

FACTORS INFLUENCING THE INDIAN COTTON  
TEXTILE INDUSTRY

by

VICTOR K. EMMANUEL

B. Sc., MADRAS UNIVERSITY, INDIA, 1954  
M. S., KANSAS STATE UNIVERSITY, U.S.A., 1961

---

A MASTER'S REPORT

submitted in partial fulfillment of

the requirements for the degree

MASTER OF SCIENCE

School of Commerce

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1963

Approved by:

*John M. Cline*  
Major Instructor.

LD  
2668  
R4  
1965  
F51  
1712  
Docu-  
ments

TABLE OF CONTENTS

INTRODUCTION . . . . .	1
HISTORY OF THE INDUSTRY . . . . .	2
FIVE-YEAR PLANS . . . . .	3
IMPORTS . . . . .	15
EXPORTS . . . . .	17
RAW COTTON . . . . .	22
MACHINERY . . . . .	23
INFLUENCE OF FACTORS . . . . .	24
SUMMARY AND CONCLUSION . . . . .	27
ACKNOWLEDGEMENT . . . . .	32
LITERATURE CITED . . . . .	33

## INTRODUCTION

The textile industries in India include cotton, jute, synthetics and woolen textiles, and of these the cotton textile industry is the largest with its 500 mills, most of them of the composite spinning and weaving type, supporting 10 million people. The Indian cotton textile industry can be divided into two sectors - the cotton mill sector and the decentralized sector which constitutes handloom, powerloom and khadi.<sup>1</sup> The mill sector is the largest but the Government has been emphasizing the development of the decentralized sector. So there are four types of products competing in the market: handloom, powerloom, khadi,<sup>1</sup> and mill cloth.

The cotton textile industry has grown a great deal in recent years. This report will deal with factors that have influenced the growth and development of the textile industry, and especially the Five-Year Plans as they have influenced this growth. The Five-Year Plans were started after India's independence on a national scale. By planned development, the Government of India has been trying to speed up the rate of growth. These plans are channeling the energies of the people toward reconstruction of the institutions of economic and social life. These Five-Year Plans are helping the industries to attain some of their objectives.

The cotton textile industry achieved some of its targets in the first and second Five-Year Plans. During this period, the cloth production went up by 62 percent compared to 1950-51 production level. During the last decade, imports and exports have also had significant changes. The present condition of the industry has also been influenced by machinery and the

---

<sup>1</sup>Khadi is hand woven cloth made out of hand spun yarn.

availability of raw cotton. Recently the industry has felt the impact of other related textile industries such as synthetics, woolen etc.

The general objectives of this study were to determine the factors influencing the textile industry. The specific objectives were: (1) to determine the degree of influence and (2) compare the effects of various factors on the growth of the industry. There is also a need to appraise the direction and shifts of factors influencing this sector of the economy. With government activity, it is important to have information concerning new factors and the shifts in old ones if firms are to maximize profits.

The industry did not have much interference from the government till the Five-Year Plans were started. Various factors such as tariffs, exports, imports, raw cotton, etc, influenced the growth of the industry. It is the purpose of this report to study the effect of this government intervention on the industry. In order to determine whether old factors would still retain their influence in the industry or new ones would come into play, a regression analysis will be employed.

#### HISTORY OF THE INDUSTRY

Even as early as 3000 B.C., growing and manufacturing cotton was not unknown in India. The archaeological excavations at Mohenjo Daro revealed these facts. Cloth produced by skilled Indian weavers working on primitive looms had a great reputation in the world outside.<sup>1</sup> Marco Polo (13th century) observed that Masulipatnam produced the finest and the most beautiful cotton to be found in any part of the world.

---

<sup>1</sup>Jamila Brij Bhushan, The Costumes and Textiles of India, pp. 75.

The cotton textile industry in the modern sense, started in India in 1818. It was then that the first cotton mill, the Bowreah Cotton Mills, was established near Calcutta. But it was not until early 1854, when the Bombay Spinning and Weaving Mill started at Tardeo near Bombay, that development was significant.<sup>1</sup> Table 1 illustrates the progress of the Cotton Textile Industry.

After World War I, there was rapid expansion, but the depression halted this trend. For example, the net profits of Bombay mills fell from \$80.8 million in 1922 to \$6.9 million in 1923. In 1924, this resulted in a loss of \$19.2 million and continued into 1925 with \$28 million loss.<sup>2</sup>

In 1925, the situation was so bad that wages had to be reduced, and as a result there followed a period of widespread strikes. In order to assist the industry, the government removed the excise duties on cotton textiles, but this offered little assistance as the Japanese competition entered the market. Low priced Japanese goods affected Indian goods and enhanced the depression in the textile industry. The Indian textile industry again sought and was given tariff protection. This protection was again removed by the tariff board in 1947, believing the textile industry could stand foreign competition.

With no imports from England, the industry expanded during the Second World War. It rapidly adjusted to changing conditions by broadening its production to include many commodities for the Indian Armed Services. Owing to the difficulty of obtaining machinery and plants, few mills were constructed, but existing mills worked at top speed and obtained high profits.

---

<sup>1</sup>B.S. Rao, *Surveys of Indian Industries*, pp. 3.

<sup>2</sup>Vera Anstey, *The Economic Development of India*, pp. 267.

Table 1. The Growth of Indian Cotton Textile Industry (1876-1958)

Year	No. of Mills	No. of Spindles	No. of Looms
1876	47	1,100,112	9,139
1900	193	4,945,783	40,100
1905	197	5,163,486	50,100
1910	263	6,195,671	82,700
1926	334	8,714,168	159,500
1930	348	9,124,768	179,300
1939	389	10,059,370	200,700
1947	408	10,266,000	197,000
1950	445	11,241,000	201,000
1952	453	11,427,000	204,000
1953	451	11,721,000	207,300
1954	461	11,888,000	207,800
1955	461	12,066,000	207,400
1956	465	12,376,000	206,600
1957	499	12,907,000	206,100
1958	511	13,272,000	206,000

Source: B.S. Rao, Surveys of Indian Industries, pp. 3,4.

