

THE PAKISTANI COTTON INDUSTRY: IMPACTS OF POLICY CHANGES

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Abstract

The Government of Pakistan utilized a tax on the export of cotton lint from 1988 to 1995. Prior research has shown that this policy had a significant impact on the cotton and yarn sectors in Pakistan over that period. Pakistan eliminated the export tax in 1995 and has not reinstated it. The elimination of this policy has had and will continue to have implications for Pakistan and the rest of the world as Pakistan adjusts to those changes. Indications are that cotton production and exports could significantly increase, placing downward pressure on world cotton prices. Cotton yarn production and exports are expected to decrease as a result of higher internal prices for cotton.

Introduction

Understanding the mechanics in cotton sectors of other countries has become increasingly important with the increased globalization of agriculture. The linkages between domestic economies to the economies of other countries through trade markets means that market outcomes in foreign countries can have an impact on the domestic economy. Identification of the major participants in the world cotton market forms a basis for understanding the global cotton economy. Over the past several decades, Pakistan has been both a major producer and consumer of cotton. Since 1970, Pakistan has averaged 6.5% of world cotton production and 5% of world cotton consumption (International Cotton Advisory Committee [ICAC], 1997). Given the relative share that Pakistan holds in both production and consumption, market outcomes in Pakistan are expected to have an impact on global cotton trade flows and, consequently, world prices.

The Government of Pakistan has been pivotal in determining cotton market outcomes in Pakistan, especially in the 1980s and 1990s. Government intervention in cotton markets is typically characterized in one of three ways--direct control, managed domestic prices, and free markets (Townsend and Guitichounts). Pakistan has ordinarily fallen into the category of managed domestic prices, which means that the Government of Pakistan has attempted to influence prices and production indirectly through the use of subsidies and taxes as opposed to direct control of prices. Pakistan has moved, since 1995, to a free market system with only minor income-support type subsidies (i.e., a support price for cotton) (U.S. Dept. of State, 1995), which marks a major shift in policy. Despite Pakistan's relative importance to the world cotton market, there is little literature on the impacts of the policy changes on the world cotton market. The purpose of this paper is to outline the policy in place in Pakistan prior to 1995 and discuss its implications in order to gain insight into expected effects of the policy shift that took place in 1995.

Past Policy and Its Impacts

Past Policy

The Government of Pakistan uses (and has used) a price support mechanism similar to that of the Commodity Credit Corporation's (CCC) loan in the U.S. (ICAC, 1992). The Government agrees, under this program, to purchase all of the cotton producers wish to sell when the market price falls below a given level. However, the instances when the price falls below this given level are rare, rendering the price support measure symbolic (ICAC, 1992; Ender).

The Government of Pakistan also used an export tax on cotton lint between 1988 and 1995 (ICAC, 1992; Ender; Townsend and Guitichounts, Quershi). This was not a direct tax, *per se*, but an indirect tax through the use of a "two-price" policy. The first price was a "benchmark" price, which was set periodically by the Government and was merely a reference price. That is, it was not derived from the market, but was used in conjunction with the second price to calculate the export tax on cotton lint. The second price was a Minimum Export Price (MEP). The MEP was set daily by a Government committee, which established the minimum price at which the base grade of Pakistani cotton (Afzal, 1 1/32 inches) could be exported.

The export tax was the difference between the benchmark price and the MEP. For example, if the benchmark was 50 ¢/lb and the MEP was 55 ¢/lb, the export tax would be 5 ¢/lb. When the domestic price of cotton was below the benchmark, exports were possible because the revenue generated from exports (export price - domestic price) was greater than the export tax. However, when domestic prices were above the benchmark, the export tax exceeded the revenue from exports. In that situation, the domestic supply of cotton was effectively reserved for the domestic spinning industry.

