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THE TEXTILE INDUSTRY IN LATIN AMERICA: VIII. ARGENTINA

Submitted by the secretariat of the Economic Commission for Latin America

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Chapter I

INTRODUCTION, SUMMARY AND CONCLUSIONS

1. Introduction

As part of the ECLA study programme on the textile industry in Latin America,1/ based on reports from the countries concerned, a survey was carried out in Argentina at the end of 1963 and beginning of 1964. There were some 200 interviews with textile firms, questionnaires were sent out, and as far as possible visits were paid to the various mills.

In both the preparation and executing of this survey, and in the collection of the questionnaires, ECLA was assisted by the Productivity Centre in Argentina (Centro de Productividad de la Argentina, or CPA), which was carrying out two simultaneous surveys to measure productivity in both wool spinning and cotton spinning mills. The co-operation of the CPA was essential to the success of the survey, and the ECLA secretariat wishes to express its gratitude to the CPA for its help.

Mention should be made of a number of other institutions that contributed to the work and made it possible to complete it more rapidly. These include the Argentine Federation of Textile Manufacturers (Federación Industrial Textil Argentina, or FITA), the Argentine Association of Woollen Textile Manufacturers (Cámara Industrial Textil Lanera Argentina, or CITLA), the Argentine Wool Federation (Federación Lanera Argentina, or FLA), the Association of Silk and Man-Made Fibre Producers (Cámara Industrial de la Seda y de las Fibras Sintéticas) and the Argentine Association of Scourers and Fellmongers (Cámara Argentina de Lavaderos y Peladores de Cueros Laneros, or CALP).

Despite the assistance of all these organizations, the collection of data from textile firms was extremely difficult and involved a great deal of work. This is the main reason for the delay in the publication of this report, and the incompleteness of certain data.

Notwithstanding these difficulties, it can be asserted that the figures for the basic branches of production give a reasonably accurate picture and permit the drawing of important conclusions with respect to the physical features of Argentina's textile industry, that is its size and operational conditions.

1/ ECLA, La industria textil en América Latina: I. Chile (Sales N° 63.II.G.5); II. Brazil (64.II.G.2); III. Colombia (64.II.G/Mim.2); IV. Uruguay (64.II.G/Mim.5); V. Peru (64.II.G/Mim.3); VI. Bolivia (64.II.G/Mim.4); VII. Paraguay (65.II.G/Mim.6). All the above are in Spanish only, except N° II. Brazil, which is in English only.

/As indicated

As indicated in detail in the various chapters relating to the individual branches of the textile industry and the operational sections in each, the coverage of the survey ranged from 62-66 per cent for the production machinery in wool combing and spinning to over 80 per cent for cotton spindles.

As for weaving (both cotton and wool) the existence of a large artisan sector reduced the percentage of the universe covered by the survey. But the machinery figures are as representative as for wool spinning and combing, since the looms covered by the survey represent, in both cotton and wool branches, 60 per cent of the total machinery in the industrial-scale weaving mills. It must, of course, be recognized that there is a substantial proportion of artisan weavers in Argentina; consequently, as will be seen later, once conditions in the industrial weaving mills had been studied, the universe was extended to include data, on the basis of estimates, for artisan weaving, in order to present a complete picture of Argentina's textile industry.2/

With respect to the use made of the data, it should be noted that the basic criteria for the concepts and methodology used are those used in the previous ECLA studies, apart from certain refinements introduced in dealing with wool spinning, to separate worsted and woollen yarn. These criteria are set out in annex I, Terminology and Methological Concepts, at the end of this study.

2. Summary

The report as such begins (in chapter II) by describing the origins and past development of the textile industry in Argentina, with an account of the conditions governing that development during and after the Second World War. The report goes on to show how general economic conditions in Argentina affected textile production during recent years. As a result of the economic crisis in the country the textile industry, which had expanded its productive capacity considerably during the boom years, had to face continual contractions of demand, which led to reduction of output and a large volume of idle capacity.

Despite the rather unfavourable development of the textile industry in the past decade, and the expansion and diversification of Argentina's industrial base, the textile industry still represents one of the main manufacturing groups, and stands in fourth place among the manufacturing industries.

2/ Two branches for which the survey results were very unsatisfactory were man-made fibres and hard fibres. The report confines itself to over-all data for man-made fibres, and hard fibres are omitted altogether.

Chapter III, entering into a more detailed consideration of the Argentine textile industry, examines the size of the existing industry in terms of installed capacity, and shows that not all the published estimates accurately reflect the real situation. A division is made between factory-scale industry and artisan or cottage industry, and it is concluded that in most branches of the textile industry a considerable proportion of the machinery cannot be regarded as really forming a part of the country's industry, since its operational characteristics are quite different from those considered normal in an industrial firm.

In addition, in the wool textile industry estimates based on substantial proof differ from the figures published, especially for weaving.

Generally speaking it is in weaving, whether of wool or cotton, that the proportion of artisan units is highest, and this applies even more to man-made fibres. This naturally affects the degree of concentration and vertical integration in the industry. In fact only in cotton spinning is there a sufficient degree of concentration, and the highest level of vertical integration is in the cotton industry.