With the partition of the country in 1947, the large cotton acreage in Sind and West Punjab went to Pakistan. Before partition, India had 421 mills; after, only 408.<sup>1</sup> The textile mills increased from 378 in 1951 to 511 in 1958. A decline in production occurred in 1949-50, due to the shortage of cotton supplies and electric power cuts in some states, especially

<sup>1</sup>B.S. Rao, Surveys of Indian Industries, pp. 4.

Madras and Bombay. Again in 1951, there was a decline in production due to the textile strike in Bombay. The loss by this strike had been assessed at 213 million yards of cloth and 53 million pounds of yarn.

It was the largest industry in India in 1960, giving employment to 800,000 workers and providing means of livelihood for 10 million handloom weavers.<sup>1</sup> The capital invested in the industry amounts to about \$700 million, the bulk of which is Indian capital. The total foreign investment in textile mills in India is estimated at \$20 million - all of which is British. The industry, except for a few mills in the State of Travancore-Cochin and Orissa, are all in the private sector. From its beginning to the present many changes have taken place. These changes have occurred due to forces from within as well as from without.

#### THE FIVE-YEAR PLANS

Soon after India's independence, both the central and the state governments began numerous economic development projects. In 1950, a Planning Commission was established to coordinate programs which would eliminate conflicting projects and channel resources more effectively. In July, 1951, the Commission issued a draft plan for India's development during the five year period from April, 1951, through March, 1956. After 1951, successive Five-Year Plans were drafted.

#### First Five-Year Plan

The program for the development of the cotton textile industry in the

---

<sup>1</sup>Directory and Year Book, The Cotton Textile Industry, pp. 208.

First Plan envisaged a modest expansion of the industry, particularly in the spinning section, through the establishment of new units and expansion of uneconomic units.<sup>1</sup>

The following were the targets aimed at:<sup>2</sup>

(1) New units were to be increased by 350,000 spindles during the period. And to expand 150 units of uneconomic size, an addition of 50,000 spindles would be required.

(2) It was also expected to increase the number of looms from 194,411 in 1950-51 to 195,489 looms in 1956.

(3) The production target for the cotton mill cloth was 4700 million yards to be achieved by 1955-56 against 3665 million yards in 1950-51.

(4) The production target, in the case of handloom cloth for 1955-56, was 1700 million yards as against 805 million yards in 1950-51.

(5) The production target for the yarn was 1640 million pounds to be achieved by 1955-56 against corresponding figure of 1174 million pounds in 1950-51.

(6) The plan's goal was to increase the percapita consumption of cloth from 11.8 yards in 1950-51 to 15 yards in 1955-56.

(7) An export target of 1000 million yards per annum throughout the period was established.

(8) Production of raw cotton through the agricultural plan would be

---

<sup>1</sup>A composite mill having 25,000 spindles and 600 looms is regarded as an economic unit under Indian conditions. Any other mill which has the spindles and looms lower than this level is considered as an uneconomic unit.

<sup>2</sup>Government of India, First Five-Year Plan, pp. 78.



increased from 2.971 million bales in 1950-51 to 4.229 million bales in 1955-56.

(9) A partial change over to medium and long staple varieties was expected to reduce the dependence of the industry on imports of foreign cotton. It was planned that about 3.7 million bales of domestic cotton would be consumed by the mill sector in 1955-56; thereby the imports throughout the period of the plan were expected to be of the order of 1.2 million bales per year.

#### Results of First Five-Year Plan

The progress achieved by the industry during the first five-year plan period is reviewed below.

At the beginning of the plan, there were 103 spinning mills and 275 composite mills; at the end of the period, there were 121 and 291 respectively. The expansion of the mill sector since April, 1951, is given in Table 2.

Table 2. Expansion of Mill Sector During the First Five-Year Plan (1951-1956).

Year	Installed Capacity	
	No. of Spindles	No. of Looms
As of April 1, 1951	10,942,241	194,411
January 1, 1952	11,252,443	195,983
" 1953	11,422,863	197,711
" 1954	11,899,378	199,198
" 1955	11,957,637	202,714
" 1956	11,051,209	202,901

Source: B. S. Rao, Surveys of Indian Industries, pp. 6.

The increase in the spindleage and loomage during the plan period have thus been 10 percent and 4 percent respectively and are in excess of the target. The increase achieved is partly due to expansion of uneconomical units and the conversion of some spinning mills into composite mills. The production

of cloth and yarn during the period is given in Table 3.

Table 3. Data on Production of Cloth and Yarn in the  
First Five-Year Plan. (1950-1955)

Year	Production of Cloth (Million Yards)			Total	Production of Yarn (Million Pounds)
	Mill-Made	Handloom	Powerloom		
1950	3665	805	148	4618	1174
1951	4076	850	157	5083	1304
1952	4599	1109	204	5912	1449
1953	4979	1200	221	6300	1505
1954	4998	1318	243	6559	1561
1955	5094	1480	273	6847	1630

Source: Government of India, Planning Commission, Programme of Industrial Development, pp. 340.

The goal of 4700 million yards set for 1955-56 in the mill sector was exceeded by 1953. The output in 1955 in the mill sector was the highest recorded by the industry (Table 3). Though the production increased steadily in the handloom sector, the output during the 1955-56 (1480 million yards) fell short of the target (1700 million yards) set in the plan. The output in the powerloom sector also showed similar trends as that of handloom sector (Table 3). Also the output of mill yarn in 1955 increased by 38 percent compared to the 1950-51 level.

