017 – April 2019.



Source: USDA-NASS, 2019 and University of Sao Paulo, 2019.

Figure 3 shows the ratio between the average Cotlook “A” index and the monthly U.S. farm price. The difference between these price series may also be an indication of how China’s retaliatory tariffs shifted U.S. prices. The Cotlook “A” Index is considered representative of raw cotton prices on the international market (NCC, 2019). From 2014 to 2017, the ratio between the two prices averaged about 1.16 (Cotlook “A” Index divided by U.S. farm price). In 2018/19, the ratio increased to 1.21, indicating an increase in the disparity of “global prices” and U.S. prices. The relatively higher Cotlook “A” index compared to U.S. farm prices in 2018/19 suggests that U.S. prices were depressed relative to global prices during this period.

Figure 3. Monthly Average “A” Index Price Divided by U.S. Farm Price: Three-year Average (2014/15-2016/17), 2017/18, and 2018/19.

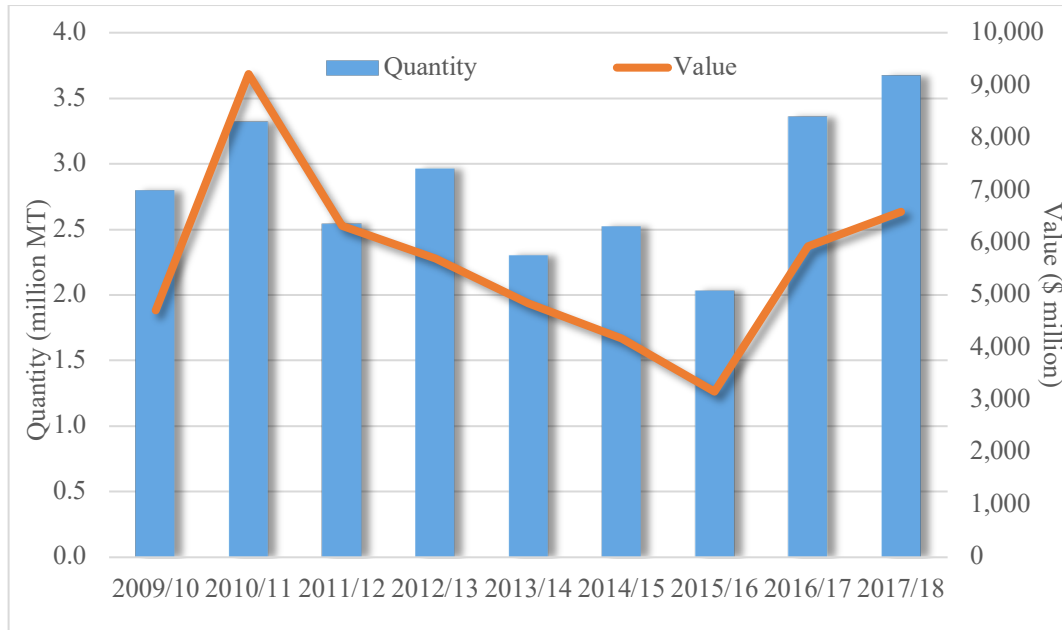


Source: USDA-NASS, 2019 and NCC, 2019.

U.S. Cotton Exports

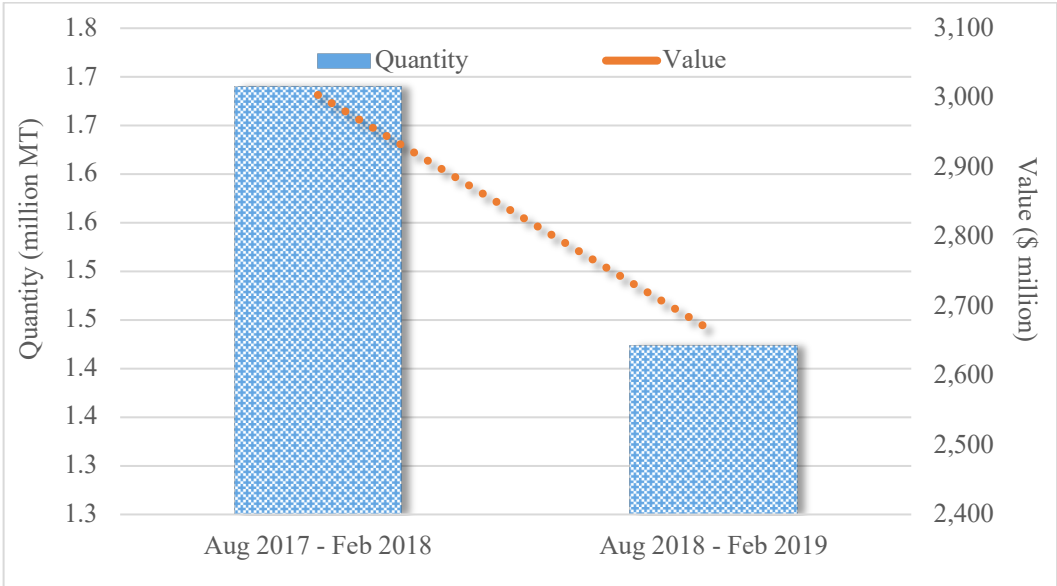
U.S. cotton exports since the 2009/10 marketing year (August through July) are reported in **Figure 4**. Since reaching a low of 2 million metric tons (MT) and \$3.2 billion in 2015/16, exports have recovered significantly, reaching a decade high of nearly 4 million MT and \$6.6 billion in 2017/18. The current marketing season (2018/19), which started in August 2018 when the tariffs were implemented, shows a decline. As of February 2019, U.S. exports were down 0.27 million MT and \$341 million when compared to the previous marketing year (**Figure 5**).

