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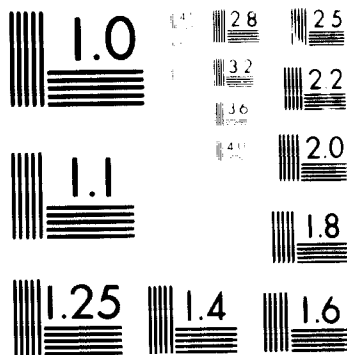
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# Report

The Economist Intelligence Unit

INDUSTRIAL DEVELOPMENT  
SURVEY TEXTILE INDUSTRIES

October, 1970

THE ECONOMIST INTELLIGENCE UNIT LIMITED,  
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**INDUSTRIAL DEVELOPMENT**  
**SURVEY TEXTILE INDUSTRIES**

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## INTRODUCTION

This report covers the group of products defined in ISIC Series M No. 4. Rev. 1. section 23. This is almost the same as the new ISIC Rev. 2 classification, but the statistics for the most part refer to the earlier classification.

In the field of textiles, considerable difficulties arise in distinguishing individual products by type of fibre. The first of these arises from the manufacture of mixed yarns and cloths; those produced on the "cotton system" may often contain up to 25 per cent of man-made fibres. Secondly, it is not possible to follow the passage of man-made fibres through the various stages of textile manufacture, for staple, tow and filament yarn are all introduced at different stages. For these reasons, data have been given for the output of the cotton system, but man-made fibres have been treated from the consumption side. This, in fact, is some 10 per cent above output of cloth, as certain quantities go to waste in the manufacturing process.

In addition, the capacities of the cotton system have also been given, in terms of both spindles and looms. While this does not cover the whole of the textile industries, the other sections, e. g. woollens, knitting, etc., form only a relatively small proportion of total textile production. Knitting, for example, accounts for little more than 5 per cent of total output, while woollens usually form about 10 per cent. The utilisation of spindles and looms in the cotton system is generally about 90 per cent, apart from the newly established industries and mills, which tend to be somewhat lower for the first 2-3 years.

The textile industry is still, for the large part, a small scale industry. This is particularly the case in Asia, and to some extent even in Europe and North America. This means that new plants are frequently being installed, and each plant is usually very small in relation to a country's total output. Thus it would be of no consequence to describe a small number of individual plants in the section on investment, and this approach has been avoided.

Wherever possible, data have been presented for 1969. However, many of the figures for this year are provisional only, and must therefore be treated with some reserve. Metric units have been used throughout, and all values are expressed in constant U. S. \$.

The terms of reference, together with regional definitions, are included in the volume "General Industrial Review".

## ASIA

### Economic Trends

Data on economic trends in the Asian textile industry are presented in Appendices I-III, where output, employment and value added per person employed are given.

Output. In terms of value, it can be seen that Asia is responsible for well over 50 per cent of the output of the textile industry in the developing world, a position which it has maintained throughout the last decade. However, output is not nearly as large as that in any developed region, in spite of the rapid growth achieved over the last six years. Appendix II gives indices of world textile production, and it can be seen that Asian output has grown by 37 per cent over the past six year period. Apart from Africa, where the level of output is low and the index for 1969 is dubious, this is a faster rate of growth than any achieved by any other region or socio-economic grouping in the free market economies.

The leading individual producing country in this group is India, which until 1966 was responsible for over half of the total Asian output. This share of the output has since fallen slightly, in face of the development of the industries in Pakistan, Iran, Korea, Turkey and other countries. At the same time Indian production has stagnated, with output worth around U.S. \$1,450 million per year.

Data on output from the cotton system in Asia are presented in table 1 in physical units. Production of both yarn and cloth illustrate an upward trend over the last four years, a remark which applies to each of the major countries itemised. India maintains almost 50 per cent of Asian yarn output, and about two thirds of the cloth output. In fact, the leading four countries are responsible for over 75 per cent of the output of both yarn and cloth. In addition, it is worth noting that Taiwan, Philippines and the Republic of Korea all have rapidly growing cotton textile industries.



**Table 1. Production of Yarn and Cloth in the Cotton System<sup>a</sup> - Asia**  
('000 metric tons)

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
<b>1. Total Yarn</b> <b>(<u>'000 metric tons</u>)</b>	1,800	1,730	1,850	1,920
of which:				
India	894	896	960	921
Pakistan	234	247	267	286
Hong Kong	132	137	148	144
Turkey	115	127	149	150
<b>2. Cloth (<u>million metres</u>)</b>	11,460	11,850	12,890	13,132
of which:				
India	7,332	7,270	7,896	8,400
Pakistan	641	704	701	734
Hong Kong	663	613	661	720
Turkey	640	693	750	750

a. Including mixtures. b. Estimated.

Sources: U.N. Monthly Bulletin of Statistics; ICAC, IFCATI,  
E. I. U. estimates.

In addition, Asia is responsible for virtually all the world's output of jute and allied fibres. However, the industry has faced increasing competition over the last few years from man-made fibres in both cordage and sacks. The industry is heavily concentrated in India and Pakistan, and the decline in world output of 28 per cent in 1969 was entirely due to the reduction in acreage planted. However, indications are that production has recovered in 1970, the higher prices having attracted increased plantings.

**Employment.** From Appendix III, it can be seen that employment in the textile industry has risen over the last decade, but not as fast as output. In fact, output per head in constant U. S. \$ has risen from 228 in 1960 to 276 in 1967.

**Trade.** With the establishment of a modern textile industry throughout the region, trade takes place in raw cotton, and staple, tow or filament yarn of man-made fibres which are outside the definition of the textile industries. In fact, Asia has been a net importer of about 30,000 tons of cotton yarn in recent years, which is negligible in comparison to the regional output which approaches two million tons. Moreover, total imports or

exports have seldom exceeded 100,000 tons. The position with cotton cloth is similar, for although the magnitude of trade is greater, net exports rarely exceed 50,000 tons per year. Trade in other products is much smaller, apart from jute manufactures. Virtually all the output of the region is exported, the quantities involved being well over one million tons per year.

Asia of course, is widely known as an exporter of made up goods. This labour intensive sector is ideally suited to the Asian conditions of abundant supplies of labour. The low wage rates give Asia a heavy price advantage compared to Western Europe and North America, and it seems that Asia exports clothes valued about U.S. \$1,000 million, or almost one third of total output. This has raised protectionist cries from the industries in the importing countries, and any such measures adopted on a wide scale could have a serious effect on the future development of the textile industries in Asia.