Any evaluation of the size of the textile industry, or on the balance between its productive capacity and the use made of it, is possible only in the light of the real possibilities of the markets for the products concerned. For this purpose a study was made of the behaviour and dimensions of the domestic market (chapter IV) and of foreign trade (chapter V).

With respect to the domestic market, there is an analysis of the data for the past decade, which demonstrates the high level of per capita consumption compared with the average for Latin America, but also shows the declining trend. There follows a projection to 1970 and 1975 of both per capita consumption and total demand. However, a number of hypotheses have had to be used, relating not only to growth of the population and of income, but also to changes in the quality and prices of the textile products that will be consumed. This was necessary in order to allow for certain marked trends already observed, and their probable effect on production.

By means of a procedure described in detail in the chapter concerned, and in even greater detail in Annex II, Statistical Calculations, it was concluded that demand would increase, in comparison with 1960, by 50 per cent by 1970 and by nearly 100 per cent by 1975. This increase is arrived at if production is expressed in metres, if the products are considered in terms of weight the increases would be less (38 and 73 per cent, respectively), which indicates a preference for finer and lighter-weight products.

Obsiously these projections, or in other words these new characteristics of future demand, will pose certain problems in the industrial sphere, with respect not only to productive capacity, but also to the characteristics of

/the raw

the raw materials, the machinery, and so forth. These secondary problems have not been dealt with in this study, but they deserve the attention of the competent national agencies.

With respect to foreign trade, the analysis is confined to an account of the situation in recent years, and it is confirmed that trade in textile products (excluding the raw materials) is still insignificant in both absolute and relative terms, apart from a few items.

The general part of the report concludes with an examination (chapter VI) of the main lines of the tax and customs structure that affect textile products. It is shown that the customs barrier confers a high degree of protection and results in a practically closed market; there is reference to the unwisdom of putting high duties on raw materials and also of hampering their free movement; and there is an analysis of the system of reimbursing duties on textile products exported.

The report then enters upon a detailed study of the textile industry. There is a long chapter, chapter VII, on the wool textile industry, which, despite the statistical adjustment refered to in chapter III (especially as regards the number of looms) is still the largest, in terms of capacity, of all wool textile industries in Latin America and of all textile branches in Argentina. It is estimated that the wool textile industry's machinery inventory consists of 1,150 combs, 250,000 worsted spindles, 110,000 woollen spindles and 6,000 looms.

Table 1 compares the productive capacity of Argentina's wool industry with that of the other countries of the region that have been studies thus far.

The Argentine industry stands out, even though the data in the table do not represent the whole of Latin America. A more detailed study should refer also to the population of each country, but this analysis will form part of a later study that will bring together the data for all the individual countries in a regional study.

The Argentine wool textile industry is based on a substantial domestic wool production which provides the supply not only for the domestic industry but also for net annual exports of 120,000 to 130,000 tons of greasy wool. However, this abundance of raw materials does not mean that the domestic wool textile industry has no problems, and section 3 of chapter VII in fact deals with problems of price, quality and even, at certain times, supply.

The analysis of the various wool processing sections, mainly on the basis of the survey data, with occasional resort to other statistical data, showed (section 4) that the wool sorting operation is generally unsatisfactory, and is responsible for most of the subsequent problems. A high proportion of idle capacity was found in the wool-washing section, but this is mainly due to an excess of machines that could never be

/Table 1

Table 1

WOOL SPINDLES AND LOOMS IN SELECTED LATIN AMERICAN COUNTRIES

Countries and years of reference	Spindles	Looms
Argentina (1963)	360 000	6 000
Brazil (1960)	301 900	5 500
Chile (1959)	83 018	1 305
Uruguay (1961)	69 500	860
Peru (1961)	64 253	970
Colombia (1961)	48 564	1 000
Bolivia (1961)	17 710	204

Source: ECLA, The textile industry in Latin America, Vols. I-VI. (See note 1 above).

Table 2

MACHINERY UTILIZATION IN THE WOOL TEXTILE INDUSTRY IN SELECTED LATIN AMERICAN COUNTRIES a/

Country and year of reference	Spinning	Weaving
Argentina (1961)	63.9	34.1
(1963)	33.0	18.7
Brazil (1960)	64.0	53.0
Uruguay (1961)	54.4	46.0
Peru (1961)	48.0	47.0
Colombia (1961)	64.7	57.6
Bolivia (1961)	56.6	36.0

Source: ECLA, textile studies, op.cit.

a/ Based on 6 600 hours per year for all machinery.

/expected to

expected to attain a satisfactory level of utilization. Suffice it to mention that if the machines installed worked at full capacity they could wash one and a half times the country's total wool production, whereas in fact about two-thirds of the wool clip is exported as greasy wool. The prospects of replacing greasy wool for export by clean wool seem dubious, and depend on a body of reforms of the wool-marketing system, so that it would be rash to contemplate a solution along these lines.

Fortunately the situation in the other sections, although not ideal, is less unbalanced, although it should be added that the effect of the economic situation on the textile industry during the period under review led to a reduction in the utilization coefficient to a very low level in 1963. As for the industry as a whole (that is, the survey data plus an estimate for the remaining enterprises, in both factory and artisan sectors), the estimated utilization coefficient for 1961 and 1963 (in comparison with the standard of 6,600 hours a year)was 59 and 63 per cent respectively for combing, 65 and 35 per cent for worsted spinning, 61 and 28 per cent for woollen spinning and 34 and 19 per cent for weaving.

