

# **Export Demand for U.S. Cotton:**

## **Implications of Structural Changes in the World Cotton Economy**

**Mark L. Fowler**  
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## Foreword

Research for this study was conducted in part under Southern Regional Research Project SM-14, "Multiple Pricing Plans for Marketing Southern Agricultural Commodities." It is directed specifically toward objective 3 of SM-14 which is to "determine the general competitive structure in primary foreign markets for each of the major exportable farm commodities, including institutional barriers to trade."

This report is based largely on material originally reported in a Ph.D. dissertation entitled "An Economic-Statistical Analysis of the Foreign Demand for American Cotton," submitted by the author to the Department of Agricultural Economics, University of California, Berkeley, 1961. Where appropriate, the data appearing in the dissertation have been revised and up-dated.

# Export Demand for United States Cotton: Implications of Structural Changes in the World Cotton Economy

By Mark L. Fowler

Associate Professor, Department of Agricultural Economics

For many years the United States has been the world's leading exporter of raw cotton and has depended upon foreign markets to absorb a substantial portion of the annual crop. During the past three decades, however, dramatic changes of far-reaching importance have occurred in the structure of the world cotton market and the institutional environment within which market forces operate.

As a reflection of the developments in the world cotton economy, sources of supply and centers of mill demand have decentralized, world exports of raw cotton have failed to keep pace with the rapid expansion of foreign production and consumption in the post-war period, foreign mill consumption has declined relative to production of man-made fibers, and the relative importance of the United States in foreign cotton markets has declined substantially.

The basic reasons for these developments are many, complex and interrelated. There is disagreement concerning the relative importance of the various factors involved. But whatever the causes of the developments, the present structure of the world cotton economy is of major importance to the U. S. cotton industry. It has great significance for the outlook for American cotton in foreign markets and the potential impact of U. S. governmental cotton programs on the volume of U. S. exports of cotton. A knowledge of the structural characteristics of the world cotton economy is required for any appraisal of two-price plans for cotton.

In view of the foregoing considerations, the study reported herein was made to analyze the pattern of world cotton production, consumption, and trade in relation to the export demand for U. S. cotton. Specifically, objectives of this study were:

1. To analyze relations among selected "key" elements of market

structure, cotton policies of foreign governments, and the demand for U. S. exports.

2. To describe and analyze broad economic trends in the foreign cotton economy that appear to be important determinants of the volume of U. S. exports.
3. To describe and analyze the changing pattern of world production, consumption and trade in raw cotton.

The sections of the report dealing with objectives 2 and 3 are largely descriptive, but an attempt has been made to approach the description from an analytical point of view permitting a limited but meaningful casual or theoretical analysis.

## Analytical Framework and Theoretical Analysis

The theoretical association among the characteristics of demand for U. S. exports, foreign governmental cotton policies and the structure of the export market are systematically analyzed in this section. The first step in such inquiry is to present an analytical framework which provides a selected set of implied hypotheses regarding association among export demand characteristics, structural attributes of the export market and specific governmental policies. The second step involves the theoretical development and elaboration of selected hypotheses implied by the model.

### The Analytical Framework

Major interest is centered on the level and elasticity of the demand function for U. S. exports and changes in these characteristics over time. For use in this study, the demand for exports from the United States is defined to be the difference between total foreign mill demand for all growths of cotton and the total supply of cotton from all foreign countries, each in a schedule or functional sense. Exports from the United States may exceed or fall short of the gap between foreign mill consumption and production in any single year or a small number of years by building up or working down foreign inventories of raw cotton. Over a period of several years, however, U. S. exports must be substantially equal to the spread between foreign consumption and production. Consequently, the demand for U. S. exports as conceived here refers to a period of years sufficiently long so that annual variations in foreign stocks of raw cotton can be disregarded. For practical purposes three to five years would probably be a sufficiently long time interval.

Since there are many countries that either produce or consume raw cotton or both, the total foreign demand and supply functions are obtained by aggregating the demand and supply functions of individual countries.

Algebraically, the export demand function can be written as

$$Q_e = \sum_{j=1}^M Q_{dj} - \sum_{k=1}^m Q_{sk}, \quad (1)$$

where  $Q_e$  is the demand for exports from the United States as a function of the export price ( $P_e$ ),  $Q_{dj}$  is the demand for mill consumption of all growths of cotton in country  $j$  as a function of the local price expressed in U. S. currency ( $P_{dj}$ ), and  $Q_{sk}$  is the supply of all cotton in country  $k$  with respect to the local price expressed in U. S. currency ( $P_{sk}$ ). It is assumed that local prices confronting demanders and supplies in foreign countries are functions of the U. S. export price, i. e.,  $P_{dj} = f_j(P_e)$  and  $P_{sk} = f_k(P_e)$ .

The elasticity of export demand with respect to the export price derived from equation (1) is given by

$$E_e = \sum_{j=1}^M E_{dj} \frac{Q_{dj}}{Q_e} \lambda_{dj} - \sum_{k=1}^m E_{sk} \frac{Q_{sk}}{Q_e} \lambda_{sk} \quad (2)$$

where  $E_e$  is the elasticity of demand for U. S. exports with respect to the export price;  $E_{dj}$  is the elasticity of mill demand for all cotton in country  $j$  with respect to the local price expressed in U. S. currency;  $E_{sk}$  is the elasticity of supply in country  $k$  with respect to the local price expressed in U. S. currency;  $Q_e$  is the quantity of U. S. exports;  $Q_{dj}$  and  $Q_{sk}$  are the quantities demanded in country  $j$  and supplied in country  $k$ , respectively; and  $\lambda_{dj}$  and  $\lambda_{sk}$  are the elasticities of local prices in countries  $j$  and  $k$ , respectively, with respect to the U. S. export price.<sup>1</sup>

### Theoretical Analysis: The Hypotheses

As outlined above, the *export market* from the viewpoint of the United States is conceived to include the several foreign countries that produce, consume, export and import raw cotton, together with all the economic forces and institutional and physical facilities which are involved in facilitating production, consumption and trade. The *structure*

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<sup>1</sup>  $\lambda_{dj} = \frac{dP_{dj}}{dP_e} \frac{P_e}{P_{dj}}$  and  $\lambda_{sk} = \frac{dP_{sk}}{dP_e} \frac{P_e}{P_{sk}}$ .

of the export market refers to the organizational characteristics of the market considering the individual countries as suppliers and demanders, including the characteristics of the different growths of cotton.

*Governmental policies* and regulations affecting production, consumption, imports and exports in the various countries are usually considered dominant elements in the *institutional framework*. For the purpose at hand, however, such policies and regulations might be considered more appropriately to be strategic aspects of *market conduct*, either actual or potential. In this context, individual countries are viewed as counterparts of individual firms in the usual analysis of industrial organization or market structure where the primary unit for analysis is an industry or a group of competing firms in a single country. In this sense, "market conduct refers to the patterns of behavior which enterprises [countries] follow in adapting or adjusting to the markets in which they sell (or buy) . . ."2

Such policies are viewed not as restrictions determining the economic and political environment within which market forces operate, but as major determinants of U. S. export demand, the effects of which are subject to a limited but meaningful casual analysis.

Obviously, the analytical scheme sketched above is neither complete nor fully adequate for the analysis of export demand. Nevertheless, in evaluating present or proposed cotton price programs or pronouncements on cotton policy, the model does provide a frame of reference from which it is possible to deduce reasonable hypotheses. Examinations of the export demand function, equation (1), and the export elasticity formula, equation (2), suggests certain strategic aspects of market structure and several types of governmental policy that appear to be significantly associated with the demand for U. S. exports.

Two aspects of market structures appear potentially important. The first aspect is the number and size distribution of (1) producers, (2) consumers, (3) importers, and (4) exporters. The second aspect is the degree of product differentiation among the various producing countries, i. e., the ease with which the various growths and qualities of cotton can be substituted one for the other in cotton mills facing given demands for mill products.

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<sup>2</sup> Joe S. Bain, *Industrial Organization* (New York: John Wiley & Sons, Inc., 1959), p. 9.

Elements of policies of foreign governments that bear directly on the level and elasticity of demand for U. S. exports are those that influence (1) the elasticity of demand and/or supply in a given country with respect to local prices, (2) the elasticity of local prices with respect to the U. S. export (world) price, or (3) the volume of production, consumption, or trade directly through non-price actions.

Consider, for example, the case where the government of a foreign exporting country supports the price of cotton to its own producers. When world (or U. S. export) price falls below the support level, the elasticity of supply in that country with respect to the U. S. export price becomes, *ceteris parabus*, perfectly inelastic. That is, production in that country will not be influenced by the U. S. export price in the absence of a change in internal support rates. As a second example, consider export taxes or subsidies which play a rather important role in world trade in raw cotton. To the extent that the rates are adjusted in response to changes in world prices in such a way as to insulate foreign producers from the effects of external price changes, the elasticity of supply again approaches zero. In the short run of a few seasons the full effects of changes in the world price level are then reflected as changes in governmental expenditures or revenues. As a final example, a foreign government may provide for fixed prices to mills which would reduce the elasticity of mill demand with respect to world prices to zero. Many other examples could be given.

All policies relating to cotton of foreign governments influence the level and elasticity of demand for U. S. exports. The nature and degree of influence of any specific policy depends on the relative importance of the country concerned in world production, consumption and trade, and the type of cotton involved. Therefore, the market structure attributes of number and size distribution of producers, consumers, exporters and importers of raw cotton as reflected in the world pattern of production, distribution and trade, together with the degree of substitutability between different growths of cotton are important determinants of the demand for U. S. exports.

## Economic Trends Affecting U.S. Exports

Selected major economic trends affecting the market for U. S. cotton in foreign countries were reviewed in this section. As pointed out previously, U. S. exports, except for year-to-year variations in raw cotton inventories, must be substantially equal to the difference between



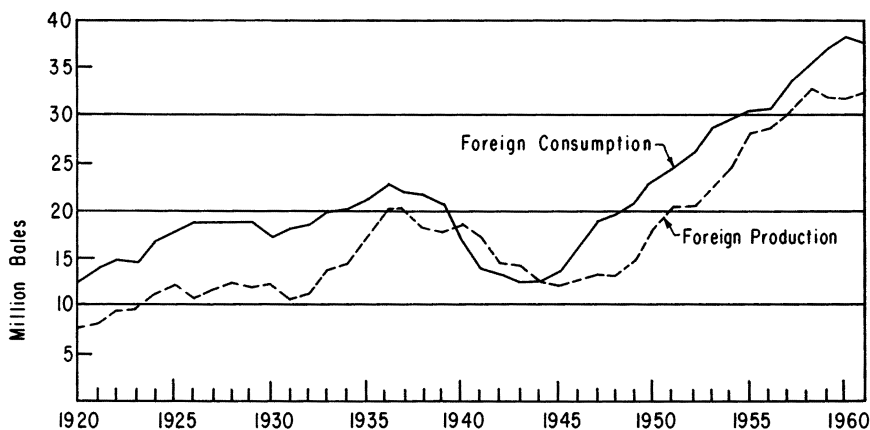


Figure 1. Foreign production and mill consumption of cotton, 1920-1959.  
Source: Table 1.

foreign production and consumption. Thus, we look to trends in production and consumption and their major determinants.