Consumption. Consumption of cotton fibres has already been considered implicitly under production of cotton yarn, but it is easier to treat man-made fibres from the consumption side. Consumption of cellulosic and non-cellulosic fibres are given in Appendix VII, along with other fibres. Usage of cellulosic fibres has risen steadily in Asia in recent years, and probably exceeded 300,000 tons in 1969.

Non-cellulosic material, however, has increased rapidly, doubling every three years. Moreover, it appears that consumption may have reached 250,000 tons in 1969. Even so, man-made fibre utilisation in the industry is only about 25 per cent of the total input into apparel production. As wool utilisation is only about 100,000 tons, cotton still accounts for over 75 per cent of the fibre used in the Asian textile industry. While man-made fibres are tending to erode the position of cotton, the relative decline in importance of cotton is fairly slow.

The above note on trade indicates that Asia only consumes about two thirds of its own production, the remainder being exported. Imports of made-up goods, however, do arrive in considerable quantity from Japan, and these enlarge the consumption picture somewhat.

### Technological Trends

Types of Product. Asia produces almost entirely the traditional range of cotton and man-made fibre woven textiles, together with the jute products which are peculiar to the region. Manufacturing and finishing equipment in the traditional field may not be as advanced as that used in Europe, although in general less capital intensive methods are employed. Very little progress has been made towards producing the newer range of textile products, such as non-woven fabrics or textured yarns.

The lack of development in textured yarn is characteristic of the relatively low rate of utilisation of synthetic fibres in Asia. The use of such fibres, particularly in mixtures, requires more complex finishing techniques, and Asia lags behind the Developed Market Economies in these respects. In fact, although the Asian textile industry has developed rapidly in size, it has only borrowed the traditional techniques from the developed countries, and has made very limited progress in developing modern techniques. The weft knitting industry, however, has shown considerable development recently, notably in South Korea and Hong Kong.

Value Added Per Person. Appendix V gives comparable international data on value added per person. Although output per head has risen in Asia since 1960, and also over the last three years for which data are available, it is still easily the lowest of the various regions. Much of the explanation for this lies in the fact that the textile industry in Asia is extremely labour intensive, and there is little apparent increase in capital investment. Output per head is less than one tenth that in Europe, and while part of this may be explained by labour skills being relatively low in Asia, essentially, the Asian textile industry is highly labour intensive with low wage rates. In many countries, notably India, the industry still operates at the cottage level, with work being farmed out. Thus the technological content of the output is extremely low;

equipment is generally old, and, as will be seen, automatic looms are little used. In view of the abundance of cheap labour, there is little incentive to modernise the industry into one which is capital intensive and technologically advanced.

### Investment Trends

Industrial Capacity. While no one measure exists for this, Appendices VIII and IX give the installation of spindles and looms in the cotton system by region. These roughly conform to production of yarn and cloth, but in Asia the trends in the number of spindles and looms installed is clearly rising. However, the proportion of looms which are automatic is much lower than in other regions, which goes some way towards explaining the low output per man obtaining in the Asian textile industry.

In Asia the tendency is still to invest in traditional spinning and weaving mills, with relatively labour intensive equipment. But the main producing countries are concerned about getting increased production from the capital already installed. The present low labour productivity appears to be of more importance than investing in new projects. This has led to talk of nationalising the jute industry in Pakistan, which is said to be particularly inefficient.

### Prospects and Plans

In the near future, the most likely structural development to occur in Asia seems to be the expansion of the weft knitting industry. Korea has recently become established in this field, and with more sophisticated products, will soon be challenging the European market. It seems that this trend may well spread to other Asian countries as may the use of textured yarns. Past growth may be expected to be maintained in the traditional spinning and weaving industries, and increasing use will probably be made of man-made fibres. But while the industry may be expected to become more capital intensive, this will be a slow process and much cottage industry will persist.

## LATIN AMERICA

### Economic Trends

The base statistical data for this section are included in Appendices I-IV, where output, employment and value added per person are given on a comparable basis with that of other socio-economic groupings.

Output. Latin American textile production in value terms, accounts for about one third of the output of the developing nations, but only about 5 per cent of total world output. Production of U.S. \$1,593 million in 1969 is worth slightly more than half of the output from Asia in that year. Output has also grown somewhat slower than in Asia, as can be seen from Appendix II. This is true for both the period 1963-1969, and also for the three most recent years.

Of the individual countries, Brazil, Mexico and Argentina are the three main producers. Brazil and Mexico together are responsible for about 45 per cent of the total Latin American production, a proportion which is divided almost equally between the two. Argentina accounts for nearly 20 per cent of production in the group. Thus these three leading manufacturers account for almost two thirds of Latin American production in value terms. Colombia and Ecuador are the only other producers of note, but they are each responsible for less than 10 per cent of total production.

Since 1966, the greatest growth has been achieved by the Mexican textile industry, an observation which in fact applies to the whole decade. One of the distinctive features in fact of the Latin American textile industry has been the slow rate of development in countries other than Mexico, and the output of the industries in Brazil and Uruguay have declined since the earlier years of the decade. Attempts to establish growing industries in the smaller countries seem to have met with some success in El Salvador and Guatemala, but production is still negligible when considered in a continental context.

Production in terms of physical units is given in table 2. This broadly reflects the observations above, but illustrates static yarn outputs with increasing cloth output. This in turn reflects the increasing use of tow and filament yarns in cloth output.

Table 2. Production of Yarn<sup>a</sup> and Cloth in the Cotton System - Latin America

	1966	1967	1968	1969 <sup>b</sup>
<u>Yarn ('000 metric tons)</u>	750	740	740	745
of which:				
Brazil	270	250	260	286
Mexico	139	144	150	148
<u>Cloth (million metres)</u>	5,809	5,794	6,026	6,033
of which:				
Brazil	2,460	2,400	2,500	2,500
Mexico	1,500	1,512	1,560	1,580

a. Including mixtures. b. Provisional.

Sources: U. N. Monthly Bulletin, ICAC; IFCATI; E. I. U. estimates.

Although Latin America is a considerable exporter of wool, the wool textile industry is not highly developed. Industrial consumption of raw wool is probably not much more than 75,000 tons per year, only about 5 per cent of the world total. Argentina and Uruguay are the leading countries in wool textiles.

Employment. From Appendix III, it can be seen that employment has risen since 1960, albeit somewhat irregularly. However, the rise in employment has been persistent since the middle years of the decade. The decline in employment in the earlier years of the decade was also accompanied by increases in output, and output per head rose rapidly. However, Appendix V illustrates that output per head has declined since 1965. Nevertheless, it is still about three times higher than in Africa, and five times greater than in Asia.

