AMERICAN COTTON POLICY THROUGH THE THIRTIES

(A new approach to cotton price determination)

by

DR. Y. S. EL-MOLLA
Faculty of Commerce, Alexandria University.

I.

The "Commodity marketing" movement which began in the United States about 1922 laid great stress on equalization of market supplies throughout each season and from season to season by holding operations on the part of producers financed by the Government through co-operative organizations. The movement was carried further under the Agricultural Marketing Act of 1929, with its Federal Farm Board designed to promote national co-operative marketing organizations for the purpose of orderly marketing, facilitated by Farm Board Loans (1).

The chief efforts of the Farm Board during the first two years of its existence were devoted to attempts to uphold the price level of agricultural commodities. It attempted to support prices by lending up to 90 per cent of the market value of the agricultural crops. In many cases prices were sustained above their "natural" level, to fall again after stabilization purchases ceased.

In the cotton field, the holding operations of the Farm Board was attended with disastrous results. When cotton prices began to decline sharply in 1929 the Board offered to

---

(1) A special session of Congress in April, 1929, passed the Agricultural Marketing Act which was a compromise between the plans of the Administration and those of the McNary-Haugenites. This bill established a Farm Board which was to assist and unify co-operatives and lend them money.

T. NORMAN: *The Federal Farm Board*. Doctoral thesis. Harvard. 1939.

lend farmers, through the cotton co-operatives, roughly 16 cents per pound on their cotton. The following year it offered to lend roughly 10 cents per pound. But prices continued to decline, and the Board was left holding approximately 3.4 million bales of 1929 and 1930 crop cotton as security for its loan (2).

Prior to the passage of the Agricultural Adjustment Act, the Board had been able to sell only about a million bales of this cotton on the market and a large part of these sales were forced by a shortage of operating funds. The Agricultural Adjustment Act and amendments thereto sought to provide a satisfactory method of disposing of the remaining stock. The Adjustment Act was therefore expected to liquidate the lending and holding operations of the Farm Board and the Government agencies.

In the spring of 1933 cotton growers in the United States were faced with the prospect of a large carry-over of American cotton, a large 1933 crop, and a poor probability of a sufficient increase in demand in 1933-34 to raise farm prices of cotton materially, without Government assistance. The previous lines of Government activity in its cotton loan and marketing program proved, in the meantime, to be very ineffective and the aid was sought in some other measures devised to control production itself.

Government control over production has been the most significant feature of the cotton program. It was designed to adjust, as a long-run objective, cotton production to the current demand without impairing, and perhaps even while increasing

---

(2) The price of cotton fell below the 16 cent loan level, and the Board therefore did not sell the cotton received by the co-operatives in 1929-30. This cotton amounting to 1,300,000 bales, was taken over from the co-operatives in June, 1930, by the Cotton Stabilization Corporation. In the 1930-31 season the American Cotton Co-operative Association accumulated 2,100,000 bales. In 1931-32 Southern bankers, in agreement with the Board, withheld 3,100,000 bales.

Beginning in 1932, the Board began to dispose of its cotton; 800,000 bales of it were given to the Red Cross, the rest sold. The remainder in 1933 was turned over to farmers as payment for acreage reduction, and the last of this stock was not disposed of until 1937. *Ibid,* summary.

the capacity of the South to produce cotton in the future (3). The program was first affected under the Agricultural Adjustment Act, by the method of laying a tax on the first domestic processing of cotton and offering the money collected to cotton growers as rental or benefit payments if they would make specified reductions in their acreage of cotton. Since the program was adopted after the crop had been planted in 1933, farmers signing contracts the first year were required to plow up part of their cotton crop (4).

In 1934 and 1935, however, the Agricultural Adjustment Act requested farmers to keep land out of cotton production, rather than to plow it up. In 1934 farmers were offered a two-year contract in which the Secretary agreed to pay approximately 4.5 cents per pound of the estimated acreage yield on land kept out of cotton production, and the farmer agreed to réduce his 1934 cotton acreage 35 to 45 per cent below that in the base period (5).

On April 21, 1934, however, the Agricultural Adjustment Act was supplemented in so far as cotton was concerned by a new piece of legislation referred to as the Bankhead Act. Whereas the former legislation attempted through voluntary methods to give the Government effective control of the quantity of cotton produced, the Bankhead Act involved practically compulsory measures (6). The essential features of the Bank-

---

(3) The basic idea underlying the cotton program, as well as most of the Agricultural Adjustment Act, control program, was to raise prices by adjusting supply to demand and because "We want to sell at a living price, and produce only for a market that will buy at that price." HENRY WALLACE: *Address delivered at Salina*, Kansas, June, 1933.

(4) In 1933, farmers were offered benefit payments for plowing up from 25 to 50 per cent of their growing cotton area. For a detailed discussion of the 1933 plow-up program, see H. I. RICHARDS: *Cotton under the A. A. A.*, The Brookings Institution, Washington, D.C., 1936, pp. 5-15.

(5) A five year base, 1928-1932 was adopted for the establishment of acreage and production quotas.

(6) Agitation for some form of compulsory control of cotton production came, however, from "within", and not from the A.A.A. itself. At the time plans for the 1934-35 acreage reduction program were being formulated, the predominating demand of cotton growers at most meetings in the South was for compulsory control. See T. BUTLER: *Gin Control Up to Congress*, Progressive Farmer, Georgia, Alabama edition, February, 1934.

head Act were a large tax on the ginning of cotton and the issue of tax exemption certificates for the desired amount of cotton. These devices secured a reduction of cotton production by placing a heavy tax on the ginning of all cotton produced in excess of specified allotments made to individual growers. Thus, in 1935, contract signers were required to reduce their plantings and were issued certificates of exemption from the cotton ginning tax for about 64 per cent of their production during the same period.

The cotton reduction program, which got under way in June, 1933, was soon supplemented by a huge program of loans to cotton farmers. Undaunted by the Farm Board experience, the Government again offered to lend more than the market value on cotton in the fall of 1933 (7). In this year, where there was considerable expectation that the cotton program and other recovery measures would lead to a substantial advance in cotton prices, the Administration decided to lend cotton farmers 10 cents per pound on cotton produced in 1933, without liability for more than the cotton tendered as security for the loan. This was in order to enable the farmers to benefit from any increase in cotton prices resulting from further reductions in production or other factors. In 1934 and 1935 the lending program was continued and the amount advanced on cotton was increased to 12 cents per pound in 1934 and then reduced again to 10 cents per pound in 1935, with additional provision making it possible for farmers to receive 12 cents for cotton sold.

Both legislations, however, aimed principally at "the restoration of the cotton industry to a sound commercial basis by creating an effective balance between the production and consumption of cotton". The underlying philosophy of the A. A. A. was to the effect that this balance can only be brought about by reducing current production in order to reduce the supply of cotton "that is now depressing prices received by producers". See *Instructions and Regulations Pertaining to the Cotton Act of April, 1934*, A. A. A., Form No. B.A.19, July 14, 1934.

(7) Conditions, however, were different in each case. Farm Board Loans were made when prices were declining, in order to prevent a further decline. Moreover, the Farm Board had no power to control production, while on the other hand, powers to employ various measures to force cotton prices upward were embodied in the legislative measures which Congress had passed and placed in the hands of the A. A. Administration.

This lending program enabled farmers to carry over a larger amount of their own cotton and consequently tended to increase their immediate gain from a reduction in the amount of cotton produced. For, under those provisions, any increase in price resulting from reduction in production would then be received by farmers not only for their current crop but also for any cotton they had carried over.

