THE TURKISH COTTON INDUSTRY: STRUCTURE AND OPERATION

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Abstract

The increasing level of globalization in cotton has led to a greater need for understanding production and marketing systems of coutries other than our own. Turkey is one important country in terms of the magnitude of total cotton production. This paper addresses the system in Turkey, with some discussion of current and future performance of Turkey in the global cotton market. There are significant differences between the US and Turkey, especially as they relate to the role of the cooperative in price setting and distribution. External factors such as the GAP irrigation project in Turkey may mean an increasing role for Turkey in the global cotton economy.

Introduction

The increasing globalization of agriculture through trade has increased the need for an expanded understanding of the environment in which commodities are produced and distributed. Cotton is one major commodity subject to the forces induced by globalization. The "global cotton industry" is generally defined to include the United States, China, the Former Soviet Union and Pakistan/India as major players. Industry participants have recognized the need to examine production and marketing systems of these countries, while others have been overlooked. The documentation offered on countries such as Pakistan and India (Hudson and Ethridge) has been limited, while that on Turkey (Sirtiougu and Roberson) has focused on specific issues. Turkey has annually produced an average of 3% of world cotton production over the 1991-94 period (ICAC, Various Issues), yet the literature on the Turkish cotton production and marketing system is relatively scarce. The objective of this paper is to describe the system of cotton and textile production and marketing in Turkey, and to provide some perspective on trends in production, consumption, and trade.

Structure

Two important differences between the Turkish and US cotton production and marketing systems should be kept in mind when considering structure. First, cooperatives play a much more prominant role in Turkey than in the US. The structure and operation of cooperatives in Turkey are very similar to that in the US with the exception that cooperatives in Turkey tend to be less specialized in a single commodity, i.e., cotton, and also tend to be more vertically integrated (Asil). Second, cooperatives in Turkey are "semi-governmental" organizations. This has important implications for the pricing and utilization of cotton lint. In particular, the cooperative tends to have a great deal of control over grower prices since they buy the largest portion of that cotton sold by growers.

The general flow of cotton in Turkey is shown in Figure 1. An important distinction between the US and Turkish cotton markets is that the typical grower in Turkey relinquishes ownership of the cotton at the gin gate by selling his cotton to the ginner. The Turkish cotton ginner thus serves the equivalent of the US merchant/shipper. This difference between the two systems is possibly due to a lack of equity financing which would be required if the grower is to meet his operating expenses while retaining his lint for later marketing.

The Turkish grower typically sells seed cotton to either the cooperative gin or a private ginner. Contract ginning does take place but on a very limited basis. Private sector ginners typically act alone in that they are independent firms with no umbrella organization. The cooperative gin, in contrast, is acting as a part of a larger organization, and typically has access to substantial financial resources. Cooperative ginning, as a result, is the dominant channel through which seed cotton moves.

Once cotton is ginned, the cooperative may use the lint in the cooperative's mill(s) or sell the lint on the cash exchange. Cooperatives in Turkey typically have large textile operations where they utilize some of the seed cotton which they purchase. They may market a large portion of their cotton through the cash exchange to domestic buyers while simultaneously acting as their own exporter. The private ginner sells his lint on the cash exchange, but may also deal directly with mills or merchants. The private ginner acts directly as an exporter only rarely.

The largest portion of the cotton produced in Turkey is consumed in Turkey. Much of that cotton is traded through a cash exchange. Cash exchanges in Turkey are fully operating, open out-cry spot markets. The Izmir Mercantile Exchange, the cash exchange for the Aegean Region, is the most active cash exchange in Turkey. Cash exchanges in the other two producing regions are mere points of registry for sales of cotton within their respective regions. There is no futures contract traded in Turkey, but the development of a futures exchange has begun at the Izmir Mercantile Exchange (Ar).

The general flow of cotton through the marketing system in Turkey is somewhat similar to that observed in the United States. The primary differences are in the points where transfer of title takes place and the strong role that the

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 1:287-292 (1997)
National Cotton Council, Memphis TN

cooperative plays in pricing and distribution of both cotton and cotton products.

Cooperatives

Cooperatives in Turkey deserve special attention given their important role in the cotton and textile industries. There are three cooperatives in Turkey, one in each of the major agricultural production regions. The agricultural cooperative in the Aegean Region, Tariş, is composed of 54 cotton grower cooperatives, representing about 65,000 cotton growers (other commodities are covered as well). The history of the organization dates back to 1913, during the late Ottoman Empire. Tariş is a "semi-governmental" organization in that the government can exercise some managerial control of the cooperative if the need arises, although it rarely interferes with day to day operations.