Trade. Latin American trade in apparel yarns and cloths is small. In recent years the region has been a net importer of some 30-35,000 tons of both yarn and cloth. The majority of this is man-made fibre yarns and cotton cloths, in neither of which is

the region entirely self-sufficient. Trade in made-up goods is also small. No apparent trends emerge from the last few years.

Consumption. Consumption of cotton and wool is reflected in the production data previously analysed, and data on man-made fibre consumption are included in Appendix VII. It is clear that utilisation of non-cellulosic (synthetic) fibres has risen rapidly over the last three years, reflecting the world-wide situation. On the other hand, consumption of cellulosic fibres has, if anything, tended to fall, and was overtaken by synthetic fibres in 1969.

All man-made fibres account for about 25 per cent of Latin American fibre consumption, with wool taking one tenth, and cotton the remaining 65 per cent. The proportion of cotton is therefore rather lower than Asia and Africa, but higher than in the Developed and Centrally Planned Economies.

#### Technological Trends

Types of Product. As with the other developing regions, the range of product tends to be conventional, using straightforward and long-established techniques. Large, integrated spinning, weaving and finishing mills have been in existence for some time, and the majority of man-made fibres used are available from the region's chemical industries. Although Latin America is considerably the more developed of the developing regions in textiles, it is by no means in the vanguard of textile development. The strengths of the industry, compared to the other developing regions, lie in relatively high labour productivity. The knitting industry has been little developed to date.

Value Added Per Person. Appendix V shows that value added per person rose substantially between 1960 and 1965, but tended to fall thereafter. This must be of some concern, as there seems to be little chance in the immediate future of raising productivity up to the levels of the developed countries. Admittedly, the industry is more labour intensive than in the developed regions, but Latin America is the only region, apart from Africa, where output per head has declined recently. In Africa, this can be explained

by the establishment of new industries with initial teething troubles, but this cannot be said of Latin America. Here it seems to be a rather more serious development which must be of concern to the individual countries concerned.

#### Investment Trends

The number of spindles installed in the cotton system increased by 12 per cent between 1965 and 1967, but between 1966 and 1967 the number of looms installed fell slightly. The proportion of looms which are automatic, 63.2 per cent, is almost as high as in Europe, and higher than the 59.8 per cent for Developed Market Economies. Thus the much lower level of output per head in Latin America is disturbing.

The type of equipment which is now installed in Latin American mills is usually highly automated and capital-intensive. In this respect, the industry resembles the Developed Market Economies rather than Asia. Nevertheless, little progress has been made towards producing textured yarns or non-woven fabrics, and neither warp nor weft knitting appears to be significantly established.

#### Prospects and Plans

During the next three years, little change is expected in the structure or the range of growth of the textile industry. It does not seem likely that significant production of new products will develop, nor is the industry particularly subject to any oscillations in world trade. Thus the current 4 per cent annual growth rate may be expected to persist, giving an output of value U. S. \$2,300 by 1973. It seems very possible that the embryo textile industries in the small countries may grow rather faster than the well established industries in the larger countries.



## AFRICA

### Economic Trends

Although the textile industry was first established by the Gonfreville mill in the Ivory Coast in 1925, much of the development has taken place in the last ten years. It is only in this period that the policies of industrialisation have borne much fruit in Africa, and the textile industry, as ever, was one of the earliest to be established.

Output. African textile output accounted for only about one sixtieth of the value of world production in 1969, nevertheless output has more than doubled since 1960. Appendix II shows that Africa textile output has risen far more quickly than in any other region since 1963, but this increase has been built from a very small base.

Of the individual countries, the U. A. R. completely dominates the continent, accounting for a little more than half the production in 1969. Other countries with established industries are Nigeria, Ethiopia, Sudan, Congo-K and Algeria. Many countries have recently established small textile industries, however.

Table 3. Production of Yarn and Cloth in the Cotton System<sup>a</sup> - Africa

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
<u>Total Yarn ('000 metric tons)</u>	260	290	286	300
of which:				
U. A. R.	142	158	157	157
<u>Total Cloth (million metres)</u>	1,080	1,290	1,250	1,300
of which:				
U. A. R.	618	697	695	689

a. Including mixtures.

Sources: U. N. Monthly Bulletin, ICAC; IFCATI; E. I. U. estimates.

Over the last four years, production of yarn and cloth in the cotton system have both risen by over 20 per cent in volume. The U. A. R. has shared in this increase and seems to have a rapidly growing industry. The wool textile industry has hardly developed, apart from a little in North Africa, as the climate is generally unsuitable. Jute, sisal, and other fibres, however, are processed to some extent. Kenya and Tanzania have notable sisal industries, which increased their output by 50 per cent during the

period 1966-1968, and Senegal and the Ivory Coast have established a jute processing factory, which will later use home-grown kenaf.

Employment. As with Asia, data on employment are apt to be misleading, as some of the work is farmed out to cottage industries. But this is less the case with Africa, as modern techniques have been incorporated in the mills. But employment has risen by 75 per cent over the period 1960-1967, as can be seen from Appendix I. Over the same period, however, output per head fell from \$605 per head per year to \$513. This is largely due to the establishment of new industries, which had to train their own labour. Thus output was severely restricted by the lack of a skilled labour force, in spite of a high degree of automation.

Trade. Africa is a net exporter of cotton yarn, although considerable trade is conducted between U. A. R. and other African countries. However, imports of cellulosic yarn and staple are relatively high, running at about 60,000 tons per year currently, plus 25,000 tons of synthetic fibres. Imports of cloth, particularly cotton, are also high and have approached 200,000 tons in past years. These are now tending to decline, however, as import substitution takes place with the establishment of domestic textile industries.

Consumption. In addition to cotton discussed above, some 40,000 tons of imported rayon are used. This is mainly staple, although certain quantities of filament are used. In addition, about 20,000 tons of synthetic yarns, mainly filament, are used. The main users of man-made fibres are Morocco, Ethiopia and Algeria. Consumption of man-made fibre yarns has almost trebled since 1966, when imports were only about 30,000 tons. Man-made fibres now account for about 25 per cent of African fibre consumption, with cotton taking virtually all the rest.

### Technological Trends

Types of Product. Africa, in common with other developing regions, is producing a conventional range of spun yarn and woven cloth. As is to be expected in a newly developing region, the practice is to imitate the products and processes of the developed areas, which is well illustrated by the widespread policy of purchasing economically obsolete equipment from the developed countries. Perhaps the exception to the rule

above is the establishment of the production of wax printed material in Senegal and the Ivory Coast. These cloths are traditional wear in West Africa, and a substantial market exists, even though the printing process is more expensive than most other techniques.