A better idea of machinery utilization in Argentina's wool industry is given by the comparisons in table 2. The data in this table which compare the situation in each country, should suffice to overcome any possible objections to the utilization coefficient adopted as the standard. The table confirms the already low level of machinery utilization in Argentina in 1961, and the further decline in 1963, especially in weaving. These indexes reflect both the magnitude of the crisis and the imbalance between the various sectors of production.

There is no doubt that the low level of machinery utilization (which is particularly striking in the final stages of the industrial process, especially in weaving) is due not only to low demand,3/ but also to the large machine inventory and this in turn is due to the large number of obsolete machines that are still to be found in Argentina and that operate in abnormal competitive conditions.

The machinery installed less than ten years ago amounts to less than 20 per cent of the total in combing and worsted spinning (which are the most modern sectors) and less than 10 per cent in woollen spinning and in weaving (on the basis of the total machinery inventory, and not only the data for the enterprises covered by the survey). About two-thirds of all combs and worsted spindles are between ten and thirty years old, and in weaving about 50 and 40 per cent of the machinery, respectively, belongs to this age category.

3/ Although exports of semi-manufactured goods are relatively high in comparison with finished goods, their total volume is so small that its effect on machinery utilization in spinning and weaving is negligible.

/Machinery over

Machinery over thirty years old represents about 10 per cent of the total in combing and worsted spinning, and about 40 and 50 per cent, respectively, in woollen spinning and in weaving.

This situation, in conjunction with the effects of economic decline, is the reason for the low unit output of the various sections (see table 36), which in comparison with the standard adopted,4/ amount for 1961 and 1963 to 54 and 56 per cent, respectively, for combing, 53 and 58 per cent for worsted spinning, 25 and 33 per cent for woollen spinning, and 53 and 47 per cent for weaving.

It should be noted that the methodological changes introduced in the analysis of the spinning section (see the note at the beginning of chapter VII) limit the possibility of comparisons with some of the country studies already published. Table 3 gives unit output figures for weaving for the countries studied thus far, but leaves some gaps for spinning. These gaps will be covered in a forthcoming regional study.

These data indicate that the wool textile industry in Argentina stands in an intermediate position in relation to the levels attained in other Latin American countries.

It is interesting to note that, despite the economic decline, the figure for worsted spinning rose between 1961 and 1963, which shows that the reaction to the economic situation was not the same in different branches.

The poor quality of the machinery inventory, and the low levels of utilization and unit output found, necessarily have an adverse effect on productivity levels. In the first place, because the machinery is obsolete it needs more workers than modern machinery, and in the second place, the efficiency of the workers tends to decline more or less in line with the lower level of activity of the machinery, because manpower use cannot be reduced (by cutting down either the number of workers or the number of hours worked) as easily as machine use.

In practice the analysis of the mills surveyed indicated that to produce 1 kg of tops 0.298 and 0.285 man/hours were required in 1961 and 1963, respectively; to produce 1 kg of worsted yarn (metric count 30) the corresponding figures were 1.007 and 0.941; for 1 kg of woollen yarn (metric count 8) they were 0.515 and 0.603; for the production of a metre of worsted fabric (2,000 picks) they were 0.810 and 0.807, and for a metre of woollen fabric they were 0.540 and 0.593.

With respect to the Argentine industry as a whole, that is, including also the production units not covered by the survey, the data

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4/ See Annex I.

/Table 3

Table 3

WEIGHTED UNIT OUTPUT OF MACHINERY IN THE WOOL TEXTILE INDUSTRY IN SELECTED LATIN AMERICAN COUNTRIES

		Worsted spinning 30 count (metric)	Woollen spinning 8 count (metric)	Weaving 2 000 picks per metre
		(Grammes per spindle/hour)		(Metres per loom/hour)
Argentina	(1961)	15.5	20.3	1.85
	(1963)	17.0	18.6	1.34
Brazil	(1960)	...	...	1.98
Chile	(1959)	...	...	1.96
Uruguay	(1961)	...	...	2.16
Peru	(1961)	14.3	22.7	2.30
Colombia	(1961)	18.0	23.7	2.25
Bolivia	(1961)	...	...	0.62
Latin American standard		29.5	80.0	3.50

Source: ECLA textile studies, op.cit.

/listed may

listed may be considered valid as regards combing and spinning sections. For weaving, on the other hand, any attempt at an estimate is hazardous, since in the artisan sector the concept of a workload is entirely different from what is meant by this expression in an industrial mill; moreover the calculation for expressing the physical labour input in terms of money gives false results for the artisan sector, because it is based on wage levels that cannot apply to artisan labour that is self-employed or working for third parties on piece rates instead of on an hourly basis.

However, the main point in this study is to outline the features of manpower organization in the mill sector of the industry. For this purpose it should be noted that, in the light of the unfavourable effect of the economic situation, the diagnosis of the textile industry in Argentina is not wholly unpromising. The levels for the workloads are generally higher, in comparison with the selected standard, than those for unit output (with the sole exception of the combing section). For woollen spinning the workload is even higher than the standard, but this is due to the small number of workers used in spinning preparation, not always a positive advantage for the operation as a whole.