This success in achieving the output of mill yarn and mill cloth was mainly due to intensive utilization of existing equipment - the spindle and the loom. The government also secured larger supplies of raw cotton and distributed them according to the mill's capacity. The steady increase in output was responsible for the increase in percapita consumption of cotton cloth in 1955.

The pre-war percapita consumption of cotton cloth was 15-16 yards, which declined to 9 yards in 1950-51. This decline in percapita consumption was due to the unavailability of cloth. The Planning Commission's goal was 15 yards by 1955-56. It was reached in 1953, two years ahead of schedule. At the end of the period, the percapita consumption was 15.8 yards.

The plan's export target was 1000 million yards per annum, but the actual exports were below the mark, and, though the government took measures to stimulate the exports during this period, the industry failed to meet its goals (Table 4). The causes might have been of different origins, but the main cause was the import restrictions in countries in South-East Asia, which had been for many years markets for Indian cloth. The International Textile Industry Conference in September, 1952, found that the total world textile production had increased in the last 20 years by 9 percent while the international trade in textiles had dropped by 13.5 percent. It was the unanimous view of the various delegates that the world exports were not likely to increase in the foreseeable future, causing exports market to be very competitive in the future.

The raw cotton production in 1954-55 was 4.3 million bales against the target of 4.2 million bales. But in 1955, production was lower than the target of 4.2 million bales. However, there was a shortage of long staple variety requiring some imports while the country had a surplus of short staple variety.

Most of the machinery in use at the beginning of the First Five-Year Plan had outlived its period of efficient and economical service.<sup>1</sup> Some rehabilitation of equipment and machinery was necessary during the period. It was estimated that a total investment of \$17 million was made by the cotton textile industry in new units, expansions and modernization during the period in review.

---

<sup>1</sup>B. S. Rao, Surveys of Indian Industries, pp. 15.

Table 4. Data for the Per capita Consumption of Cloth

Year	Total Production (million yards)	Imports (million yards)	Total Available Cloth (million yards)	Exports (million yards)	Deliveries for Other Purposes (million yards)	Availability Requirement (million yards)	Per capita Availability (million yards)
1950	4618	7	4625	1120	27	3478	9.7
1951	5083	9	5092	823	31	4238	11.7
1952	5912	5	5917	602	39	5276	14.4
1953	6300	5	6305	716	22	5567	15.0
1954	6559	6	6565	956	23	5586	15.0
1955	6847	6	6853	873	29	5951	15.8

Source: Government of India, Planning Commission, Programmes of Industrial Development, pp. 343.

At the end of the First Five-Year Plan, the total cotton cloth production was up by 48 percent compared to the 1950-51 level and the mill cloth production was up by 39 percent. Even though the handloom sector did not achieve its target, production had increased by 84 percent compared to the 1950-51 level. The yarn production was also up by 34 percent. Exports averaged 800 million yards for the whole plan period and the imports were less.

### Second Five-Year Plan

The Second Five-Year Plan was drafted by the Planning Commission to carry forward the process initiated the First Five-Year Plan period.

The program of development for the cotton textile industry in the Second Plan is outlined below:<sup>1</sup>

(1) An increase in the percapita consumption of cloth from 15.8 yards in 1955-56 to 18.4 yards in 1960-61.

(2) The target for export was 1000 million yards per annum throughout the plan's period.

(3) Assuming a population of 408 millions in 1960-61, a 25 percent increase in the total consumption would require 7500 million yards of cloth. Including the export demand of 1000 million yards, the total production of cloth was estimated to be 8500 million yards. The mill sector had a target of 5000-5500 million yards while the decentralized sector had a 3000-3500 million yards production.

---

<sup>1</sup>Government of India, Planning Commission, Second Five-Year Plan, pp.41.

The Planning Commission realized that in order to achieve the handloom sector's production target, major organizational effort would be required to bring every available handloom into operation throughout the year. Also it aimed to stimulate the output by introducing technical improvements and offering to the weaver the necessary incentives such as financial assistance for larger production.

(4) In order to produce 8500 million yards of cloth, the yarn requirement was estimated at 1950 million pounds in 1960-61. Assuming that no additional output of yarn could be expected from the spindleage at the end of 1955, additional spindleage to give an extra output of 250 million pounds of yarn should be available by 1960-61. It was assumed here that the average output in 1955 was 1700 million pounds of yarn. This additional output of yarn corresponded to the additional installations of 1.57 million spindles on the basis of double shift working for 305 days in the year.

(5) The quantity of raw cotton required to achieve the planned goal would require approximately 6.1 million bales. Therefore, a target production of 6.1 million bales of raw cotton by 1960-61 was envisaged in the agricultural plan.

#### Results of Second Five-Year Plan

The production target of cloth for domestic consumption in 1960-61 was 7500 million yards but actual availability of cotton cloth for domestic consumption was only 6750 million yards. The main reason for failing to achieve the planned goal was due to the shortage of raw cotton resulting from a poor cotton crop in 1959-60. The total cloth production fell short of the target by 12 percent. Exports also fell behind the expectations, due to low production. The per capita consumption of cloth was 15.5 yards

instead of 18.4 yards aimed at (Table 5). On the whole the performance in the Second Plan period was unsatisfactory.

Table 5. The Second Five-Year Plan (1956-61)

	Target	Achievement
Mill-made cloth (million yards)	5000-5500	5127
Handloom & powerloom cloth (million yards)	3500-3000	2349
Total cloth production (million yards)	8500	7476
Exports (million yards)	1000	781
Spindles (million)	13.6	12.7
Raw cotton (million bales)	6.1	5.1
Per capita consumption of cloth (yards)	18.4	15.5

Source: Government of India, Planning Commission, Third Five-Year Plan, pp. 203.