The objective of this policy was to depress prices of raw cotton to the benefit of the textile producers (Townsend and Guitchounts, 1994). The export tax acts as a “buffer” between world and domestic prices, thereby keeping the internal (domestic) price of cotton lint below the world price by an amount equal to the export tax, on average. The ability to purchase cotton below world market levels confers a substantial competitive advantage on Pakistani yarn spinners because the cost of acquiring cotton accounts for approximately 50% of the total variable cost of yarn production (Townsend and Guitchounts; ICAC, 1992). Given that Pakistan enjoyed an average cost advantage of approximately 24% in the purchase of raw materials in the 1980s (Hamid et al.), Pakistani cotton spinners have had a total variable cost advantage in the production of cotton yarn of about 12%. An advantage of that magnitude could be decisive in the production of cotton yarn, which is a global, high volume/low margin industry. This may help explain the fact that cotton yarn exports from Pakistan accounted for 1/3 of the world trade in cotton yarn in the early 1990s (Townsend and Guitchounts, Hamid et al.; Ender).

Policy Impacts

The existence of the two-price policy (export tax) has some general implications. First, a lower domestic price for cotton lint would be expected to decrease cotton lint production. Figure 1 shows that lint production did not decrease, but did increase at a slower average rate than prior to the implementation of the policy in 1988 (10%/year over the 1970-1987 period and 5%/year over the 1988-1995 period). This indicates that the prices being received by Pakistani farmers over the 1988-1995 period were sufficient to induce some growth in cotton production, but not to the extent prior to 1988.

Conversely, the lower domestic price for cotton would be expected to induce increases in domestic consumption of cotton by domestic yarn spinners. Figure 2 shows that this is what happened over the 1988-1995 period. Prior to 1988, Pakistani cotton consumption grew at an average annual rate of 4.26%. Between 1988 and 1995, Pakistani cotton consumption grew at an average annual rate of 9.94%. Thus, the two-price policy had the expected effect of increasing domestic consumption of cotton.

Finally, the export tax would be expected to decrease the export of cotton lint from Pakistan. Figure 3 shows that exports decreased significantly over the 1988-1995 period. In fact, exports at the end of the period (1995) were 58% lower than at the beginning of the period (1988), and approached 0 at times through the period. Thus, the two-price policy accomplished the objective of effectively reserving domestic cotton lint production for domestic consumption by yarn spinners.

Hudson and Ethridge estimated the impacts of this policy on the cotton and yarn sectors of the Pakistani economy. Using a system of 14 simultaneous equations, the study by Hudson and Ethridge estimated the supply and demand relationships for both the cotton lint and yarn sectors in Pakistan. The model considered both the cotton and yarn sectors simultaneously, using data from the 1970-1993 period. The results provided estimates of the factors affecting supply and demand in both the cotton lint and yarn sectors in Pakistan.

Based on the results of these estimations, some average elasticities were estimated (Table 1). The elasticity of cotton lint production with respect to cotton price was 0.62, which means that a 1% increase in the price of cotton lint will result in a 0.62% increase in the production of cotton lint in Pakistan, other things equal. No cotton lint consumption elasticity was found by Hudson and Ethridge, but Coleman and Thigpen found a cotton lint consumption elasticity with respect to cotton price of -0.09. This is highly inelastic, which means that cotton yarn spinners respond little to changes in cotton price. This is likely because yarn spinners in Pakistan are geared for cotton yarn production, not blends. Additionally, the price of cotton in Pakistan was so low relative to world cotton prices over much of this period (especially 1988-1995) that there has been no real need to respond to changes in the domestic price of cotton in Pakistan.

The elasticity of cotton lint exports with respect to the export price of cotton lint was -0.73, which indicates that a 1% increase in the export price of cotton lint will result in a 0.73% decrease in exports of cotton lint from Pakistan. The reason for the higher elasticity (more price responsiveness) is that importing countries have a greater number of choices from where to purchase cotton. Therefore, these importing countries can be more selective, thus more responsive to price.

The elasticity of yarn production with respect to yarn price was 0.13, which indicates that yarn producers in Pakistan were not responsive to changes in the price of yarn. This is likely because they had few alternatives in production to cotton yarn, and thus, produced yarn with little consideration of the price of yarn. Alternatively, the elasticity of consumption of yarn with respect to yarn price was -0.55. This indicates that yarn consumers were considerably more responsive to yarn price than yarn producers. This is likely because most of the yarn produced in Pakistan is exported. Thus, the domestic fabric industry is small and can, therefore, be more selective when purchasing yarn. The elasticity of exports of yarn with respect to the yarn price was -0.74, indicating that yarn importers were responsive to the yarn price when purchasing yarn from Pakistan.