### Foreign Mill Consumption

Total mill consumption and production data outside the United States are shown in Figure 1 (and Table 1). The chart emphasizes two facts. First, except during the war years, there has been a pronounced upward trend in both consumption and production. Second, production has increased at a faster rate than has consumption. As a result, the gap between consumption and production has narrowed. The chart also emphasizes the exceptionally high growth rate in both consumption and production from 1945 to 1960.

Foreign mill consumption of cotton of all growths increased sharply from 12.3 million bales in 1920 to 22.7 million in 1936. It then receded each year to about its 1920 level in the war years of 1943 and 1944. Beginning in 1945, however, foreign consumption increased each year and exceeded its prewar peak in 1950 when it reached 23.5 million bales. Thereafter it continued to increase each year and reached 37.9 million bales in 1960. Thus, between 1944 and 1960 consumption more than tripled. In the ten-year period from 1950 to 1960, it increased by 14.4 million bales, which represents a phenomenal average rate of growth of 1.4 million bales per year.

Total foreign mill demand for cotton is determined largely by three major factors: (1) total foreign population, (2) per capita incomes of foreign consumers, and (3) the nature of competition between cotton

and other fibers, particularly man-made or synthetic fibers of which rayon is by far the most important. Other factors are obviously involved, but individually they are probably of minor significance. The three listed are clearly the most important in terms of total consumption of all growths of cotton.

**EFFECT OF POPULATION:** The importance of population growth requires little comment. However, in order to emphasize its importance in influencing the long-term trend and potential of foreign cotton consumption, consider the following example. Between 1938 and 1957 foreign population increased by more than 600 million persons, from about 2.2 to 2.8 billion (Table 2). This represented an annual growth rate of about 33.5 million persons. If there had been no change in consumption per capita in foreign countries from the 1938 level of 5.4 pounds, this would have added an additional 379 thousand bales of cotton of 478 pounds net weight to mill demand each year. By 1957 this would have added a total of approximately 7.2 million bales to the 21.6 million consumed in foreign mills in 1938. However, per capita consumption did increase (Table 2), and total foreign mill consumption in 1957 reached 33.3 million bales.

**INTER-FIBER COMPETITION:** Table 2 shows changes in the world inter-fiber per capita consumption pattern between 1938 and 1956-58. Foreign consumption of all fibers increased about 2.0 pounds per capita between the periods. Cotton accounted for about 1.0 pound of the increase and rayon about 0.8 pound. Wool consumption remained virtually unchanged. Man made fibers other than rayon accounted for the remainder of the total increase. Although cotton consumption showed the largest absolute increase per capita, rayon consumption showed a much larger relative increase. Cotton consumption increased only about 19 percent, while rayon consumption more than doubled.

Although the relative consumption rates and changes in the consumption pattern vary substantially by regions, the pattern shifted sharply in favor of rayon in all regions of the world except the Far East. In that region, consumption of rayon per capita in 1956-58 was only one-half its rate in the prewar period, and is now lower there than any major regions of the world. The present relatively low rate of per capita consumption of rayon in this area, coupled with the fact that it contains over one-half of the world's population, has important implications for future inter-fiber competition.

The extent to which foreign cotton consumption has declined rela-

tive to manmade fibers is best revealed by a comparison of total consumption of all cotton in the foreign mills and foreign production of manmade fibers (Table 1). Production of manmade fibers increased steadily from 70 thousand cotton equivalent bales in 1920 to 5.8 million in 1941, and then declined to 1.3 million in 1945. Since 1945, there has been an explosive growth in production which increased in every year except two and reached 15.8 million cotton equivalent bales in 1960.

After declining during the war, both cotton consumption and manmade fiber production regained their prewar peaks in 1950. In the 10 years, 1950 to 1960, manmade fiber production increased 151 percent, from 6.3 million cotton equivalent bales to 15.8 million. At the same time, cotton consumption increased 61 percent, from 23.5 to 37.9 million bales. Thus while mill consumption of cotton increased more absolutely than did manmade fiber-production, it declined relatively.

**EFFECT OF INCOME:** Table 2 shows wide variations among the major regions of the world in per capita consumption rates of cotton and other fibers. The variation is even greater when different countries are compared. Consumption in individual countries obviously is influenced by such factors as differences in climate and custom. But one of the more important, if not the most important, factors explaining differences in per capita fiber consumption between countries is differences in income.

In Table 3, consumption of cotton and income per capita in United States dollars averaged for the three years of 1948 to 1950 are given for 52 foreign countries. Similar data are given for 50 countries for the period 1952 to 1954 in Table 4.

In an attempt to estimate the relationship between per capita income and per capita cotton consumption, two equations were fitted to each set of data. One equation is linear in the variables; the second expresses consumption as a function of the square root of income. The following equations are least-squares estimates of per capita consumption for the 1948-1950 period.

$$C = 11.956 + 0.057 I; r^2 = 0.77; E = 0.59 \quad (3)$$

(13.09)

$$C = -3.292 + 2.067\sqrt{I}; r^2 = 0.78; E = .55 \quad (4)$$

(13.18)

The estimated equations for the 1952-54 period are

$$C = 13.778 + 0.043 I; r^2 = 0.74; E = 0.54 \quad (5)$$

(11.74)

$$C = 1.560 + 1.770 \sqrt{I}; r^2 = 0.75; E = .52 \quad (6)$$

(12.09)

In equations (3 to 6) C is per capita consumption of cotton (100 grams), and I is per capita income in United States dollars. The figures in parentheses below the coefficients are t — ratios, and E is the income elasticity of demand computed at the means of the series.

From a statistical point of view there is little basis for choosing one equation form over the other. The results are quite similar when the two equations are compared for a given time period. The results are also approximately the same for the two time periods, however, the square root formulation may be preferable from a theoretical standpoint. The square-root equations (4 and 6) result in an income elasticity estimate that declines as income increases. On the other hand, the linear equations (3 and 5) imply a larger income elasticity coefficient as income increases with the coefficient approaching unity as a limit. Estimates of the income elasticities for two alternative levels of income are given in Table 5.<sup>3</sup>

The rapid increase in foreign mill consumption of cotton during the period under review resulted mainly from population and per capita income increases. In general, the areas and countries of the world with the lowest per capita consumption of cotton at the present time are also those with the lowest per capita incomes and living standards. It seems reasonable to assume, therefore, that if and when per capita incomes in these areas rise, per capita consumption of cotton will increase also. Moreover, these low income-low consumption areas are generally those with large populations relative to the high income-high consumption areas. Consequently, only small increases in per capita consumption in Asia and Africa would cause relatively large increases in total cotton consumption.

In the past, the competition between cotton and manmade fibers has been sharpest in industrial uses. In recent years, however, there has been a sharp shift in the inter-fiber consumption pattern in non-

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<sup>3</sup> Elasticity estimates for cotton, rayon and wool combined are given in United Nations, Food and Agricultural Organization, *Natural and Man-made Fibers: A Review*, FAO Commodity Series, Bulletin No. 26 (Rome: 1954), p. 9. The following results were given in that study:

1.  $\log C = -0.226 + 0.776 \log I$   $r = 0.950$   
 2.  $C = -22.68 + 4.392 \sqrt{I}$   $r = 0.946$

The equation in logarithms gives an estimate of the income elasticity of .776 which is, of course, constant for all levels of income. The estimate of the elasticity of demand with respect to income provided by the squareroot equation varies inversely with the level of income. At income levels of \$100 and \$500 per capita, the income elasticity estimates are 1.03 and 0.65, respectively.

industrial uses in favor of manmade fibers at the expense of cotton in relative terms. Most of the cotton consumed in the low-income, low-consumption areas is in clothing and household uses, and cotton undoubtedly will face increasingly intense competition from newer fibers as living standards and total fiber utilization increase in these areas.

## Foreign Production

The trend in foreign production has been quite similar to that of consumption (Figure 1). Production increased from 7.9 million bales in 1920 to about 20.0 million in 1936 and 1937. The rise in production was especially sharp between 1931 and 1936. During this five-year period, production increased by 9.3 million bales, an average rate of growth of almost 1.9 million bales per year. This caused a marked decrease in the gap between foreign consumption and production by 1936.

Following 1937, production declined more slowly than did consumption and reached its war-time low point in 1945 at 12.1 million bales. Production did not fall so low during the war relative to its prewar level as did consumption and actually exceeded consumption in 1941, 1942 and 1943. It was approximately equal to consumption in 1944. From 1944 to 1948 production was relatively stable.

Since 1948, production has increased each year and exceeded its pre-war peak in 1951 when it reached 20.6 million bales. It continued to increase each year thereafter until 1958 when it reached an all time high of 33 million bales. Foreign production then receded slightly in 1959 and remained below the second high in 1960. Preliminary data indicate that new production records were established in both 1961 and 1962.

Production is determined directly by acreage and yield per acre. Each of these factors is affected by various complex and interrelated forces, and the situation varies widely from country to country.

Foreign cotton acreage increased sharply in three separate periods (Figure 2): first between 1920 and 1925, again between 1932 and 1937, and then between 1949 and 1955. The increase in the 1930's coincided with the operation of governmental programs in the United States which reduced acreage sharply, withheld substantial stocks of cotton from the market, and supported prices of American cotton above competitive levels.

The marked upsurge in foreign acreage beginning in 1950 occurred during a period characterized by the strong demand growing out of the Korean War, a shortage of cotton available for export in the United States, record high prices in practically all nations, and, in the latter

## Export Demand for U.S. Cotton:

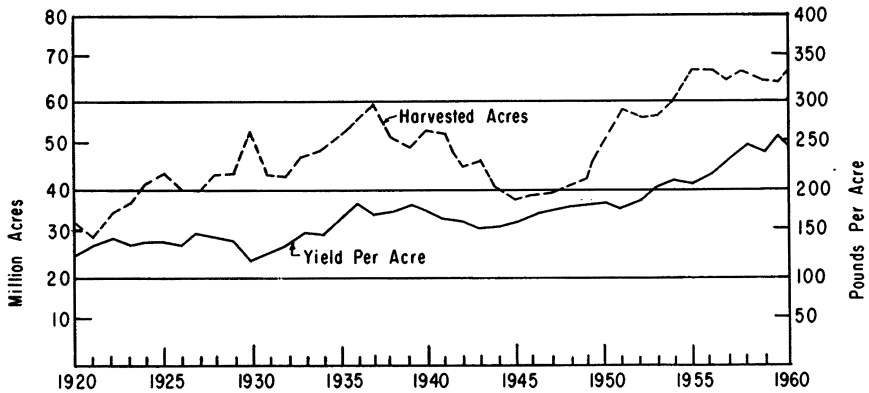


Figure 2. Harvested acres and yield per acre, foreign countries, 1920-1959.

Source: Harvested acres: 1920-53: USDA, AMS, *Stat. on Cotton and Rel. Data, 1920-56*, Stat. Bul. No. 99, rev. Feb., 1957, Table 18, p. 5. 1954-59: *Ibid.*, Suppl. for 1960, Oct. 1960, Table 18, p. 16. Yield per acre: Foreign production from Table 1 divided by harvested acres

part of the period, prices of American cotton once again supported above competitive levels.