Table 4 compares productivity in the wool textile industries of the countries studied thus far by ECLA. As in table 3 there are certain gaps, and the data for Argentina are confined to the mills surveyed, which means that the figures are representative of the mill sector, to the exclusion of the artisan sector.

In this table also the position of Argentina's woollen industry lies at an intermediate level among those of the national averages for the countries studied. The wide range represented by the average, both for the total figures and for the figures by size categories, is analysed in chapter VII.

There is also an analysis of the costs of Argentina's textile industry (section 11), and it is noted that the terms of the problem are considerably distorted through the instability of the rate of exchange for the dollar during the period in question.

From the standpoint of the domestic market this factor can, of course, be disregarded. However, as the woollen industry is regarded as a potential export industry it was felt necessary to take account of the costs, and their composition, in both local currency and dollars.

With respect to the costs in local currency, it was found that the cost components involving the use of long-term capital, in particular machinery and raw materials, represent a high proportion of the total cost, because of the shortage of capital and its high cost. The labour component was not, broadly speaking, out of proportion, and during the two years reviewed productivity increases were sufficient, with few exceptions, to absorb wage increases (see table 75).

/Table 4

Table 4

WEIGHTED LABOUR PRODUCTIVITY IN THE WOOL TEXTILE INDUSTRY IN SELECTED LATIN AMERICAN COUNTRIES

	Worsted spinning yarn count 30 (metric)	Woollen spinning yarn count 8 (metric)	Weaving 2 000 picks per metre (metres per man/hour)
	(Grammes per man/hour)		
Argentina (1961)	993	1 941	2.04
(1963)	1 063	1 659	1.97
Brazil (1960)	...	...	2.34
Chile (1959)	...	...	2.00
Uruguay (1961)	810	1 240	1.79
Peru (1961)	858	1 431	1.65
Colombia (1961)	...	...	3.92
Bolivia (1961)	...	...	0.96
Latin American standard	2 685	3 200	7.00

Source: ECLA textile studies, op.cit.

/A calculation

A calculation of the costs of Argentina's wool industry in dollars shows that the changes in the exchange rate between 1961 and 1963 far outweighed the changes in the cost components. An estimate of the cost changes between 1961 and 1963 (see table 78) indicates that rises in the cost of raw material and manpower, led to an increase in the cost of the main wool products of about 120 per cent in national currency, but only about 30 per cent in dollars. In the estimated cost composition for 1963 the relative cost of raw materials is higher and this is why the price on the international market for Argentina's wool products went up; however, the effect of this increase has offset by a similar rise in wool products generally since international wool prices also rose, although less than the price of Argentina's wool on the domestic market.

The final section of Chapter VII covers some general aspects of Argentina's wool industry. It includes estimates of the total volume of output, some data on the level of stocks, other data, referred to above, on the utilization and unit output of the total machinery inventory, an input/output table for 1961, and an estimate of the potential output of the industry's present machinery (table 83) under certain conditions. These can be summed up as full utilization of the modern or modernized machinery with levels of unit output equal to the standard and a partial utilization (4,800 hours per machine/year) at the present level of unit output, for the other machinery. Thus, apart from other aspects, these would be increases in output of about 56 per cent in combing, 60 per cent in worsted spinning, 110 per cent in woollen spinning and 244 per cent in weaving. All these increases exceed the projected consumption to 1970, and those in woollen spinning and weaving also exceed the consumption projected to 1975.

Chapter VIII examines the operational conditions of the cotton textile industry, first dealing with the familiar problem of raw material, which is that the quality of the domestic product limits its usefulness in meeting the industry needs. This fact affects the efficiency of the various stages of the production process, as well as the quality of the finished product.

The machinery inventory for spinning preparation, examined on the basis of aggregate data for its main stages, indicates that an average of between a third and a fourth of all the machinery is less than ten years old. Only a few machines are over thirty years old. There was a slight improvement in their degree of up-to-dateness (see tables 86 and 87) between the two dates covered by the survey (1961 and 1963). There was a slightly smaller number of machines less than ten years old in spinning (see table 88) than in preparation, but the change between the two dates, from 14.3 per cent to 18.1 per cent, indicates a trend towards modernization in this section, and there was a decrease in the number of spinning frames over thirty years old from 17.7 to 14.8 per cent.

The results of the survey relate to only a small proportion of the weaving universe, because of the same problem as in the woollen industry, with respect to artisan and cottage industry. In any case, in the mill sector (see table 96) the percentage of looms less than ten years old increased from 10.2 in 1961 to 26.9 in 1963, with a consequent reduction in the number of looms in both the 10-30-year old and over thirty categories (the latter dropped to 10 per cent of the total in 1963). For the total loom inventory the diagnosis would undoubtedly be far less encouraging, but it is more useful to concentrate attention in this study on the mill sector.

Lastly, the general verdict on the degree of up-to-dateness of the machinery in the cotton sector is on the whole favourable, in relation to the mill structure for the Latin American standard.5/ Although there will undoubtedly have to be many changes before the level of a really modern industry is reached, nevertheless, within the framework of the usual structure of the cotton industry in Latin America, Argentina's industry can be regarded as reasonably up-to-date.