These devices ceased, however, in 1936, following, the Supreme Court decision which invalidated the production control program. A short time after, Congress, on the request of the President, repealed the Bankhead Act. Appropriations were made for the payments due to farmers on such production adjustment contracts as had been negotiated or applied for before the Supreme Court decision.

Continuation of production control was provided for, however, by amending an earlier soil conservation act and the Agricultural Adjustment Act (8). Moreover, the adjustment program for cotton was furthermore supplemented by commodity loans program. The essence of these new measures was an attempt to hold surplus supplies of cotton and other commodities off the market (9). Subject to the approval of two-thirds of the producers voting, marketing quotas for commercial producers of cotton and some other agricultural commodities, backed by penalties on sales in excess of quotas (the principle of the Bankhead Act) might be established. The use of the marketing quota was designed for years of large crops : a producer's referendum could be taken only if supplies exceeded a designed level by amounts specified for each commodity. Loans might be obtained on the surplus. The Commodity Credit Corporation was authorized to make available loans on agricultural products on the security of the products

---

(8) The Soil Conservation and Domestic Allotment Act of 1936 authorized joint action by the Federal and State Governments to promote soil conservation and to re-establish the ratio of net incomes of farmers to those of non-farmers which prevailed during the five years 1909 to 1914; but since it would take time for State Legislatures to act, the Secretary was authorized to make payments in order to achieve these purposes, during 1936 and 1937, and this authorization was later extended to 1942.

(9) *Publication No. 430, 75th Congress,* Chapter 30, 3rd Session, H. R. 8505.

themselves, and was directed to make loans on cotton, wheat and maize when supplies rose above specified levels or prices fell below specified levels (10).

II.

Relative Changes in the Production and Consumption of Egyptian Cotton.

It is generally suggested that the successful efforts to support cotton prices and to control production in the United States had given encouragement to cotton growing outside the United States, and was largely responsible for the sharp drop in the share of the United States in world cotton exports ; a drop which continued throughout 1938-39 when United States cotton stocks were at enormously high levels.

It should be expected, *a priori*, that by as much as the United States loses on the foreign market, Egypt is likely to gain.

This proposition is, however, subject to some qualifications which must be given due weight. In the first place, Egypt is not the only producer of cotton besides the United States. There are at least 75 other cotton producing countries in the world. Egypt ranks only fourth in average among the cotton producing countries with an average share of 6 per cent in world cotton production and about 10 per cent in its exports.

In the second place, the greatest proportion of the quality of cotton (in staple-length) produced in the United States is quite different from that produced in Egypt. It is estimated that only five to six per cent of the United States cotton production (long-staple Upland) can be considered as directly competitive with the Egyptian short-staple cotton (Ashmouni-Zagora (11).

---

(10) Marketing quotas were applied for the 1938-39 cotton crop; the producers approving it by a majority of 92.1 per cent. Loans of 8.3 cents per pound were made on the crop.

(11) Long-staple cotton from $1\frac{1}{8}$ to $1\frac{3}{8}$ inches in staple length is produced in the United States, primarily in the Delta of the Mississippi, though a small quantity, amounting to about 14 per cent of the long-staple crops comes from North Carolina, California and Texas. During the years from 1930 to 1939 for which the data is available, the crop has varied between 450,000 and 850,000 bales, representing from 3.3 to 8 per cent of the total production of cotton

These considerations supported by the many other economic and political forces at work in the world which shape the course of foreign cotton production and trade are much too complex to justify the acceptance of the former proposition without a careful and searching examination.

It is known that the cotton market is a world market, and for many years the United States has produced more than half of the world's cotton. Usually, more than half of the United States cotton is exported and sold in competition with foreign cotton. Mills in Europe, Japan and a number of other countries have been accustomed to using large quantities of American cotton, along with foreign cotton.

In general, the proportion in which each is used depends to a large extent upon their relative prices. When the price of American cotton rises, relative to that of foreign cotton, a larger proportion of foreign cotton is likely to be used. There is, however, a certain amount of resistance to such shifts. Foreign cotion is not all of the same grade and staple, on the average, as American cotton. Furthermore, competitive processes over a period of years have caused mills to adjust their operations and equipment to the use of cotton of particular grade and staple, in the production of goods of established brands and standards (12). Consequently, when the supply of American cotton is decreased, relative to that of foreign cotton, mills bid up the price of American cotton relative to that of foreign cotton. But after adjustments have been made to a new set of supply conditions, there is also some resistance to changing them back to the old basis. In order to recover markets already lost because of reductions in supply, it would therefore be necessary to force prices of the losing cotton relatively very low in comparison with those of other cottons (13).

---

in the United States. Of this long-staple production, cotton measuring $1\frac{1}{8}$ to $1\frac{3}{16}$ inches has constituted from 70 to 87.3 per cent. the remainder ranging between $1\frac{3}{16}$ inches or over. *U.S. Dept. of Agriculture*, "The World Cotton Situation," Washington, 1939.

The whole cotton production of Egypt is above $1\frac{1}{8}$ inches in staple length, and the average production of Egypt for the same period (1930-1939) is about 1,700,000 bales.

(12) Richards: *Cotton and the A. A. A.*, p. 256.

(13) *Ibid*, p. 257.

On the other hand, adaptations have been made in spinning machinery and technique which have led to "an increasing flexibility in international trade in cotton" (14). Twenty years ago the cotton supply of the world was considered as sharply divided into three classes : Indian short-staple, American medium-staple and Egyptian long-staple, and the cotton milling industry was organized accordingly. Mills using medium-staple cotton had no alternative but to buy American cotton, even though a poor yield might make the price very high. But today more short-staple cotton is being used in clothing, and more medium-staple cotton is being used in tires and other industrial uses, formerly requiring long-staple. On the supply side, more of the American cotton is of shorter staple since production has pushed upward; India has increased the staple length of some of her cotton ; also, Egypt is growing more medium-staple cotton, and significant quantities of such cotton can be obtained in Argentine, Peru and other countries. Accordingly, the world cotton textile industry is not as much constrained as formerly (15). The demand for American cotton is more elastic than it was.

According to Messrs. J. H. Wright and F. Taylor, there are three chief factors determining the quality of cotton used by a mill ; namely, the product or products manufactured, relative prices of cotton of various staple lengths and the type of mill equipment used. These factors, singly or in combination, determine the degree or limits of flexibility in the quality of cotton that can be used successfully from the technological and economic standpoints (16).

The staple length of cotton used for a given product will depend primarily upon the yarn count, the strength, and other specifications desired in the yarn. For the important group of cotton products, generally referred to as mechanical fabrics or special fabrics, strength and durability are of primary

---

(14) Professor J. D. BLACK: "The Outlook for American Cotton", *Review of Economic Statistics*, March, 1935, pp. 68-78.

(15) *Ibid*, p. 74.

(16) J. H. WRIGHT, Senior Agricultural Economist, and FRED TAYLOR, Senior Cotton Technologist: "Mill Requirements in Relation to Cotton Quality Improvement", *U.S. Dept. of Agriculture*, Agricultural Marketing Service, Washington, D.C., March, 1941, p. 29.

consideration. For the general run of cotton products, the coarser and cheaper yarns and fabrics are produced from the short staples, whereas the finer yarns and fabrics require the use of the longer staples.

The equipment used in a mill may have a very definite bearing on the staple length of the cotton used for the products being manufactured. "For 'regular draft' equipment, mechanical adjustments are necessary especially on the drawing, roving and spinning frames, before a mill can change from cotton of one staple length to cotton of another staple length" (17). For example, in changing from a shorter to a longer staple, it is necessary to spread the alternating (drafting) rolls farther apart so as to manipulate the longer fiber. If this were not done, the use of the longer staple cotton would result in the production of so-called "corkscrew" or "cockled" yarn of inferior quality and value (18). On the other hand, the use of cotton of shorter staple would result in increased waste and an inferior and more irregular quality of yarn.