Figure 4. U.S. Cotton Exports: 2009/10-2017/18.



Note: Marketing year starts August 1. MT = metric tons. Cotton: HS 5201 – cotton, not carded or combed. Source: Foreign Agricultural Service, Global Agricultural Trade System.

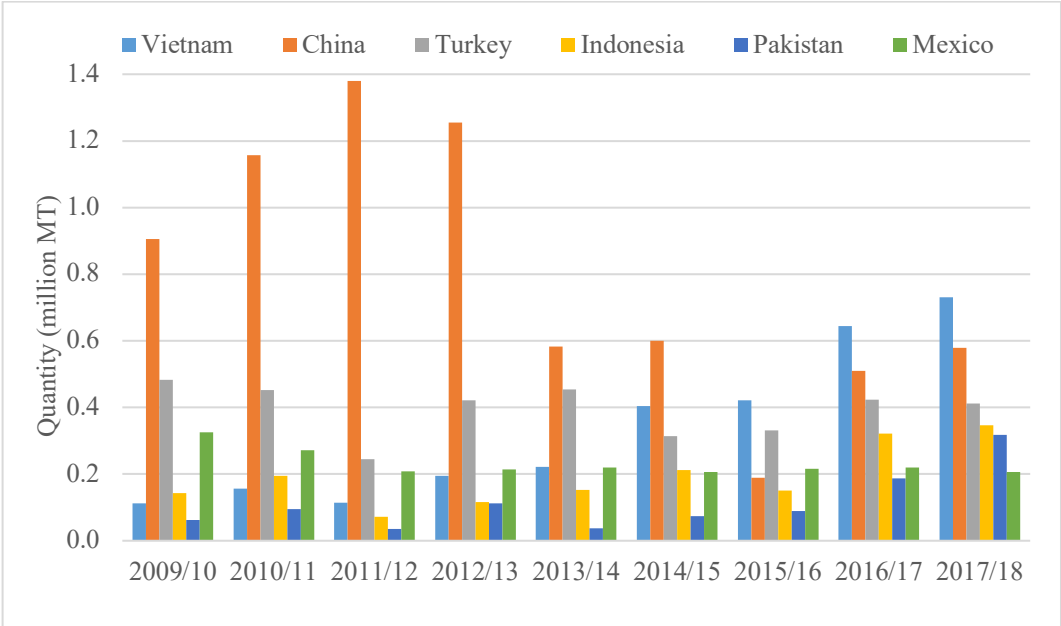
Figure 5. U.S. Cotton Exports, Marketing Year-to-Date Comparison: Aug. 2017 – Feb. 2018 and Aug. 2018 – Feb. 2019.



Note: Marketing year starts August 1. MT = metric tons. Cotton: HS 5201 – cotton, not carded or combed. Source: Foreign Agricultural Service, Global Agricultural Trade System.