The level of machinery utilization in the cotton sector was also affected by the negative trends of the cycle as a whole, but less than in the wool sector. Between 1961 and 1963 the over-all utilization index in the spinning mills declined from 75.5 to 56.1 per cent, and in the weaving mills from 81.8 to 57.1 per cent.6/

Unit output in spinning has for many years been about 19 grammes per spindle/hour with a slightly declining trend (see table 89); this level, representing about 85 per cent of the Latin American standard, is close to that in Colombia, Chile and Uruguay, slightly higher than in Peru and Bolivia, and a good deal higher than in Brazil. Considering the quality of the raw material, the figures indicate a fairly satisfactory level of machinery utilization. (See table 5.)

The productivity data also confirms the high levels in cotton spinning in Argentina which is surpassed among the countries studied, only by Colombia. Moreover, the unit output of 13.5 and 17.3 per cent of the spindles operating in 1961 and 1963, respectively, were higher than the standard adopted for Latin America; similarly, about 15 per cent of the spindles had a productivity level higher than the standard.

5/ See Annex I.

6/ In the wool textile industry the number of machines operating declined very little, while there was a marked decrease in the hours per year worked; in the cotton industry the reverse was true.

/Table 5

Table 5

COMPARISON OF UNIT OUTPUT AND PRODUCTIVITY IN COTTON SPINNING IN SELECTED LATIN AMERICAN COUNTRIES

		Unit output a/		Productivity a/	
		Absolute figures (grammes per spindle/hour)	Indexes (standard=100)	Absolute figures (grammes per man/hour)	Indexes (standard=100)
Argentina	(1961)	18.4	83.6	2 520	58.6
	(1963)	18.8	85.5	2 855	66.4
Bolivia	(1961)	17.0	77.3	1 102	25.6
Brazil	(1960)	14.0	63.6	1 996	46.4
Chile	(1959)	19.0	86.3	1 940	45.1
Colombia	(1961)	19.0	86.3	5 484	127.5
Peru	(1961)	18.0	81.0	2 393	55.6
Uruguay	(1961)	19.0	86.3	1 953	45.0
Latin American standard		22.0	100.0	4 300	100.0

Source: ECLA textile studies, op.cit.

a/ Weighted in terms of English yarn count 18. (See Annex I).

/The situation

The situation in weaving is less satisfactory; in this case the low levels of unit output and productivity are partly due to the high degree of machinery obsolescence (see table 97 and 98).

A comparison of Argentina's average weaving indexes with those of other countries is very unfavourable. One of the chief reasons is the problem of raw material. Even so, there are a few mills that approach the Latin American standard, and a handful that exceed it; this applies both to unit output and productivity. (See table 6.)

The raw material factor referred to more than once above, is examined in Section 5, on costs, chapter VIII. The classification of the cotton used clearly indicates the weaknesses of the country's cotton industry, but the price of the cotton is low. In brief, if labour costs are accompanied by a reasonable level of productivity, the total cost of the industry's products is fairly competitive.

The fluctuations of the exchange rate between 1961 and 1963, had the same effect as in the wool industry in modifying the real level of the total cost as against the level in national currency in dollars (see table 113). In national currency there was an increase of about 45 per cent for both yarn and fabrics; while in dollars there was a drop of about 15 per cent in both products.

The last section of the chapter on the cotton industry deals with general aspects, including data on the output available if the present machinery is operated more efficiently for 6,600 hours a year at a unit output equal to the standard, for the modern machines; and at the present levels of utilization and unit output for the others, which in effect means increasing only the efficiency of the modern machines. Thus the possible increase in output would be about 45 per cent for yarn and 60 per cent for fabrics sufficient to meet demand (according to the projections in Chapter IV) up to the first years of the next decade.

Lastly, Chapter IX considers the operational characteristics of the man-made fibre industry. As data collected were so limited in this textile industry, the analysis is very rough and ready, and hardly satisfactory. In fact, it is scarcely possible to speak of an industrial sector under this heading. The production of yarn from man-made fibres is mainly a part of the cotton industry in the form of a marginal activity, while the weaving of these fibres is carried out by many small artisan enterprises. It is therefore practically impossible to measure unit output and productivity.

However, one thing that can be established is the high cost of both artificial and synthetic fibres in Argentina. This fact, together with the probably low efficiency of the industrial process, increases the costs of these products and encourages smuggling. There is in fact more smuggling of man-made fibres than of any other textile item.

/Table 6

Table 6

COMPARISON OF UNIT OUTPUT AND PRODUCTIVITY IN COTTON WEAVING IN SELECTED LATIN AMERICAN COUNTRIES

		Unit ouput a/		Productivity	
		Absolute figures (metres per loom/hour)	Indexes (standard=100)	Absolute figures (metres per man/hour)	Indexes (standard=100)
Argentina	(1961)	2.89	53.5	7.94	22.0
	(1969)	2.98	55.2	8.94	33.1
Bolivia	(1961)	4.03	74.6	9.39	34.4
Brazil	(1960)	2.93	54.3	8.18	30.3
Chile	(1959)	4.34	80.3	11.60	42.9
Colombia	(1961)	5.11	94.6	28.84	106.9
Peru	(1961)	4.40	81.5	14.50	53.7
Uruguay	(1961)	3.60	66.6	8.37	30.9
Latin American standard		5.40	100.0	27.00	100.0

Source: ECLA textile studies, op.cit.

a/ Weighted in terms of 2 000 picks per metre (see Annex I).