The cooperative deals primarily in four types of cotton or cotton products--gin (seed) cotton, lint, yarn, and waste. Tariş takes title to the cotton from the grower unlike US cooperatives, which provides services while title is retained by the grower. Tariş markets the cotton lint either domestically or internationally. The objective is not necessarily to maximize total revenue for the cooperative, but rather to meet the lint requirements of the domestic market leaving any residual available for export. This objective is imposed on the cooperative by the government. That is, the government controls exports through quotas and purchases of cotton through a system in which Tariş is the main operative entity. Cotton lint and yarn sales provide a major portion of Tariş' revenues, and as such, consumes a great deal of the cooperative's resources (Tariş is also a cooperative for raisens, figs, olives, and olive oil).

Cotton is purchased in one of two ways, either by the government through Tariş or by Tariş on its own account. The government, through the Ministry of Trade and Industry, purchases cotton through Tariş at the set government price for the month (government prices are set on a monthly basis). If market prices are below that set price, anyone can sell their cotton to the government via Tariş in a fashion similar to that of the US loan program. Profits/losses from this operation accrue to the government. Cotton purchased directly by Tariş is priced according to quality on the basis of a scale developed by the cooperative. "Quality" is represented by color and the gin turnout. The average producer price for seed cotton of "grade" 1 was 27 ¢/lb in 1995, or about 67.5 ¢/lb lint price equivalent (assuming a 40% gin turnout).

Grading and Classification

Turkey lacks a "standardized" grading system in cotton. There are grades, and even professional classers, but the system as a whole is not standardized. For example, the Standard 1 grade in the Aegean Region may be substantially different than a Standard 1 grade in the Anatolia region. Traders recognize this difference between regions; however, a more precise classification under the same grouping would enhance trader respect and the use of grades in cotton trading. Trading, at present, is based on samples of cotton which are physically examined before a transaction takes place. This type of trading is inherently inefficient since it involves a relatively high transaction cost.

The problem stems not only from the lack of standardization, but also from the lack of specificity in the grading system (Ar). That is, there are only a few measures contained within the grading system on which cotton is actively traded (e.g., color, staple length). The lack of specificity leads to a convolution of information about the level of fiber attributes so that traders are uncertain about the exact quality of cotton that they are purchasing. This may be one of the defining reasons why Turkey still operates on a centralized cash market exchange rather than a system of remote trading such as that of the US.

There have been recent moves to install and utilize High Volume Instrument (HVI) grading in Turkey (Ar). HVI is used on an experimental basis by Tariş in its evaluation of fiber properties. A primary limiting factor for the widespread adoption of HVI to this point has been government resistence. The government has yet to recognize the benefits that can be achieved in market operations by providing accurate and timely quality information. Nonetheless, the Izmir Mercantile Exchange is attempting to ensure that all cotton traded on the exchange is classed by HVI (Ar).

Policies

The principal objectives of Turkish agricultural policy are defined and implemented in successive five-year plans. The objectives are to: (1) stabilize agricultural prices, (2) provide adequate and stable incomes to those working in agriculture, (3) meet the food and fiber needs of a growing population, (4) increase yields and output, (5) reduce the vulnerability of production to weather conditions, (6) develop rural areas, (7) promote the adoption of modern agricultural practices, and (8) develop the export potential of agricultural products. Specific program objectives will vary from year to year, reflecting a policy that is ambiguous in its priorities.

The Government of Turkey, in general, has pursued price support policies in conjunction with either prohibitive export taxes or quotas. More recently, the Government has shifted its focus to income support policies, but has, at the same time, retained its export quotas. The justification for the quota is the need to reserve domestically produced cotton for the use of the domestic textile industry. This shift in policy from price to income support could create a situation wherein the *internal* price of cotton will become more responsive to *internal* supply and demand conditions. The persistence of the export quotas can, however, be

expected to shield internal prices from the global forces of supply and demand resulting in shifts in income distribution and the creation of social deadweight losses.