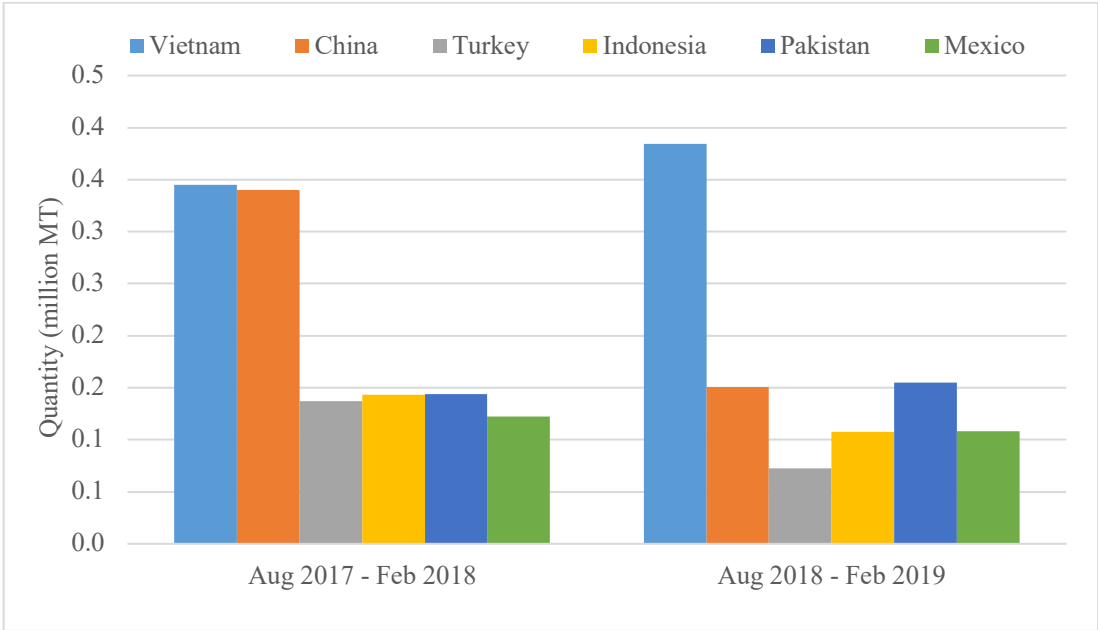
U.S. cotton exports by destination market are reported in **Figures 6 and 7**. U.S. cotton exports to China declined significantly since peaking in 2011/12 (1.4 million MT), falling to a low in 2015/16 (189,000 MT). Since 2015/16, the Chinese market was showing signs of recovery for U.S. cotton, primarily due to declining stocks and increasing domestic demand (USDA, 2019). During this period, Vietnam emerged as the leading market for U.S. cotton exports (**Figure 6**). Vietnam also emerged as a major supplier of yarn to China. The data suggest that U.S. cotton shipped to Vietnam is being processed and then exported as yarn to China. This is discussed in more detail later in the report. The recent decline in U.S. cotton exports is primarily due to a decrease in exports to China. As of February 2019, U.S. cotton exports to China were down 56 percent when compared to the previous marketing year (**Figure 7**).

Figure 6. U.S. Cotton Exports by Importing Country: 2009/10-2017/18.



Note: Marketing year starts August 1. MT = metric tons. Cotton: HS 5201 – cotton, not carded or combed. The top six destinations account for about 70 percent of U.S. exports. Source: Foreign Agricultural Service, Global Agricultural Trade System.

Figure 7. U.S. Cotton Exports by Importing Country, Marketing Year-to-Date Comparison: Aug. 2017 - Feb. 2018 and Aug. 2018 - Feb. 2019.