/3. Conclusions

3. Conclusions

The detailed study of the characteristics and operational conditions of Argentina's textile industry permits various conclusions to be drawn.

The first conclusion can be useful at the entrepreneurial level, since it refers to the organization of production and manpower. At least, this was the main reason for breaking down the industrial cycle into its main stages, which may perhaps have hindered the presentation in some instances, as it involved going into details usually omitted in a general economic study.

The text as a whole however, and in particular the brief analysis given above, permit the drawing of a second group of conclusions of a general nature; their practical implementation is left to governmental bodies, private organizations and also, in a certain sense and within limits, to the entrepreneurs themselves. The ideal would be to bring all these forces together in order to attain certain rational objectives that in the long run represent both the public and the private interest.

In relation to an outline of general conclusions each textile branch must have its own characteristics and problems; they are therefore examine separately below.

(a) The wool textile industry

At present the main problems in Argentina's wool textile industry are the lack of working capital, especially for buying raw material; the shortage of certain types of raw material on the domestic market; the high rate of machinery obsolescence; a machinery inventory that was built up in a disorganized way, with a resulting lack of balance today between the various sectors of production, some of which have a large excess of capacity; and a lack of the organization and dynamism needed to win broader markets, especially abroad.

Hence it is useful to suggest certain guidelines for a possible action conducive to strengthen the industry and facilitate its development, for it is a recognized fact that it is bound to play an important role in the proposed integrated economy of Latin America. At present, a small number of enterprises, pioneers in this respect, are promoting a sectoral policy of progressive integration, but this group is too small to be able to ensure that Argentina's industry wins its rightful place, thereby makes a greater and more positive contribution to the country's general development.

The raw material problem could be solved by giving the industry free access to the international wool market; this would automatically bring domestic prices into line with world prices, and would place domestic industry in a position of equality on a competitive footing, as regards this important cost component, with the rest of the world.

/Further, it

Further, it would give the domestic industry access to those qualities of wool that are not produced in the country; this would permit the manufacture of certain fine products that domestic industry is anxious to produce, and thus benefit the domestic market and open the way for exports. It is easy to see that the small volume of imports of such wools would not affect the country's balance of trade, since it could be offset by exports of domestic wool, for which world demand is usually strong.

Obviously this possibility depends on the exchange rate, since fluctuations hamper the automatic price-levelling process. This is not the place for recommendations on this point, but it is difficult to imagine other solutions that would not be contrived, and hence only partly effective.

As regards the machinery inventory, there was an excess of production capacity, and a high proportion of obsolescence. The reasons for this are manifold, and a detailed analysis is not called for here. However, some factors are worth mentioning, such as the industrialist desire to undertake the complete productive process, which leads them to instal machinery that could never be used to capacity for their own output; the wool washers, washing machines are a case in point, since their total capacity in Argentina far exceeds the country's total needs. A further factor is the machinery renewal policy of certain enterprises which install new machinery and while either keeping the old machines in operation or selling them to other enterprises. Thus capacity increases disproportionately because modern units of higher output are added to the machinery inventory while the old machines go on producing. The adverse effects of this policy are twofold: surplus capacity, and machinery of low output; this leads to increased costs and ultimately to prices exceeding those that would prevail if the industry as a whole were operating at higher and more uniform levels.

For these reasons, government action should be directed to the rationalization of machinery renewal. The industrialists as a whole want to renew their machinery, and the Government could take advantage of this by making the granting of machinery import licences and credit concessions contingent upon the elimination of machinery classified as obsolete. This would solve the problem of bringing the machinery up to date while bringing capacity into line with the markets to be supplied. Since demand is the basis for determining the size of the machinery inventory, the following estimate of demand is put forward: a 40 per cent increase in the domestic consumption up to 1970 and exports representing 30 per cent of total output. Taking 1961 as the base (see table 82), the result is as follows:

/Tops (tons)

	1961	1970		
		Domestic market	Exports a/	Total
Tops (tons)	19 409	27 173	11 645	38 818
Worsted yarn (tons)	16 700	18 370	7 872	26 242
Woollen yarn (tons)	8 931	12 503	5 358	17 861
Fabrics (thousands of metres)	31 124	43 574	18 675	62 249

a/ The exports of semi-finished products are included under finished products, on the basis of the input needed to produce the latter.

These total output levels could be achieved, given a machinery inventory of unit output and efficiency equal to the Latin American standard, with the following machinery, based on two hypotheses of annual utilization.

	6,600 hours per year per machine	4,600 hours per year per machine
Combs (8 kilogrammes per hour)	735	1 011
Worsted spindles (29.5 grammes per hour, yarn count 30 metric)	134 782	185 325
Woollen spindles (ring frames, 80 grammes per hour yarn count 8 metric a/	33 827	46 513
Looms (7,000 picks per hour)	2 165	2 977

a/ For mule spindles, whose unit output is 30 grammes, the number needed would be 90,207, respectively and 126,036 spindles, respectively, according to the two hypotheses.

