

Estimated Effects of Recent Chinese Policy Changes on the U.S. and China Cotton

Markets

Bing Liu and Darren Hudson¹

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Department of Agricultural and Applied Economics

Texas Tech University, Box 42132, Lubbock, TX 79409-2132

Telephone: (806) 742-2821

Fax: (806) 742-1099

Web site: <http://www.aec.ttu.edu/icac/>

¹ Authors are Post-Doctoral Research Associate, and Combest Endowed Chair of Agricultural Competitiveness and ICAC Director. The authors appreciate the assistance of Don Ethridge for comments on earlier drafts of this paper. Funding from the U.S. Department of Agriculture-Office of the Chief Economist in cooperation with the Agricultural & Food Policy Center (AFPC), Texas A&M University.

China recently announced that it will not allow over-quota imports in 2015/16 beyond the 894,000 tons (4.1 million bales) quota, which is the amount required to offer at low duties under commitments with the World Trade Organization (WTO). This announcement came after the government introduced a trial subsidy program for cotton farmers in Xinjiang in 2014/15, to begin replacing the stockpiling policy that had been implemented for the past three years. In addition, for cotton producers in regions outside of Xinjiang, there will be a direct subsidy of 2,000 yuan per ton². Considering that China is the world's largest cotton grower (although India is expected to surpass it this year), consumer, and importer, any decisions involving cotton could have a major impact on the global cotton market. The purpose of this analysis was to estimate the effects of recent Chinese policy changes on current and future cotton markets.

Background

China has a major impact on global cotton markets through government policies due to its sheer size. Traditionally, Chinese cotton policy functions through the operations of two primary tools: government reserves and an import quota. Aimed at stabilizing Chinese cotton prices and supporting domestic cotton farmers, the government of China designed and implemented a price support policy for the past three years which allows the government to purchase domestically produced cotton and build government reserves. Three years' implementation of this policy has driven up China's state reserve to 13.6 million tons (62.7 million bales) at the end of 2013/14, accounting for 62 percent of global ending stocks.

As the stockpiling policy is gradually eliminated, the Chinese government announced that it will provide a direct subsidy to cotton producers in Xinjiang in 2014/15 with a target price of

² See Wally Darneille (2014) for more detail on China cotton subsidy.

19,800 yuan per ton. Specifically, whenever the market price falls below the target price, growers in the trial areas will be compensated based on a combination of price difference between the target price and the market price, cultivated areas, yield and other factors. Xinjiang has long been the major cotton-producing region in China, producing about 55 percent of the country's cotton crop, or 3.5 million tons (16.1 million bales) in 2013. Initial expectations are that the subsidy will support cotton production in Xinjiang, but the effects on overall cotton production are less clear. However, on the other hand, it will put downward pressure on China cotton imports and global cotton prices.

The Chinese government also maintains an import quota system to further enhance its impact on domestic cotton prices. The Chinese import quota system controls cotton import volumes by applying border protection measures based on WTO-related tariff-rate quota (TRQ) and sliding scale duties, with an effective tariff of 40% on cotton imported outside the TRQ. Previously, China has offered additional import quotas, but according to the recent announcement, no additional quota will be issued for 2015/16 in an effort to encourage textile firms to buy more domestic cotton. As a result, the target price policy, coupled with the restricted availability of import quota, China has become even more important in determining future cotton prices.

Methods

The Global Fibers Model³ at the International Center for Agricultural Competitiveness at Texas Tech University was used to provide estimates of the impacts of recent Chinese policy changes on the US and China cotton markets for the future years. This partial equilibrium model

³ See Pan and Hudson (2011) for more detail on the Global Fibers Model.

representing the world fibers markets incorporates supply and demand models for the United States and 23 other major producing and consuming countries and regions. It is used to perform analysis on the expected behavior of natural fiber markets to potential changes in trade, technological, economic and policy factors, and evaluate the impacts of these changes on the 24 country/regional cotton and textiles markets.