The question arose as to what incentives would be given by the Government in those Five-Year Plans which made the industry grow. In 1951 when the Government started the Five-Year Plan, it made a complete study of the textile industry. By this study, the import quotas were relaxed, thereby letting the industry import the necessary raw materials. The Government also issued more import licenses to import machinery. It also gave financial help for the rehabilitation of the plant and equipment. The export quotas were increased, allowing the industry to export more cotton textiles.

The government also realized the importance of the production of raw cotton. The industry was depending upon the imports. The Government increased the production of raw cotton in its agricultural plan by providing



assistance to farmers allowing them acres to grow cotton. The government sent trade missions to foreign countries to improve the exports. All these helped the industry a great deal.

### Third Five-Year Plan

In the Third Plan, ambitious goals were laid down for the cotton textile industry. The requirements for cotton textiles at the end of the Third Plan were calculated on the assumption that 8450 million yards of cloth would be needed for domestic consumption and 850 million yards for exports, or a production target of 9300 million yards (Table 6). The percapita consumption of cloth was increased to about 17.2 yards compared to 13.5 yards in 1960-61. The production target allocated to the mill sector was 5800 million yards compared to 5127 million yards in 1960-61. The remaining 3500 million yards had been allocated to the decentralized sector (handloom, powerloom, and khadi).

To achieve the additional production of 673 million yards in the mill sector, it was estimated that approximately 23,000 automatic loom must be installed during the plan's period. The yarn production target was fixed at 2250 million pounds. To achieve this target, the active spindleage of the mills would have to be increased to about 16.5 million compared to 12.7 million at the end of the Second Plan. The additional production was to be secured by activation of idle spindles and installing spindles through new units and expansions. The production figure for the raw cotton was 7.0 million bales compared to 5.1 million bales produced in 1960-61.

These figures were calculated on the basis that the population



would increase 2 percent during the period the plan was in effect. At the end of the plan, if the targets were achieved, the cloth production would be up by 133 percent, mill-made cloth by 58 percent, decentralized production by 267 percent and percapita consumption by 78 percent (Table 6).

Table 6. Target Data (1960-1965)

	Target
Cloth production for domestic consumption (million yards)	8450
Exports (million yards)	850
Total cloth production (million yards)	9300
Mill-made cloth (million yards)	5800
Handloom, powerloom & khadi (million yards)	3500
Looms (numbers)	25,000
Spindles (millions)	16.5
Yarn production (million bales)	2250
Raw cotton production (million bales)	7
Percapita consumption of cloth (yards)	17.2

Source: Government of India, Planning Commission, Third Five-Year Plan, pp. 203, 207, 208.

#### IMPORTS

The import of yarn has fluctuated considerably during the last decade. Mills in England and Japan had been supplying 80 percent and 2 percent respectively of the total imports of yarn between 1913 and 1914. England had supplied about 35 percent only while Japan supplied about 65 percent. So the Japanese and the English were supplying most of the yarn.<sup>1</sup> Due to

<sup>1</sup>Vera Anstey, The Economic Development of India, pp. 264.

heavy imports, the government had to impose tariffs on all imported yarn in order to protect the industry at home. The Tariff Board, on four different occasions, inquired into the position of the industry. In 1947, protection was withdrawn. Consequently, the import of yarn in the recent years has increased to about 14.5 percent compared to the 1950-51 level. The amount of yarn and thread imported since 1937 is given in Table 7.

Table 7. Imports and Exports of Yarn and Piecegoods (1937-60)

	<u>Yarn &amp; Thread</u>		<u>Cotton Piecegoods</u>	
	Imports (thousand metric tons)	Exports (thousand metric tons)	Imports (million yards)	Exports (million yards)
1937	10.8	41.7	590	225
1938	14.9	15.4	647	170
1948	4.7	57.0	36	308
1950	1.4	33.9	94	1120
1957	26.6	66.6	9	823
1958	19.2	72.1	4	602
1959	22.6	71.2	4	716
1960	21.7	62.3	2	630

Source: Vera Anstey, The Economic Development of India, pp. 620  
 United Nations, Year Book of International Statistics, pp. 55  
 U. S. Department of Commerce, Investment in India, pp. 98, 100.

In the piecegoods trade, Indian mills have greatly increased their output and sales since 1914, whereas imports have declined (Table 7). In 1925, Indian mills accounted for 43.5 percent, handlooms 22.3 percent and imports 34.2 percent of the total cotton goods.<sup>1</sup> Hence no less than

<sup>1</sup>Vera Anstey, The Economic Development of India, pp. 264.

65.8 percent of the total cloth was produced in India which was a larger proportion than before World War I. In the post war years, India made a large cut in its imports and began to act increasingly as a supplier of cotton piecegoods to other countries (Table 7).

Now India is importing raw cotton from several countries, mainly Egypt, East Africa, Sudan and the United States. Most of the long staple cotton is now imported (Table 8), because the country is not yet self-sufficient in cotton. With the productive capacity now available, to achieve full production would require an increase of 20 percent in the production of raw cotton. Imports average 25 percent of requirements.<sup>1</sup>

Table 8. Imports and Exports of Raw Cotton (1948-1960)

Exports (in thousand metric tons)					Imports (in thousand metric tons)				
1948-52	1957	1958	1959	1960	1948-52	1957	1958	1959	1960
53.0	40.3	72.8	58.6	33.6	182.9	132.9	72.6	96.7	204.7

Source: United Nations, Year Book of International Trade Statistics, pp. 78.

### Exports

As for exports, until the 15th century, practically all of Europe imported piecegoods from India. The export trade in cotton goods from India to Asia Minor, Africa and South Europe had grown to enormous portions. The British East India Company shipped the first high grade calicoes to England in 1631.<sup>2</sup> These calicoes and domestic imitations gained popularity very quickly. Throughout the 17th century trade expanded so much that in 1721

<sup>1</sup>Planning Commission, Government of India, Programmes of Industrial Development, 1958-61, pp. 345.