These elements are useful, of course, only as a guide but they give an idea of the possible structural reforms that could be made in Argentina's wool textile industry. It is for the competent public and private authorities of the country on the basis of their more direct knowledge of the real possibilities of the industry, to evaluate and correct these projections, especially as regards the position of Argentina's wool products in the world market.

This relates to a third problem, mentioned earlier, the need to improve the voluntary organization and discipline of the entrepreneurs, mainly as regards export activities. In this field certain steps are essential (and in fact have been considered and to some extent carried out),

/such as

such as the study of foreign markets through expert missions which investigate consumer preferences; the creation of export consorcia or co-operatives to co-ordinate, on the basis of rational and economic plans, the production of the articles to be exported; the creation of sales centres in the main foreign markets to act as points of contact with the customers and guarantee the quality of the export products, the granting of credit facilities to exporters, such as advances on loans, in cash or at least in bonds, for the payment of imports, taxes, etc. There is no advantage in adopting artificial measures to encourage exports, which might provoke a legitimate reprisals on the part of the potential importer countries.

To conclude, in spite its considerable difficulties, great opportunities lie open to Argentina's wool textile industry, particularly through activities directed towards the Latin American region, and perhaps beyond it. But serious rationalization and revitalization are needed without delay. Otherwise, if the industry remains in its present state of confusion, the opportunities of escaping from the present paralysis will shrink and be lost.

(b) The cotton textile industry

It is clear throughout the analysis that raw material is the basic problem in Argentina's cotton industry. In both spinning and weaving it keeps productivity low; it affects costs through the high level of wastage and limits the market, by keeping down product quality.

This is a matter for concern. Firstly, the solution lies not with industry but with agriculture, and industry can do little except to give advice; secondly, the projected demand as indicated in Chapter IV, shows a trend towards finer products, and this will further increase the industry's difficulties, since the raw material available will become even less suited to consumer demand; and lastly, the possibility of economic integration, which involves the appearance on the market of products manufactured with better quality raw materials, represents a serious threat to Argentina's industry, which would be replaced by others and decline to a marginal position.

There are two solutions to this problem. If the quality of Argentina's cotton cannot be improved without delay - which seems to be the case, although it would be interesting to have confirmation - the industry must either be given access to cotton from other countries (which means, to all intents and purposes, other Latin American countries), or it will have to adopt a plan to specialize in the use of the raw materials available. In the latter case, complementarity agreements with other countries would have to be considered to permit a balanced trade of products and intensive use would be made of the factors of production available. This would not mean halting efforts to improve the production of domestic cotton, at least as regards selection, classification, cleaning, presentation,

ginning, etc. This would not be the first case of an industry having to bear some of the cost of solving a problem originating in the agricultural sector, although it is natural for the industry to try and reduce this cost to the minimum.

As regards the size of the total machinery inventory and its degree of up-to-dateness, there is no great problem. Machinery renewal on the basis of the most modern and productive techniques, is an aim shared by every country in the world (except for a few cases where industry is of recent origin). In fact, technology has progressed so rapidly in recent years that every industry found itself, almost overnight, with out-of-date machinery, and no guarantee that the latest models will not in turn, be replaced by yet newer designs. The replacement of the machinery of Argentina's cotton industry, therefore, is in line with normal renewal plans. The section of the industry that can be regarded as abnormal is weaving, but the need to correct the discrepancy is less urgent than in the wool textile industry, since it is expected that the existing unproductive units will be automatically eliminated in the course of time.

Manpower organization, too, presents no great problem; the constant improvement in the utilization of this factor of production is following a normal course.

Lastly, as to costs, the levels are regarded as not out of line. The poor quality of cotton is offset by correspondingly low prices; labour costs remain within reasonable limits, as a result of rational manpower organization. From the general standpoint, it is the chronic problem of the excange rate which, in the final analysis, determines whether the industry can or cannot compete on the world market. However, it can be asserted that, if the exchange rate remained at a reasonable level, Argentina's cotton industry would be well situated both to place its main products on the domestic market, and in some cases, to sell abroad as well.

(c) Man-made fibre industries

As the survey covering this industrial branch was very limited, in scope it was decided that it did not provide sufficient basis for a diagnosis. However, it can be asserted that the organization of these mills leaves much to be desired and this, in conjunction with the high price of Argentina's raw materials, makes it clear that the industry is highly vulnerable to free international competition.

The broad lines of the conclusions emerging from this study have been outlined above. As indicated at the beginning of the present section, all the parties interested in the orderly development of Argentina's textile industry should unite in adopting policies to solve the basic problems.

/If there

If there is a determination to do so, action should be in three stages. The first is to make an objective and impartially analysis of the situation covering its positive and negative aspects, a task that it is hoped has been made easier by the present report.

The second stage is to consider what political and economic policies would be most likely to solve the problems concerned. Here, too, the report has attempted to make a contribution, despite the difficulties and the controversial nature of the subject.

The third stage is the implementation of the policy formulated. Nothing could be more sterile and less likely to achieve results than piecemeal political actions, each taking separate paths in search of special aims and interests. The result might well be that individual efforts would cancel out, energies would be dissipated, and there might be a paralysis that would be dangerous in a situation like the present with its contradictions and difficulties.