Policy Changes and Expected Effects

The Government of Pakistan suspended the two-price policy in 1995 (U.S. Dept. of State, 1995), thus moving the cotton lint market in Pakistan toward an open-market. As of 1997, the Government of Pakistan had not reinstated the two-price policy (U.S. Dept. of State, 1997). The implication of this is that the producers of cotton lint in Pakistan can now receive at or near the world price for their cotton lint, and yarn spinners now have to pay at or near the world price for cotton lint to make yarn.

The results from the Hudson and Ethridge model can be used to draw some expectations of the magnitude of the effects of this policy, but only in the short-run. That is, the change in policy represents a structural change in the cotton and yarn sectors. Because the Hudson and Ethridge model was designed to make predictions in the presence of the two-price policy, estimates of magnitudes in the absence of that policy should be viewed with caution. The last year of a full reliable data set is 1993. Therefore, some estimates of the expected magnitude of policy changes were made *as if* they occurred in 1993. These magnitudes should be viewed as short-run only. The Hudson and Ethridge model does, however, give reliable indications of directions of change in the longer-run, which are also discussed.

Table 2 shows the expected directions of change for production, consumption, and exports of cotton lint and yarn in Pakistan. The elimination of the two-price policy in Pakistan is expected to increase the internal (domestic) price of cotton lint in Pakistan. If the policy had been eliminated in 1993, movement from internal to world prices would have meant a 5.96% increase in the internal price of cotton. The direct (positive) relationship between cotton lint price and cotton lint production implies that the elimination of the two-price policy is expected to increase cotton lint production in Pakistan. The 5.96% increase in price from above would have been expected to lead to a 3.7% increase in production. There are, however, some external factors such as the existence of the leaf-curl virus (Quershi; Regmi and Roberson) that may temper increases in cotton production due to price in the longer-term.

In the short-run, cotton lint consumption in Pakistan is expected to remain relatively unchanged or slightly decrease. This is because yarn spinners have not shown the propensity to respond to changes in cotton price in the past. Using the 1993 example, the price increase would be expected to decrease cotton consumption by only 0.53%. However, in the longer-run, the increase in cotton price associated with the elimination of the two-price policy is expected to lead to a downsizing of the Pakistani textile sector as it adjusts to higher input (cotton) costs.

The Pakistani spinning sector had enjoyed a relatively large cost advantage over textile mills around the world as a result of the two-price policy. This led to large increases in yarn production over that time period. However, indications are that the Pakistani yarn spinners did not utilize this cost advantage to invest in cost-saving plant and equipment (Hudson and Ethridge). At the same time, textile mills around the world were investing in new technology and equipment that lowered costs in order to remain competitive. Now that Pakistani mills are paying essentially the same price for the cotton as the rest of the world, they have lost their competitive advantage on cotton cost

with textile mills around the world. This means that the Pakistani yarn spinning sector will likely have to downsize and reinvest in order to become cost competitive with the rest of the world's mills.

The increase in cotton lint production and steady or decreasing cotton lint consumption means that there will be more cotton available for exports or stocks. This will likely lead to reductions in export prices to induce the movement of cotton into the export market. Based on the 1993 data, a decrease of 0.37% in the export price would be expected, which would lead to an increase in exports of 0.27%. In the short-run, the Hudson and Ethridge model indicates that most of the increase in production would be absorbed in stocks, with an increase in stocks of 5.07% expected using 1993 data. However, mounting stocks in the longer-run would be expected to place downward pressure on export prices in order to liquidate some of those stocks on the world market. Thus, the elimination of the two-price policy is expected to lead to increased exports of cotton lint from Pakistan and lower world prices for cotton in the long-run, other things equal.