The mechanical adjustment necessary to change to a different staple length are somewhat expensive and usually will be made for the manufacture of a given product only on "what is believed to be a fairly permanent basis" (19).

The cotton textile industry, however, has made substantial progress in recent years in changing from "regular draft" equipment to equipment involving the "long draft" principle. The use of such equipment tends to facilitate the handling of cotton of greater variation in staple length and as a result, permits somewhat greater flexibility in the staple length of cotton used.

From the standpoint of relative prices of cotton of various staple lengths, the basic principle upon which cotton manufacturers determine the staple length of the cotton to be used for a given product is that of approximating an optimum length for that particular purpose (20). The optimum staple length

(17) *Ibid*, p. 34.

(18) *Ibid*, p. 34.

(19) *Ibid*, p. 35.

(20) Factors other than changes in relative prices may also cause changes in the staple length of cotton used in accordance

in any given case is one so adapted to the production of the product that if a shorter staple were used, increased manufacturing costs would more than offset the decreased cost of the cotton, or if a longer staple were used, the increased cost of raw cotton would more than counterbalance the reduction in manufacturing costs.

As a rule, once the production of a mill is organized satisfactorily, the management is reluctant to make changes in the quality of raw cotton used, since such changes usually necessitate the resetting of machinery and often result temporarily in unsatisfactory production while the mill operations are getting accustomed to the new type of cotton. Furthermore, when a change to a different cotton results in improvement in the quality of the manufactured product, customers insist on the maintenance of that quality. Under such circumstances, changes are made only when there is prospect of continuing the use of the new type of cotton on a relatively permanent basis (21).

During the first two seasons following the beginning of loan and production control activities in the United States, world consumption of cotton has averaged a million bales a year more than in 1932-33, but consumption of American cotton

---

with the above-stated principle. For example, increases in labor costs resulting from shorter hours or higher wages should tend to make it profitable for mills to use longer staple cotton. Developments or changes in machinery such as long-draft spinning equipment may make it advantageous for mills to use longer cotton. "Differences in these factors, and in the inertia of mills to changes of this type, make it difficult to measure the extent to which changes in staple-length are made as premiums for staple-length change." R. WHITAKER: "Trends in the Quality of Cotton Consumed", pp. 4-5.

(21) According to Mr. WHITAKER, "The typical cotton mill appears not to deem it advisable to operate its establishment as a particularly flexible organization, and once a mill gets production organized satisfactorily, the management is ordinarily reluctant to make changes in the *quality* of raw cotton used, although such changes are made from time to time. Such changes usually necessitate the resetting of machinery, and often result temporarily in poor running work and lower production which increases unit costs of processing. For that reason they are not likely to be carried out except on what is believed to be a fairly permanent basis." *Ibid.* p. 5 (Underlining is mine.)

The above views represent, generally speaking, the commonly accepted opinion among cotton technologists and experts regarding the possibility of substitution of one cotton variety to another.

has decreased while consumption of foreign cotton has increased substantially. During 1933-34, the first year of the program, consumption of American cotton dropped 0.6 million bales below that of the preceding year, while consumption of foreign cotton increased 1.4 million bales (22). Then in 1934-35 world consumption of American cotton dropped 2.8 million bales, or 20 per cent below 1932-33, while consumption of foreign cotton rose 4.2 million bales, an increase of 41 per cent above 1932-33 level.

In the meantime exports of other countries (other than United States) have increased : in the six months ending January, 1935, those of India increased by 40 per cent, compared with the corresponding period a year earlier, and those of Brazil have increased much more. This tremendous increase in other countries' exports and the relative decrease in the United States' exports was feared to threaten the United States' prospects in the world cotton market. As Professor J. Black has pointed out, "Granted no obstacles to further expansion abroad, such a process if continued could well take us largely out of the foreign market in ten years" (23).

As to the five pre-war years as a whole, mill consumption of all cottons in foreign countries has averaged higher than in any earlier period. Consumption reached an all-time peak in 1936-37 of nearly 23 million bales, which was approximately a fifth larger than in the five years ending 1929-30, and 50 per cent higher than the average from 1920-21 to 1924-25.

Consumption of United States cotton for these five seasons was, however, more than two million bales smaller than from 1930-31 to 1933-34, approximately 2,750,000 bales less than the average for the last half of the 1920's, a million bales below the level of the boll weevil years, and nearly four million bales less than the average for the two seasons 1911-12 and 1912-13 (24). This indicates that the spread (25) between total utilization of

---

(22) Richards: *Cotton and the A. A. A.*, p. 257.

(23) *Op. cit.*, p. 76.

(24) B. S. White: "The Shrinking Foreign Market for U.S. Cotton", *Quarterly Journal of Economics*, Feb., 1940, p. 256.

(25) Normally, the percentage of American cotton supplies consumed each year is about equal to the percentage of foreign cotton used. From 1924-25 to 1928-29, the percentages of world

all cotton and consumption of American cotton by mills in foreign countries, has enormously widened. Consumption of foreign cotton in the five seasons 1934-35 to 1938-39 averaged more than five million bales larger than in the depression period, six million more than in the late 1920's, and was twice as large as from 1920-21 to 1924-25 (26).

The increase in the production and consumption of foreign cotton (other than the United States) was not divided, however, evenly among the other cotton producing countries. As we mentioned before, countries which benefited most were those in which cotton plantations were recently developing. So while Egyptian production and consumption in the six years from 1933-34 to 1938-39 had averaged about 1,700,000 bales, in comparison with the 1923-24 to 1932-33 average of 1,480,000 bales, an increase of about 21 per cent, and Indian production had increased by about 11 per cent, the increase in the production and consumption of sundry growths had amounted to about 106 per cent over the 1923-24 to 1932-33 average. As a matter of fact, Brazil has made the greatest relative gain, from the prevailing cotton situation, in comparison with all other cotton producing countries. Average production in this country increased from 482,000 bales in 1923-24 to 1932-33 to

---

supplies of foreign and American cotton consumed each year were approximately the same. Furthermore, during the entire period 1920-21 to 1929-30 a similar relationship existed, except for small variations that may have been caused by annual variations in the relative size of American and foreign supplies.

Since 1928-29, however, the percentage of world supplies of American cotton consumed each year has been considerably lower than for foreign cotton. From 1929-30 to 1934-35 inclusive, the average for American was 55.3, as compared with 68.8 for foreign cotton. On the other hand, the share of the United States in world cotton acreage dropped from 47 per cent in 1929-33 to 35 per cent in the next three years, and in world production from 56 to 40 per cent. Of the 28,465,000 bales of cotton consumed in 1938-39, 11,265,000 bales consisted of American growths and 17,200,000 bales, or 60 per cent, consisted of non-American growths. The proportions between American and non-American growths have shown almost a complete reversal of the situation in the period from 1923 to 1933. Of the average consumption of 23,868,000 bales during this period, American growths comprised 13,578,000 bales, or 57 per cent, and non-American growths 11,290,000 bales or 43 per cent. *U.S. Dept. of Agriculture*, "World Cotton Situation", Washington, D.C., 1939 and RICHARDS: *Cotton and the A. A. A.*, p. 257.

(26) *Op. cit.*, p. 257.

1,635,000 bales in the period from 1933-34 to 1938-39, that is, an increase of more than 200 per cent.

The relative increase in the production and consumption of foreign cotton, *i.e.* the relative gain of the other cotton producing countries at the expense of the United States, is accounted for partly by loan and production control activities which have taken place in the United States since the early thirties, and partly by some other factors which would have caused a relative decline in the United States' share of the foreign market for cotton, even if these programs had not been carried out.