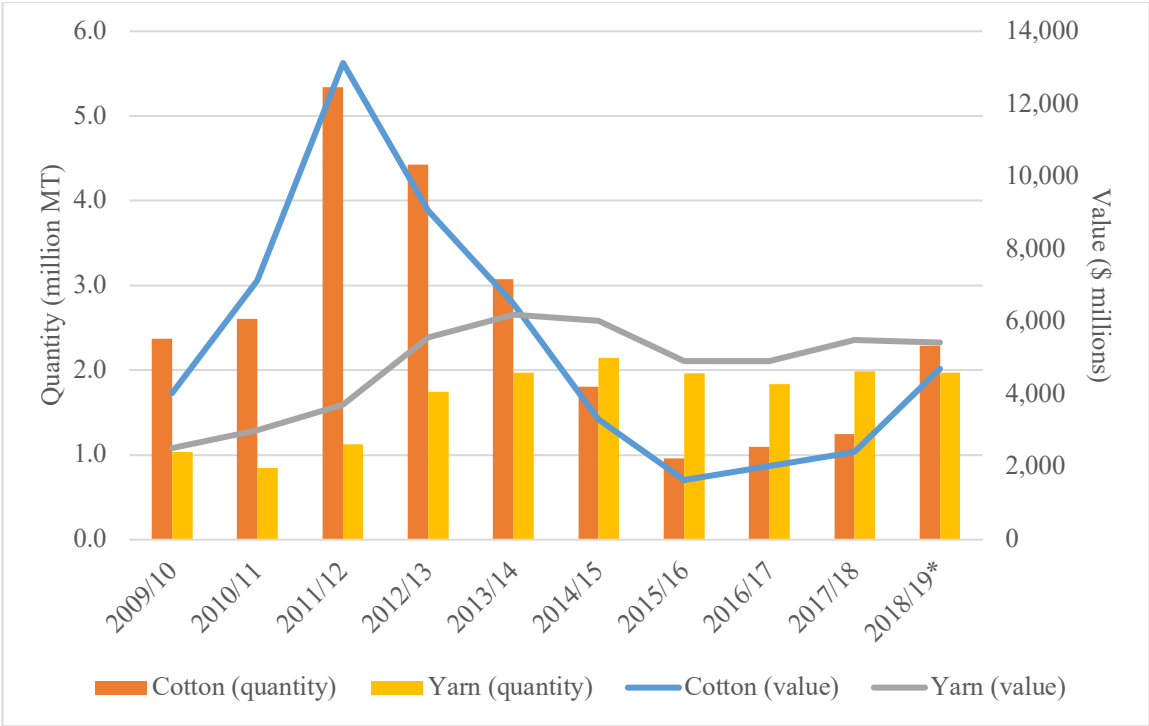


Note: Marketing year starts August 1. MT = metric tons. Cotton: HS 5201 – cotton, not carded or combed. The top six destinations account for about 70 percent of U.S. exports. Source: Foreign Agricultural Service, Global Agricultural Trade System.

China's Cotton and Yarn Imports

China's cotton and yarn imports since 2009/10 are reported in **Figure 8**. Since peaking at nearly 5.3 million MT in 2011/12, Chinese cotton imports have significantly declined, reaching a low of 1.0 million MT in 2015/16. Since 2015/16, cotton imports have shown signs of rebounding, increasing by over 10 percent each year. This rebound is further evidenced by cotton imports this current marketing year (2018/19), which are up 84 percent from the previous year. Overall, China's yarn imports have remained strong, increasing from about 0.8 million MT in 2010/11 to an average of 2 million MT per year over the last five years.

Figure 8. China Cotton and Yarn Imports: 2009/10-2018/19.



Note: Marketing year starts August 1. *Preliminary estimate based on available data. MT = metric tons. Cotton: HS 5201 – cotton, not carded or combed; Yarn: HS 5205 – cotton yarn, other than sewing thread containing ≥ 85% cotton, not used for retail. Source: Global Trade Atlas.

The decrease in cotton imports in China over 2011/12 to 2016/17 came as China completed the rebuilding of its state reserve stocks of cotton early in the transition period and then began selling domestically produced cotton from the reserve starting in 2015/16. With the introduction of high price supports in 2011, much of China's domestic production flowed into the reserve, and a large expansion in import quotas allowed imports to achieve an unprecedented level in 2011. In 2014, China reduced its guaranteed producer target price, which helped domestic and world prices partly converge. In 2015, as auctions to China's mills and traders from the state reserve began in earnest, China's cotton imports were largely confined to its minimum obligations under its World Trade Organization (WTO) accession agreement, the 894,000-ton tariff-rate quota (TRQ) (MacDonald, Gale and Hansen 2015). In

recent years, China's domestic use has increased as state reserve sales have grown, with ending stocks falling by 50 percent since peaking in 2014/15 (USDA, 2019).

At a minimum, China's government distributes quota based on the WTO 1-percent TRQ for all cotton imports but at times has expanded quota availability to satisfy domestic textile demand. In most years, quota expansion to balance the interests of both processors and farmers have taken the form of imports under a sliding scale duty since May 2005. Under the sliding scale, importers pay a 5 percent to 40 percent duty depending on world cotton prices, with lower prices attracting a higher duty (Wang et al. 2013). In addition to the WTO and sliding scale, the government, at times, makes available quota exclusively for processing and re-exporting cotton, and the state reserve, at times, undertakes imports above and beyond commercial quota channels.