Cotton yarn production in Pakistan is likely to remain steady or decrease slightly in the short run, and likely to decrease in the long run, other things equal. If Pakistan's yarn sector reinvests and becomes more efficient quickly, there may be some increases in yarn production in the medium to long term. If the Government of Pakistan follows the model of India and encourages downstream production (i.e., fabrics and garments), domestic consumption of cotton yarn could increase. In the short-run, however, domestic consumption of cotton yarn is likely to remain relatively stable. Thus, with production and consumption of cotton yarn relatively stable in the short-run, exports of cotton yarn are likely to remain relatively stable as well.

Implications for the U.S. Cotton Industry

Direct implications of the elimination of the export tax (two-price) policy in Pakistan on the United States are difficult to discern because there is no direct evidence of the impacts of changes in the cotton sector in Pakistan on the United States cotton industry. However, impacts on the U.S. cotton industry can be inferred from the impacts on Pakistan described above.

First, increases in cotton production and exports from Pakistan expected with the elimination of the export tax would also be expected to lower world cotton prices, other things equal. Because the U.S. is the world's largest exporter of cotton, any reduction in the world price of cotton would decrease the revenue to the U.S. cotton industry, and thus lower the revenue of the U.S. cotton producer. This, of course, assumes that the U.S. and rest of the world will maintain current production and consumption levels. Increases in consumption of cotton resulting from a lower world price would serve to offset some of the reduction in world price, but given the world situation and the increasing polyester production capacity (Neeper), this is not likely to occur.

The lower world price for cotton lint will benefit yarn spinners around the world, of which the U.S. is one of the largest. The lower input cost will mean a lower cost of production. Whether this will translate into lower cotton product prices is unclear; but given the competitive nature of the textile industry, some cost savings are likely to be passed on to consumers. Nevertheless, the lower world price of cotton resulting from the elimination of the export tax in Pakistan will have some positive impact on the global and U.S. textile industries.

Conclusions

This discussion points to the conclusion that it is important to understand the policies affecting the cotton industry in other countries. It is clear that the export tax placed on cotton lint in Pakistan (and the elimination of that policy) has direct implications for cotton producers and consumers around the world, including the United States. The change in the policy in Pakistan will likely have impacts on global cotton trade flows and world prices. The policy changes in the cotton sector in Pakistan also has implications for downstream industries such as yarn production and consumption, both within Pakistan and globally.

The second conclusion is that there is a need for further research to develop analytical tools that can assist in understanding the relationships between countries such as Pakistan and the United States that can be used to more accurately predict the effects of changes in policies such as the one described in this paper. Further research in this area can assist the U.S. cotton industry in anticipating the changes in the United States with changes overseas.

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References

Coleman, J. and E. Thigpen. "An Econometric Model of the World Cotton and Non-Cellulosic Fibers Market." World Bank Staff Working Paper No. 24, Washington, DC, 1991.

Ender, G. "Government Intervention in Pakistan's Cotton Sector." U.S. Dept. of Ag., Economic Research Service, Agriculture and Trade Division, Washington, DC, June, 1990.

Hamid, N., I. Nabi, and A. Nasim. "Trade, Exchange Rate, and Agricultural Pricing Policies in Pakistan." World Bank Comparative Studies, The World Bank, Washington, DC, 1990.

Hudson, D. and D. Ethridge. "The Effects of an Export Tax on Cotton Lint on the Domestic Cotton and Yarn Sectors, Trade, and Sectoral Economic Growth in Pakistan." Department of Agricultural and Applied Economics, Texas Tech University, Paper No. CER-97-13, July, 1997.

ICAC. "Background Information for ICAC Discussions of the Impact of Internal Policies in Pakistan on International Cotton Prices and the Spinning Industries of Cotton Importing Countries." International Cotton Advisory Committee, Standing Committee, Attachment N to SC-N-391, Washington, DC, 1992.

ICAC. *Documents of the ICAC on CD-ROM*. International Cotton Advisory Committee, Washington, DC, 1997.

Neepser, J. "The Outlook for 1997-1998 Cotton." Presentation to the 1997 AMCOT meeting, Lubbock, TX, 1997.