The first effect of these policies, and by far the most important factor in the situation was a general rise in the ratio of United States cotton price to other cottons. As pointed out before, in 1930-31, the Federal Farm Board, by means, first, of a program of loans on cotton above the market price and later, by financing a Cotton Stabilization Corporation, and by advances to the cotton co-operatives, again at more than the market price, set the price of the American cotton so far above the price of Indian cotton, and so out of line with the usual relationship to Egyptian and other cotton. The average ratio of prices of Indian to American cotton in Liverpool was about 81 before the cotton program in the United States had taken place ; the ratios in 1929-30 and 1930-31 were 69.5 and 72.7, respectively. By February, 1934, after the Agricultural Adjustment Act had worked out its cotton option and ten cent loan plan, the ratio had fallen to 72 and it had ranged between 65 and 78 since the twelve cent loan was announced (27). On the other hand, the premium of Egyptien Uppers cotton over the American Middling had fallen from about 26.8 per cent (the average for the ten years 1920 to 1929) to about 18.6 for the four years average 1930 to 1933. It was 8.8 only in 1934-35, 14.8 in 1935-36, 19.0 in 1936-37, 26.7 in 1937-38 and 16.5 in 1938-39 (28).

Thus, if we allow a certain degree of substitution between

(27) J. BLACK, "The Outlook for American Cotton", p. 75.

(28) Average spot price of Egyptian Uppers, Fully Good Fair, as a percentage of American Middling Fair Staple, Liverpool, by months, 1906-38. *U.S. Dept. of Agriculture*, "World Cotton Situation", 1939, Table on p. 95.

American cotton and the other cottons, and there are reasons to believe so, it is very reasonable to expect a shift from American cotton to other cottons whenever the price of the former gets out of line with the normal relationship to other cottons.

To many American agricultural economists (29), exports and foreign consumption of American cotton are affected by a variety of conditions, "the most important of which is the relation between prices of American cotton and foreign growths (30). "The bulk of the short-staple cotton of India and other countries always has sold at lower prices than the bulk of American cotton, while Egyptian cotton brings relatively high prices. As these price relationships change, the consumption of American cotton, by foreign mills changes, thereby affecting our exports." "If the price premium of American over Indian cotton decreases, the world mill consumption of American cotton in relation to Indian cotton tends to increase" (31).

Moreover, the production control programs in the United States, beginning in 1933, coupled with expanded production in other countries and "aggravated by the partly 'artificial' price situation created by our cotton loan policy, served to bring about unusually large premiums for American over other cotton in foreign markets, thereby decreasing exports of cotton from the United States" (32).

As a matter of fact, both central and western Continental European countries shift their consumption between American and foreign cottons, depending, apparently, upon which is the cheapest. In 1923-24, for example, when American cotton sold at 8½ cents a pound over Indian cotton at Liverpool, these

---

(29) According to the U.S. Bureau of Agricultural Economics, for instance, "the world consumption of American cotton insofar as it is affected by consumption in foreign countries will depend to a considerable degree upon the availability and price of American cotton relative to supply and price of foreign cotton.» "...shows the very close interrelationship which has existed during the last 15 years between the rates of prices, exports, supply and consumption of American to all kinds of cotton." *U.S. Bureau of Agricultural Economics:* "The Cotton Situation", November, 1936, p. 3.

(30) F. L. THOMSEN: *Agricultural Prices*, New York, 1936, p. 454.

(31) *Ibid.*

(32) *Ibid*, p. 455.

countries used only three times as much American as Indian, but in 1926-27, when the price for American was only 2½ cents over the price for Indian, they used nearly six and a half times as much. In addition to using more of the cheaper cotton they purchased more of it for future use, so that the effect of the relative prices can be seen the following year as well (33).

We may conclude, therefore, that part of the relative increase in the consumption of foreign cotton and the reduced share of the foreign market for American cotton must be attributed to this factor alone. The magnitude of this change cannot be estimated quantitatively, but it is very clear that it depends on the marginal elasticity of substitution, or, in other words, the ease with which the American cotton can be replaced by other varieties.

There have been, however, certain long-time tendencies and other concurrent developments the influences of which must be examined if a balanced appraisal is to be made of the effect of American cotton program and policies on the United States' reduced share of the foreign market for cotton.

"If we examine these influences closely, country by country, we can see fairly clearly that the sharp reduction in our share of the foreign cotton market... was due in large degree to factors other than the relatively high prices of American cotton" (34).

Since the beginning of the First World War, and especially since 1929, the cotton textile industries of recently industrialized countries in the Orient, and to a lesser extent

(33) *Op. cit.*, p. 19.

(34) The response of foreign cotton acreage to the price of American cotton has been different in almost every country, with some countries showing no apparent response to the drop in price from around 30 cents in 1923 to less than 5 cents in 1932. The total acreage in cotton in the four countries, China, Russia, Brazil and Uganda, increased almost continuously from 1921 to 1927, this in spite of the fact that between 1923 and 1926 the world price of American cotton was reduced by more than 50 per cent. After 1927 the total acreage in the four mentioned countries continued to expand but at a more rapid rate, with practically no check through 1937, this is in spite of the decline in the world price of American cotton of 66 per cent between 1928 and 1932. L. H. BEAN: "Changing Trends in Cotton Production and Consumption", *Southern Economic Journal*, April, 1939, p. 455.

other areas, have expanded their output of coarse and medium quality goods so rapidly as to result in a very sharp contraction of cotton textile exports from Western Europe, especially from England, whose mills, until recently, consumed more American cotton than those of any other foreign country. The newly developed cotton manufacturing industries made use of the short staple Oriental cottons principally, and processes and practices were adapted to their use. This shift in the centers of cotton manufacturing has tended to increase the demand for domestically produced cotton and especially the short-staple Oriental cottons relative to the demand for American cotton (35).

At the same time that certain economic forces, in many cases reinforced by nationalistic measures, were stimulating cotton consumption in newly industrialized areas, using relatively large quantities of foreign cotton, at the expense of Western Europe where American cotton had always been predominantly used, certain other influences unfavourable to the demand for American cotton were operating in Europe. Among these has been a desire to develop cotton growing in and to purchase cotton from countries other than the United States in order that the world supply of cotton from season to season would not fluctuate so sharply in response to variations in the size of the United States crop. Another force has been the desire to develop reciprocal and bilateral trade, and this tendency was particularly clear in most of the Empire countries, especially England.

While the production of foreign growths was expanding (because of the above-mentioned factors) and the cotton production of the United States has been tending to decline,

---

(35) B. S. White: *American Cotton in Foreign Markets*, Doctoral Dissertation, 1939 (Summary).

The same viewpoint has been expressed by Dr. Youngblood who noticed that, "In recent times considerable headway has been made by countries which formerly secured supplies of textile from Great Britain, the United States and other spinning countries, toward setting up spindles and spinning their own. When a country first engages in spinning, it starts with the manufacture of the coarser yarns and cloths. The gradual spread of spindles to countries which formerly did not spin, therefore, has tended to enhance, for the time being, the demand for shorter staples." B. Youngblood: *The Quality of Cotton and Market Demand*, Address at the Meeting of the Southern Agricultural Workers, Houston, Texas, February 7, 1929.

there has come an increased production and consumption of other textile fibers. The most important of these from the standpoint of increased competition with cotton is rayon. The production of this synthetic fiber has been expanding widely, as we mentioned before, in all industrial countries, but it has directly replaced American cotton to an important degree chiefly in Germany and Italy.

Moreover, the foreign demand for American cotton has been adversely affected and a tendency exerted to increase the consumption and production of foreign cotton at the expense of America by the high protective tariff of the United States which has impaired the ability of foreign countries to pay for American cotton.