<sup>2</sup>Stanley Vance, Industrial Structure and Policy, pp. 399.

the "Calico Act" was passed by British Parliament prohibiting the import of Indian calicoes and cotton altogether. The "Calico Act" prohibited the use and wear of all types of calicoes in apparel, household stuffs and penal measures were prescribed for breach of this law.<sup>1</sup> This measure taken by the British government gave a death blow to Indian manufacturers. Consequently, England using India as a source of raw materials, refused to encourage industrialization of the country.

The industrial revolution gave England a strong competitive position and with Indian export trade practically nonexistent, the Calico Act was abolished. In the latter half of the 19th century, Indian cotton textile industry once again started under British protection, but industry grew to such an extent that it alarmed the Lancashire mill owners in England. This agitation resulted in the abolition of duty on British cotton yarn and piece-goods exported to India, causing ruinous effects on the Indian industry. Moreover, the growth of the mill industry in Japan during the same decade resulted in the rapid diminishing of export of yarn to China and Japan.

In 1929, communal rioting and strikes contributed to less production and the proportion of cotton exports diminished from 20 percent to 5 percent of the total. In spite of all these set backs, the industry progressed enough to be competitive with imports from Lancashire mills. In 1932, England entered into Bilateral Agreement with India known as the Ottawa Agreement. According to the agreement a 10 percent preference was given to English exports on cotton, silk and artificial silk. In return, England allowed free entry to certain goods and promised to popularize Indian goods abroad. This pact was terminated in 1936 and a new and more equitable

---

<sup>1</sup>Jamila Brij Bhushan, The Costumes and Textiles of India, pp. 75.

agreement was signed.

During World War II, the industry prospered owing to the difficulty of importing goods from Lancashire. Indian mills increased their output while imports declined. The war situation and the preoccupation of Lancashire with war production gave India an opportunity for opening new markets in Persia, Asiatic Turkey, Aden and dependencies, East African Protectorates, Ceylon, etc.<sup>1</sup> India was the only major eastern country open to trade in the cotton textiles as the trade ceased with Japan and imports were completely stopped from European countries.

After World War II, Indian exports expanded, much of this increase occurring after the second half of 1949, when the Indian government removed the duty on exports and other restrictive features. Furthermore, in order to make Indian cloth more competitive, the government reintroduced price control on exports. In 1950, the government imposed a drastic cut in imports and expanded exports (Table 4) in order to meet an unfavorable balance of trade. Principal markets for Indian piecegoods were the Red Sea ports, East Africa and Malaya.

During the First Five-Year Plan, the cloth exports were below the target and again in the Second Five-Year Plan the export targets were only partially achieved (Table 5). To be realistic in their approach to exports, in the Third Five-Year Plan the target was reduced by 15 percent.

The export market has been affected so much due to the growing tendency of the cotton growing countries to establish their own cotton textile industry. The weaving capacity of the textile industry in Brazil, Mexico,

---

<sup>1</sup>Jamila Brij Bhushan, The Costumes and Textiles of India, pp. 78.

Argentina, Egypt, Greece, Turkey and Peru has steadily increased during the recent years.<sup>1</sup> Moreover, these countries have established protection from foreign competition by means of high tariffs and other restrictive measures for textile mills. Japan also has re-emerged as an important cotton piece-goods exporting country and the installation of automatic machinery allows the production of cloth to compete successfully in external markets both in price and quality. Pakistan also has expanded its production capacity. Furthermore, Pakistan has a good quality cotton in abundance. It is expected that Pakistan with its modern machinery, abundant raw cotton, and cheap labor will be a great competitor in the world markets.

Table 9. Cloth Export in India and Other Countries (1950-1955)

Country	Unit	1950	1951	1952	1953	1954	1955
United Kingdom	Million Square Yards	822	864	711	709	637	555
U.S.A.	"	563	811	773	628	614	550
Japan	"	1104	1096	762	914	1278	1139
Germany	"	126	233	273	232	226	241
Italy	"	354	371	170	144	98	103
India	Million Yards	1120	823	602	716	956	873

Source: Government of India, Planning Commission, Programmes of Industrial Development, 1956-61, pp. 343, 345.

The Indian export market is facing stiff competition among the principal cotton textile exporting countries (Table 9). Having realized the

<sup>1</sup>Planning Commission, Government of India, Programmes of Industrial Development, pp. 342.

situation, the Indian Government has sent a trade delegation to some of the South-East Asian countries to promote Indian cloth in those countries.

#### The Impact of Other Textile Industries on Cotton Textile Industry

The minor textile industries in India include woolen, synthetics and silk industries, none of which is organized on a scale comparable with that of the cotton textile industry.

The discovery of synthetic fiber marked a stage of revolution in the textile industry of the world. The Indian with his conservative look at the new fabric considered its use a reflection of his taste and economic status. The beautiful fabrics caught the imagination of even the most conservative and the demand for the material has increased.

The First Five-Year Plan did not recommend any addition to the capacity of the artsilk weaving industry as the existing capacity was considered adequate to produce estimated requirements. In spite of the surplus capacity, imports of fine quality artsilk fabrics especially velvets, continued since the existing weaving facilities were not capable of producing these superior fabrics. It was expected that these imports would largely cease during the Second Plan period. Artsilk cloth consumption is generally confined to the middle classes in urban areas. It is possible that the consumption would show an upward trend due to urbanization and rise in standard of living. Therefore, artsilk fabric might be regarded as luxury or semi-luxury articles and it is questionable whether it would compete with the cotton fabrics, at present.