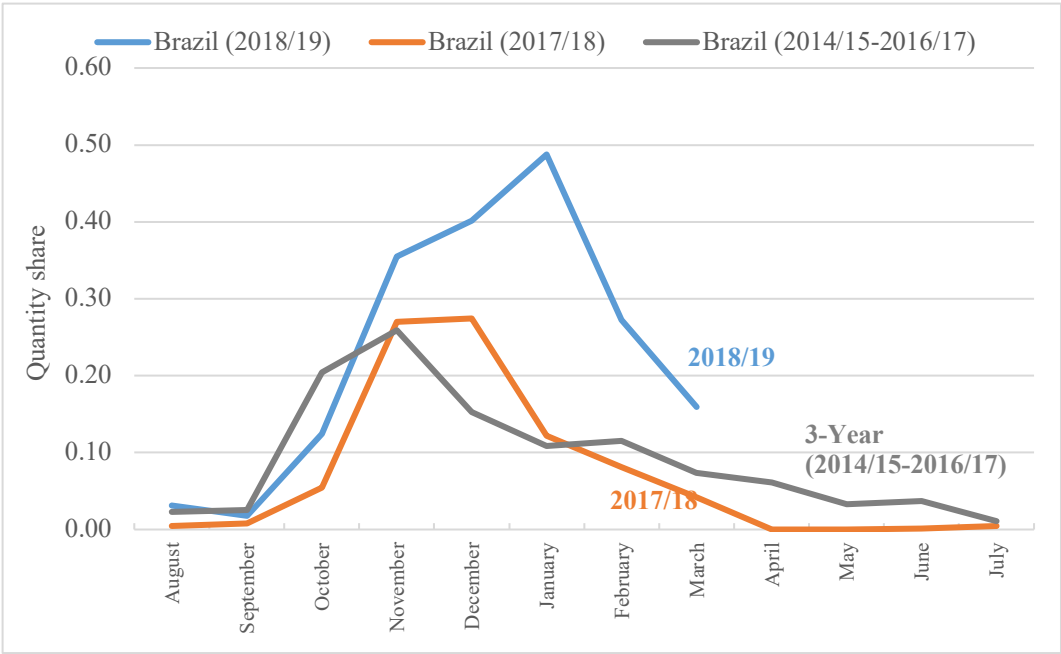
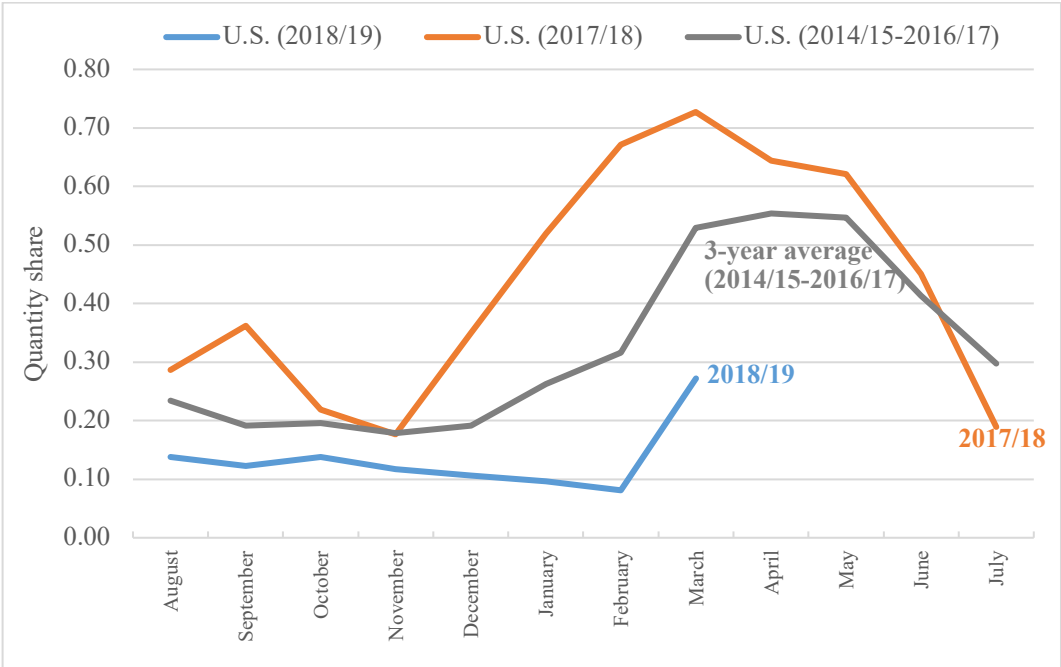
Trade War Implications