The net result of the above-mentioned factors (36), apart from any loan or cotton restriction policies would have been a reduction in the foreign demand for American cotton and a very significant contraction in the share of the United States in the foreign market for cotton.

As far as the situation of Egyptian cotton is concerned, it is my belief that world's consumption of Egyptian cotton must have increased, on account of the loan and production restrictions alone which have taken place in the United States during that period. As long as we admit a certain degree of substitution between the American and the Egyptian cotton, the consumption of Egyptian cotton tends to increase, other things being equal, at the expense of American cotton whenever a change in the ratio of prices (or premiums) favors the use of Egyptian cotton. With the ratio of prices considerably out of line with the normal relationship it could be safely said that the consumption of Egyptian cotton was higher than it could have been, had the American cotton program been non-existent.

---

(36) One of the long-run tendencies which must be mentioned in this connection and has bearing on the Egyptian situation has been the marked shift of cotton producers in Egypt toward Uppers and Medium-staple cotton away from the low yielding, long-staple varieties. This shift would have increased, by itself, the relative share of Egypt in the world's cotton production and consumption. Moreover, the Egyptian Government had rejected the restriction policy in cotton production since 1930. This decision was only delayed temporarily in the three depression years, 1931, 1932 and 1933, but cotton production in Egypt has already been sought to take an upward movement.

The increase in the consumption of Egyptian cotton on account of the American cotton program alone, is likely to be, however, very limited, and I do not think it could be responsible for more than 25 per cent of the total increase in Egyptian cotton consumption, estimated at 21 per cent during this period. This opinion is based on two considerations.

In the first place, the marginal elasticity of substitution, on account of the difference in staple length, between the American and Egyptian cotton is likely to be very low, while it tends to be higher in the case of other cottons. As Mr. Wright has pointed out (37) the mechanical adjustment necessary to change to a *different staple* length is rather expensive and the manufacturers of a given product are usually reluctant to make changes in the quality of cotton used, except on what is believed to be a fairly permanent basis. So while manufacturers may find it advisable to shift to the use of Indian or Brazilian cotton, which is of the same staple length as the American, whenever the price ratio favors that shift, the use of the Egyptian cotton may involve them in a new resetting of machinery and some other expensive mechanical adjustments.

In the second place, the foreign market for the United States long-staple Upland ($1\frac{1}{8}$ inches and longer) is by its very nature a very limited market, taking into consideration the total production of the United States of this variety which has never exceeded 50 per cent of the total Egyptian cotton production (38). Therefore, the gain of the Egyptian cotton on account of the contraction in the production of the United States long-staple

---

(37) See above.

(38) The average production of American Upland long-staple cotton was estimated at 684,500 bales in the pre-cotton program years, and it was 743,900 bales in the years which followed the price stabilizing and production restriction operations (for 1930 to 1938). According to these estimates, there was no decrease in the production of this variety; on the contrary, there was a slight increase.

The available data gives, on the other hand, an average of 119,000 bales for United States cotton exports of the long-stable Upland from 1930 to 1938. No data is available for the years before 1930, for specified exports according to staple length.

These estimates are based on some figures obtained from *Reports of the Bureau of Foreign and Domestic Commerce*, Washington, D.C.

Upland, or on account of a relative rise in its price is likely to be also relatively very small, and chiefly restricted to the field in which competition between long-staple American Upland and short-staple Egyptian Uppers prevails.

Thus, I am inclined to believe with Mr. Bean that "In general... it is the course of industrial activity rather than the price which is the predominant factor in consumption and too great a preoccupation with price may blind us to this more important determinant of..... consumption" (39).

This latter factor (the course of industrial activity) is, in my opinion, considerably responsible, as far as Egyptian cotton is concerned, at least, for the noticeable increase which has taken place in the production, consumption and exports of Egyptian cotton following the recovery of the 30's.

III.

Price Differentials.

Before we proceed to examine the probable effect of the American cotton program on the relative and absolute price of Egyptian cotton, there are some important facts to be re-called in this connection.

1.—Based on staple length, there are three only partially competing groups of cotton. The first is short cotton, with a staple under ⅞-inch, used in making the coarser grades of cotton goods. The bulk of the supply of short cotton comes from India and China. The second group, based on staple length, is composed of the medium length cotton from ⅞ to 1⅛-inches. Most of the world supply of this length, which is used for many purposes, in past years has come from the United States. Recently, increased competition in the production of this staple length has come from Brazil, and to a limited extent, from Egypt and other countries. The third group, cotton 1⅛ inch or more in length, usually called staple length ; Egypt, South America and the United States produce most of this cotton.

Cotton production in the United States is distributed among these three groups approximately as follows : short cotton 13

(39) *Op. cit.*, p. 447.

per cent, medium length 82 per cent, staple cotton 5 per cent (40). The whole cotton production in Egypt belongs to the third group. Over one-half of the Egyptian crop for the past twenty years has been of a staple running from $1\frac{1}{16}$ to $1\frac{1}{4}$-inches in staple length. This is the cotton which competes directly with American Delta long-staple cotton. The rest runs from $1\frac{1}{4}$-inches in length to over $1\frac{5}{8}$-inches. The United States production of this variety is only a very minor fraction of the Egyptian production. The United States production of Pima ($1\frac{3}{8}$ to $1\frac{5}{8}$-inches) was one time as low as 4,000 bales. It never exceeded 37,000 bales since the first World War, and it averaged 14,900 bales from 1930-31 to 1936-37.

2.—The reduction in production which the United States has been able to realize, through cotton control measures has been far more than offset by increases in production outside the United States. Production in the United States has averaged for the six years from 1933-34 to 1938-39, 13 per cent less than the average for the preceding 10 years, while production outside the United States was 54 per cent higher for the same period. Egypt's contribution, however, was very modest and the maximum annual increase for the Egyptian cotton production for the post-years cotton program in the United States had probably never exceeded 300,000 bales.

3.—Substitution of one staple length to another is a rather expensive process, and spinners are likely to refrain from carrying it out except on what is considered to be a permanent basis. The shift from one cotton to another of the same staple length (though probably of a different grade) is, however, much less expensive and the manufacturers of a given product will not hesitate to substitute one cotton for another, even on a temporary basis, if and whenever price changes permit.

This fact has been repeatedly emphasized and put forward by the United States cotton technologists :

> "The cotton consumed by a given mill does not vary much in length of staple. It may or may not vary in grade. There is considerable evidence that mills producing trade-marke goods, wherein uniformity of product is of utmost importance, are definitely restricted as to both grade and

(40) F. L. THOMSEN: *Agricultural Prices*. New York. 1936.

> staple of cotton used. Mills that regularly produce certain classes of non-trademarked goods, but for which specifications as to strength and finish are rather rigid, require cotton quite uniform in staple length. A mill is designed usually to handle a certain range of yarn numbers, and this fact also precludes much variation in the length of staple of the cotton used. The manager whose mill is running smoothly on a certain type of cotton is disinclined to change to another type.
>
> "Although mills are rather restricted as to the length of cotton fiber to be spun, there is some latitude as to grade. Some mills may use a higher grade if they can buy it at or near the price of their customary grade" (41).

4.—While annual or shorter time changes in the supply of and demand for any one of the three mentioned groups of cotton affects the prices of the other groups, the more important effect is upon the premiums or discounts above or below "basis", or the price of $\frac{7}{8}$-inch cotton for the particular kind of cotton concerned. However, over longer periods of time, increases in the production of or demand for any one of these kinds of cotton would tend to cause shifts in the type of mill equipment and consumption of different types of cotton yarns and hence would be reflected to a greater extent in the general price level for all lengths of cotton.