Trends in Production, Consumption, and Trade

Equally important to an understanding of the Turkish cotton market is some perspective on how Turkey has performed in terms of production, consumption, and trade. The cotton industry, as a whole, represents a significant portion of Turkey's overall agricultural sector. Cotton lint production made up about 5% of total industrial crop production and textiles made up about 35% of total Turkish exports over the 1991-94 period (ECPT). Perhaps even more important is the fact that textiles account for about 20% of industrial production and employ one-third of all workers (Gazanfer). The cotton industry (lint production and textiles) is thus important in terms of both its contribution to employment of the labor force and as a vehicle to secure foreign exchange.

Cotton Lint

Turkey has produced an average of 534 million metric tons (2.5 million 480 lb. bales) of cotton lint per year since 1970, with some evidence of a slight upward trend over the period (Figure 2). Most of the slight observed increase in output can be attributed to increasing yields since the production area has remained almost constant over the period. The final addition to production with the completion of the Southeastern Anatolia Project (GAP), which is a massive irrigation project in the Anatolia Region of Turkey, is not known. However, the project is expected to substantially increase the area of cotton under irrigation, and will likely have some impact on average cotton yields (Sirtiogu and Roberson). Some estimates have indicated doubled production (Gürsoy), but these estimates are unconfirmed. Domestic consumption of cotton lint has evidenced a significant upward trend over the same period (Figure 3). These increases are not unlike those observed in Southwest Asian countries (Hudson and Ethridge), and are likely to result from, at least in part, legislative emphasis on the development of exports of value-added products such as textiles through restrictive export policies on raw products. Exports of cotton lint from Turkey (Figure 4), as a result, have declined in favor of increased exports of cotton yarn and cotton fabrics. Figure 4 shows that, after peaking at 500 million metric tons (2.3 million 480 lb. bales) in 1975, exports trended down. Turkey currently exports approximately 100 million metric tons (458,333 480 lb. bales).

Textiles

The decline in exports of cotton lint has been due, in large part, to restrictive export policies which stimulated domestic mill use of Turkish cotton, of which the primary product is cotton yarn. Yarn production has exhibited an upward trend since 1970 (Figure 5). The shift from raw cotton exports to yarn production ensures that Turkey captures the first stage of value added in cotton processing. Value added is also being increasingly captured by increases in the production of cotton fabrics. Figure 6 shows that fabric production has increased in a fashion similar to that observed in yarn production.

Increases in cotton fabric production in recent years have affected cotton yarn exports in the same manner as increases in yarn production have affected cotton lint exports. That is, yarn exports have been substantially reduced in recent years as domestically produced yarns have contributed to increases in fabric production (Figure 7). Yarn exports increased substantially over the 1970-1988 period, but have declined since. Rapid increases in the production and export of yarn are similar to those observed in Pakistan (Hudson and Ethridge). Turkey, however, has carried this transition one step farther by emphasizing fabric production. At the end of the period, exports of yarn were higher than in 1970, but they were 71% lower than the highest level of exports which occurred in 1988.

Relationships in Production, Consumption, and Trade

Table 1 shows the correlations between the different series of production, consumption, and trade, which may suggest some useful relationships. For example, fabric production and fabric exports appear to be strongly related (correlation=.86), indicating that most of the fabric produced in Turkey is exported as fabric rather than incurring further processing. Also, the correlation between cotton exports and fabric exports is -.70, indicating that as more cotton is exported, less fabric is exported (note also the inverse relationship between cotton exports and all other factors). Removing cotton lint from the system and placing it on the export market means less yarn and fabric production unless cotton is imported. This has been part of the justification for the cotton export quota that is employed by the Government of Turkey to guarantee yarn and fabric manufacturers a sufficient supply of lint (Giraud).

The data, taken as a whole, indicate that the Turkish cotton industry is growing; but that the rate of growth is insufficient to meet the nation's "needs." That is, cotton consumption is growing at a faster rate than cotton production. It should be noted that the increases in consumption are artificial in the sense that it is created by the export quota. The resulting deficit in lint production appears to be placing a great deal of upward pressure on internal prices and has resulted in an internal price of cotton that was continuously above the world price for the 1995/96 period (Ar). Alternatives are slower growth rates in yarn production or importation of cotton. There would appear to be a large potential for growth in cotton industry profits if sufficient growth rates in cotton production can be realized. That is, if forces such as the GAP irrigation project generate faster growth in cotton production in the future, domestic consumption can continue to grow and/or opportunities for renewed strength in the export of cotton lint can be realized.