In the woolen textile industry, there are 42 mills in the country with a total capacity of 30,000 pounds. Besides this, there are more than 100,000



handlooms engaged in weaving.<sup>1</sup> Total production amounts to 18-19 million yards. Raw materials must be imported from Persia, Tibet, and Afghanistan. The imported wools are far superior than those obtained indigenously. Average annual imports during 1952-55 were 3.5 million yards. The consumption of woolen goods in India is low in comparison with other countries, amounting to 22-23 million yards in 1955-56. The woolen industry is not large due to the fact that the climatic condition in India does not warrant woolen clothing.

At present, the artsilk industry's impact on cotton textile industry is small because of its size. Moreover, both woolen and artsilk are costlier than the cotton fabrics and both are a symbol of status. But with increased standard of living, these two industries will have greater impact on the cotton textile industry.

#### Raw Cotton

Raw cotton is another factor that has a great influence on the production of cotton cloth. Cotton acreage in 1923-24 was about 26.8 million acres. By 1938-39, it had shrunk to 23.5 million; and to 14.9 million by 1946-47 which was before the partition of Pakistan. The acreage reduction between 1938 and 1939 and 1946 and 1947 was largely due to the "Grow More Food" campaign, during which time a large diversion of land from cotton to food production occurred.

On partition of Pakistan from India, out of 14.9 million acres under cotton in 1946-47 3.2 million acres went to Pakistan. India was left with 11.7 million acres. Cotton acreage in 1950 was estimated at 12.2 million

---

<sup>1</sup>Jamila Brij Bhushan, The Costumes and Textiles of India, pp. 80.



acres and 18.3 million in 1954. Although India had about 13 percent of the world's cotton acreage, production was only 9 percent of world production.<sup>1</sup>

In 1950, the government removed all legislative and executive restrictions to encourage the growing of cotton. To meet the shortage and in order to reduce the industry's dependence on foreign countries for superior varieties of cotton, the agricultural plan set up a target for producing an additional 1.26 million bales by 1955-56.<sup>2</sup> To encourage the growing of cotton, the government adopted specific measures including provision of irrigation facilities to cotton lands, and to supply improved varieties of seeds and fertilizers to cotton growing states. Technical advice to cultivators was given. These measures assisted in increasing the output of raw cotton by 76 percent from 1950 to 1960. However; though the production of long staple variety has been doubled, it is still short of supply, with a surplus of short staple varieties.

#### Machinery

The manufacture of textile machinery is of recent origin. The first attempt was made during World War II, the equipment was being used to the fullest extent by running double and triple shifts. The Planning Commission recommended that high priority should be given to the rehabilitation of plant and equipment and remodelling some of the existing buildings of the industry. It further suggested that the process of rehabilitation and renovation would have to spread over 10-15 years so as to avoid paying abnormal prices for plant and machinery and to regulate timely deliveries

---

<sup>1</sup>B. S. Rao, Surveys of Indian Industries, pp. 7.

<sup>2</sup>Planning Commission, Government of India, Programmes of Industrial Development, 1956-61, pp. 343.

of the same. Considerable progress was made between 1951 and 1956 by the leading textile mills in modernizing their plants. Some projects and plans are included in the Five-Year Plans to expand the textile machinery industry. The details are not available.

On examination of the industry, it will be seen that the raw resources such as raw cotton and machinery are not available. The industry depends on foreign countries to a great extent for the supply of these. This situation should be improved in order to help the further growth of the industry.

### INFLUENCE OF FACTORS

The textile industry is affected by many factors both directly and indirectly such as population, raw cotton, synthetics etc. An attempt was made to find which factors have significant effect on textile production in the long run. Five factors were deduced among these in the preliminary analysis. It was also attempted here to determine the degree of influence and to compare the effects of these factors on the growth of the industry.

### Methodology

Regression analysis was employed in this study to determine the influence of these factors which were estimated from a regression function of the following type:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

where,

$Y$  = Total cloth production (in million yards)

$X_1$  = Population (in millions)

$X_2$  = Exports (in million yards)

$X_3$  = Total synthetics production (in million yards)

$X_4$  = Raw Cotton (in million bales)

$X_5$  = Five-Year Plan Targets (in million yards)

$b_1s$  = Regression Coefficients

By using these five independent variables, the calculated regressions coefficients ( $b_1s$ ) are given below:

$$b_1 = 1.676150$$

$$b_2 = 0.133123$$

$$b_3 = 2.316850$$

$$b_4 = 1.911327$$

$$b_5 = 0.197402$$

the regression equation,

$$Y = 1.676150 X_1 - 0.133123X_2 + 2.316850X_3 + 1.911327X_4 + 0.197402X_5$$

#### Analysis

The above equation indicates that the total cloth production increases on an average of 1.676150 million yards for each million increase in population, other factors remaining constant; but decreases by 0.133123 million yards for each million yards of exports. Other factors remaining constant, the cloth production also increases on an average of 2.316850 million yards per million yards of synthetics production and by 1.911327 million yards for each million bales of raw cotton. Other factors are analyzed by the same procedure.

$$R = 0.9$$

The R value measures the goodness of fit of regression, indicating that population, synthetics, raw cotton and Five-Year Plans explain the major factors influencing the industry. On applying the F-Test, synthetics and Five-Year Plans were the only significant factors at the 5 percent level.

From this analysis, it would be gathered that synthetics and Five-Year Plans influence the cloth production. Since the other factors were insignificant, no prediction can be made about these factors concerning their influence on textile production.

In the equation, a positive coefficient was obtained for synthetics. Actually synthetics is a substitute for cotton, for a positive coefficient is not acceptable from the standpoint of economics logic, as these products are close substitutes. The synthetics and the cotton textile industry are dependent on income. For another decade both the industries will more or less grow together. This is because the synthetic industry is in its infant stage and the textile requirements exceed supply. In the future synthetics will exert a great pressure on cotton textiles.