Qureshi, M. "Report of the Cotton Resource Group." National Agricultural Coordinating Committee, Ministry of Food, Agriculture, and Cooperatives, Government of Pakistan, Islamabad, Pakistan, 1994.

Regmi, A. and R. Roberson. "Cotton Production in India and Pakistan." *1997 Beltwide Cotton Conferences, Proceedings*, Cotton Economics and Marketing Conference, National Cotton Council, Memphis, TN, 1997.

Townsend, T. and A. Gutichouts. "A Survey of Income and Price Support Programs." *1994 Beltwide Cotton Conferences, Proceedings*, Cotton Economics and Marketing Conference, National Cotton Council, Memphis, TN, 1994.

U.S. Dept. of State. "Country Reports on Economic Policy and Trade Practices: Pakistan." U.S. Dept. of State, Washington, DC, 1995.

U.S. Dept. of State. "Country Reports on Economic Policy and Trade Practices: Pakistan." U.S. Dept. of State, Washington, DC, 1997.

Table 1. Estimated Elasticities.

Attribute	Estimated Elasticity ^a
<u>Cotton</u>	
Production	0.62
Consumption	-0.09 ^b
Exports	-0.73
<u>Yarn</u>	
Production	0.13
Consumption	-0.55
Exports	-0.74

^aElasticity of each variable with respect to the appropriate price, all variables at their mean levels.

^b Source: Coleman and Thigpen.

Table 2. Directions of Change with the elimination of the two-price policy in Pakistan.

Sector	Direction of Change	
<u>Cotton</u>		
Production	↑	
Consumption		→ or ↓
Exports		↑
World Price		↓
<u>Yarn</u>		
Production		→ or ↓
Consumption		→ or ↑
Exports		→ or ↓
World Price		→ or ↑

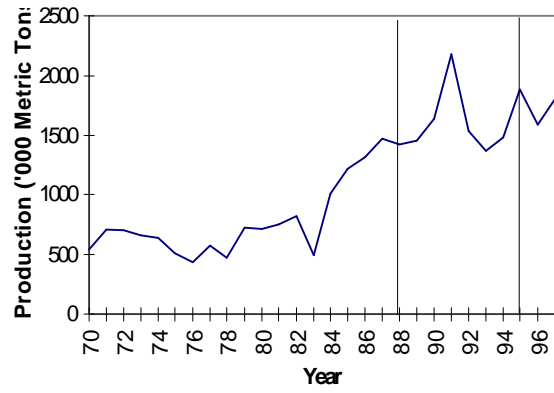


Figure 1. Production of cotton in Pakistan, 1970-1997.

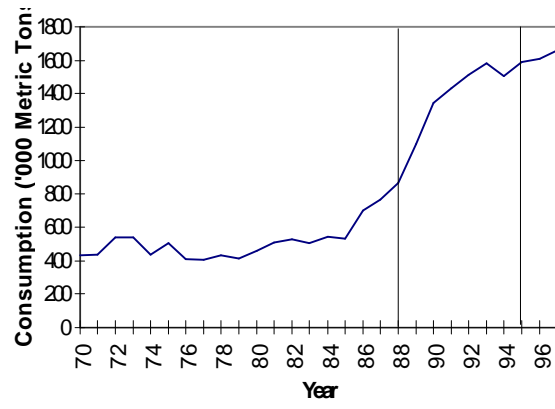


Figure 2. Consumption of cotton in Pakistan, 1970-1997.

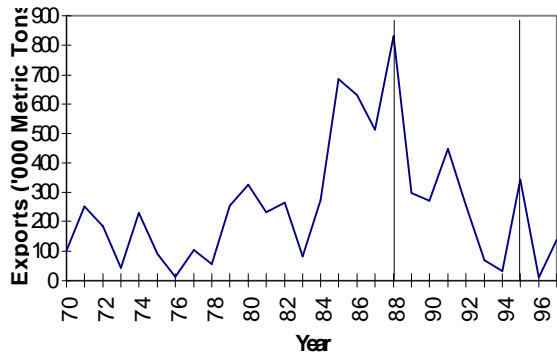


Figure 3. Exports of cotton from Pakistan, 1970-1997.