The increasing rate at which yarn is being used for domestic fabric production appears to be significantly reducing yarn exports. The question is: To what degree is the Government of Turkey willing to sacrifice lint and yarn exports to secure higher levels of fabric production and exports? The answer to this question is multi-dimensional, containing questions of efficiency and income distribution. The export quota on raw cotton has two general implications. First, it protects the domestic textile industry from world price changes, which subsidizes and could promote inefficiency in the Turkish textile industry. Second, the export quota transfers income from cotton producers to spinners and fabric makers (and to quota holders), and can mean transfers out of the economy if yarns and fabrics are exported (Hudson and Ethridge). That is, since the cotton producer is not receiving world prices for lint (or the appropriate equivalent for seed cotton), he/she is not earning the full potential income. This restraint on potential earnings may mean lower employment, a reduced rate of technological adoption, and a reduced rate of growth in the cotton subsector.

While it would appear that this set of policies has a negative impact on the Turkish cotton producer, it has a positive impact on producers in other countries such as the U.S. The quota in Turkey limits the amount of cotton available on the world market, which tends to support world prices to the benefit of other producers around the world. The magnitude of exports, however, suggests that this effect would be limited. At the same time, the increased production and export of cotton yarns and fabrics from Turkey associated with this set of policies has a negative impact on producers of yarns and fabrics in other countries. That is, the increased quantity of these products in the world market tends to put downward pressure on world prices, which has a negative impact on producers in other countries. A more detailed analysis must be done in order to estimate the relative magnitudes of these impacts, and to identify real implications of these policies.

Conclusions

This paper suggests that the Turkish cotton industry is poised to become an important participant in the world cotton market, and that it has the potential to increase its current share of total world cotton production. Projections show that cotton production in Turkey could double after the completion of the GAP irrigation project (Gürsoy). This would mean both an increased capacity for export of raw cotton fiber and an increase in the availability of raw materials for the domestic production of yarns and fabrics.

Three elements appear to be major obstacles for the transition of Turkey into a major factor in world cotton and textile production. First, the general level of macroeconomic instability (current inflation is reported to be in the area of 80%) (ECPT) has resulted in a deterioration of purchasing power and has complicated production planning. The second general problem is the level of government intervention, especially as it relates to export restraints. Related to this is the third general obstacle, which is transparent price formation. The presence of export restraints in conjunction with the role of the cooperative as a price setter tends to distort prices to producers which can result in a significant misallocation of resources. Each of these factors contribute to inefficiency and instability in cotton and textile production, which may mean that these industries are not reaching their full potential.

A perspective and understanding of the cotton production and marketing systems of other countries should improve policy decisions made in the United States. It is clear from this description that the market in Turkey could have an impact on the U.S. and other cotton producing countries, and the magnitude is likely to increase over time. This, in general, may serve to help U.S. producers. In contrast, the same policy has tended to increase Turkish production and export of yarns and fabrics, which may be having a negative impact on the textile industries of other nations including the United States.

Acknowledgements

The author would like to thank Dr. Sebahattin Gazanfer, Secretary General of the Exporters' Unions of the Aegean Region, for his generous invitation and financial support for the visit to Turkey, and his staff for arranging meetings and tours. The author also thanks those at Tariş, Izmir Pamuk Mensucati, Nazilli Cotton Research Center, and the Izmir Mercantile Exchange for their time, discussions, and information. Appreciation is also given to the Office of International Affairs, College of Agricultural Sciences and Natural Resources, and the Department of Agricultural and Applied Economics, Texas Tech University, for financial support, as well as T.R. Owens, Phillip Johnson, and Emmett Elam for their comments and suggestions of this manuscript. This paper is drawn from a more detailed report that can be obtained from the author upon request. Texas Tech Department of Agricultural and Applied Economics Cotton Economics Research Report CER-97-6, December, 1996.

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Table 1. Correlation Matrix of Production, Consumption, and Trade.

	Cotton Prod.	Cotton Cons.	Cotton Exp.	Yarn Prod.	Fabric Prod.	Yarn Exp.	Fabric Exp.
Cotton Prod.	1						
Cotton Cons.	0.61	1					
Cotton Exports	-0.30	-0.65	1				
Yarn Prod.	0.58	0.81	-0.53	1			
Fabric Prod.	0.53	0.93	-0.61	0.77	1		
Yarn Exports	0.08	0.28	-0.51	0.52	0.42	1	
Fabric Exports	0.56	0.89	-0.70	0.79	0.86	0.43	1

Source: Derived from an analysis of data in ICAC, Various Issues.