A significant warp and weft knitting industry has also developed in North Africa, using very modern machinery. There is a considerable demand for knitwear at this end of the continent, and much man-made fibre is used.

Value Added Per Person. Appendix V shows that value added per person has declined since 1960. This should not be read as a reflection of the industries in existence in 1960, for the decline in productivity has come about through the creation of new industries in new countries. Initially at least output per head has been very low in these industries, which is inevitable with the initial labour and machinery troubles. It is worth noting here that the Ivory Coast has for many years achieved a labour productivity somewhat higher than the average for the developed market economies.

#### Investment Trends

The textile industries of Africa, surprisingly enough, are highly automated, and use very advanced techniques. This is in marked contrast to the cottage-based industries of Asia, but is well illustrated by Appendix IX, which shows the continent to have 76.6 per cent of its looms automatic. This figure is considerably higher than for any region in the world, and few individual countries outside Africa have achieved such a rate of automation. This may seem curious in areas with abundant supplies of labour, but it has arisen partly through the fact the industries are fairly new, and do not have large quantities of old equipment to wear out. It is also interesting to note that most of the factories are run by established, international companies, and that it is those with older equipment which tend to be unprofitable. The use of new equipment has circumvented to some extent the problem of labour training, and also the under-estimated problem of acquiring spare parts.

Meanwhile, the industry is growing along the established lines in Algeria, Morocco, Senegal, Cameroon and the Ivory Coast. New industries are being established in Upper Volta, Chad and the Central African Republic. The picture presented is one of an industry growing on all fronts.

#### Prospects and Plans

The apparently high growth rate achieved in recent years is distorted by what is probably an overestimate of production in 1969. Nevertheless, the young industry is expected to continue its growth, with the smaller and less developed countries establishing industries. One can envisage considerable growth in the Moroccan and Algerian industries, while the U. A. R. will continue to dominate the continent. The development of wax print cloths in West Africa will probably give a boost to the industry there. The industries will be almost entirely devoted to production for the local market, or at most for exports to neighbouring countries. However, while not exporting to other regions, production will at least provide for import substitution. By 1973, the value of output should be about \$800-\$1,000 million.

## DEVELOPING COUNTRIES - SUMMARY

The last four years has seen a slight swing of the textile industries towards the developing countries, and away from the Developed Market Economies. This is more evident in terms of volume than value, as the Asian textile industry in particular has produced traditional goods very cheaply. In volume terms, the rate of growth may be expected to continue in the future, but little innovation seems likely in the way of manufacturing new products.

Thus by 1973, the Developing Countries may have obtained 20 per cent of total world output in terms of value, as compared with 17 per cent now. Much may depend, however, upon the effects which protectionist policies may have on Asian exports in the future.

## EUROPE AND DEVELOPED MARKET ECONOMIES

### Introduction

These two sections are to be considered together. The structure and recent developments in the textile industries in Europe, North America, Japan, and the other developed countries have a great deal in common, and it saves much repetition to discuss Europe alongside the other Developed Market Economies.

### Economic Trends

Output. In terms of value, the output of the group has increased considerably since 1960, and since 1966, as may be seen from Appendices I and II. But the annual average growth rate of 3.4 per cent since 1966 has not been matched in Europe, which is the most important sub-group. In fact, Europe, which accounted for well over 50 per cent of the group's output in 1960, now accounts for below 50 per cent of output. Since 1960, the North American textile industry has increased its output by about 50 per cent, but the main impetus to the group has come from Japan, where output has almost doubled over the decade. The increasing dominance of Japan has been accelerated since 1966, for output has grown by 25 per cent, while the corresponding figures for North America and Europe are about 10 per cent and 5 per cent respectively.

Table 4. Production of Yarn and Cloth in the Cotton System - Developed Market Economies

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
<u>Total Yarn ('000 tons)</u>	4,204	3,986	3,767	4,260
of which:				
U. S. A.	2,006	1,877	1,693	1,680
EEC	908	839	820	811
Japan	506	519	551	527
<u>Cloth (million metres)</u>	19,603	18,549	17,360	16,912
of which:				
U. S. A.	8,088	7,572	6,840	6,384
EEC	5,800	5,300	4,430	4,490
Japan	2,916	2,820	2,750	2,780

Sources: U. N. Monthly Bulletin of Statistics; ICAC; IFCATI; E. I. U. estimates.

The Developed Market Economies have held a constant share of world output of about 55 per cent throughout the decade, and no change appears to have taken place over the last four years. But this is due to the rapid development of the industry in Japan, which in many respects is more like the remainder of the Asian textile industry rather than the European or North American models.

Production of yarn and cloth in the cotton system is given in table 4. Yarn production fell in step with cloth production over the period 1966-1968, but appeared to recover in 1969. While these figures may be subject to subsequent revision, it may be explained by the recent growth in the knitting industry. It is the section of the industry, together with the development of non-woven fabrics, which has maintained the industry in recent years in face of the decline of the traditional cotton industries, which has been sharp in both U.S.A. and Western Europe.

Production of textured yarns for the knitting industry has increased rapidly recently, and the group accounts for about 90 per cent of total world output.

Table 5. Textured Yarn Production in Developed Market Economies  
(000 tons)

	<u>1968</u>	<u>1969</u>
Europe	190	245
U. S. A.	105	125
Japan	60	75
Total	<u>355</u>	<u>445</u>

Source: Textile Month.

While output is only one tenth that of the cotton system, it is clearly growing rapidly throughout the group.

The Developed Market Economies dominate the woollen industry, accounting for 60 per cent of world production of woollen goods, with Western Europe itself accounting for some 40 per cent of production.

Employment. Employment in the textile industry has declined steadily over the last decade, and particularly since 1966. This trend is in contrast to the increases registered in Centrally Planned Economies and Developing Economies. The decline has come about as a direct result of the decline of the cotton industries, for the more recent developments have all been more capital intensive. The decline in employment has been most marked in Europe and the U. S. A., the Japanese textile labour force having held more or less constant throughout the decade. Nevertheless, even in Japan some decline in employment has been evident since 1966.

Consumption. Consumption of fibres is discussed in Appendix VII. In addition to cotton and wool, which have already been considered from the production side, it can be seen that in developed countries, consumption of man-made fibres is now greater than consumption of cotton. This applies to all the major sub-groups of the region, and is in marked contrast to the situation in all the developing regions, and also in the Centrally Planned Economies. The reasons are partly economic; for the price of man-made fibres in Western Europe and Japan, at least, is no more than that of cotton. By contrast, the developing regions are often faced with the choice of using imported man-made fibres or locally grown cotton, in which case cotton is chosen to save foreign exchange. Moreover, its real price is often below that of imported man-made fibres.