The chart shows that acreage in foreign countries has declined slightly from the record high reached in 1955. The fact that beginning in 1956 American cotton has been priced at competitive levels with foreign growths by means of an export subsidy and/or sales of CCC stocks for export on a competitive bid basis is probably not insignificant.

Yield per acre in foreign countries has shown a slow but almost uninterrupted upward trend since the 1920's. While the average yield was only about 140 pounds per acre in 1925-29, it was about 230 pounds in 1955-59, a very significant increase indeed. Since 1955, the increase in yield more than offset the decline in acres harvested, resulting in an increase in foreign production from about 28 million bales in 1955 to 33 million bales in 1960 (Table 1). See Tables beginning on Page 28.

## United States and World Exports

Figure 3 shows the level and trend in United States exports, foreign exports, world exports, and foreign consumption. As the spread between foreign mill consumption and production decreased over time (as shown in Figure 1), exports from the United States followed a generally downward trend. At the same time, exports from foreign countries were increasing so as to just about offset declining exports from the United States.

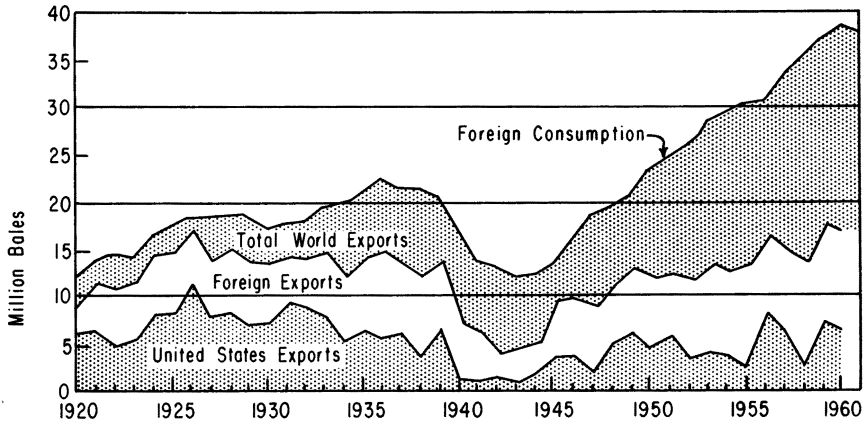


Figure 3. Total foreign consumption and total world exports, 1920-59. Source: Table 1.

Total world exports were relatively stable at a level of 13 to 14 million bales from 1924 to 1929. They dropped off sharply during the war, reaching a low of less than 4 million bales in 1942. Since 1942, world exports have moved upward slowly but steadily. Since 1953, they have been at about the same level as in the prewar period, although year-

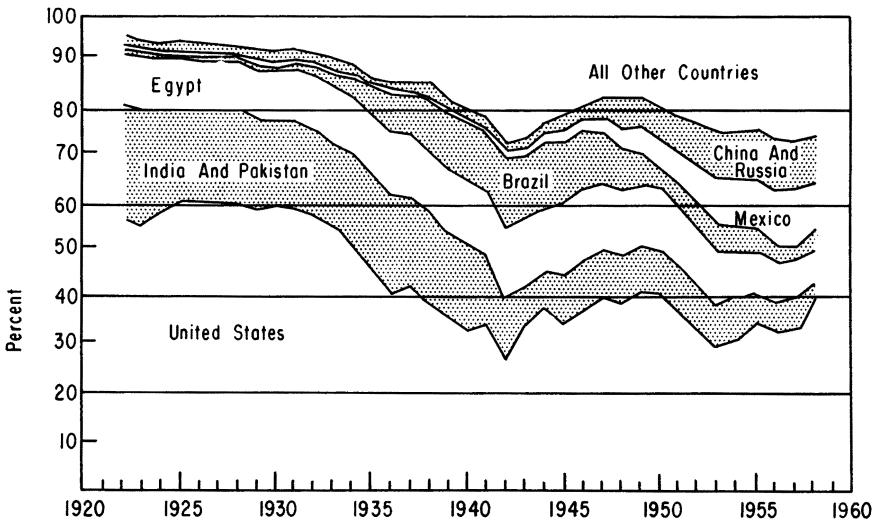


Figure 4. Exports of cotton from specified countries, based on 5-year moving averages centered, 1920-1960.

Source: Computed from data given in USDA, AMS, *Stat. on Cotton and Rel. Data, 1920-56*, Stat. Bul. No. 99, rev., Feb., 1957, and subseq. issues, Table 25.

to-year variations have been wide. However, world trade in raw cotton has failed to keep pace with the spectacular increases in foreign consumption and production.

Three important developments in the export situation are emphasized in Figure 3. First, there has been a generally downward trend in United States exports. Second, United States exports have declined relative to world exports and foreign consumption of all growths of cotton. Third, world exports have declined relative to foreign consumption and production. Moreover, these are not recent developments; the emerging relationships were already clearly discernible in the late 1920's and early 1930's.

Although total world exports are about the same now as they were in the interwar period, there have been important shifts in the relative importance of the various exporting countries. The most striking change has been the decentralization of the origin of exports. Whereas the eight countries shown in Figure 4 accounted for about 93 percent of total world exports in the latter half of the 1920's, they accounted for about 75 percent of the total in the latter half of the 1950's. Thus, there has been a substantial increase in the relative importance of the "minor" exporting countries, in the aggregate, in world trade in raw cotton.

The most important changes within the specified countries have been the significant absolute and relative decline in the importance of the United States and India (including Pakistan) and the increase in importance of Mexico and the Communist Bloc (China and Russia).

## Changing Structure of the Export Market

The purpose in this section is to describe the changing pattern of world production, consumption, and trade in raw cotton in order to indicate the changing absolute and relative importance of the various countries. This, together with the demand function and elasticity formula (equations 1 and 2), provides a framework for analyzing the influence of specific foreign cotton policies or the probable effects of proposed revisions in domestic cotton policy on the volume of exports from the United States.

### Structural Changes in World Production

Total world production of cotton increased 65 percent between 1924-28 and 1956-60, and the geographical and political pattern of world



production changed substantially (Table 6). Production in the United States actually declined,<sup>4</sup> and the proportion of world production accounted for by the United States decreased from about 55 percent in 1924-28 to about 29 percent in 1956-60.

In foreign countries, the most notable change has been the increased relative importance of the Communist Bloc countries which now account for about one-third of world production compared with only about 13 percent in 1924-28. This is due almost entirely to increased production in Russia (U.S.S.R.). Production in foreign free world countries has about doubled since 1924-28 and has increased by about 47 percent since 1934-38. Although these countries increased their share of world production slightly between 1924-28 and 1934-38, they have not increased their share since that time.

There are two important developments to note in the foreign free world production pattern. First, although five countries now produce in excess of 1.0 million bales annually compared with two in 1924-28 and three in 1934-38, this volume classification now accounts for the same percentage of world production as it did in the 1920's and a slightly smaller percentage than in the 1930's. Second, the number of countries producing between 100,000 and 1.0 million bales annually increased from 6 and 9 in 1924-28 and 1934-38, respectively, to 17 in 1956-60. Moreover, the proportion of world production accounted for by this volume group has almost doubled compared with the prewar period.

### **Structural Changes in Foreign Mill Consumption**

Table 7 shows that total foreign mill consumption increased from 23.2 million bales per year in 1934-38 to 37.1 million in 1956-60, or about 60 percent. Consumption in the foreign free world increased in absolute quantity also, but declined as a percentage of total foreign consumption from about 67 percent in 1934-38 to 58 percent in 1956-60. There was, of course, a corresponding increase in the percentage accounted for by the Communist Bloc.

In 1934-38, five foreign free world countries consumed more than one million bales per year. In order of consumption, the countries were India, Japan, United Kingdom, France and Germany. By 1956-60, Brazil and Pakistan had also moved into this classification. Italy has also con-

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<sup>4</sup> Actually, the absolute decline is somewhat over stated in the table. Production was below average in both 1957-58 and 1958-59. The years for averaging were chosen because of the change in the United States' export policy in 1956.

sumed more than one million bales in each of the last three marketing years of 1959, 1960 and 1961. Although the number of countries in this group had increased by two, the percentage of total foreign mill consumption accounted for by the group declined from 49 percent in 1934-38 to 37 percent in 1956-60. Among these countries India, Pakistan and Brazil also produce raw cotton. The other four must depend exclusively on imports to meet the requirements of domestic mills.

The number of countries consuming more than 100,000 but less than 1.0 million bales per year increased from 12 in 1934-38 to 20 in 1956-60. The percentage of total foreign consumption accounted for by these countries increased from about 14 to 18 percent between the two periods.

China and Russia are by far the most important cotton consuming countries in the Communist Bloc, although six other countries in this group consumed more than 100,000 bales annually in 1956-60. Combined, these six countries consumed two million bales per year in 1956-1960, accounting for more than five percent of total foreign consumption. Since they produced less than 100,000 bales per year, the great bulk of the raw cotton requirements of these countries must be imported.

### **Structural Changes in Foreign Imports**

While total foreign mill consumption increased 60 percent and foreign production increased 76 percent between 1934-38 and 1956-60 (Tables 6 and 7), imports into all foreign countries increased only 20 percent. In fact, imports in 1956-60 exceeded those in 1924-29 by only one-half million bales (Table 8).

Although total imports have changed little over the period under review, there has been marked geographic decentralization in the destination of imports. There were five foreign countries that imported in excess of 1.0 million bales of cotton annually in 1924-28. In order of the quantity imported, they were the United Kingdom, Japan, France, Germany and Italy (Table 9). Italy dropped out of this volume classification soon thereafter. The other four countries have continued to import on the average more than 1.0 million bales per year up to the present time. Italy imported more than one million bales in each of the marketing years of 1959 and 1961.

Combined, the countries importing more than 1.0 million bales per year accounted for 72 percent of total foreign imports in 1924-28 (Table 8). But since that time the relative share of this group has declined

steadily. They accounted for 65 percent of total imports in 1934-38 and only 46 percent in 1956-60. If Italian imports are included in this group in the latter two periods, the corresponding percentages are 69 and 52, respectively.

Eight foreign free world countries imported between 100,000 and one million bales per year during 1924-28. The number of countries in this classification increased to 11 in 1934-38 and 14 in 1956-60. The percentage of total foreign imports accounted for by this group of countries increased from 12 percent in 1924-28 to 22 and 29 percent in 1934-38 and 1956-60, respectively.

The Communist Bloc countries accounted for 14 percent of total foreign imports in 1924-28. This share declined slightly to 11 percent in 1934-38 and then increased to 19.5 percent in 1956-60. In contrast to the concentration of production and consumption in China and the U.S.S.R. among this group of countries, imports are fairly evenly divided among the several countries (Table 9).

## Structural Changes in World Exports

Since the United States imports only a relatively small quantity of raw cotton, total world exports and total foreign imports move together quite closely. World exports in 1956-60 were about one million bales greater than in 1924-28, but almost three million larger than they were in 1934-38 (Table 10). However, the trend toward geographic decentralization since the 1920's has been much more pronounced in exports than in production, consumption, or imports. This is particularly evident between 1934-38 and 1956-60.