The model was first run under the current situation (or baseline); i.e., under the projected global conditions over the period from 2015/16 to 2021/22 assumed for the 2014 FAPRI baseline projections. After that, four scenarios were simulated with all other conditions remaining the same. These included: 1) China initiating the trial subsidy policy in Xinjiang in 2014/15 with a target price of 19,800 yuan per ton, together with a direct subsidy amount of 2,000 yuan per ton for cotton producers in regions outside of Xinjiang; 2) a combination of trial subsidy program plus an annual 5 percent decrease in China cotton ending stock; 3) Chinese restrictions on imports in 2015/16 to 894,000 tons of cotton; and 4) a situation including all policy changes above--i.e., the implementation of new subsidy program, a 5 percent annual decrease in China ending stock and an import quota of 894,000 tons of cotton. The projected outcomes of all four scenarios above were compared with the baseline scenario to determine the economic impacts on US and China cotton markets. The impacts of policy changes on cotton production, consumption and trade for the U.S. and China were estimated by comparing baseline projections to their respective quantities for each individual scenario.

Estimation Results

Results are reported as percentage annual changes over the period 2015/16 – 2021/22 in terms of changes from baseline estimates. Tables 1 and 2 present the results of cotton production, consumption and trade of the baseline and four scenarios for the U.S. and China, respectively.

As expected, both of the trial subsidy policy and import quota restriction will have negative impacts on US cotton farm prices. Compared to all other scenarios, the US cotton price (bottom of Table 1) dropped slightly (by 2.6%) in 2015/16 resulting from the implementation of the subsidy program, and continued to decline over the rest of the projection period with an average of 1.8% each year relative to the baseline. While with the restricted availability of import quota in 2015/16, the domestic cotton price dropped sharply (by 10%) in the first year, then continued to be lower than the baseline through the projection period. Overall, the combination of trial subsidy program, decreasing cotton ending stock and import quota restriction led to a significant price drop of 31.5% in 2015/16. Prices adjusted as market participants adjusted, resulting in an average 12.6% lower price than the baseline.

Over the same time period that US cotton farm prices were declining, the Chinese cotton policy changes showed little impact on the US production over the projection period. However, US cotton consumption was estimated to experience a modest decline through the projection period, with a 2.6% average decline in the presence of all changed policies. As a result of declining cotton prices and domestic consumption, US cotton ending stocks showed an increasing trend over the same time period (an average 3.8% for the combined scenario). US cotton exports showed little response to China policy changes for each of the above scenarios, all less than 0.5% on average. A possible explanation is that US cotton exports accounts for a small portion of China's imports.

In China's cotton market (Table 2), recent policy changes were projected to have the largest effect on Chinese cotton imports. In the first scenario, where China provided a new subsidy program in 2014/15, Chinese cotton imports were projected to be lower by 3.7% in the first year, then decline at an average slower rate (3.9% per year). As expected, the restricted

availability of cotton imports under no over-quota policy has an inverse impact on cotton imports, resulting in 2015/16 cotton imports being reduced nearly 12% and an annual average decrease of 8.6% below the baseline through 2021/22. The combined scenario was projected to have lower cotton imports by an average 26% below the baseline.

Based on the estimation results, the implementation of subsidy program resulted in Chinese cotton production being 1.1% higher in 2015/16, then increasing at an average annual rate 1.4% above baseline. So, while the subsidy is expected to increase production, the increase appears small. But, the combined effects of all policy changes is an average production higher by 0.3% above baseline so that the suite of proposed policy changes is not particularly production enhancing.

Over the same time period the effects of trial subsidy program on Chinese mill demand were negligible. With the import quota restriction in place, Chinese mill consumption was projected to drop by an average of 2.2% through 2021/22. By forcing Chinese mills to consume domestic cotton predominantly and given the internal cotton price structure, Chinese mills will continue to consume cotton, but at a lower average rate than before these policies were implemented.

Conclusion

This analysis suggests that the recent Chinese policy changes along with overall reductions in Chinese stocks could have major impacts on US cotton farm prices. However, their impacts on the US cotton exports will be negligible. While imports by China decline, U.S. exports will be diverted to other textile producing countries, albeit at a lower price. The movement in the Chinese cotton policy for the future is unclear. For example, we assumed that

Chinese stocks would decline 5% per year below the baseline. But, we have no evidence of the actual rate of decline planned, if any. However, given the influence of Chinese cotton policy on the world cotton market, any future announcements related to reserves and import quota should have a significant impact on world cotton prices.