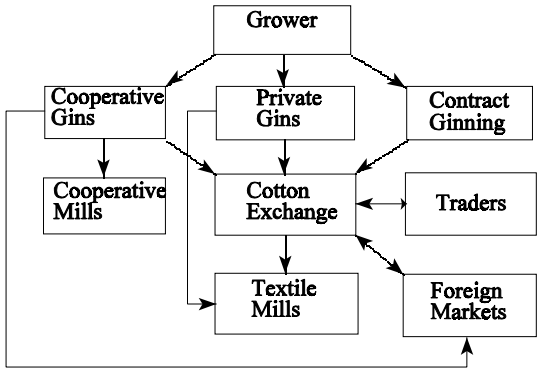

Figure 1. Flow of Cotton in Turkey.
Source: Adapted from Gazanfer.

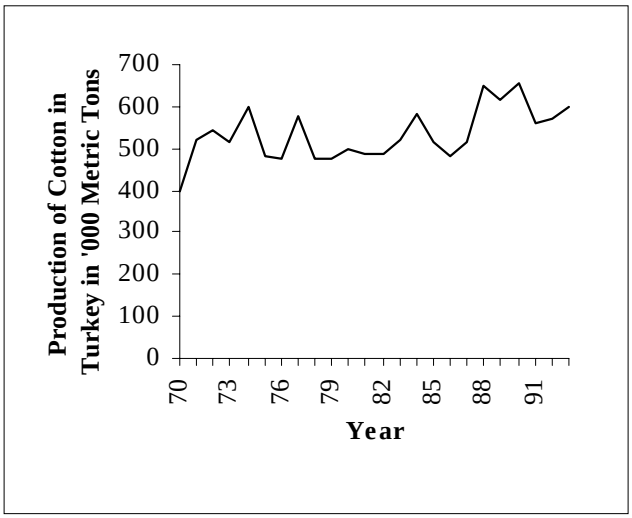

Figure 2. Production of Cotton in Turkey Over the 1970-1993 period.
Source: ICAC, Various Issues.

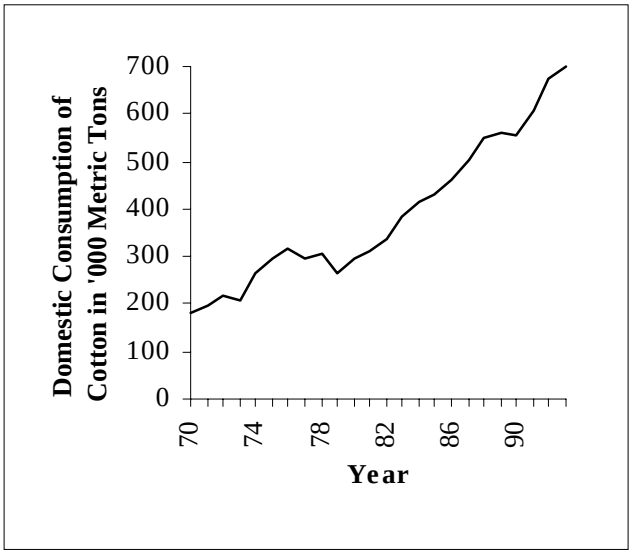

Figure 3. Domestic Consumption of Cotton in Turkey Over the 1970-1993 Period.
Source: ICAC, Various Issues.

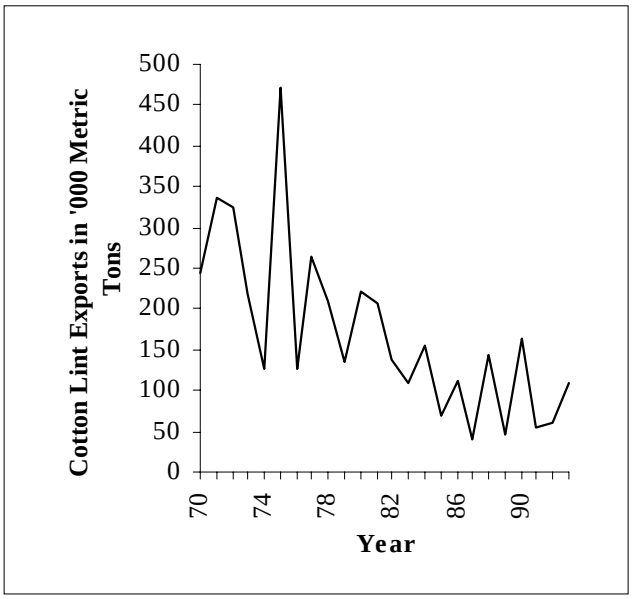

Figure 4. Export of Cotton Lint from Turkey Over the 1970-1993 Period.
Source: ICAC, Various Issues.