The proportion of total world exports accounted for by the United States declined sharply from about 59 percent in 1924-28 to 39 percent in 1934-38. This share was maintained during 1956-60. However, exports from the United States averaged six million bales per year during 1956-60 compared with only 3.1 million bales in the previous three years. This resulted mainly from the export subsidy program initiated by the United States in 1956.

In foreign countries, the most important development has been a sharp decline in the absolute and relative importance of countries exporting in excess of one million bales per year and a corresponding increase in the importance of countries exporting between 100,000 and one million bales annually.

In 1924-28, two countries—Egypt and India (including Pakistan)—

accounted for 31 percent of world exports and more than 76 percent of exports from all foreign countries (Table 10). These were the only foreign countries that exported more than one million bales per year during this period. By 1934-38, however, Brazil was also exporting in excess of one million bales annually. The three countries were now accounting for a larger portion of world exports (44 percent) but a smaller portion of total foreign exports (72 percent) than the two countries did in the earlier period.

Since 1934-38 there has been a sharp decline in the absolute and relative importance of those countries exporting in excess of one million bales per year. Also, there has been a change in the composition of this group. By 1956-60, Brazil and India were exporting, on the average, only 397 and 245 thousand bales per year, respectively (Table 11). India and Pakistan combined were exporting only 615 thousand per year compared with about 2.7 million in 1934-38. In the meantime, Mexico had increased exports from only 105 thousand bales per year in 1934-38 to about 1.5 million bales in 1956-60. Egypt continued to export in excess of one million bales annually in 1956-60, although the absolute quantity was down from 1.5 and 1.7 million in 1924-28 and 1934-38, respectively, to 1.4 million in 1956-60. Consequently, the two countries exporting more than one million bales per year in 1956-60 accounted for only 19 percent of world exports and 30 percent of total foreign exports.

The number of foreign free world countries exporting between 100,000 and one million bales annually increased from 3 in 1924-28 to 6 in 1934-38 and then to 17 in 1956-60 (Table 10). The percentage of world exports accounted for by this group of countries increased from only 3 percent in 1924-28 to 10 percent in 1934-38 and then jumped sharply to 28 percent in 1956-60. The countries in this group increased their share of foreign exports from 16 percent in 1934-38 to 46 percent in 1956-60.

The share of Communist Bloc countries in world exports increased from only 2 percent in 1924-28 to 12 percent in 1956-60. All of this increase occurred between 1934-38 and 1956-60. The most notable change was the sharp increase in exports from the U.S.S.R. Exports from the U.S.S.R. were not even reported for the 1924-28 period and were only 53 thousand bales per year in 1934-38. By 1956-60, however, the U.S.S.R. exported an average of 1.6 million bales of raw cotton per year (Table 11), although the bulk of these exports were to other countries within the Communist Bloc.

## Major Factors Influencing Changes in World Trade

World trade in raw cotton has failed to keep pace with the rapid expansion in foreign production and consumption. Total world exports represented 55 percent of foreign consumption during 1934-38 but only 42 percent during 1956-60. The volume of trade actually declined slightly between 1924-28 and 1934-38, while both foreign production and consumption were increasing. Between 1934-38 and 1956-60, foreign production increased about 76 percent and foreign consumption increased about 60 percent, while world exports increased only 22 percent. At the same time, sources of exports and destinations of imports were becoming much more decentralized with significant shifts in the absolute and relative importance of individual countries in world trade.

### The Interwar Period

The decrease in trade in the interwar period can be traced largely to the effects of the depression and the attempts by some countries, notably Germany, Italy and Japan, to substitute synthetic fibers for cotton. There were shifts in importance between consuming countries, but this was largely between countries that did not produce cotton. To this extent such shifts did not influence total world trade in raw cotton and need not necessarily influence the competitive position and relative importance of exporters.

In 1924-28, the five countries of the United Kingdom, Japan, France, Germany and Italy accounted for about 72 percent of total foreign imports. They still accounted for 70 percent in 1934-38. The most significant change was the decrease in the absolute and relative importance of the United Kingdom and the increase in the absolute and relative importance of Japan as consumers and importers (Table 11).

The most important change in the source of exports was the decline in the absolute and relative importance of the United States and the increase of Brazil's importance in world trade. The percentage of world exports accounted for by the United States fell from about 59 percent in 1924-28 to 39 percent in 1934-38. Brazil exported less than 100,000 bales per year in 1924-28, but by 1934-38 exceeded one million bales per year which accounted for more than 8 percent of world exports. Also, substantial relative gains in exports were made by Mexico, Peru, the Sudan, Uganda, Argentina, and the Belgian Congo. Com-

bined, these six countries accounted for almost 10 percent of world exports in 1934-38.

The reasons for these changes are many, varied, and complex. Governmental policies in importing countries probably had little effect on the total volume of imports, although in the last half of the 1930's, Germany, Italy, and Japan made efforts to develop and utilize substitutes, particularly rayon. However, there was some shifting in the source of imports in some of the major importing countries. For example, clearing and barter arrangements played a substantial role in displacing United States cotton with Brazilian cotton in Germany. Exchange difficulties in some other countries also had an influence on the source of imports.

Governmental policies in foreign exporting countries probably had only marginal effects in dispersing exports and shifting the relative importance of exporters in world trade. The Government of Egypt had controlled the acreage planted to cotton and actively intervened on the marketing side in various years throughout the 1920's.<sup>5</sup> These activities continued during the 1930's. However, they probably were not a significant influence in the changing pattern of trade.

Production in and exports from Brazil undoubtedly were encouraged somewhat by preferential treatment regarding the sale of foreign exchange earned with exports of cotton. Also, the policy of entering into barter and clearing arrangements with importers, especially Germany, encouraged exports. Nevertheless, the rapid cotton production expansion in Brazil can be explained largely by the long-standing depressed conditions in the coffee industry and relatively favorable cotton prices resulting from the price-raising effects of U. S. cotton policies.<sup>6</sup>

The influence of governmental policies on the pattern of world trade in raw cotton during the interwar period can perhaps be best summarized by the following quotes from Bacon and Schloemer.<sup>7</sup>

Though import restrictions on raw cotton gained weight in certain of the principal consuming countries, they remained a minor factor in the development of the trade in raw cotton . . .<sup>8</sup>

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<sup>5</sup> Lynn Ramsay Edmister, Leo J. Schaben, and Myer Lynsky, *Agricultural Price-Supporting Measures in Foreign Countries*, FS-56, Foreign Agricultural Service, U. S. Department of Agriculture, July, 1932.

<sup>6</sup> Foreign Agricultural Service, U. S. Department of Agriculture, "Foreign Agricultural Policies—A Review and Appraisal," *Foreign Agriculture* (February, 1938), p. 83.

<sup>7</sup> L. B. Bacon and F. C. Schloemer, *World Trade in Agricultural Products: Its Growth; Its Crisis; and the New Trade Policies* (Rome: International Institute of Agriculture, 1940) Chapter X, "Cotton," pp. 395-418.

<sup>8</sup> *Ibid.*, pp. 401-402.

The most immediate effect of government control of cotton imports was the switching of purchases from one country to another. Clearing and barter arrangements played a considerable part in displacing United States cotton in certain markets . . . . A very striking example was the advance of Brazilian cotton in Germany . . . .<sup>9</sup>

Yet, while Germany decreased her takings of United States cotton most heavily, United States cotton lost out in nearly all markets, even those such as the United Kingdom and France where the importer remained more or less free to purchase cotton from any source. Shifts in the importance of various sources of supply were in large part the result of measures adopted in cotton exporting countries, especially the United States.<sup>10</sup>

. . . a very important stimulus given to cotton production (ex United States) was the favorable price relation existing for cotton relative to other staple crops. Here again the governments of cotton growing territories were partly responsible . . . . The actions of the United States government, however, played a decisive role in supporting world prices of cotton. With so large a share in world production and exports . . . the successful price-raising activities in the United States of necessity held up world prices . . . .<sup>11</sup>

## The Postwar Period

World trade in raw cotton, as indicated above, is lagging far behind the substantial increases in foreign production and consumption in the postwar period. To a very important extent this reflects the growth of mill industries in countries that previously produced raw cotton but imported manufactured cotton products.

In the 1930's, foreign mill consumption was concentrated in the non-producing countries of the United Kingdom, Germany, Japan, France and Italy, and the producing countries of India, China, and the U.S.S.R. Between 1934-38 and 1956-60, the proportion of foreign mill consumption accounted for by the five nonproducing countries declined from 39 to 21 percent, while that accounted for by the three producing countries increased from 42 to 49 percent (Table 12). Foreign consumption accounted for by these eight principal consuming countries declined from 81 to 70 percent between 1934-38 and 1956-60. At the same time, substantial increases in mill consumption occurred in Mexico, Argentina, Brazil, Columbia, Greece, Turkey, and Egypt, all cotton producing countries (Table 13).

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<sup>9</sup> *Ibid.*, p. 404.

<sup>10</sup> *Ibid.*, p. 404.

<sup>11</sup> *Ibid.*, p. 408.

As a result of these developments consumption became much less concentrated, and the shift in the location of mill consumption from non-producing to producing countries clearly tends to reduce the demand for world imports (exports) of raw cotton relative to production and consumption.

The most striking changes in the export situation during the postwar period compared with the 1930's have been the marked decentralization in the origin of exports and the shift in the relative importance of major exporting countries. Whereas the seven countries shown in Table 14 accounted for 84 percent of world exports in 1934-38, they accounted for only 74 percent in 1956-60. Hence, there has been a rather substantial increase in the relative importance of the minor exporting countries in the aggregate (see Table 11).

The most important change among the major exporters has been the significant absolute and relative decline in the importance of Brazil and India (including Pakistan) and the increase in the relative importance of Mexico and the U.S.S.R.

The proportion of total world exports accounted for by the United States was practically the same in the two periods under consideration. However, it should be emphasized that the United States initiated its aggressive export subsidy program in 1956. In the three years of 1953-55, exports from the United States averaged only 3.1 million bales per year which represented only 24 percent of total world trade.

The substantial changes in the world pattern of production, consumption, and world trade in raw cotton between the 1930's and the latter half of the 1950's was due largely to national policies of foreign countries and our own domestic cotton programs. The demand for raw cotton growing out of the postwar recovery programs in the late 1940's and especially out of the Korean Conflict maintained world prices of raw cotton at highly profitable levels. This undoubtedly provided a strong stimulus for expansion of acreage and production in many foreign countries. From 1953 to 1955, the price-raising activities of the United States Government provided the principal support for world cotton prices.

## Summary and Conclusions

The purpose of the study reported herein was to describe major developments in the world cotton economy and to analyze their implications for the demand for U. S. exports. A major goal was to pro-



vide a frame of reference which would serve as a vehicle for a more realistic analytical evaluation of the effects on U. S. exports of cotton policies of the United States and foreign countries.