Table 1. Estimated Effects of China Recent Policy Changes on the U.S. Cotton Market

| | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | Average |
|--------------------------------------|-------------------------|---------|---------|---------|---------|---------|---------|---------|
| Production | ----- 1,000 bales ----- | | | | | | | |
| Baseline | 16359.6 | 15532.7 | 15626.7 | 15935.9 | 15917.9 | 16281.2 | 16234.6 | 15984.1 |
| Subsidies | 16359.6 | 15520.7 | 15614.4 | 15924.2 | 15907.5 | 16271.3 | 16225.8 | 15974.8 |
| % change | 0.0% | -0.1% | -0.1% | -0.1% | -0.1% | -0.1% | -0.1% | -0.1% |
| Subsidies w/ decreasing ending stock | 16359.6 | 15276.6 | 15524.0 | 15929.8 | 15880.5 | 16203.9 | 16421.1 | 15942.2 |
| % change | 0.0% | -1.6% | -0.7% | 0.0% | -0.2% | -0.5% | 1.1% | -0.3% |
| Import Quota | 16359.6 | 15487.1 | 15592.2 | 15904.7 | 15896.6 | 16262.4 | 16216.9 | 15959.9 |
| % change | 0.0% | -0.3% | -0.2% | -0.2% | -0.1% | -0.1% | -0.1% | -0.2% |
| All combined | 16528.8 | 15156.2 | 15458.7 | 15898.3 | 15858.7 | 16184.8 | 16342.0 | 15918.2 |
| % change | 1.0% | -2.4% | -1.1% | -0.2% | -0.4% | -0.6% | 0.7% | -0.4% |
| Consumption | 4137.0 | 4373.1 | 4285.2 | 4023.1 | 4113.4 | 4241.4 | 4309.8 | 4211.9 |
| Subsidies | 4130.9 | 4364.4 | 4275.8 | 4016.0 | 4109.0 | 4240.0 | 4311.0 | 4206.7 |
| % change | -0.1% | -0.2% | -0.2% | -0.2% | -0.1% | 0.0% | 0.0% | -0.1% |
| Subsidies w/ decreasing ending stock | 4089.1 | 4328.6 | 4260.0 | 4008.2 | 4094.2 | 4262.5 | 4302.8 | 4192.2 |
| % change | -1.2% | -1.0% | -0.6% | -0.4% | -0.5% | 0.5% | -0.2% | -0.5% |
| Import Quota | 3997.2 | 4228.7 | 4151.4 | 3930.9 | 4052.3 | 4203.3 | 4293.3 | 4122.4 |
| % change | -3.4% | -3.3% | -3.1% | -2.3% | -1.5% | -0.9% | -0.4% | -2.1% |
| All combined | 3950.1 | 4186.4 | 4127.0 | 3917.0 | 4033.6 | 4224.0 | 4287.3 | 4103.6 |
| % change | -4.5% | -4.3% | -3.7% | -2.6% | -1.9% | -0.4% | -0.5% | -2.6% |
| Exports | 11963.6 | 11622.7 | 11519.9 | 11921.6 | 11892.1 | 11937.4 | 11960.9 | 11831.2 |
| Subsidies | 11930.8 | 11623.6 | 11518.9 | 11921.2 | 11888.6 | 11932.8 | 11951.1 | 11823.8 |
| % change | -0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% | -0.1% |
| Subsidies w/ decreasing ending stock | 11703.1 | 11598.7 | 11560.5 | 11824.4 | 11775.1 | 12160.3 | 11779.3 | 11771.6 |
| % change | -2.2% | -0.2% | 0.4% | -0.8% | -1.0% | 1.9% | -1.5% | -0.5% |
| Import Quota | 11955.1 | 11776.4 | 11624.7 | 12014.5 | 11938.7 | 11961.5 | 11968.7 | 11891.4 |
| % change | -0.1% | 1.3% | 0.9% | 0.8% | 0.4% | 0.2% | 0.1% | 0.5% |
| All combined | 11852.0 | 11700.3 | 11620.1 | 11917.2 | 11820.9 | 12179.7 | 11740.7 | 11833.0 |
| % change | -0.9% | 0.7% | 0.9% | 0.0% | -0.6% | 2.0% | -1.8% | 0.0% |
| Ending Stock | 5677.3 | 5214.2 | 5035.8 | 5027.1 | 4939.5 | 5041.9 | 5005.8 | 5134.5 |
| Subsidies | 5716.2 | 5248.9 | 5068.6 | 5055.6 | 4965.6 | 5064.1 | 5027.8 | 5163.8 |
| % change | 0.7% | 0.7% | 0.7% | 0.6% | 0.5% | 0.4% | 0.4% | 0.6% |
| Subsidies w/ decreasing ending stock | 5985.6 | 5335.0 | 5038.6 | 5135.7 | 5146.9 | 4928.0 | 5267.0 | 5262.4 |
| % change | 5.4% | 2.3% | 0.1% | 2.2% | 4.2% | -2.3% | 5.2% | 2.4% |
| Import Quota | 5825.5 | 5307.6 | 5123.6 | 5083.0 | 4988.6 | 5086.2 | 5041.1 | 5207.9 |
| % change | 2.6% | 1.8% | 1.7% | 1.1% | 1.0% | 0.9% | 0.7% | 1.4% |