The heavy increase in consumption of man-made fibres has largely arisen through increased demand for synthetic fibres, for use of cellulosic fibres has increased only slowly over the past decade. In turn, much of this is due to increased usage of textured yarns in recent years, and to the increased use of polyester and nylon for weaving.

Trade. The developed market economies are considerable net exporters of synthetic fibres, both in yarn and staple form. However, this is not the case with cloth or made-up goods, which are imported largely from Asia. Japan is also a considerable exporter to Europe, and, particularly, to North America. This has led to the formation of a strong lobby in U. S. A. to protect the local textile industry from low-wage countries. This applies particularly to cotton textiles, in which developed



countries generally have stringent quota arrangements already. Japan is the exception here, for from the point of view of production conditions and trade it approximates to the Asian countries rather than to the European or North American textile industries.

Within Europe, Portugal and Italy have developed low cost, export orientated industries. In Portugal, it is cotton textiles which form the main bulk of exports, but Italy exports considerable quantities of knitwear and suiting.

### Technological Trends

Range of Products. The European and North American cotton industries have developed into multi-fibre industries over the last decade. Such a structural change has been necessitated by the pressures of international competition, for the low-cost-labour intensive cotton textile industries of the developing areas, notably Asia, first eroded export markets, and subsequently achieved considerable penetration into the domestic market.

Thus in virtually all European and North American countries, the search has been for new fibres and new techniques. Consequently the industries in these countries have conceded the ground of low-cost, labour-intensive manufacturing, and have become capital-intensive industries in the vanguard of research and technical progress. The situation in Japan is rather different, as it is pursuing the twin course of developing the low-cost industry on one front, while establishing itself as one of the leading innovators of the textile industry on the second front.

In the field of new products, two types merit particular discussion: the rapid increase in textured yarn production discussed earlier, to satisfy the needs of the knitting industries, and the expansion of non-woven textiles. In the latter field, Europe, North America and Japan are responsible for over 80 per cent of world production. The recent applications to cleaning cloths, interlinings and disposables has led to a rapid expansion of output of mechanical, chemical or stitch-bonded webs. The predominant fibre used is rayon, and non-woven fabrics production may enable the slide in rayon consumption to be checked.

Over the last three years, the knitting industry in Europe has expanded considerably, particularly in Britain. Japan experienced two years of rapid growth in the knitting industry, but this was checked in 1969. Knitted goods are now competing in areas traditionally held by woven goods e.g. suits, dresses and skirts, but their importance is still limited in quantitative terms. The proportion of the market they hold is now about 8 per cent, compared with 5 per cent four years ago. However, the scope for increased application of knitted goods in these areas is undeniable.

Value Added Per Person. Appendix V illustrates the high output per head achieved in the textile industries in Europe and in the Developed Market Economies as a whole. Moreover, over the last decade, output per head has increased by about one third in both instances. This is mainly due to improved equipment, and to an increased use of automatic machinery, which will be discussed in the next section.

Appendix V also shows that Europe and the Developed Market Economies have a labour productivity ten times greater than in Asia, and about seven times that achieved in Developing Countries as a whole. This amply illustrates the wide choice of production techniques available to the industry and that production techniques are determined largely by the price of labour.

#### Investment Trends

Appendices VIII and IX show the number of spindles and looms installed in the cotton system in Europe and in the Developed Market Economies. In Europe there was a marked decline over the period 1965-1968, but for Developed Market Economies as a whole the number of looms increased slightly, even though the number of spindles fell. This illustrates an increasing use of filament yarns.

The proportion of automatic looms in both Europe and the Developed Market Economies is about 60 per cent. The figure for the U.S.A., however, is almost 100 per cent, while that for several European countries was over 80 per cent. Japan, however, has only about 30 per cent, but this proportion is increasing rapidly.

Investment generally in the textile industry in these countries is low in comparison with investment in other industries. Also scope is available for higher utilisation of existing capacity. It seems that the majority of new investment is likely to be directed into the growing sectors such as knitting or non-woven fabrics. In many European countries and Japan, output per spindle (or loom) is only 50 per cent-60 per cent of that achieved in the U. S. A. , and considerable scope is available for improvement with existing machinery. However, most countries have largely achieved modernisation of equipment in the traditional sectors of the industry, and little scope remains for further investment here.

#### Prospects and Plans

The structural changes which have taken over the last decade may be expected to continue. One significant feature in the near future may be an acceleration of mergers at all stages of the industry, both in Western Europe and the U. S. A. The man-made fibre manufacturers may well move downstream, and the making up sectors are likely to become increasingly concentrated. It is in these regions that technical progress will be achieved, as the decline of the traditional cotton industries continues. Nevertheless, growth of output will not be particularly rapid, and the textile industry will almost certainly grow more slowly than most other industries. By 1973, total output will be valued at about \$23,000 million, of which Europe's share will probably be about \$11,200 million.

## CENTRALLY PLANNED ECONOMIES

### Economic Trends

In common with other industries in this bloc, the textile industry is dominated by the U. S. S. R. Thus attention will naturally tend to be concentrated on developments in that country.

Output. Appendix I shows that in terms of value the Centrally Planned Economies' textile production was less than one third of total world output in 1969, and that production was only 50 per cent of that achieved in the Developed Market Economies. However, Appendix II illustrates the fast growth achieved in the textile industry by this group since 1963, and particularly since 1966. The rate of growth of 6.6 per cent has been higher than in any other region apart from Africa, which has grown from a very small base. This is often overlooked in textile surveys, for Asia is usually considered to have the most rapidly growing industry.

Table 6 gives output of yarn and cloth in the cotton system. Output of both has risen since 1966, but not nearly as fast as total textile output. Moreover, virtually all the growth has come from the U. S. S. R., and the cotton industries in the other countries have not exhibited any notable trends. Table 6 also demonstrates the dominance of the U. S. S. R. in this group, with about 70 per cent of yarn and cloth output.

Table 6. Production of Yarn and Cloth  
in the Cotton System - Centrally Planned Economies

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
<u>Yarn ('000 tons)</u>	1,920	1,979	2,024	2,054
of which:				
U. S. S. R.	1,323	1,373	1,420	1,440
Poland	193	194	194	198
Czechoslovakia	112	112	112	109
<u>Cloth (million metres)</u>	8,261	8,467	8,696	8,809
of which:				
U. S. S. R.	5,700	5,916	6,120	6,204
Poland	845	824	835	841
Czechoslovakia	518	514	506	500

Source: U. N. Monthly Bulletin of Statistics.