During the latter half of the 1920's U. S. exports of cotton averaged 8.5 million bales per year. These exports accounted for almost 60 percent of total world exports, 46 percent of foreign mill consumption of all growths of cotton, and 55 percent of total disappearance of U. S. cotton (domestic consumption plus exports). By the latter half of the 1930's however, U. S. exports averaged only 5 million bales annually and accounted for only 39 percent of world exports, 21 percent of total foreign mill consumption, and less than 45 percent of total disappearance of U. S. cotton. Although other forces contributed to the loss of export markets for U. S. cotton during this period, governmental programs in the United States reduced acreage sharply, withheld substantial stocks of cotton from the market, and supported prices of American cotton above competitive levels.

By the mid-1950's—following the Korean action but prior to the initiation of the programs under which U. S. cotton was sold for export at competitive prices—the export situation had deteriorated still further. From 1953 to 1955, U. S. exports averaged only 3.3 million bales per year. They accounted for only 25 percent of world exports, 10 percent of total foreign mill consumption, and 27 percent of total disappearance of U. S. cotton.

Following the initiation of the programs in 1956 under which cotton was sold for export at competitive prices, U. S. exports increased sharply and averaged 6.1 million bales per year during the five years from 1956 to 1960. During this period U. S. exports accounted for about 33 percent of total world exports, 20 percent of total foreign mill consumption, and over 40 percent of total disappearance of U. S. cotton.<sup>12</sup>

While U. S. exports have been decreasing during the period since the 1920's, both foreign production and mill consumption have trended sharply upward. Foreign mill consumption of all growths of cotton trebled from 1920 to 1960, increasing from 12.3 to 37.9 million bales per year. In the decade of the 1950's alone, foreign consumption increased 14.4 million bales, a remarkable average rate of growth of almost 1.5 million bales per year. But foreign production increased even faster. From 1920 to 1960, foreign cotton production increased fourfold, from 7.9 to 32.9 million bales per year.

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<sup>12</sup> In the last two marketing years of 1961-62 and 1962-63, however, exports were only 4.9 and 3.3 million bales, respectively.

Coincident with, and related to, the loss of export market for U. S. cotton, significant changes have taken place in the geographical and political pattern of world production, mill consumption, and international trade. New, independent nations have emerged, and spheres of political influence have been altered. Sources of supply and centers of mill demand have become much more decentralized than in the inter-war period. A pronounced decentralization in sources of exports and destination of imports has evolved also. World trade in raw cotton has failed to keep pace with the spectacular growth in foreign consumption and production. Although there are wide year-to-year variations, total world exports have averaged about the same in recent years as they did in the 1920's and 1930's. Another development affecting the demand for U. S. exports has been the phenomenal growth of man-made fiber production in foreign countries.

During the period under review, but especially since World War II, major decisions relating to one or more strategic determinants of cotton production, mill consumption, and the magnitude and direction of raw cotton trade flows in international commerce have been transferred from the individual firm to the national level in many countries.<sup>13</sup> National governments have adopted measures to reduce their dependence on imports for both manufactured cotton goods and the raw fiber. Production and exports have been pushed vigorously in many countries.

The international market for raw cotton, especially in the post-war period, has come to be characterized by import and export quotas, export taxes and subsidies, currency exchange controls (including multiple exchange rates), and other trade barriers and impediments. These aspects of national policies serve to partially insulate production, consumption, and trade from the full effects of changes in the world price level, or the United States export price. Within this competitive framework, national governments may seek to exploit any monopolistic or monopsonistic powers that they possess and may adopt a wide range of market policies—external, internal or both—in pursuit of national goals.

Over a period of several years the demand for U. S. exports must be equal to the difference between total foreign demand and supply. Total foreign demand and supply are aggregates of the demand and supply of

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<sup>13</sup> For an outline of foreign governmental regulations that have been in effect since 1957 see International Cotton Advisory Committee, *Government Regulations on Cotton*, Document 12, XVII (June, 1958); Document 16, XVIII (May, 1959); Document 10, XIX (May, 1960) and Document 9, XXII (April-May, 1963).

the several countries that produce cotton and have mill industries. As the gap between foreign mill consumption of all growths and foreign production has narrowed, the demand for U. S. exports has shifted downward. The elasticity of demand for U. S. exports depends on (1) the elasticity of mill demand for all growths in each consuming country, (2) the elasticity of supply in each producing country, (3) the ratio of the quantities demanded or supplied by each country to the quantity exported by the U. S., and (4) the elasticity of local prices in each demanding or supplying country with respect to the U. S. export price.

This means that the relative importance of any country, the policies it follows relating to cotton production, consumption and trade, and the type of cotton demanded or supplied are important determinants of the level and elasticity of demand for U. S. exports. Since most of the usual regulations and policies of foreign governments tend to insulate internal developments from external price movements, they also tend to reduce the elasticity of demand for U. S. exports. Moreover, policies and regulations of foreign governments may be and often are changed in response to changes in U. S. policies in much the same manner as firms are assumed to respond in oligopolistic industries. These actions and reactions tend to reduce further the elasticity of demand for U. S. exports.

**Table 1. Foreign Cotton Production, Mill Consumption and Exports, United States and World Exports, and Foreign Production of Manmade Fibers, 1920 to 1960.**

| Year<br>Beginning<br>August 1 <sup>1</sup> | Cotton                             |                                     |                               |                                 |                               | Manmade Fibers                     |
|--|------------------------------------|-------------------------------------|-------------------------------|---------------------------------|-------------------------------|------------------------------------|
|  | Foreign<br>Production <sup>2</sup> | Foreign<br>Consumption <sup>3</sup> | U. S.<br>Exports <sup>4</sup> | Foreign<br>Exports <sup>2</sup> | World<br>Exports <sup>2</sup> | Foreign<br>Production <sup>4</sup> |
|  | 1                                  | 2                                   | 3                             | 4                               | 5                             | 6                                  |
|  |                                    |                                     | 1,000 bales                   |                                 |                               |                                    |
| 1920                                       | 7,921                              | 12,253                              | 5,973                         | 3,024                           | 8,997                         | 70                                 |
| 1921                                       | 8,025                              | 13,868                              | 6,348                         | 4,725                           | 11,073                        | 104                                |
| 1922                                       | 9,545                              | 14,671                              | 5,007                         | 5,243                           | 10,255                        | 165                                |
| 1923                                       | 9,880                              | 14,346                              | 5,815                         | 5,227                           | 11,042                        | 213                                |
| 1924                                       | 11,530                             | 16,541                              | 8,240                         | 5,814                           | 14,054                        | 338                                |
| 1925                                       | 12,135                             | 17,712                              | 8,267                         | 5,891                           | 14,158                        | 428                                |
| 1926                                       | 10,942                             | 18,489                              | 11,299                        | 5,383                           | 16,687                        | 479                                |
| 1927                                       | 11,934                             | 18,608                              | 7,857                         | 5,435                           | 13,292                        | 694                                |
| 1928                                       | 12,403                             | 18,687                              | 8,419                         | 6,343                           | 14,767                        | 823                                |
| 1929                                       | 12,035                             | 18,769                              | 7,035                         | 6,225                           | 13,261                        | 1,007                              |
| 1930                                       | 12,298                             | 17,169                              | 7,133                         | 5,888                           | 13,021                        | 1,034                              |
| 1931                                       | 10,723                             | 18,023                              | 9,193                         | 4,589                           | 13,782                        | 1,098                              |
| 1932                                       | 11,297                             | 18,514                              | 8,895                         | 4,789                           | 13,685                        | 1,256                              |
| 1933                                       | 13,873                             | 19,902                              | 7,964                         | 6,163                           | 14,127                        | 1,468                              |
| 1934                                       | 14,174                             | 20,119                              | 5,037                         | 6,648                           | 11,685                        | 1,879                              |
| 1935                                       | 16,877                             | 21,178                              | 6,267                         | 7,531                           | 13,848                        | 2,451                              |
| 1936                                       | 19,952                             | 22,688                              | 5,689                         | 8,602                           | 14,291                        | 3,010                              |
| 1937                                       | 20,059                             | 21,825                              | 5,976                         | 7,039                           | 13,015                        | 4,183                              |
| 1938                                       | 18,017                             | 21,649                              | 3,513                         | 8,332                           | 11,844                        | 4,412                              |
| 1939                                       | 17,818                             | 20,712                              | 6,501                         | 6,737                           | 13,238                        | 4,958                              |
| 1940                                       | 18,639                             | 16,873                              | 1,174                         | 5,560                           | 6,734                         | 5,297                              |
| 1941                                       | 17,161                             | 13,863                              | 1,162                         | 4,531                           | 5,693                         | 5,821                              |
| 1942                                       | 14,528                             | 13,193                              | 1,498                         | 2,333                           | 3,831                         | 5,290                              |
| 1943                                       | 14,208                             | 12,623                              | 1,146                         | 2,907                           | 4,053                         | 4,938                              |
| 1944                                       | 12,585                             | 12,636                              | 1,909                         | 2,985                           | 4,894                         | 3,623                              |
| 1945                                       | 12,110                             | 13,600                              | 3,678                         | 5,546                           | 9,224                         | 1,322                              |

(Table Continued)

Export Demand for U.S. Cotton:

**Table 1 (continued)**

| Year<br>Beginning<br>August 1 <sup>1</sup> | Cotton                             |                                     |                               |                                 |                               | Manmade Fibers                     |
|--|------------------------------------|-------------------------------------|-------------------------------|---------------------------------|-------------------------------|------------------------------------|
|  | Foreign<br>Production <sup>2</sup> | Foreign<br>Consumption <sup>3</sup> | U. S.<br>Exports <sup>4</sup> | Foreign<br>Exports <sup>2</sup> | World<br>Exports <sup>2</sup> | Foreign<br>Production <sup>4</sup> |
|  | 1                                  | 2                                   | 3                             | 4                               | 5                             | 6                                  |
|  | -----1,000 bales-----              |                                     |                               |                                 |                               |                                    |
| 1946                                       | 12,950                             | 16,500                              | 3,656                         | 5,767                           | 9,432                         | 2,407                              |
| 1947                                       | 13,380                             | 19,000                              | 2,065                         | 6,594                           | 8,659                         | 3,098                              |
| 1948                                       | 14,293                             | 19,900                              | 4,961                         | 6,026                           | 10,987                        | 3,909                              |
| 1949                                       | 15,152                             | 21,000                              | 6,004                         | 6,548                           | 12,552                        | 4,835                              |
| 1950                                       | 18,241                             | 23,500                              | 4,280                         | 7,598                           | 11,878                        | 6,250                              |
| 1951                                       | 20,571                             | 24,600                              | 5,711                         | 6,449                           | 12,160                        | 7,521                              |
| 1952                                       | 20,681                             | 26,000                              | 3,181                         | 8,524                           | 11,705                        | 6,716                              |
| 1953                                       | 22,655                             | 28,700                              | 3,914                         | 9,137                           | 13,051                        | 8,264                              |
| 1954                                       | 24,939                             | 29,600                              | 3,585                         | 8,807                           | 12,392                        | 9,614                              |
| 1955                                       | 27,999                             | 30,300                              | 2,320                         | 10,785                          | 13,119                        | 10,781                             |
| 1956                                       | 28,890                             | 30,800                              | 7,917                         | 8,109                           | 16,031                        | 11,874                             |
| 1957                                       | 30,551                             | 33,300                              | 5,959                         | 8,295                           | 14,260                        | 12,893                             |
| 1958                                       | 32,938                             | 35,300                              | 2,895                         | 10,611                          | 13,506                        | 12,174                             |
| 1959                                       | 32,007                             | 37,600                              | 7,392                         | 9,864                           | 17,256                        | 13,984                             |
| 1960                                       | 32,903                             | 38,100                              | 6,858                         | 10,013                          |                               | 15,805                             |

<sup>1</sup> Manmade fiber production year beginning January 1.