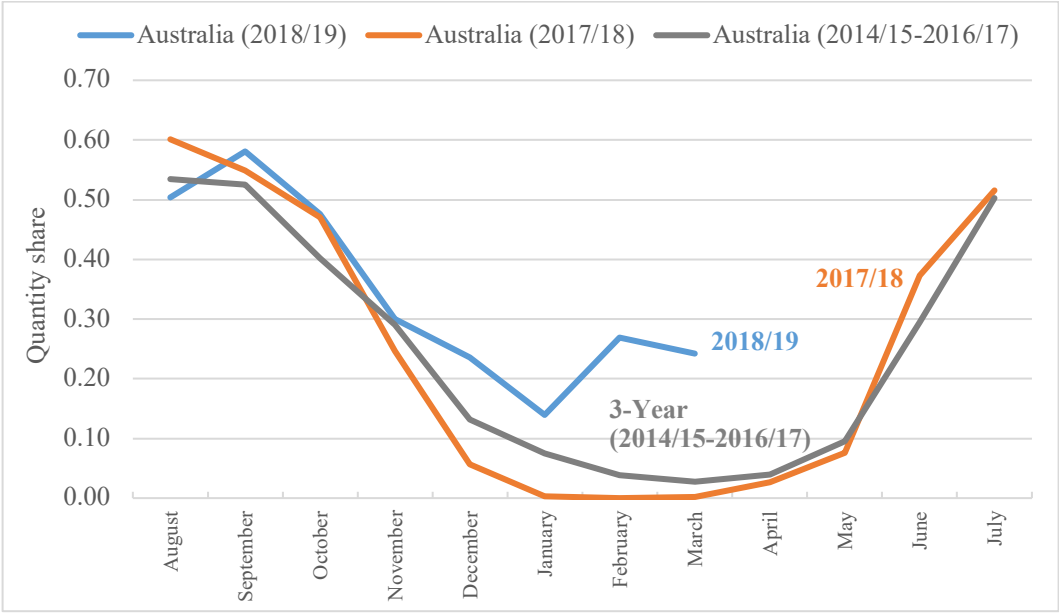
Figure 9 shows the U.S., Brazil and Australia's share of China's cotton imports in the current marketing year (2018/19) compared to the previous year (2017/18) and a three-year average (2014/15-2016/17). Note that the U.S. share of China's cotton imports is lower when compared to the previous marketing year and three-year average. For instance, in March of the previous year, the U.S. accounted for 70 percent of all cotton imports in China; the three-year average for this month is over 50 percent. In March 2019, the U.S. accounted for less than 30 percent. Since the start of the marketing year (August 2018), there has not been a single month where the U.S. share was comparable to previous years. While U.S. shipments to China have remained high enough to suggest that U.S. cotton is accounting for a significant share of the WTO and processing quota available to Chinese importers, patterns suggest the U.S. has been excluded from increased purchases by the state reserve during late 2018.

While the U.S. share of China's cotton imports in 2018/19 are comparably lower, Brazil and Australia's shares are higher when compared to previous years. Note that in January 2019, Brazil accounted for nearly half of all cotton imports in China, whereas in years prior, Brazil only accounted for about 10 percent. Australia's share of China's cotton imports has averaged less than 5 percent during the winter and spring months in previous years but averaged around 20 percent this current marketing year (**Figure 9**).

Although China's cotton imports have been recovering since 2015/16, current trade tensions are limiting U.S. cotton in this recovery and benefiting major competitors such as Brazil and Australia. This was particularly evident during the first few months of calendar year 2019, as large purchases by the state reserve of Brazilian cotton drove China's imports from Brazil sharply higher.

Figure 9. U.S., Brazil and Australia’s Share of China Cotton Imports: Three-year average (2014/15-2016/17), 2017/18 and 2018/19.





Note: Cotton: HS 5201 – cotton, not carded or combed. Source: Global Trade Atlas.

Trends in Global Cotton and Yarn Trade

Table 1. Global Cotton and Yarn Imports (Top 10 Countries): 2011, 2017.