In Centrally Planned Economies, the cotton system accounts for about 60 per cent of total output. Considerable quantities of wool and man-made fibres are also processed, but this region is the main processor of flax in the world. Over 500,000 tons is produced annually, which composes over 80 per cent of total world output. Moreover, this is an industry which appears to be growing steadily, having increased by some 12 per cent since 1963.

Employment. Employment increased steadily over the period 1963-1967. As may be expected, it follows the pattern of output within the region, with Russia accounting for the vast majority. The upward trend is in contrast to the declining employment in Europe and North America, but Appendix V shows that output per head has increased at the same rate as in Developed Market Economies. It is thus the high rate of expansion of the industry which has absorbed more labour.

Trade. External trade with other regions is small, although some 200,000 tons of man-made fibres are imported from Europe and Japan. A certain amount of trade goes on within Comecon in made-up goods but this is low, and is only used to make good shortfalls in production.

Consumption. Total consumption of fibres is given in Appendix VII, which shows that cotton still provides 50 per cent of fibre consumption. Man-made fibres are responsible for a further 25 per cent, while wool and flax make up the remainder. The importance of cotton to the textile industry is somewhat greater than in Developed Market Economies, where it forms only about 42 per cent of fibre consumption. However, it is much lower than the 80 per cent ratio which is found in Developing Countries. The importance of cotton in Centrally Planned Economies has tended to decline over the last decade, but only slowly. The greatest growth has been achieved in synthetic fibres, which has been an almost world-wide trend.

### Technological Trends

Range of Products. Although value added per head is high in Centrally Planned Economies, the product range appears to be largely traditional. Little progress has been made in technical innovation, and the bloc lags behind Developed Market Economies in this field, particularly with respect to textured yarn and knitting developments, and non-woven fabrics. Nevertheless, it seems that the industry is now sufficiently technologically advanced to diversify into such products, if the market warrants it.

But in spite of its traditional range of products, the textile industry is highly capital-intensive. Value added per head is higher than in Europe and only slightly below that in Developed Market Economies as a whole. This reflects the use of modern machinery and methods which is prevalent, particularly in the U. S. S. R.

### Investment Trends

Little is known in detail about investment plans and policies in Centrally Planned Economies, but Appendices VIII and IX give information about current spindle and loom installations. The number of spindles installed increased over 1965-1967, but the number of looms appears to have fallen. However, 67.6 per cent of the looms were automatic by 1967, a higher proportion than in any other region apart from Africa.

It appears that intentions are for the industries to continue growing along the present lines, with increased automation and output per head. Nevertheless, it seems very possible that the U. S. S. R. will move over increasingly to synthetic fibres in place of cotton. Developments in this direction could also lead to an increase of the knitting industry, using textured yarn, as has been done in Europe. Moreover, it seems possible that the market may now be ready for the development of non-woven fabrics, which may also be produced on a small scale during the next few years.

Prospects and Plans

It is in this group that future prospects are most difficult to determine, owing to general lack of knowledge of the planners' aims. But it seems likely that a fast rate of growth will be maintained, together with some progress into exploiting new products. By 1973, output will probably be valued at about \$13,000 million.

## WORLD - SUMMARY AND FUTURE PROSPECTS

The 4.8 per cent annual rate of growth of the world textile industry over the last four years has been lower than for any other industrial classification group, apart from food, beverages and tobacco, and leather and footwear. However, the growth rate is only slightly below that achieved for light manufacturing industry as a whole. This relative decline is expected to continue, in view of the relatively low income elasticity of demand for textiles, particularly in developed countries. Moreover, there is limited scope for technical innovation, which is one of the mainsprings of industrial growth.

**Table 7. Forecast growth of Textile Industry by Region**  
(million U.S. \$)

	<u>1969</u>	<u>1973</u>
Asia	3,550	4,500
Latin America	1,953	2,300
Africa	577	1,000
Developing Countries	6,080	7,800
Europe	9,900	11,200
Developed Market Economies	20,100	23,000
Centrally Planned Economies	10,480	13,000
Total, World	36,660	43,800

Source: E.I.U. estimates.

The above represents an annual growth rate of about 4.4 per cent, which is lower than the 4.8 per cent realised in the last four years. The relative decline of textiles will be greatest in the Developed Market Economies and particularly in Europe and North America. In terms of fibres consumed, growth is expected to be very much lower. The growth rate over the last four years has been only about 1 per cent per annum, and this will probably continue. Throughout the world, the trend from cotton to man-made fibres may be expected to continue, but at a slower rate in the developing regions than in the developed regions.



**Appendix I. Industrial Output by Region and Socio-Economic Group in Textile Industries**

(Million US \$)

	1960	1963	1964	1965	1966	1967	1968	1969 <sup>c</sup>
Asia <sup>a</sup>	2,403	2,591	2,930	3,025	3,000	3,110	3,325	3,550
Latin America	1,488	1,550	1,703	1,700	1,716	1,764	1,843	1,953
Africa <sup>b</sup>	236	275	298	317	330	359	386	577
Developing Countries (adjusted total)	4,242	4,539	5,069	5,182	5,187	5,379	5,709	6,080
Europe	8,002	8,694	8,895	8,702	9,077	8,701	9,204	9,900
Developed Market Economies	14,310	15,943	16,649	17,133	18,076	17,856	19,003	20,100
Centrally Planned Economies	6,758	7,384	7,766	8,065	8,667	9,417	9,963	10,480
WORLD	25,310	27,866	29,484	30,380	31,930	32,652	34,675	36,660

a. Excluding Israel and Japan. b. Excluding South Africa. c. E.I.U. estimates, based on U.N. Monthly Bulletin of Statistics.

Source: UNIDO; U.N. Monthly Bulletin of Statistics.

**Appendix II. Indices of Textile Production, 1966, 1969**  
(1963 = 100)

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	<u>1966</u>	<u>1969</u>	<u>Annual Average Growth Rate 1966 - 1969 (per cent)</u>
Asia	116	137	5.7
Latin America	112	126	4.0
Africa	120	210	24.0
Developing Countries	115	134	5.2
Europe	105	114	2.7
Developed Market Economies	114	126	3.4
Centrally Planned Economies	117	142	6.6
WORLD	<u>115</u>	<u>132</u>	<u>4.8</u>

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Source: U. N. Monthly Bulletin of Statistics.