The aim of the Five-Year Plans is to increase cloth production. The government helped the industry by relaxing import and export quota restrictions. In another area, manufacturing equipment, priority was given to the industry for the rehabilitation of plant and equipment, with government financial assistance. Though some replacement parts are manufactured in India, the industry still depends largely upon imports which received priority. Therefore, through these measures the industry was able to achieve the Five-Year Plan goals.

According to the equation, exports were insignificant. Already the world export market in this industry has been affected, for world export trade has declined considerably. The trend seems likely to remain the same in the future as many cotton-growing countries have started their own mills and have curbed imports. Therefore, exports in the future will continue to be irregular.

In the long run, raw cotton might be insignificant. However, the govern-

ment and the farmer are concentrating on the production of the raw cotton. In the last decade, the production of raw cotton had increased by 76 percent. Along with the increase in production, the trend to change over to medium and long staple varieties had reduced the dependence of the industry on imports. With the present program, calling for the increase in production, the country will have a sufficient supply of raw cotton in the next decade.

Another factor - population was insignificant. With the present program for the population control in India, it is possible to control population. It is believed that increase in the literacy ratio tends to lower the birth rate. Barriers caused by caste, religion, language etc., are likely to fall before the onslaught of the rising standards of living. With the rising living standard, urbanization and literacy, the size of the family might be curtailed and hence present trend of India's population might not continue in the long run. However, population might not have significant influence on the production of cloth. It still must be considered when analyzing the industry.

In conclusion, the old factors such as population, export and raw cotton were insignificant while new ones such as synthetics and Five-Year Plans were significant. But this does not imply these insignificant factors can be discontinued in analyzing the industry. The analysis of this study is that the industry has to take into consideration the effect of these new factors in the long run, if they want to maximize the profits.

#### SUMMARY AND CONCLUSIONS

The cotton textile industry, which is the largest single industry in India, has grown from its modest beginnings. For example, the number of mills has increased from 47 in 1876 to 511 in 1958.

Several factors have influenced the industry's growth and development, but some have greater influence than others. After thorough examination of factors likely to affect the textile industry, the five important factors were observed. A regression analysis was employed in order to determine which factors were significant. By this analysis, only two factors were significant. These two were the synthetics and the Five-Year Plans. Factors such as population, exports and raw cotton were insignificant. This analysis would indicate that reliable estimates about the industry can be made only for synthetics and Five-Year Plans in the long run.

In the regression equation, a positive coefficient has been obtained for synthetics, but synthetics being a substitute for cotton should give a negative coefficient. The explanation for this behavior of the model is that the synthetic industry, being in the infant stage, would grow along with the cotton textile industry. At present, there are only six mills producing synthetic fabrics. With the rising income, the demand for this material would go up. If the present trend continues, more and more mills are expected to be constructed in the future. Assuming the industry has the usual envelope long-run cost curve, per unit cost will eventually reach its low point, causing synthetic prices to decrease plus increased competition. Therefore, as the production increases, the cost would be reduced which might lead to more consumption. With the rising income, more people will be able to purchase these fabrics. After a decade or so, the synthetics industry would exert a great pressure on cotton textile industry. Therefore, it could also be expected that the coefficient might be a negative value in the future analysis. Consequently, synthetics might be considered as a factor in analyzing the textile industry.



The Five-Year Plans are an incentive factor for the industry. The industry has increased production since the beginning of these plans. It is true that it did not accomplish all the production goals in several segments of the industry, but the total cloth production was up by 62 percent in the two plan periods and the number of mills increased by 14 percent.. At the same time the import of piecegoods dropped to a minimum and the production of raw cotton went up by 76 percent.

To achieve the Five-Year Plans' goals, various actions were taken by the government such as financial assistance for investment in machinery, relaxation of restrictions on imports and exports etc. Also, the government coordinated the actions of other segments of the economy with the cotton textile industry. For example, government allocated more acreage for the cotton crop in the agricultural industry whereby the industry could have enough raw cotton. The government's actions are basically the factors represented by the Five-Year Plans' data. These Five-Year Plans in the future would include more concessions and assistance to the textile industry, which would have a greater weight in the future.

The other three factors in the equation, even though insignificant, must be considered in the long run. Population is undergoing various changes. With the rising standard of living, urbanization and literacy, population might be controlled. The population control might not change the statistical coefficient in our analysis because with population control adequate supplies will be available; consumption will depend on income and promotion rather than minimum needs of society. Even though population might not influence the textile industry externally, this does not imply that the population factor can be ignored.

The textile exports, insignificant as they are, have declined greatly

during the last decade. However, with the present program for the production of raw cotton, the country may have enough raw material to meet the demands of the next decade. With the increase in acreage, increase in yield per acre and the cultivation of superior types of cotton, the shortage of raw cotton might be solved.

The other factors which have been discussed in the manuscript were imports and machinery. The imports of piecegoods have dropped substantially and this trend probably will remain the same as long as the production is high. The imports of raw cotton would continue for the next few years as the country is short of certain varieties of cotton.

The textile industry is of recent origin. Though many spare parts are made in the country, the industry depends heavily on imports. If more machinery were manufactured in India, replacements would be easier. At present, due to the dollar shortage, the textile industry cannot purchase all the machinery it needs.

The conclusion is that old factors such as population, exports and raw cotton were insignificant in the analysis. Indicating that they may not be as important as previously believed, still they must be considered when analyzing the textile industry. New factors, synthetics and Five-Year Plans, were significant. Even with the above mentioned limitations, the analysis indicates that these two factors probably will have important influence on the textile industry in the future.