| HS 5201: Cotton; not carded or combed | | | | HS 5205: Cotton yarn; ≥ 85% cotton (not for retail) | | |
|---------------------------------------|------------|------------------------|-------------------|--|------------------------|-------------------|
| 2011 | | | | | | |
| Rank | Country | Value (\$ millions) | Quantity (MMT) | Country | Value (\$ millions) | Quantity (MMT) |
| 1 | China | \$ 9,466.07 | 3.363 | China | \$ 2,987.81 | 0.802 |
| 2 | Bangladesh | 2,393.53 | 0.703 | Hong Kong | 1,207.86 | 0.245 |
| 3 | Turkey | 1,849.97 | 0.604 | Bangladesh | 1,130.92 | 0.223 |
| 4 | Indonesia | 1,785.83 | 0.547 | S. Korea | 797.54 | 0.154 |
| 5 | Thailand | 1,119.95 | 0.319 | Italy | 607.46 | 0.085 |
| 6 | Vietnam | 1,036.97 | 0.320 | Turkey | 495.06 | 0.096 |
| 7 | S. Korea | 854.77 | 0.234 | Japan | 378.76 | 0.059 |
| 8 | Mexico | 834.62 | 0.264 | Germany | 316.56 | 0.056 |
| 9 | Pakistan | 824.77 | 0.249 | Portugal | 311.31 | 0.060 |
| 10 | Malaysia | 426.81 | 0.122 | Dom. Rep. | 260.34 | 0.103 |
| 2017 | | | | | | |
| Rank | Country | Value (\$ millions) | Quantity (MMT) | Country | Value (\$ millions) | Quantity (MMT) |
| 1 | Vietnam | \$ 2,331.83 | 1.269 | China | \$ 5,065.13 | 1.872 |
| 2 | China | 2,185.60 | 1.155 | Turkey | 571.17 | 0.189 |
| 3 | Turkey | 1,676.28 | 0.914 | Hong Kong | 483.06 | 0.131 |
| 4 | Indonesia | 1,325.17 | 0.731 | Portugal | 345.79 | 0.102 |
| 5 | India | 956.12 | 0.446 | Italy | 343.32 | 0.069 |
| 6 | Pakistan | 761.45 | 0.480 | S. Korea | 303.85 | 0.092 |
| 7 | Mexico | 413.69 | 0.229 | Russia | 252.07 | 0.110 |
| 8 | S. Korea | 407.29 | 0.218 | Egypt | 215.54 | 0.062 |
| 9 | Egypt | 236.96 | 0.126 | Japan | 204.24 | 0.052 |
| 10 | Malaysia | 169.40 | 0.091 | Germany | 189.57 | 0.047 |

MMT = million metric tons.

The most recent data for Bangladesh (2015) indicated that its cotton imports were \$2.2 billion and yarn imports were \$954 million. Bangladesh would at least rank second for both products in 2017 if imports either increased or remained relatively the same.

Source: UN Comtrade Database, 2019.

The makeup of global cotton and yarn trade has changed significantly since U.S. exports peaked in 2011. **Table 1** shows the top 10 cotton and yarn importing countries in 2011 and 2017. In 2011, China was the leading cotton importing country with imports valued at \$9.5 billion, nearly 3.4 million MT. Cotton imports in the next leading country (Bangladesh) were significantly smaller (\$2.4 billion, 0.7 million MT). China was also the leading cotton yarn importing country in 2011 (\$3.0 billion, 0.8 million MT). Similarly, cotton yarn imports in the next two leading importing countries, Hong Kong (\$1.2 billion, 0.2 million MT) and Bangladesh (\$1.1 billion, 0.2 million MT), were significantly smaller.

Cotton and cotton yarn imports in 2017 are the result of an ongoing trend in the Chinese market. Since 2011, China has relied more on domestic stocks and its policies have resulted in increased yarn imports, primarily from Vietnam. With the increase in demand for yarn, Vietnam demand for cotton has increased. Consequently, Vietnam has surpassed China as the leading cotton-importing country. In 2017, Vietnam's cotton imports were valued at \$2.3 billion (1.3 million MT), while China's imports were valued at \$2.2 billion (1.2 million MT). However, it is worth mentioning that the decrease in China's cotton imports has been coupled with a significant increase in yarn imports. In 2017, China's yarn imports were valued at \$5.1 billion (1.9 million MT). The next highest country (Turkey) imported only about 10 percent of China's value and quantity.²