In general, it may be said that the premiums and discounts for cotton of staples longer and shorter, respectively, than cotton of $\frac{7}{8}$-inch, tend to decrease both absolutely and relatively when the general level of cotton prices is low and to increase when cotton prices are high (42).

5.—There was a definite rise in the relative and probably in the absolute prices of American cotton in comparison with other cottons. Tables 1 and 2 are illustrative :

Since 1930 and particularly after 1933-34 the premiums of Egyptian (Sakel and Uppers) over American have declined, while the discounts of Indian have risen.

---

(41) U.S. Dept. of Agriculture, "Domestic Mill Consumption of American Cotton by Grades and Staples". *A Preliminary Report*, Washington, February, 1928, pp. 6-7.

(42) F. L. Thomsen: "Agricultural Prices", p. 452.

TABLE 1.

SPOT PRICES PER POUND OF COTTON OF SPECIFIED GROWTHS (1)

LIVERPOOL, SEASONAL AVERAGES.

Year	AMERICAN Middling	EGYPTIAN Fully Good Fair		INDIAN Oomra 1
	cents	Sakel cents	Upprs cents	Per cent
1920	19.73	45.72	28.20	14.14
21	20.19	33.97	26.63	16.71
22	28.70	32.99	29.96	21.26
23	32.99	39.35	38.19	24.37
24	27.09	58.76	38.30	23.49
25	21.82	40.47	29.14	18.15
26	16.57	31.20	23.55	14.58
27	22.65	39.38	29.71	18.66
28	21.36	36.83	24.57	16.30
29	18.44	29.44	21.25	12.95
Average	22.95	38.81	28.95	18.06
1930	11.61	18.42	13.95	8.17
31	7.54	10.69	8.93	6.76
32	8.52	11.77	10.61	7.29
33	12.47	16.73	13.77	9.35
34	14.24	17.49	15.49	10.78
35	13.50	18.99	15.49	10.78
37	14.62	22.19	17.40	10.87
36	10.31	17.06	13.10	7.96
38	10.15	—	11.80	7.14

(1) Average of monthly averages, U.S. Dept. of Agriculture, "World Cotton Situation", Washington, 1939, p. 65, compiled from market reports of the Liverpool Cotton Association.

The problem of estimating the probable effect of the American cotton program on the price of Egyptian cotton could be approached squarely by means of some mathematical formulae. Among the many factors which are taken to determine the price of cotton, an estimation could perhaps be made of the net effect of any given factor or a group of factors which in combination with other factors, under a given market set up, determine the price of cotton.

TABLE 2.

AVERAGE SPOT PRICE OF EGYPTIAN AND INDIAN COTTON AS A PERCENTAGE OF AMERICAN MIDDLING, LIVERPOOL MONTHLY (1) AVERAGES.

Year	EGYPTIAN		INDIAN
	Sakel Per cent	Uppers Per cent	Oomra 1 cents
1920	232.4	139.7	73.6
21	168.8	132.4	82.8
22	115.1	104.6	74.4
23	119.4	116.0	73.8
24	216.0	141.4	86.9
25	185.5	133.1	83.0
26	188.4	143.5	88.2
27	173.9	131.3	82.4
28	172.5	115.0	76.3
29	159.7	115.7	69.7
Average	173.1	127.1	79.1
1930	158.7	119.9	71.0
31	141.1	118.5	89.5
32	138.7	125.2	86.1
33	134.1	110.8	75.3
34	122.8	108.8	75.8
35	140.6	114.8	80.0
36	151.9	119.0	74.4
37	165.6	126.7	77.1
38	143.4	116.5	70.4

(1) Ibid, pp. 95-96, computed from data compiled from market reports of the Liverpool Cotton Association.

The type of the methods employed in this respect, and their use in the problem at hand, could perhaps, be understood better by referring here briefly to some of the studies carried out in this connection. Professor C. Bresciani-Turroni, in his interesting paper "Relations between the Crop and Price of Egyptian Cotton" (43), reduced the price-determining factors of

The equation given was:

(43) C. BRESCIANI-TURRONI: "Relations entre la Récolte et le Prix du Coton Egyptien", *L'Egypte Contemporaine*, Cairo, December, 1930.

the Egyptian cotton to three factors: the time factor, the average price of American cotton and the Egyptian crop, making use of the multiple correlation analysis, he found that the price of Egyptian cotton (the dependent factor) was governed by changes in some or all of these three independent factors.

This method is obviously, barring for the time being, any objections to it, of very little use to our purpose here. Limiting the independent variables to such a small number, precludes the possibility of estimating the net effect of the supply conditions alone (cotton production in the United States) or the net effect of these conditions plus the holding operations (loans and stabilizing operations) on the price of Egyptian cotton, the very problem we are seeking to solve. Moreover, the equation used offers, obviously, a poor solution to the Egyptian cotton price determination in general, because it is generally understood that the more the price determining factors (independent variables) are reduced in number (44), the more facts underlying the price determination are hidden and the less the conclusions derived therefrom are correct.

Another interesting study in this connection was made by Professor F. L. Thomson in his book *Agricultural Prices*. The method used was not, generally speaking, different from that employed by Professor Bresciani-Turroni, except, perhaps, that the price determination sought in the first study was that of Egyptian cotton while in Professor Thomson's study it was the

---

$$P = 1{,}888 + 0{,}1133\ T + 0{,}2077\ A - 0{,}92\ R$$

(P=price, T=time factor, A indicates the average price of American cotton; R indicates the Egyptian crop in millions of cantars). T represents the general rise in the price of Egyptian cotton, independent of any influence exerted by the crop. One of these influences, for instance, was the general rise in prices which took place at the end of the last century.

His conclusions were the following. "Nous pouvons en conclure que les facteurs des prix du coton égyptien ont été dans la période considérée (1890-1913) les suivants: *(a)* les causes qui ont provoqué un mouvement général d'augmentation; *(b)* les fluctuations du prix Américain; *(c)* les variations de la récolte égyptienne.

(44) It must be said, however, that by introducing the price of American cotton as an independent factor, Professor B. Turroni has included indirectly probably all the factors which bear weight on the problem in his equation. But that boils down, on the other hand, to saying that the price of Egyptian cotton is determined by the price of American cotton, and this clearly still offers vague explanation to the problem.

American cotton. According to his analysis, a large proportion of the annual fluctuations in American cotton prices (from 1915 to 1932) were associated with changes in the three supply and demand factors used, namely : (1) production and carry-over of cotton in the United States : (2) index numbers of wholesale prices of all commodities and (3) net exports of cotton (45).

The use of these variables, if employed in the case of Egyptian cotton still would not disclose by themselves the specific influences we are seeking. If we add some of Professor Bresciani-Turroni's variables to these (variations in the Egyptian cotton crop, for instance), the picture might become clearer, but still the number of variables would be too few to secure a sufficient explanation for the price determination.

Dr. B. B. Smith's study (46) is believed to be, as far as the number of variables is concerned, comparatively more adequate to our purpose :

> "In analyzing the monthly fluctuations in cotton prices it was found desirable for the sake of completeness to take into account more factors than were used to explain the rather simple relationship between prices and supply. According to economic theory, price results from the balancing of demand and supply. Demand and supply are each made up of numerous factors of varying importance..... Numerous factors of demand and supply have an influence upon the price of cotton, but it is not possible, nor in fact, necessary, to take all factors into account" (47).

According to his view about 90 per cent of the variations in monthly prices of cotton over the twenty years considered (1903-1924) can be explained by factors represented in eight series of data. The series which were selected, classified as to whether they were considerd as demand or supply factors, were presented as follows :

1.—Supply factors :

(a) The indicated, or actual, supply of cotton in the United States at the beginning of the month :

---

(45) *Op. cit.*, p. 453.