**Appendix III. Industrial Employment by Region and Socio-Economic Group in Textile Industries**  
(Million persons)

	<u>1960</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Asia <sup>a</sup>	10.56	11.47	11.75	11.75	11.20	11.29 <sup>c</sup>	n.a.
Latin America	1.20	1.08	1.12	1.11	1.16	1.30	1.29
Africa <sup>b</sup>	0.39	0.45	0.49	0.57	0.60	0.70	n.a.
Developing Countries (adjusted total) <sup>d</sup>	12.26	13.16	13.53	13.60	13.14	13.46	n.a.
Europe	3.76	3.66	3.64	3.54	3.49	3.35	3.26
Developed Market Economies	6.41	6.37	6.36	6.33	6.31	6.10	6.01
Centrally Planned Economies	3.13	3.22	3.23	3.31	3.37	3.45	n.a.
<b>WORLD</b>	<u>21.80</u>	<u>22.75</u>	<u>23.14</u>	<u>23.24</u>	<u>22.82</u>	<u>23.06</u>	<u>n.a.</u>

a. Excluding Israel and Japan. b. Excluding South Africa. c. Excluding Pakistan. d. Including adjustment for countries for which data are unavailable.

**Appendix IV. Indices of Industrial Employment in Textile Industries**  
(1963 = 100)

	<u>Developed Market Economies</u>	<u>Centrally Planned Economies</u>	<u>Developing Countries</u>
1960	101	97	93
1961	100	99	97
1964	100	100	104
1965	99	103	103
1966	98	105	101
1967	95	107	102
1968	94	n. a.	n. a.

Source: UNIDO.

**Appendix V. Value Added Per Person**  
**Engaged in Textile Industries by Region and Socio-Economic Group**  
(US \$ per person)

	<u>1960</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Asia	228	257	258	276	n. a.
Latin America	1, 240	1, 530	1, 478	1, 358	1, 429
Africa	605	556	550	513	n. a.
Developing Countries	347	381	394	400	n. a.
Europe	2, 125	2, 460	2, 600	2, 600	2, 830
Developed Market Economies	2, 235	2, 720	2, 960	2, 925	3, 160
Centrally Planned Economies	2, 160	2, 435	2, 560	2, 770	n. a.
WORLD	1, 160	1, 254	1, 395	1, 417	n. a.

Appendix VI. World Consumption of Principal Fibres, 1960 - 1969

	<u>1960</u>	<u>1961</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968<sup>a</sup></u>	<u>1969<sup>b</sup></u>
<b>Total Consumption</b>							
<u>(000 metric tons):</u>							
Cotton	10,344	10,150	10,919	11,218	11,333	11,435	11,536
Wool	1,541	1,549	1,561	1,622	1,541	1,612	1,657
Flax	668	660	747	726	749	664	635
Silk	34	32	35	35	34	37	38
Artificial (cellulosic) fibres	2,600	2,682	3,354	3,360	3,335	3,569	3,694
Synthetic (non-cellulosic) fibres	702	830	2,042	2,470	2,861	3,749	4,390
Total, all fibres	<u>15,889</u>	<u>15,903</u>	<u>18,658</u>	<u>19,431</u>	<u>19,853</u>	<u>21,066</u>	<u>21,950</u>
Population (Million)	3,035	3,099	3,362	3,430	3,500	3,571	3,640
<b>Consumption Per Caput (kg):</b>							
Cotton	3.4	3.3	3.2	3.3	3.2	3.2	3.2
Wool	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Flax	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Silk	-	-	-	-	-	-	-
Artificial (cellulosic) fibres	0.9	0.9	1.0	1.0	1.0	1.0	1.0
Synthetic (non-cellulosic) fibres	0.2	0.2	0.6	0.7	0.8	1.0	1.2
Total, all fibres	<u>5.2</u>	<u>5.1</u>	<u>5.5</u>	<u>5.7</u>	<u>5.7</u>	<u>5.9</u>	<u>6.0</u>
<b>Of which (Per cent):</b>							
Natural fibres	79	78	71	70	69	65	63
Man-made fibres	21	22	29	30	31	35	37

a. Preliminary. b. Estimated.

Source: FAO.

Appendix VII. Mill Consumption of the Principal Fibres by Regions, 1961 - 1963, 1964 - 1966 and 1967 - 1968  
('000 metric tons)

	Developed Countries				Centrally Planned Countries			Developing Countries			World Total
	Northern America		Western Europe		USSR and Eastern Europe		Latin America				
	USA	Canada	Western	Other	Japan	Other	Total	Africa	Asia	Total	
<b>1961-63</b>											
Cotton	1,935.4	1,624.9	703.8	65.6	4,329.7	1,880.3	46.6	642.4	1,956.8	2,645.8	8,855.8
Wool	182.0	633.1	139.7	49.3	1,004.1	339.5	8.4	77.5	73.6	159.5	1,503.1
Flax	3.4	176.9	8.5	2.8	191.6	467.0	-	7.0	7.5	14.5	673.1
Cellulosic fibres <sup>a</sup>	620.7	818.9	387.6	38.4	1,865.6	710.0	22.6	111.4	167.4	301.4	2,877.0
Synthetic fibres <sup>a</sup>	448.7	320.1	181.5	15.6	965.9	71.7	0.3	29.5	24.5	54.3	1,091.9
<b>Total</b>	<b>3,190.2</b>	<b>3,573.9</b>	<b>1,421.1</b>	<b>171.7</b>	<b>8,356.9</b>	<b>3,468.5</b>	<b>77.9</b>	<b>867.8</b>	<b>2,329.8</b>	<b>3,175.5</b>	<b>15,000.9</b>
<b>1964-66</b>											
Cotton	2,110.6	1,589.6	707.5	91.4	4,499.1	2,072.6	75.6	699.2	2,200.9	2,975.7	9,547.4
Wool	171.5	604.1	151.7	54.6	981.9	357.7	10.5	89.6	88.0	188.1	1,527.7
Flax	3.6	155.5	7.5	3.1	169.7	507.1	-	4.7	9.5	14.2	691.0
Cellulosic fibres <sup>a</sup>	754.9	930.2	387.9	56.2	2,129.5	800.0	26.3	128.4	232.0	386.7	3,316.2
Synthetic fibres <sup>a</sup>	801.3	597.6	422.8	33.8	1,855.5	151.8	2.4	60.2	53.0	115.6	2,122.9
<b>Total</b>	<b>3,841.9</b>	<b>3,877.0</b>	<b>1,677.4</b>	<b>239.4</b>	<b>9,635.7</b>	<b>3,589.2</b>	<b>114.8</b>	<b>982.1</b>	<b>2,583.4</b>	<b>3,680.3</b>	<b>17,205.4</b>
<b>1967-68</b>											
Cotton	2,015.8	1,469.1	737.0	99.0	4,321.5	2,240.4	115.3	720.7	2,387.7	3,223.7	9,785.6
Wool	148.6	573.7	163.8	55.9	942.0	384.0	13.1	94.4	100.4	207.9	1,533.9
Flax	2.2	143.3	7.6	3.7	156.8	528.9	-	5.5	5.1	11.2	696.9
Cellulosic fibres <sup>a</sup>	771.5	821.7	413.5	54.6	2,061.3	901.1	46.3	137.0	281.3	465.1	3,427.5
Synthetic fibres <sup>a</sup>	1,278.3	890.7	512.8	53.2	2,734.0	252.3	10.4	109.2	114.1	233.7	3,220.0
<b>Total</b>	<b>4,216.4</b>	<b>3,898.5</b>	<b>1,843.7</b>	<b>267.0</b>	<b>10,215.6</b>	<b>4,306.7</b>	<b>185.6</b>	<b>1,066.8</b>	<b>2,891.2</b>	<b>4,141.6</b>	<b>18,663.9</b>