<sup>2</sup> Bales of 500-pounds gross weight.

<sup>3</sup> American in running bales, foreign in equivalent 500-pound bales.

<sup>4</sup> Cotton equivalent bales.

<sup>5</sup> Preliminary.

Sources:

Column 1:

1920-53: U. S. Department of Agriculture, Agricultural Marketing Service, *Statistics on Cotton and Related Data, 1920-1956*, Statistical Bulletin No. 99, revised, February, 1957, Table 18, p. 25

1954-60: *Ibid.*, Supplement for 1961 to Statistical Bulletin No. 99, October, 1961, Table 18, p. 16

Column 2:

1920-44: U. S. Department of Agriculture, Agricultural Marketing Service, *Statistical Bulletin No. 99*, Table 20, p. 27

1954-60: *Ibid.*, Supplement for 1961, Table 20, p. 17

Column 3:

1920-46: U. S. Department of Agriculture, Agricultural Marketing Service, *Statistical Bulletin No. 99*, Table 25, p. 8

1947-59: *Ibid.*, Supplement for 1961, Table 25, p. 21

1960: *Ibid.*, Table 1, p. 8

Columns 4 and 5:

1920-46: U. S. Department of Agriculture, Agricultural Marketing Service, *Statistical Bulletin No. 99*, Table 25, p. 35

1946-59: *Ibid.*, Supplement for 1961, Table 25, p. 21

Column 6:

1920-60: *Ibid.*, Table 241, p. 124.

**Table 2. Population and Per Capita Consumption<sup>1</sup> of Cotton, Rayon, Wool and All Fibers by Major Regions, 1938 and Average for 1956-1958**

| Region                         | Population |        | Cotton                |         | Rayon                 |         | Wool                  |         | All Fibers <sup>2</sup> |         |
|--------------------------------|------------|--------|-----------------------|---------|-----------------------|---------|-----------------------|---------|-------------------------|---------|
|                                | 1938       | 1957   | 1938                  | 1956-58 | 1938                  | 1956-58 | 1938                  | 1956-58 | 1958                    | 1956-58 |
|                                | (millions) |        | (pounds) <sup>3</sup> |         | (pounds) <sup>3</sup> |         | (pounds) <sup>3</sup> |         | (pounds) <sup>3</sup>   |         |
| North America                  | 141.0      | 191.0  | 20.78                 | 22.00   | 2.20                  | 6.33    | 2.42                  | 2.42    | 25.48                   | 33.26   |
| Oceania                        | 11.0       | 14.7   | 8.36                  | 9.46    | 2.86                  | 3.30    | 5.72                  | 4.18    | 17.01                   | 17.60   |
| Western Europe                 | 305.0      | 317.9  | 8.80                  | 10.34   | 2.86                  | 4.62    | 3.30                  | 3.52    | 15.05                   | 19.14   |
| Eastern Europe<br>and U.S.S.R. | 261.0      | 300.0  | 6.82                  | 11.44   | 0.22                  | 3.30    | 1.32                  | 1.76    | 8.54                    | 16.74   |
| Latin America                  | 125.0      | 188.7  | 6.38                  | 7.26    | 0.44                  | 1.54    | 0.88                  | 0.88    | 7.52                    | 9.59    |
| Near East                      | 1148.0*    | 122.7  | 5.50                  | 4.84    | 0.44                  | 1.10    | 0.88                  | 0.66    | 5.96                    | 6.64    |
| Far East                       |            | 1466.2 | 4.40                  | 4.84    | 0.88                  | 0.44    | ---                   | 0.22    | 4.84                    | 5.65    |
| Africa                         | 170.0      | 196.8  | 2.20                  | 2.42    | 0.22                  | 1.32    | 0.22                  | 0.44    | 2.46                    | 4.18    |
| World Average                  | 2161.0     | 2798.0 | 6.31                  | 7.35    | 0.88                  | 1.87    | 0.97                  | 1.01    | 8.16                    | 10.52   |
| United States                  | 130.0      | 174.4  | 21.34                 | 22.66   | 2.42                  | 6.38    | 2.20                  | 2.24    | 25.96                   | 34.10   |
| Foreign <sup>4</sup>           | 2031.0     | 2623.6 | 5.41                  | 6.43    | 0.79                  | 1.60    | 0.90                  | 0.94    | 7.09                    | 9.11    |

\* Refers to both near and far east in 1938. Populations were not reported separately for that year.

<sup>1</sup> Availabilities for home use. Mill consumption of raw fiber plus or minus estimated trade balance in fiber content of exports and imports of textiles.

<sup>2</sup> Sum of cotton, wool, rayon, and other synthetic fibers.

<sup>3</sup> Pounds calculated from kilograms (1 kg. = 2.2 pounds).

<sup>4</sup> Computed from world and U. S. population and per capita consumption estimates.

Sources:

1938 population and U. S. per capital consumption: United Nations, Food and Agricultural Organization, Per Caput Fiber Consumption Levels, Commodity Series Bulletin No. 25, Rome: Mar. 1954, Tab'e 3. All other data: Ibid., Per Caput Fiber Consumption Levels, 1948-1958, Commodity Bulletin Series 31, Rome: 1960. Consumption and total world population from Table 1, p. 9. Population for the United States and regions from Section II, Tables 1, 3, 4, 12, 32, 49, 65, 79 and 99.

**Table 3. Per Capita National Income and Cotton Consumption, 52 Foreign Countries, Average 1948-1950**

| Country        | Per Capita         |                            | Country                   | Per Capita         |                            |
|----------------|--------------------|----------------------------|---------------------------|--------------------|----------------------------|
|                | Income<br>(U.S.\$) | Consumption<br>(100 grams) |                           | Income<br>(U.S.\$) | Consumption<br>(100 grams) |
| Indonesia      | 30                 | 7                          | Portugal                  | 250                | 31                         |
| South Korea    | 35                 | 15                         | Yugoslavia                | 265                | 24                         |
| Burma          | 40                 | 7                          | Union of South<br>Africa  | 275                | 24                         |
| Belgian Congo  | 40                 | 9                          | East Europe &<br>U.S.S.R. | 300                | 34                         |
| Haiti          | 40                 | 14                         | Cuba                      | 310                | 28                         |
| Kenya          | 45                 | 10                         | Germany (Fed.<br>Rep.)    | 370                | 31                         |
| Philippines    | 45                 | 14                         | Uruguay                   | 375                | 30                         |
| Thailand       | 50                 | 14                         | Israel                    | 375                | 43                         |
| Pakistan       | 64                 | 12                         | Argentina                 | 380                | 59                         |
| Dominican Rep. | 75                 | 10                         | Venezuela                 | 385                | 23                         |
| Ecuador        | 75                 | 14                         | Ireland                   | 410                | 22                         |
| India          | 75                 | 19                         | Austria                   | 435                | 22                         |
| Iran           | 80                 | 15                         | France                    | 460                | 50                         |
| Iraq           | 85                 | 17                         | Netherlands               | 465                | 60                         |
| Japan          | 100                | 12                         | Finland                   | 505                | 32                         |
| El Salvador    | 100                | 21                         | Norway                    | 655                | 49                         |
| Syria          | 110                | 21                         | Denmark                   | 730                | 42                         |
| Ceylon         | 120                | 15                         | United Kingdom            | 760                | 68                         |
| Guatemala      | 140                | 18                         | Australia                 | 840                | 56                         |
| Turkey         | 140                | 25                         | New Zealand               | 875                | 49                         |
| Mexico         | 145                | 26                         | Switzerland               | 885                | 57                         |
| Greece         | 150                | 29                         | Sweden                    | 970                | 57                         |
| Peru           | 170                | 17                         | Canada                    | 990                | 86                         |
| Egypt          | 170                | 26                         | Chile                     | 215                | 29                         |
| Brazil         | 170                | 31                         |                           |                    |                            |
| Colombia       | 190                | 24                         |                           |                    |                            |
| Spain          | 210                | 21                         |                           |                    |                            |
| Italy          | 225                | 30                         |                           |                    |                            |
| Means          |                    |                            |                           | 296.2              | 28.83                      |

## Sources:

Income: United Nations, Food and Agricultural Organization, *Natural and Man-Made Fibers: A Review*, FAO Commodity Series, Bulletin No. 26, Rome: November, 1954, p. 9.

Consumption: *Ibid.*, *Per Caput Fiber Consumption Levels, 1948-1958*, Commodity Bulletin Series 31, Rome: 1960, pp. 15-18.

**Table 4. Per Capita Consumption of Cotton and Net National Product, 50 Foreign Countries, Average 1952-1954**

| Country                   | Per Capita         |                            | Country           | Per Capita         |                            |
|---------------------------|--------------------|----------------------------|-------------------|--------------------|----------------------------|
|                           | Income<br>(U.S.\$) | Consumption<br>(100 grams) |                   | Income<br>(U.S.\$) | Consumption<br>(100 grams) |
| Belgian Congo             | 70                 | 11                         | Philippines       | 150                | 14                         |
| Egypt                     | 120                | 29                         | Thailand          | 80                 | 15                         |
| Kenya                     | 60                 | 11                         | Turkey            | 210                | 36                         |
| Rhodesia and<br>Nyasaland | 100                | 14                         | Austria           | 370                | 26                         |
| Union of South<br>Africa  | 300                | 23                         | Denmark           | 750                | 47                         |
| Argentina                 | 460                | 53                         | Finland           | 670                | 47                         |
| Brazil                    | 230                | 34                         | France            | 740                | 49                         |
| Canada                    | 1,310              | 70                         | Germany (Western) | 510                | 45                         |
| Chile                     | 360                | 30                         | Greece            | 220                | 32                         |
| Columbia                  | 250                | 26                         | Iceland           | 780                | 45                         |
| Cuba                      | 310                | 25                         | Ireland           | 410                | 22                         |
| Dominican Rep.            | 160                | 12                         | Italy             | 310                | 31                         |
| Ecuador                   | 150                | 15                         | Netherlands       | 500                | 52                         |
| Guatemala                 | 160                | 16                         | Norway            | 740                | 47                         |
| Honduras                  | 150                | 16                         | Portugal          | 200                | 32                         |
| Jamaica                   | 180                | 16                         | Sweden            | 950                | 54                         |
| Mexico                    | 220                | 25                         | Switzerland       | 1,010              | 59                         |
| Panama                    | 250                | 17                         | United Kingdom    | 780                | 55                         |
| Paraguay                  | 140                | 9                          | Australia         | 950                | 51                         |
| Venezuela                 | 540                | 21                         | New Zealand       | 1,000              | 40                         |
| Ceylon                    | 110                | 13                         | Peru              | 120                | 17                         |
| Israel                    | 470                | 31                         | Burma             | 50                 | 14                         |
| S. Korea                  | 70                 | 17                         | India             | 60                 | 20                         |
| Malaya                    | 310                | 18                         | Japan             | 190                | 36                         |
| Means                     |                    |                            | Lebanon           | 260                | 38                         |
|                           |                    |                            | Pakistan          | 70                 | 14                         |
|                           |                    |                            |                   | 371.2              | 29.80                      |

## Sources:

Income: United Nations, *Per Capita National Product of Fifty-five Countries, 1952-54*, Statistical Papers, Series E, No. 4, Statistical Office of the United Nations, New York: 1957, pp. 8-9.