(46) B. B. SMITH: "Factors Affecting the Price of Cotton", *U.S. Dept. of Agriculture, Technical Bulletin No. 50*, Jan., 1928.

(47) *Ibid.*

(b) The "potential" supply, or estimated size of the crop.

2.—Demand Factors :

(a) Those relating to consumption :

(i) Accumulated domestic consumption by months;

(ii) Accumulated exports, for foreign consumption, by months.

(b) Relating to business conditions :

(i) Accumulated rates of change in general price level ;

(ii) Average price of industrial stocks.

3.—General :

(a) Series representing the years from 1903 to 1924 and indicating yearly changes, or "trend" in demand and other trend factors :

(b) Series representing the months of the crop year, beginning June, and indicating seasonal changes not otherwise taken care of.

In his detailed analysis an attempt was made by methods of multiple curvilinear correlation to measure the relation of the monthly world price at New Orleans to these factors. The two factors of supply (actual and potential) and the four factors representing demand (domestic consumption, exports, industrial stock prices, commodity prices and changes in the annual and seasonal demand for cotton) when taken together over the period of twenty years, "explain practically all the monthly fluctuations in the price of cotton (48).

The supply factors were found to be responsible for about 39 per cent of this amount ; the factor representing the long-time growth in demand was responsible for 26 per cent, while the more variable demand factors were responsible for 25 per cent of the change in prices.

In a similar manner, and by adding some more variables to those used by Smith, one can probably make an estimation of the net effect of the changes in American cotton supply

(48) *Ibid*, p. 17.

conditions on the price of Egyptian cotton. The cotton program included, however, as we mentioned before, some measures other than production restrictions (loans and holding operations), the effect of which can hardly be measured mathematically, nor could they be dealt with separately.

Such methods are, however, unfortunately very questionable on many grounds (49). In the first place, the use of statistically derived relationships involve many arbitrary operations ; the choice of the data employed, the independent variables chosen and the fitting and shape of regression lines used. Moreover, the possible existing of multicolinearity and the presumable underlying inter-relationship between some or all of the assumed independent variables, reduce appreciably the value of the conclusions obtained by such methods. It is very doubtful if, even by using a comparatively detailed analysis like that used by Dr. Smith, we could bring all important determining factors into the picture. Neither of the above-mentioned writers have attempted, for instance, to take account of the increased production of the synthetic fibers which have undoubtedly affected, considerably, the price of cotton.

Even if we increase the number of variables to include all possible factors that affect the price of cotton, such methods could not be of much use. The problem is that we have many types of cotton with probably separate but interdependent markets, and likewise, we have many prices, one for each variety of cotton, which, though quoted separately, are also affected by the prices of other varieties and by the general conditions in the other markets. To give the price of American cotton, say, in general, is to give the price in average of an undefined commodity for which derivation, many unrelated data and irrelevant factors are used.

A better understanding of the problem is to treat it in a more "realistic" manner, that is, by approaching it in a "monopolistic competition" fashion. It is well understood, of course, that the theory of monopolistic competition, whether in

---

(49) For a detailed discussion of the use and shortcomings of the multiple correlation analysis, see: M. EZEKIEL: *Methods of Correlation Analysis*.

the hands of Professor Chamberlin (50), or in the hands of Dr. Y. R. Maroni (51), is concerned with the equilibrium of a firm or a producer, either in the domestic market alone or in the domestic and international market combined. It has never been applied to a whole country or a nation. But the situation here is very similar and the problems which face a given producer (say Egypt) in the cotton market are analogous to those which a given firm envisages in a monopolistic competition field. I would even venture to say that the best policy which Egypt should follow in the cotton field (assuming, of course, the Government intervention and control, which is, clearly not a strange element in the picture) must be something similar to the adjustment carried out by a given firm ; adjustment in the price of the commodity, in its quality and in the sales outlay, in order to approach an equilibrium situation.

But now let us see the elements of monopoly and the elements of competition in the field, and how they are mixed to form a monopolistic competition picture. In addition to what we mentioned previously, in regard to the possibility of substitution between a given quality of cotton and another, we will add some of the cotton technologists' standpoints in this connection.

The cottons grown in different parts of the world, says Mr. Crawford, have distinctly different characteristics. Egyptian cotton, for instance, differs widely from cotton grown in either India or the United States. Similar differences, though not so marked (52), are found to exist between cottons grown in different regions of the same country.

Differences in cotton are usually expressed in terms of grade, staple and character. Cotton is graded according to color, foreign matter and the effects of ginning on its fiber. Character

---

(50) E. CHAMBERLIN: *The Theory of Monopolistic Competition.* Cambridge, Harvard University Press, 1933.

(51) Y. R. MARONI: *The Theory of International Trade Under Monopolistic Competition*, Doctoral Thesis, Harvard, 1945.

(52) G. L. CRAWFORD, Senior Agricultural Economist: *Point Buying of Cotton Versus Buying on Quality Basis*, address, Meeting of Southern Agricultural Workers, Jackson, Mississippi, February 6. 1930. p. 2.

has to do with strength, body, uniformity and smoothness of fibers (53).

That the trade early recognized quality differences in cotton is evidenced by the fact that "at one time there was a custom in the Liverpool Market of selling lots in transit on description before the samples arrived and using the points of origin as the description" (54).

In a report referring to the conditions in the primary markets of Oklahoma in 1913, the methods of arriving at the point, or average price paid for cotton on the local market has been described. Although this bulletin was written a long time ago, the methods of arriving at this price have remained practically unchanged. The writers say, "In a general way the cotton marketed at certain points brings more than the cotton marketed at other points, because one locality is reputed to produce a little better staple than the other (55).

These statements reveal without any doubt that each variety of cotton is a differentiated product with particular characteristics and qualities. In the cotton market, cotton "products" are known to be "Uppers" (of a certain grade), "Sakel", "Middling", "Oomra". "Type 5" (Brazilian), "Type B" (Argentinian), and so forth. Each of these varieties is a differentiated product with certain qualities and characteristics (staple length, strength and so forth) which are generally known to cotton traders and spinners.

All these varieties are more or less imperfect substitutes one for the other. The effectiveness of substitution differs, however, according to the desired performance in each use to which a given variety is put.

According to Professor Chamberlin's definition, "A general class of product is differentiated if any significant basis exists for distinguishing the goods of one seller from those of another" (56). Where there is any degree of differentiation

---

(53) A. W. PALMER: "The Commercial Classification of American Cotton", *U.S. Dept. of Agriculture*, Circular 278, 1924.

(54) W. H. HUBBARD: *Cotton and the Cotton Market*, p. 11.

(55) *U.S. Dept. of Agriculture*, Bulletin 36 (1913).

(56) *Op. cit.*, p. 56.

whatever, each seller has an absolute monopoly of his own product, but is subject of course, to the competition of more or less imperfect substitutes. Thus, where a product is differentiated, each seller is truly both a monopolistic and a competitor.

Furthermore, there is still much divergence of expert opinion on the problem of the relation between the fiber properties and the spinning value of cotton. Experiments have been carried out in many countries and for many years, but the results are never conclusive (57).

Experts' opinion is that there are two things desired in cotton for yarn spinning—that it shall be capable of spinning a fine thread, or "count", without snapping, and that the finished yarn shall be resistant to wear (58). There is also the question of waste; yarn which loses a large proportion of its weight in combing is less economical than yarn with low waste.