This shift in factors could be closely associated with the governmental activity in the industry. This may not be the case in a free, competitive economy where the old factors would still retain their significance. On the contrary, in a socialistic pattern's economy, the impact of government



activity has a different effect on the industry, thereby new factors come into play. So for forecasting purposes, a careful analysis of factors is essential. In other words, different forecasting techniques must be utilized in a planned economy which would provide excellent research opportunities. This analysis also indicates that the cotton textile industry has to take into consideration the effect of these new factors in the long run, if it wants to maximize the profits.

#### ACKNOWLEDGEMENT

The author wishes to express his sincere appreciation to Dr. John M. Amos, the major instructor, and Dr. V. F. Ridgway, for their encouragement and for their many helpful suggestions and criticisms in the preparation of this manuscript.

## LITERATURE CITED

### BOOKS

- Anstey, Vera.  
The Economic Development of India. London: Longmans, Green & Co., 1952.
- Bratt, Elmer C.  
Business Forecasting. New York: McGraw Hill Book Co., Inc., 1958.
- Ezekiel, Mordecai and Karl A. Fox.  
Methods of Correlation and Regression Analysis. New York: John Wiley Sons, Inc., 1959.
- Narasimhan, N.V.A.  
A Short Term Planning Model for India. Amsterdam: North Holland Publishing Co., 1956.
- Planning Commission, Government of India.  
First Five-Year Plan. Faridabad: Government of India Press, 1950.
- Planning Commission, Government of India.  
Second Five-Year Plan. Faridabad: Government of India Press, 1956.
- Planning Commission, Government of India.  
Third Five-Year Plan--A Summary. Faridabad: Government of India Press, 1960.
- Planning Commission, Government of India.  
Third Five-Year Plan. Faridabad: Government of India Press, 1960
- Planning Commission, Government of India.  
Programmes of Industrial Development. 1956-61. Nasik Road: Government of India Press, 1959.
- Reddaway, W.B.  
The Development of the Indian Economy. Homewood, Illinois: Richard D. Irwin, Inc., 1962.
- Rao, B.S.  
Surveys of Indian Industries. London: Oxford University Press, 1958.
- Snedecor, George W.  
Statistical Methods. Iowa, U.S.A.: Iowa State University Press, 1956.
- Times of India.  
Directory and Year Book. Bombay: Bennett, Coleman & Co., Limited, 1960-61.

United Nations.

Economic Survey of Asia and Far East-1950. New York: United Nations Publications, 1950.

United Nations.

Statistical Year Book-1961. New York: United Nations Publications, 1962.

United Nations.

Year Book of International Trade Statistics. New York: United Nations Publications, 1962.

F. A. O., United Nations.

Trade Year Book-1961. New York: United Nations Publications, vol. 15, 1962.

U. S. Department of Commerce.

Investments in India. Washington: U. S. Government Printing Office, 1953.

U. S. Department of Commerce.

Investments in India, Washington: U. S. Government Printing Office, 1961.

Vance, Stanley.

Industrial Structure and Policy. New Jersey: Prentice Hall, Inc., 1961.

#### Journals

Monthly Statistical Bulletin.

Indian Textile Industry. June, 1961, 6:1-10.

Monthly Statistical Bulletin.

Indian Textile Industry, July, 1961, 7:1-5.

Monthly Statistical Bulletin.

Indian Textile Industry. August, 1961, 8:6.

Monthly Statistical Bulletin.

Indian Textile Industry. September, 1961, 9:1-5.

Kramer, Clyde Y.

Simplified Computations for Multiple Regression. February, 1957, 8:8.

Raw Cotton Production.

Textile Organon. October, 1962, pp. 184.

FACTORS INFLUENCING THE INDIAN COTTON  
TEXTILE INDUSTRY

by

VICTOR K. EMMANUEL

B. Sc., Madras University, India, 1954  
M. S., Kansas State University, U.S.A., 1961

---

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the  
requirement for the degree

MASTER OF SCIENCE

School of Commerce

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1963

The textile industries in India include cotton, jute, synthetics and woolen textiles, and of these the cotton industry is the largest with its 500 mills, most of them of the composite spinning and weaving type, supporting ten million people. The Indian cotton textile industry can be divided into two sectors - the cotton mill sector and the decentralized sector which constitutes handloom, powerloom and khadi.

Many factors influence the industry's growth and development, but some have greater influence than others. After thorough examination of these factors, five factors were analyzed. A regression analysis was employed in order to find which factors were significant. By this analysis only two were significant. These two were synthetics and the Five-Year Plans. Factors such as population, exports and raw cotton were insignificant. Population might be curbed in India with the rising standard of living, urbanization and literacy. The insignificance of export will probably continue for the world export market might decline more than it has at present. With the present program for the production of raw cotton, the country might have enough of this raw material to supply the needs of the next decade. With the increase in acreage, increase in yield per acre and the cultivation of superior types of cotton, the shortage of raw cotton might be solved. These three factors may not be as important as previously believed, still they must be considered when analyzing the textile industry.

In the regression equation, a positive coefficient was obtained for synthetics which was surprising as synthetics is a substitute for cotton. The explanation for this is that the synthetic industry being in the infant stage would grow along with the cotton textile industry. Due to high price of the material, only the middle class people can afford to buy the synthetic fabrics. With the production increase, the cost might be reduced

which might lead to more consumption of the material. Moreover, with the rising income, more people will be able to buy these fabrics. Thus synthetics will continue to have a great impact on the cotton textile industry.

The Five-Year Plans are an incentive factor for the industry. The industry has increased production, since the beginning of these plans. This is due to government action in several areas. For example, the government relaxed the import quotas and increased the export quotas. All these various incentives which are built in the Five-Year Plans, led to the increase in production.

In conclusion, the old factors, such as population, export and raw cotton, are insignificant, while new ones, such as synthetics and Five-Year Plans, are significant. The analysis of this study thus indicates that the industry has to take into consideration the effect of these new factors if it is to maximize its profits.