Consumption: United Nations, Food and Agricultural Organization, *Per Caput Fiber Consumption Levels, 1948-1958*, Commodity Series Bulletin 31, Rome: 1960, pp. 15-18.

**Table 5. Estimates of Income Elasticities for Income Levels of \$100 and \$500 Per Capita**

| Equation Number | I (\$)<br>Assumed | C (100 Grams)<br>Computed | E<br>Estimated |
|-----------------|-------------------|---------------------------|----------------|
| 3               | 100               | 17.7                      | 0.32           |
| 3               | 500               | 40.5                      | 0.70           |
| 4               | 100               | 17.4                      | 0.60           |
| 4               | 500               | 42.9                      | 0.54           |
| 5               | 100               | 18.1                      | 0.24           |
| 5               | 500               | 35.3                      | 0.61           |
| 6               | 100               | 16.1                      | 0.55           |
| 6               | 500               | 38.0                      | 0.52           |



**Table 6. Number of Countries and Distribution of World Cotton Production, by Volume Classification and Selected Periods**

| Quantity Produced<br>Bales | 1924-28                                     |  |                                  | 1934-38                                     |  |                                  | 1956-60                                     |  |                                  |
|----------------------------|---|--|----------------------------------|---|--|----------------------------------|---|--|----------------------------------|
|                            | Number<br>of<br>Coun-<br>tries <sup>1</sup> | Produc-<br>tion<br>1,000<br>Bales <sup>2</sup> | Per Cent<br>of<br>World<br>Total | Number<br>of<br>Coun-<br>tries <sup>1</sup> | Produc-<br>tion<br>1,000<br>Bales <sup>2</sup> | Per Cent<br>of<br>World<br>Total | Number<br>of<br>Coun-<br>tries <sup>1</sup> | Produc-<br>tion<br>1,000<br>Bales <sup>2</sup> | Per Cent<br>of<br>World<br>Total |
| <b>United States</b>       | 1   | 14,933   | 55.2                             | 1   | 12,389   | 40.7                             | 1   | 12,900   | 28.9                             |
| <b>Foreign Free World</b>  | 36  | 8,686  | 32.1                             | 43  | 11,780   | 38.8                             | 48  | 17,276   | 38.7                             |
| Over 1,000,000             | 2   | 6,683  | 24.7                             | 3   | 8,959  | 29.5                             | 5   | 11,046   | 24.7                             |
| 100,000 to 1,000,000       | 6   | 1,419  | 5.2                              | 9   | 2,206  | 7.3                              | 17  | 5,404  | 12.1                             |
| Less than 100,000          | 28  | 584  | 2.2                              | 31  | 615  | 2.0                              | 26  | 826  | 1.9                              |
| <b>Communist Bloc</b>      | 3   | 3,432  | 12.7                             | 4   | 6,244  | 20.5                             | 5   | 14,467   | 32.4                             |
| Over 1,000,000             | 1   | 2,623  | 9.7                              | 2   | 6,209  | 20.4                             | 2   | 14,350   | 32.1                             |
| 100,000 to 1,000,000       | 1   | 807  | 3.0                              | -   | -  | -                                | -   | -  | -                                |
| Less than 100,000          | 1   | 2  | c                                | 2   | 35   | 0.1                              | 3   | 117  | 0.3                              |
| <b>Total Foreign</b>       | 39  | 12,118   | 44.8                             | 47  | 18,024   | 59.3                             | 53  | 31,743   | 71.1                             |
| <b>Total World</b>         | 40  | 27,051   | 100.0                            | 43  | 30,413   | 100.0                            | 54  | 44,643   | 100.0                            |

<sup>1</sup> Number of countries for which individual production estimates were reported.

<sup>2</sup> United States in running bales, foreign in bales of 478-pounds net weight.

<sup>3</sup> Less than .05 per cent.

Source: 1924-28: International Cotton Advisory Committee, *Cotton—World Statistics*, Quarterly Bulletin of ICAC (April, 1959), pp. 12-13.  
 1934-38: Ibid., (April, 1960), pp. 8-9.  
 1956-60: Ibid., (January, 1963), pp. 8-9.

**Table 7. Number of Countries and Distribution of Foreign Mill Consumption by Volume Classifications for Selected Periods**

| Volume Classification     | 1934-33                          |   |          | 1956-60                          |   |          |
|---------------------------|----------------------------------|---|----------|----------------------------------|---|----------|
|                           | Number of Countries <sup>1</sup> | Annual Consumption 1,000 Bales <sup>2</sup> | Per Cent | Number of Countries <sup>1</sup> | Annual Consumption 1,000 Bales <sup>2</sup> | Per Cent |
| <b>Foreign Free World</b> | 54                               | 15,600                                      | 67.4     | 66                               | 21,478                                      | 58.0     |
| Over 1,000,000            | 5                                | 11,410                                      | 49.3     | 7                                | 13,586                                      | 36.7     |
| 100,000 to 1,000,000      | 12                               | 3,294                                       | 14.2     | 20                               | 6,647                                       | 17.9     |
| Less than 100,000         | 37                               | 896   | 3.9      | 39                               | 1,245                                       | 3.4      |
| <b>Communist Bloc</b>     | 7                                | 7,555                                       | 32.6     | 9                                | 15,578                                      | 42.0     |
| Over 1,000,000            | 2                                | 6,658                                       | 28.8     | 2                                | 13,500                                      | 36.4     |
| 100,000 to 1,000,000      | 3                                | 762   | 3.3      | 6                                | 1,970                                       | 5.3      |
| Less than 100,000         | 2                                | 135   | 0.5      | 1                                | 108   | 0.3      |
| <b>Total Foreign</b>      | 61                               | 23,155                                      | 100.0    | 75                               | 37,056                                      | 100.0    |

<sup>1</sup> Countries for which individual estimates are given in the source.

<sup>2</sup> Bales of 478 pounds net weight.

Source: 1934-38: International Cotton Advisory Committee, *Cotton—World Statistics*, Quarterly Bulletin of ICAC (April, 1960), pp. 12-13.  
1956-60: *Ibid.*, (January, 1963), pp. 12-13.

**Table 8. Distribution of Gross Imports of Raw Cotton into Foreign Countries by Volume Classification and Selected Periods**

| Quantity Imported<br>Bales <sup>1</sup> | 1924-28                                     |                |          | 1934-38                                     |                |          | 1956-60                                     |                |          |
|---|---|----------------|----------|---|----------------|----------|---|----------------|----------|
|   | Number<br>of<br>Coun-<br>tries <sup>2</sup> | Imports        |          | Number<br>of<br>Coun-<br>tries <sup>2</sup> | Imports        |          | Number<br>of<br>Coun-<br>tries <sup>2</sup> | Imports        |          |
|   |   | 1,000<br>Bales | Per Cent |   | 1,000<br>Bales | Per Cent |   | 1,000<br>Bales | Per Cent |
| <b>Foreign Free World</b>               | 32  | 12,043         | 85.7     | 31  | 11,527         | 88.9     | 49  | 12,526         | 80.5     |
| Over 1,000,000                          | 5   | 10,094         | 71.8     | 4   | 8,408          | 64.8     | 4   | 7,168          | 46.0     |
| 100,000 to 1,000,000                    | 8   | 1,700          | 12.1     | 11  | 2,789          | 21.5     | 14  | 4,555          | 29.3     |
| Less than 100,000                       | 19  | 249            | 1.8      | 16  | 330            | 2.5      | 31  | 803            | 5.2      |
| <b>Communist Bloc</b>                   | 7   | 2,016          | 14.3     | 7   | 1,445          | 11.1     | 9   | 3,033          | 19.4     |
| 100,000 to 1,000,000                    | 4   | 1,950          | 13.9     | 5   | 1,353          | 10.4     | 8   | 2,993          | 19.2     |
| Less than 100,000                       | 3   | 66             | 0.4      | 2   | 92             | 0.7      | 1   | 40             | 0.3      |
| <b>Total Foreign</b>                    | 39  | 14,059         | 100.0    | 38  | 12,972         | 100.0    | 53  | 15,560         | 100.0    |

<sup>1</sup> Bales of 478 pounds net weight.

<sup>2</sup> Number of countries for which imports were reported separately.

Sources: 1924-28: International Cotton Advisory Committee, Cotton—World Statistics, Quarterly Bulletin of ICAC (April, 1959), pp. 42-43.  
 1934-38: Ibid., (April, 1960), pp. 18-19.  
 1956-60: Ibid., (January, 1963), pp. 16-17.

**Table 9. Imports of Raw Cotton, by Countries Importing More than 100,000 Bales in Selected Periods**

| Country                      | Annual Averages         |               |               |
|------------------------------|-------------------------|---------------|---------------|
|                              | 1924-28                 | 1934-38       | 1956-60       |
|                              | ----- 1,000 bales ----- |               |               |
| <b>Foreign Free World</b>    |                         |               |               |
| United Kingdom               | 3,197                   | 2,779         | 1,380         |
| Japan                        | 2,943                   | 3,313         | 2,946         |
| France                       | 1,467                   | 1,154         | 1,358         |
| Germany <sup>1</sup>         | 1,455                   | 1,162         | 1,484         |
| Italy                        | 1,032                   | 647           | 942           |
| Spain                        | 368                     | 176           | 275           |
| Belgium                      | 359                     | 354           | 431           |
| Canada                       | 274                     | 288           | 337           |
| India <sup>2</sup>           | 152                     | 415           | 576           |
| Netherlands                  | 152                     | 224           | 361           |
| Austria                      | 151                     | 175           | 120           |
| Switzerland                  | 141                     | 134           | 197           |
| Sweden                       | 103                     | 154           | 130           |
| Portugal                     |                         | 112           | 240           |
| South Korea                  |                         | 110           | 233           |
| Yugoslavia                   |                         |               | 191           |
| Hong Kong                    |                         |               | 365           |
| Taiwan                       |                         |               | 157           |
| <b>Communist Bloc</b>        |                         |               |               |
| U.S.S.R.                     | 570                     | 188           | 715           |
| China                        | 563                     | 352           | 295           |
| Czechoslovakia               | 546                     | 383           | 449           |
| Poland                       | 271                     | 323           | 529           |
| Hungary                      |                         | 107           | 237           |
| Eas <sup>3</sup> Germany     |                         |               | 450           |
| Rumania                      |                         |               | 211           |
| Bulgaria                     |                         |               | 111           |
| <b>Total Foreign Imports</b> | <b>14,059</b>           | <b>12,972</b> | <b>15,560</b> |

<sup>1</sup> West Germany only in 1956-60.