In tests for tensile strength, Sakel ranked highest, Sea Island second, and Pima third, but the difference was very slight when allowance was made for the greater waste removed from Sakel and Sea Island. In the later tests, Sea Island ranked above Sakel in yarn strength, and Sakel was better than Pima for all ordinary counts. Studies made of bleaching and mercerizing qualities showed Pima superior in the dyeing process and equal to the other two cottons in bleaching.

These results on extra long-staple cottons conform fairly

---

(57) Such spinning tests as have been made in the United States were on the extra long-staple cottons, Pima, Sea Island and Sakellaridis. The first test was made in 1916 and the results on percentage waste for that experiment were as follows: Pima, 19.28 per cent, Sea Island, 23.23 per cent and Sakellaridis, 26.57 per cent.

This was the lowest percentage ever obtained on Pima and may have resulted from the fact that its growth and picking were supervised by experts while later samples were taken from farmers. Similar tests made in 1920 showed no great difference in waste between the three cottons.

See in this connection, "Competitive Spinning Tests of the Different Grades of Arizona Egyptian with Sea Island and Sakellaridis Cotton", *U.S. Dept. of Agriculture Bulletin No. 359*, 1916 and F. Taylor and D. F. Earle: *U.S. Dept. of Agriculture Bulletin No. 882*, 1920.

(58) A. J. Turner: "The Spinning Value of Cotton". *Empire Cotton Growing Review*, January, 1934.

well to the expressed opinions of the cotton trade. In 1921 a correspondent of the Tariff Commission stated, "Fully Good Fair Sakellaridis corresponds to Pima No. 2 in grade, but Pima will not do the work of Sakellaridis of the same grade (59).

In 1933 the opinion of Anderson Clayton and Company, cotton brokers, as expressed to the Tariff Commission was as follows :

> "It is our opinion that Sakellaridis, Pima and long-staple Uplands are not effective substitutes one for the other, and that a different quality yarn is produced from each. In ply yarns, where special strength is required, there is no substitute for Sakel except West Indian Sea Islands, which is a negligible crop. On the other hand, where the spinning of fine counts requires a little extra length of staple, Pima is preferred" (60).

For the ordinary long-staple group (long-staple American Upland and Egyptian Uppers) the preference of spinners seems about equally divided between the two varieties.

> "As in the case of Sakel and Pima, it is our idea that Uppers and American staples each have characteristics which render them imperfect substitutes one for the other, and give each a superiority in certain lines or work. It is our opinion that Uppers are more easily substituted for staples than vice versa. Foreign spinners much prefer Uppers, and substitute them for American staples whenever possible" (61).

In view of such statements, it seems reasonable to conclude that no two cottons are perfect substitutes. Substitution is possible within limits, however, and within those limits the use of one variety or another will depend, among other things, on their relative prices. It is reasonable to conclude also that "To some extent a different set of conditions influences the demand for materials made from Egyptian cotton than influence the demand for materials made from other cottons, but there

---

(59) The Emergency Tariff Act and Long Staple Cotton, *U.S. Tariff Commission*, Washington, 1922, p. 9.

(60) *U.S. Tariff Commission*, "Long Staple Cotton", 1935.

(61) Letter from Anderson Clayton and Company to the *U.S. Tariff Commission*.

is an important degree of price competition between these cottons" (62).

The whole picture is clearly one of monopolistic competition (63). Under such conditions "The markets for goods which are substitutes for each other being closely inter-related, the position and elasticity of the demand curve for the product of any one seller depend in large part upon the *availability* of competing "products" and the *prices* which are asked for them" (64).

On this basis a reduction in the cotton production of the United States (taken now to represent a "producer" or "seller" in a field of monopolistic competition) by rendering substitutes for Egyptian cotton less available than before will result in moving the demand curve for Egyptian cotton, and all other substitute cottons to the right, thus changing both the position (distance from the x and y axes) and the shape (elasticity) of the demand curves for the "products" of each seller. The price of Egyptian cotton, and possibly all other cottons tend to be higher or/and the sales of each larger.

By the same reasoning the relative rise in the price of American cotton which has been secured through loan and holding operations tends likewise to change the slope and position of the demand curve for Egyptian cotton (each variety and staple-length) in a way which renders the price and sales of Egyptian cotton higher than before.

An estimation of the amount by which the price of Egyptian cotton (each variety of it) could have increased on account of these two factors alone (availability of American

---

(62) "The World Cotton Situation with Outlook for 1931-32". *U.S. Dept. of Agriculture,* December, 1930.

(63) Egypt is a "producer" of Sakel, Uppers, Giza 7, Maarad and so forth. In the same manner the United States is a "producer" of Middling, Upland, Sea Island, Pima and some other varieties. Brazil, India, Argentina, China and the rest are all "producers" of certain types of cotton quite known to the consumers of cotton in the domestic and foreign markets.

This case is analogous to what we find, say in the automobile or cigarette markets where products are differentiated; the names, qualities and characteristics of each product are known to consumers.

(64) CHAMBERLIN: "The Theory of Monopolistic Competition", p. 73. (The underlining is mine.)

cotton, the supply and its price) depends on some other factors. It is safe to conclude first that the reduced production of American cotton, the relative and the presumable absolute rise in its price, have all led to a given increase in the absolute price of both Egyptian Uppers and Sakellaridis.

The rise in the price of Uppers, however, on account of these factors must be expected *a priori* to be relatively higher than the rise which might have taken place in the price of Sakel on account of the same factors. This is based, of course, on the fact that Uppers are more effective substitutes to the majority of American cottons than Sakel. On the other hand, however, we must not ignore the increase in the production of the other monopolistic competitors in the field. As has already been mentioned, Brazil increased her cotton production by so many times as much as Egypt did. The Brazilian cotton is also considered an effective substitute to the American cotton and the increase in Brazil's production of cotton is likely to have an influence on the demand curve for Egyptian Uppers opposite to that exerted by the reduction in the "availability" (supply) of American cotton.

Combining both influences, it is believed that the net effect of the cotton restriction program and stabilizing operations carried out in the United States must have resulted in only a slight rise in the price of Egyptian Uppers, under the prevailing circumstances (65). This does not mean, of course, that Egypt would not be better off if, for one reason or another, the United States manages to keep her cotton production at a relatively low level. But Egypt's benefits of such a policy are likely to be, however, appreciably reduced by the counter policies performed in some other cotton producing countries, especially when the cotton production of the latter countries is characteristically similar to American Upland or Egyptian Uppers.

---

(65) The production of long-staple Upland did not seem to shew, as we mentioned before, any appreciable reduction. Prices have been kept, however, probably through holding operations, on a much higher level than the normal relationship with other cottons.

Moreover, total world cotton supply was higher (in some years by as much as four million bales) in the years which followed the American cotton program than in the pre-program years.

In the case of Sakel, the situation was probably different, but the net effect on its price must have been considerably similar. In the first place, the production of extra long-staple American cotton (Pima) which is an imperfect but probably an effective substitute for Sakel has not been checked : on the contrary, it might have been stimulated under the effect of the long-staple cotton tariff. Thus, the resulting movement in the demand curve for Egyptian Sakel (and all long-staple cottons) dependent upon the reduced supply of American short-staple cottons tends to be, judging by the degree of the effective substitution between the two varieties, highly insignificant. Neither the rise in the price of American cotton could have rendered the price of Sakel more than it could have been if such a rise had not taken place. The presumable shift in the demand curve to the right (away from the x and y axes) dependent upon the forces of the above factors must have been, in the case of Sakel, very immaterial (66).

Dr. Y. El-Molla.

(66) In the same manner, we could make an estimation of the probable effect of the American cotton program on each variety of Egyptian cotton by simply estimating the possible shift in the demand curve for it resulting from the underlying forces contemplated in the cotton program.