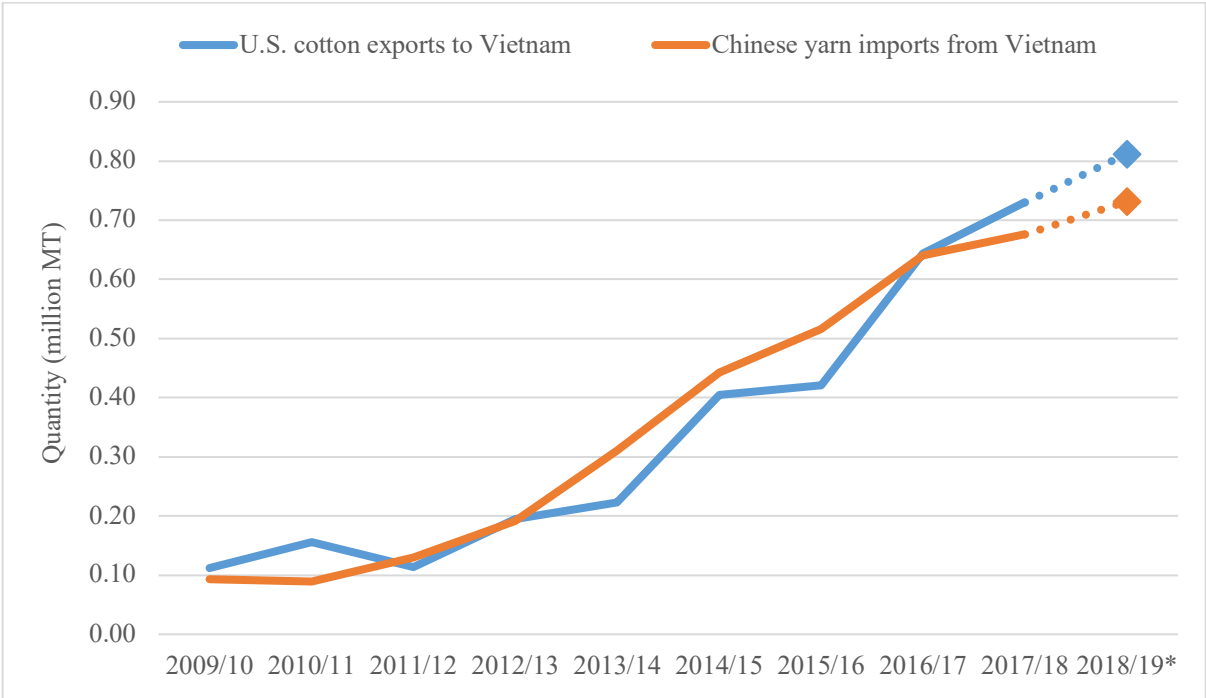
U.S. to Vietnam to China

In recent years, Vietnam has emerged as the leading supplier of yarn to China. Vietnam's geographic proximity, beneficial trade arrangements, and competitive cost structure have supported importing cotton and exporting yarn (USDA-FAS, 2019). In 2009, Vietnam accounted for 10 percent of China's yarn imports. In the years that followed, Vietnam's yarn exports to China steadily increased and now account for about 40 percent (Global Trade Atlas, 2019). During this period, Vietnam's cotton imports more than tripled, with the U.S. accounting for an increasing share. In 2012, for instance, the U.S. accounted for 27 percent of Vietnam's cotton imports and by 2017, the U.S. accounted for 50 percent (UN Comtrade Database, 2019).

Figure 10 shows U.S. cotton exports to Vietnam and China's yarn imports from Vietnam from 2009/10-2018/19. Note that there is a near perfect relationship between the two, which indicates that the U.S. is supplying cotton to the Chinese market through Vietnam's yarn manufacturing sector.

² The most recent data for Bangladesh (2015) indicated that its cotton imports were \$2.2 billion and yarn imports were \$954 million. Bangladesh would at least rank second for both products in 2017 if imports either increased or remained relatively the same.

Figure 10. Comparison of U.S. Cotton Exports to Vietnam and China Yarn Imports From Vietnam: 2009/10-2018/19.*



Note: Marketing year starts August 1. *Preliminary estimates based on available data. MT = metric tons. Cotton: HS 5201 – cotton, not carded or combed; Yarn: HS 5205 – cotton yarn, other than sewing thread containing ≥ 85% cotton, not used for retail. Source: Global Agricultural Trade System and Global Trade Atlas.

Discussion and Conclusion

Because of the broad scope of U.S. agricultural products subject to the retaliatory tariffs and the importance of China to U.S. agricultural exports, many farmers are likely to experience some negative effects, such as lower prices or potentially lost market opportunities. The negative effects of retaliatory tariffs on U.S. soybeans have been discussed extensively. Cotton, which is another important U.S. export, has received significantly less attention. USDA’s long-run projections show China’s total imports doubling in the four years after 2019/20, after having nearly doubled in three years leading up to 2018/19, so constraints on U.S. cotton sales to China could become increasingly important. Furthermore, the current tariffs could be stimulating additional cotton production in Brazil, potentially limiting the ability for the U.S. to regain market share in China.

Recent data suggest that current trade tensions have resulted in China replacing U.S. cotton with imports from Brazil and Australia and other competing exporters to a lesser degree. This has occurred even as China’s cotton imports have increased overall. With growing Chinese demand, it appears that U.S. exports are being diverted to other textile-producing countries. In the important case of Vietnam, U.S. cotton imports are often for re-exports to China as

yarn. Elsewhere in the world, increased sales of Australian and Brazilian cotton to China have increased sales by the United States of cotton that might have otherwise been sold to China.

The makeup of China's cotton and yarn imports has been changing over the last seven years; these changes may have lessened the impact of the trade war on U.S. cotton exports. Although the trade war may be having a negative impact on U.S. cotton in China, this impact appears to be lessened by increased exports to alternative markets, particularly Vietnam. Evidence suggests that increased cotton exports to Vietnam are being re-exported to China as yarn, bypassing the 25 percent tariff.

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