| | | | | | | | | |
|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| All combined | 6145.1 | 5414.6 | 5126.2 | 5190.3 | 5194.6 | 4975.7 | 5289.7 | 5333.8 |
| % change | 8.2% | 3.8% | 1.8% | 3.2% | 5.2% | -1.3% | 5.7% | 3.8% |
| Price | ----- US cents/lb ----- | | | | | | | |
| Baseline | 59.0 | 62.2 | 65.3 | 62.4 | 63.5 | 64.7 | 64.0 | 63.0 |
| Subsidies | 57.5 | 60.9 | 64.0 | 61.3 | 62.5 | 63.8 | 63.1 | 61.9 |
| % change | -2.6% | -2.0% | -1.9% | -1.7% | -1.6% | -1.4% | -1.4% | -1.8% |
| Subsidy w/ decreasing ending stock | 46.8 | 58.5 | 65.7 | 57.7 | 54.8 | 70.8 | 51.3 | 57.9 |
| % change | -20.8% | -5.9% | 0.6% | -7.5% | -13.7% | 9.4% | -19.9% | -8.3% |
| Import Quota | 53.1 | 59.0 | 62.0 | 60.3 | 61.6 | 62.9 | 62.5 | 60.2 |
| % change | -10.0% | -5.2% | -5.0% | -3.3% | -3.0% | -2.8% | -2.3% | -4.5% |
| All combined | 40.4 | 55.9 | 62.3 | 55.7 | 52.9 | 68.9 | 50.4 | 55.2 |
| % change | -31.5% | -10.1% | -4.5% | -10.7% | -16.7% | 6.4% | -21.2% | -12.6% |

Table 2. Estimated Effects of China Recent Policy Changes on the China Cotton Market (all quantities are in 1,000 bales)

| | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | Average |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Production | 30501.9 | 30193.8 | 30430.0 | 30827.7 | 31187.8 | 30669.9 | 31445.8 | 30751.0 |
| Subsidies | 30843.8 | 30553.4 | 30831.7 | 31263.7 | 31642.1 | 31124.7 | 31913.4 | 31167.5 |
| % change | 1.1% | 1.2% | 1.3% | 1.4% | 1.5% | 1.5% | 1.5% | 1.4% |
| Subsidies w/ decreasing ending stock | 30802.2 | 30123.1 | 30616.2 | 31209.5 | 31416.3 | 30771.3 | 31986.5 | 30989.3 |
| % change | 1.0% | -0.2% | 0.6% | 1.2% | 0.7% | 0.3% | 1.7% | 0.8% |
| Import Quota | 30480.3 | 29970.2 | 30254.1 | 30650.0 | 31041.6 | 30529.1 | 31302.9 | 30604.0 |
| % change | -0.1% | -0.7% | -0.6% | -0.6% | -0.5% | -0.5% | -0.5% | -0.5% |
| All combined | 30780.0 | 29880.2 | 30447.2 | 31025.2 | 31267.7 | 30627.3 | 31837.3 | 30837.9 |
| % change | 0.9% | -1.0% | 0.1% | 0.6% | 0.3% | -0.1% | 1.2% | 0.3% |
| Consumption | 38443.5 | 39403.6 | 41600.9 | 40814.9 | 40301.9 | 42271.4 | 42415.4 | 40750.3 |
| Subsidies | 38471.5 | 39443.3 | 41651.1 | 40868.7 | 40358.0 | 42331.2 | 42477.4 | 40800.2 |
| % change | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Subsidies w/ decreasing ending stock | 38662.3 | 39606.6 | 41746.5 | 41013.7 | 40592.8 | 42367.1 | 42746.7 | 40962.3 |
| % change | 0.6% | 0.5% | 0.3% | 0.5% | 0.7% | 0.2% | 0.8% | 0.5% |
| Import Quota | 37549.9 | 38491.0 | 40674.5 | 39911.8 | 39419.0 | 41362.4 | 41522.9 | 39847.4 |
| % change | -2.3% | -2.3% | -2.2% | -2.2% | -2.2% | -2.2% | -2.1% | -2.2% |
| All combined | 37766.0 | 38681.9 | 40815.1 | 40103.8 | 39701.0 | 41457.5 | 41838.3 | 40051.9 |
| % change | -1.8% | -1.8% | -1.9% | -1.7% | -1.5% | -1.9% | -1.4% | -1.7% |
| Imports | 7170.3 | 8371.6 | 9246.3 | 8635.8 | 9201.3 | 9912.3 | 10597.6 | 9019.3 |
| Subsidies | 6905.7 | 8058.6 | 8900.8 | 8258.2 | 8805.7 | 9517.3 | 10193.7 | 8662.9 |
| % change | -3.7% | -3.7% | -3.7% | -4.4% | -4.3% | -4.0% | -3.8% | -3.9% |
| Subsidies w/ decreasing ending stock | 5000.1 | 6733.1 | 8527.5 | 7334.2 | 6837.0 | 9376.1 | 8661.1 | 7495.6 |
| % change | -30.3% | -19.6% | -7.8% | -15.1% | -25.7% | -5.4% | -18.3% | -17.4% |
| Import Quota | 6315.0 | 7647.2 | 8497.5 | 7906.7 | 8468.0 | 9145.0 | 9847.1 | 8261.0 |
| % change | -11.9% | -8.7% | -8.1% | -8.4% | -8.0% | -7.7% | -7.1% | -8.6% |
| All combined | 4143.2 | 6011.5 | 7771.8 | 6603.3 | 6097.6 | 8612.1 | 7898.5 | 6734.0 |
| % change | -42.2% | -28.2% | -15.9% | -23.5% | -33.7% | -13.1% | -25.5% | -26.0% |
| Ending Stock | 62080.5 | 61001.4 | 58840.5 | 57257.4 | 57117.6 | 55205.9 | 54616.1 | 58017.1 |
| Subsidies | 62129.9 | 61057.8 | 58902.9 | 57324.5 | 57187.3 | 55275.6 | 54687.5 | 58080.8 |
| % change | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Subsidies w/ decreasing ending stock | 59991.9 | 57000.6 | 54161.7 | 51460.1 | 48893.6 | 46451.5 | 44134.5 | 51727.7 |
| % change | -3.4% | -6.6% | -8.0% | -10.1% | -14.4% | -15.9% | -19.2% | -11.1% |
| Import Quota | 62097.3 | 60983.0 | 58823.9 | 57237.2 | 57100.8 | 55190.1 | 54599.3 | 58004.5 |
| % change | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

| | | | | | | | | |
|--------------|---------|---------|---------|---------|---------|---------|---------|---------|
| All combined | 60009.1 | 56978.2 | 54145.9 | 51439.0 | 48876.3 | 46435.7 | 44115.5 | 51714.3 |
| % change | -3.3% | -6.6% | -8.0% | -10.2% | -14.4% | -15.9% | -19.2% | -11.1% |