<sup>2</sup> India including Pakistan in 1924-28 and 1934-38.

Sources: 1924-28: International Cotton Advisory Committee, *Cotton—World Statistics*, Quarterly Bulletin of ICAC (April, 1959), pp. 42-43.  
 1934-38: Ibid., (April, 1960), pp. 18-19.  
 1956-60: Ibid., (January, 1963), pp. 16-17.

**Table 10. Gross Exports of Raw Cotton from the United States and Foreign Countries by Volume Classification for Selected Periods**

| Quantity Exported<br>Bales <sup>1</sup> | 1924-28                                     |                                     |                                  | 1934-38                                     |                                     |                                  | 1956-60                                     |                                     |                                  |
|---|---|-------------------------------------|----------------------------------|---|-------------------------------------|----------------------------------|---|-------------------------------------|----------------------------------|
|   | Number<br>of<br>Coun-<br>tries <sup>2</sup> | Annual<br>Exports<br>1,000<br>Bales | Per Cent<br>of<br>World<br>Total | Number<br>of<br>Coun-<br>tries <sup>2</sup> | Annual<br>Exports<br>1,000<br>Bales | Per Cent<br>of<br>World<br>Total | Number<br>of<br>Coun-<br>tries <sup>2</sup> | Annual<br>Exports<br>1,000<br>Bales | Per Cent<br>of<br>World<br>Total |
| <b>United States</b>                    | 1   | 8,514                               | 59.4                             | 1   | 5,027                               | 39.4                             | 1   | 5,984                               | 38.6                             |
| <b>Foreign Free World</b>               | 27  | 5,521                               | 38.5                             | 28  | 7,421                               | 58.3                             | 38  | 7,724                               | 49.8                             |
| Over 1,000,000                          | 2   | 4,450                               | 31.0                             | 3   | 5,557                               | 43.6                             | 2   | 2,885                               | 18.6                             |
| 100,000 to 1,000,000                    | 3   | 448                                 | 3.1                              | 6   | 1,256                               | 9.9                              | 17  | 4,406                               | 28.4                             |
| Less than 100,000                       | 22  | 623                                 | 4.4                              | 19  | 603                                 | 4.8                              | 19  | 433                                 | 2.8                              |
| <b>Communist Bloc</b>                   | 1   | 297                                 | 2.1                              | 2   | 295                                 | 2.3                              | 2   | 1,794                               | 11.6                             |
| <b>Total Foreign</b>                    | 28  | 5,818                               | 40.6                             | 30  | 7,716                               | 60.6                             | 40  | 9,518                               | 61.4                             |
| <b>Total World</b>                      | 29  | 14,332                              | 100.0                            | 31  | 12,743                              | 100.0                            | 41  | 15,502                              | 100.0                            |

<sup>1</sup> Bales of 478 pounds net weight.

<sup>2</sup> Number of countries for which exports were reported separately.

Source: 1924-28: International Cotton Advisory Committee, *Cotton—World Statistics*, Quarterly Bulletin of ICAC (April, 1959), p. 38.  
 1934-38: *Ibid.* (April, 1960), p. 17.  
 1956-60: *Ibid.* (January, 1963), pp. 18.

**Table 11. Exports of Raw Cotton by Countries Exporting More Than 100,000 Bales in Selected Periods**

| Country                   | Average Annual Exports     |         |         | Per Cent of World Exports |         |         |
|---------------------------|----------------------------|---------|---------|---------------------------|---------|---------|
|                           | 1924-28                    | 1934-38 | 1956-60 | 1924-28                   | 1934-38 | 1956-60 |
|                           | (1,000 bales) <sup>1</sup> |         |         | (per cent)                |         |         |
| <b>United States</b>      | 8,514                      | 5,027   | 5,984   | 59.4                      | 39.4    | 38.6    |
| <b>Foreign Free World</b> | 5,521                      | 7,421   | 7,724   | 38.5                      | 58.3    | 49.8    |
| India                     | 2,938                      | 2,746   | 245     | 20.5                      | 21.5    | 1.6     |
| Egypt                     | 1,512                      | 1,746   | 1,402   | 10.5                      | 13.7    | 9.0     |
| Brazil                    |                            | 1,065   | 397     |                           | 8.4     | 2.6     |
| Mexico                    |                            | 105     | 1,483   |                           | 0.8     | 9.6     |
| Peru                      | 214                        | 348     | 459     | 1.5                       | 2.7     | 3.0     |
| Sudan                     | 104                        | 257     | 486     | 0.7                       | 2.0     | 3.1     |
| Uganda                    | 130                        | 277     | 295     | 0.9                       | 2.2     | 1.9     |
| Argentine                 |                            | 133     |         |                           | 1.0     |         |
| Belgian Congo             |                            | 136     | 177     |                           | 1.1     | 1.1     |
| Turkey                    |                            |         | 273     |                           |         | 1.8     |
| French Eq. Africa         |                            |         | 170     |                           |         | 1.8     |
| El Salvador               |                            |         | 146     |                           |         | 0.9     |
| Nicarragua                |                            |         | 176     |                           |         | 1.1     |
| Greece                    |                            |         | 155     |                           |         | 1.0     |
| Iran                      |                            |         | 203     |                           |         | 1.3     |
| Pakistan                  |                            |         | 370     |                           |         | 2.4     |
| Syria                     |                            |         | 404     |                           |         | 2.6     |
| Nigeria                   |                            |         | 151     |                           |         | 1.0     |
| Tanganyika                |                            |         | 143     |                           |         | 0.9     |
| Mozambique                |                            |         | 156     |                           |         | 1.0     |
| <b>Communist Bloc</b>     | 297                        | 295     | 1,794   | 2.1                       | 2.3     | 11.6    |
| China                     | 297                        | 242     | 179     | 2.1                       | 1.9     | 1.2     |
| U.S.S.R.                  |                            |         | 1,610   |                           |         | 10.4    |
| <b>World Total</b>        | 14,332                     | 12,743  | 15,502  | 100.0                     | 100.0   | 100.0   |

<sup>1</sup> United States in running bales, others in bales of 478 pounds net weight.

Sources: 1924-28: International Cotton Advisory Committee, *Cotton—World Statistics*, Quarterly Bul. of ICAC (April, 1959), p. 38.  
 1934-38: Ibid. (April, 1960), p. 17.  
 1956-60: Ibid. (January, 1963), p. 18.

**Table 12. Mill Consumption of Cotton in Selected Foreign Countries, Five Year Averages for 1934-38 and 1956-60**

| Country                      | 1934-38       |                                 | 1956-60       |                                 |
|------------------------------|---------------|---------------------------------|---------------|---------------------------------|
|                              | 1,000 Bales   | Per Cent of Foreign Consumption | 1,000 Bales   | Per Cent of Foreign Consumption |
| <b>Nonproducers</b>          |               |                                 |               |                                 |
| Japan                        | 3,315         | 14.3                            | 2,814         | 7.6                             |
| United Kingdom               | 2,741         | 11.8                            | 1,375         | 3.7                             |
| France                       | 1,181         | 5.1                             | 1,345         | 3.6                             |
| Germany                      | 1,077         | 4.7                             | 1,438         | 3.9                             |
| Italy                        | 684           | 3.0                             | 936           | 2.5                             |
| <b>Total Six Countries</b>   | <b>8,998</b>  | <b>38.9</b>                     | <b>7,908</b>  | <b>21.3</b>                     |
| <b>Producers</b>             |               |                                 |               |                                 |
| India                        | 3,096         | 13.4                            | 4,475         | 12.1                            |
| China                        | 3,600         | 15.5                            | 7,580         | 20.5                            |
| U.S.S.R.                     | 3,058         | 13.2                            | 5,920         | 16.0                            |
| <b>Total Three Countries</b> | <b>9,754</b>  | <b>42.1</b>                     | <b>17,975</b> | <b>48.5</b>                     |
| <b>Total Eight Countries</b> | <b>18,752</b> | <b>81.0</b>                     | <b>25,883</b> | <b>69.8</b>                     |
| <b>Total Foreign</b>         | <b>23,155</b> | <b>100.0</b>                    | <b>37,056</b> | <b>100.0</b>                    |

Source: 1934-38: International Cotton Advisory Committee, Cotton—World Statistics, Quarterly Bulletin of ICAC (April, 1960), pp. 12-13.

1956-60: Ibid. (January, 1963), p. 12-13.

**Table 13. Cotton Production and Consumption in Selected Cotton Producing Countries, Annual Averages for 1934-38 and 1956-60**

| Country                          | Annual Averages |              |              |              |
|----------------------------------|-----------------|--------------|--------------|--------------|
|                                  | 1934-38         |              | 1956-60      |              |
|                                  | Production      | Consumption  | Production   | Consumption  |
| (1,000 Bales)                    |                 |              |              |              |
| Mexico                           | 302             | 227          | 2,020        | 483          |
| Brazil                           | 1,793           | 512          | 1,540        | 1,133        |
| Argentina                        | 254             | 113          | 540          | 520          |
| Columbia                         | 21              | 35           | 201          | 199          |
| Greece                           | 75              | 96           | 273          | 128          |
| Turkey                           | 240             | 97           | 774          | 510          |
| Egypt                            | 1,846           | 73           | 1,948        | 489          |
| <b>Total Seven Countries</b>     | <b>4,531</b>    | <b>1,153</b> | <b>7,296</b> | <b>3,462</b> |
| <b>Per Cent of Total Foreign</b> | <b>25.1</b>     | <b>5.0</b>   | <b>23.0</b>  | <b>9.3</b>   |

Source: 1934-38: International Cotton Advisory Committee, Cotton—World Statistics, Quarterly Bulletin of ICAC (April, 1960), pp. 8-9 and 12-13.

1956-60: Ibid. (January, 1963), p. 12-13.

**Table 14. Interwar (1934-38) to Postwar (1956-60) Changes in the Origin of World Exports by Selected Countries**

| Country            | 1934-38                  |   | 1956-60                  |   |
|--------------------|--------------------------|---|--------------------------|---|
|                    | Exports<br>(1,000 bales) | Per Cent of<br>World<br>Total<br>(per cent) | Exports<br>(1,000 bales) | Per Cent of<br>World<br>Total<br>(per cent) |
| United States      | 5,027                    | 39.4  | 5,984                    | 38.6  |
| India and Pakistan | 2,746                    | 21.5  | 615                      | 4.0   |
| Egypt              | 1,746                    | 13.7  | 1,402                    | 9.0   |
| Brazil             | 1,065                    | 8.4   | 397                      | 2.6   |
| Mexico             | 105                      | 0.8   | 1,483                    | 9.6   |
| U.S.S.R.           | 53                       | 0.4   | 1,510                    | 10.4  |
| Others             | 2,001                    | 15.8  | 4,011                    | 25.9  |
| <b>World Total</b> | <b>12,743</b>            | <b>100.0</b>                                | <b>15,502</b>            | <b>100.0</b>                                |

Source: 1934-38: International Cotton Advisory Committee, **Cotton—World Statistics**, Quarterly Bulletin of ICAC (April, 1960), pp. 16-17.

1956-60: *Ibid.*, (January, 1963), p. 18.