a. Production plus net trade in continuous filament and discontinuous fibres.

Source: F.A.O.

**Appendix VIII. Spindles Installed in Cotton System**  
(Million spindles)

	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Asia	24.6	25.5	26.5	n. a.
Latin America	8.4	8.6	9.3	n. a.
Africa	2.4	2.6	2.6	n. a.
Total, Developing Countries	35.4	36.7	38.4	n. a.
Europe	28.8	27.8	25.7	24.0
Developed Market Economies	62.7	62.3	60.8	58.3
Centrally Planned Economies	20.5	21.4	22.2	n. a.
Total World				

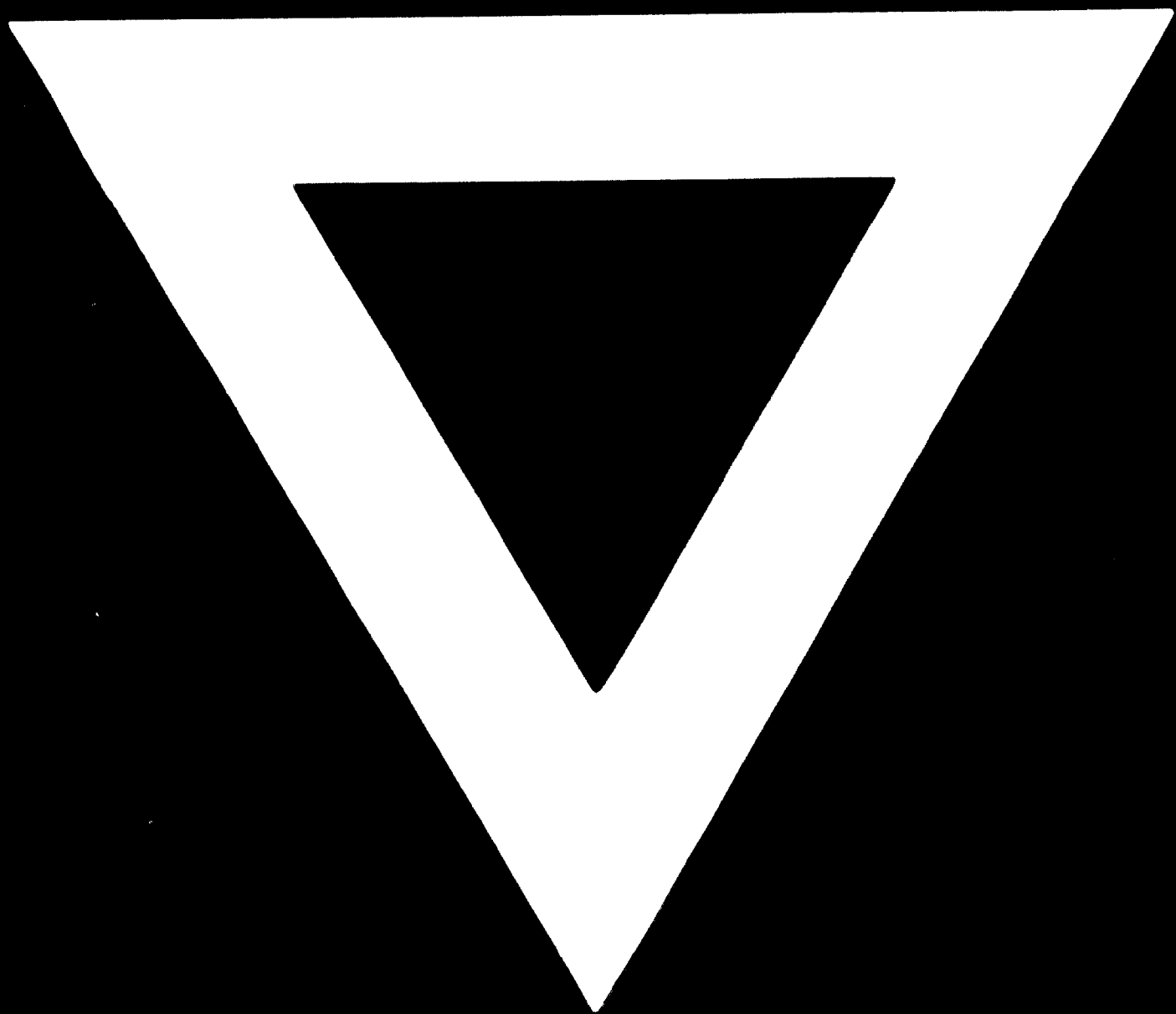
Source: IFCATI; O. E. C. D.

**Appendix IX. Looms Installed in Cotton System**  
('000 looms)

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Per Cent Automatic, 1967</u>
Asia	426.3	436.8	n. a.	44.8
Latin America	206.4	206.3	n. a.	63.2
Africa	55.2	58.1	n. a.	76.6
Total, Developing Countries	688.9	701.2	n. a.	52.8
Europe	570.7	546.9	460.2	63.4
Developed Market Economies	1,259.4	1,205.6	1,301.9	59.8
Centrally Planned Economies	424.5	421.2	n. a.	67.6
Total World	<u>2,372.8</u>	<u>2,328.0</u>	<u>n. a.</u>	<u>57.8</u>

Source: IFCATI; O. E. C. D.

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