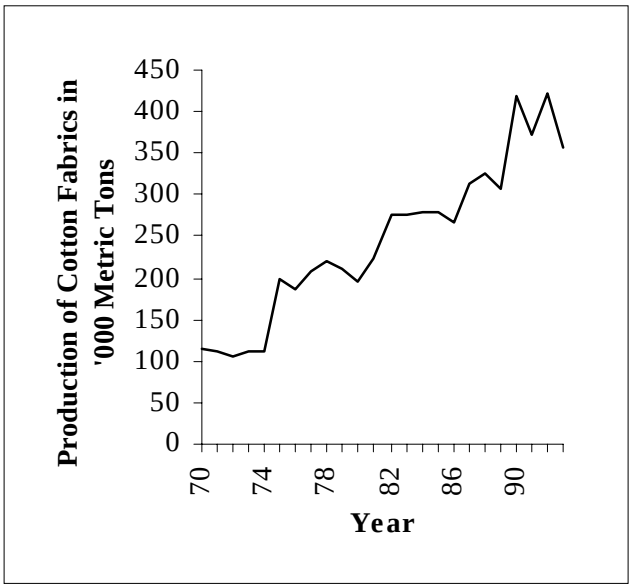

Figure 6. Production of Cotton Fabrics in Turkey Over the 1970-1993 Period.
Source: ICAC, Various Issues.

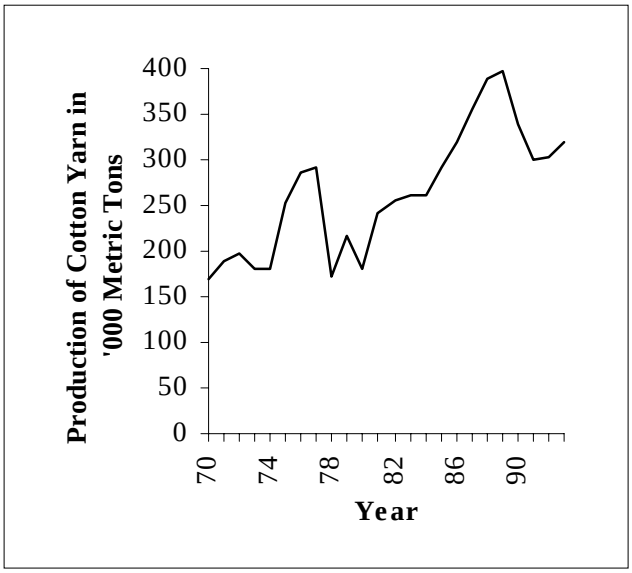

Figure 5. Production of Cotton Yarn in Turkey Over the 1970-1993 Period.
Source: ICAC, Various Issues.

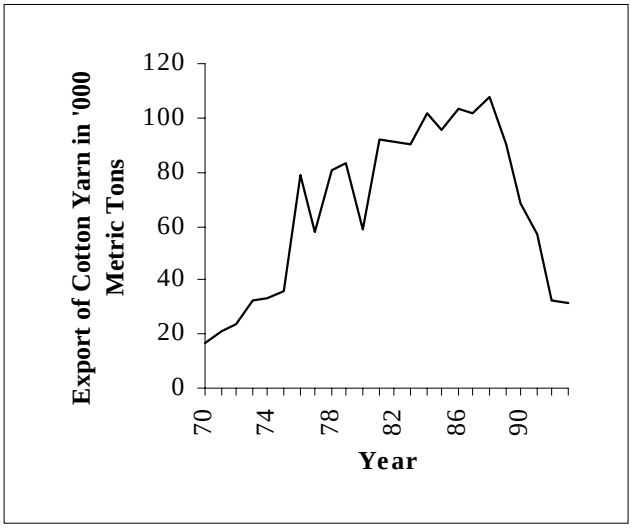

Figure 7. Exports of Cotton Yarn from Turkey Over the 1970-1993 Period.
Source: ICAC, Various Issues.