Chapter II

THE TEXTILE INDUSTRY AND THE ARGENTINE ECONOMY

1. Evolution of the textile industry

The textile industry in Argentina became a significant industrial activity, at least as regards the woollen and cotton branches, in about 1930.1/ Cotton textile products are the only branch for which trustworthy historical data are available, and in this sector, out of the 51,000 tons placed on the market in 1933, 83.3 per cent were imported and only 16.7 per cent produced internally. In that year Argentina had only 100,000 spindles (divided among six enterprises).

The first advances in Argentina's textile industry were made in weaving, either because the technical procedure was simpler, and the investment needed lower, or because of the adoption of a general policy aimed at giving more protection to the weaving industry than to the spinning industry.2/ This is in fact the path that should normally be followed in forming the nucleus of a textile industry.3/ Domestic production of cotton textile products, had already equalled imports by about 1938-39. The number of cotton spindles had increased to about 330,000, and the weaving industry had expanded, with the result that some domestic firms producing textile machinery, especially looms, were established.

At this time the European textile industry was a major supplier of both wool and cotton yarns for Argentina's textile industry. But when this source of supply was suspended, upon the outbreak of the Second World War, the domestic industry was called on to supply both the weaving mills and the market, a particularly difficult task in the wool branch.4/

1/ There had been textile operations earlier but they did not represent in total a significant productive nucleus.

2/ By way of illustration it should be mentioned that the customs tariff in 1930 established import duties for wool fabrics that were five times those on wool yarns.

3/ The same situation can be observed today in the African and Asian countries where industrialization is of recent date.

4/ A decree of 16 October 1941 authorized wool spinning mills, as an exception, to work on Saturdays and Sundays.

The Argentine weaving mills tried to make up the supply deficit from other Latin American countries (which led to the development of some enterprises in Brazil and Uruguay), although it became clear that the only real solution was the establishment of a wholly autonomous domestic industry. But this had to wait until peace had been restored, trade movements were back to normal and the manufactures of textile machinery, more especially in Europe, had returned to their normal scale of production. When the war ended return to normal output in Europe was neither automatic nor immediate; even though reconversion problems were solved fairly rapidly, the actual process took a number of years. Furthermore supplies, even in Europe, had been directly and seriously limited by war damage, and demand was at a high level and of a pressing nature.

Impelled by domestic demand, the textile industry in Argentina was led to purchase the necessary equipment. The number of cotton spindles rose from 430,000 in 1945 to 708,000 in 1950, and wool washing, combing and spinning made such rapid advances towards self-sufficiency that in some cases the result was an excess of production capacity. The haste with which enterprises were obliged to equip themselves had adverse effects that still persist. The machinery imported did not always represent the ideal from the standpoint of product quality, and in some cases second-hand machinery was bought.

The increase in the machinery inventory continued in succeeding years, not without such institutional problems as import and exchange controls, and in 1954-55 the number of cotton spindles had risen to about 900,000. It should be noted that the increase after 1945 represented to some degree the installation of domestically produced machinery, for both the cotton and wool sectors.

At the same time, almost overnight and after nearly fifty years of stagnation, textile technology began to recover the ground it had lost in comparison with other industrial activities.5/ The international textile machinery fairs in Manchester (1949), Brussels (1953) and, more especially, in Milan (1958) were the public reflection, with the widest repercussions, of the progressive technological advances of the last decades.6/

In continuing its technological progress, Argentina's textile industry received little economic support from the country's general policy. In fact the customs duty of 150 per cent on textile machinery was reduced to

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5/ In the European countries the rising labour costs forced the textile industry to raise its productivity levels, which meant introducing the maximum degree of automation in the productive cycle, which until then had used a large number of workers.

6/ Further confirmed at the last fair, held at Hanover in 1963.

40 per cent only on 15 May 1961. It was at this point that the Argentine industry began to place the bulk of its orders for textile machinery with the European producers, when the rate of exchange was 83 Argentine pesos to the dollar.

2. The textile industry in relation to manufacturing as a whole

Meanwhile the domestic market in general entered on a difficult period, and the textile industry, accustomed to solving many of its problems under a regime that occasionally permitted it to adopt uneconomic measures, found itself in straitened circumstances.

According to the 1954 census, the textile industry took second place, among all manufacturing industries, to the food industry, and was followed by the machinery, motor vehicle and metal-transforming industries. In that year the textile industry (including all operations from the ginned cotton on, and covering knitting mills and other minor items) represented 4 per cent of all manufacturing establishments (5,976), 13.5 per cent of all workers employed in manufacturing (164,521), 15 per cent of all wages paid, 12.7 per cent of the value of production and 13.2 per cent of the valued added.7/

The first general results of the next official survey (1957) were published recently,8/ but the data are not comparable with the earlier census, because they cover only industrial establishments which on 31 December 1957 employed eleven workers or more, with the result that the number of textile establishments covered was 1,352. This figure is more realistic, since it excludes the small workshops which, although very numerous in the textile industry, cannot properly be regarded as industrial establishments. In 1957 the textile industry was still second among all manufacturing branches, with the food and beverage industries in first place. The number employed represented 15.8 per cent of the total employed in manufacturing,9/ wages and salaries 15.3 per cent, value of production 14.2 per cent and value added 13.4 per cent.

7/ National Office of Statistics and Censuses of Argentina, Censo industrial 1954, pag. 12-13.

8/ National Office of Statistics and Censuses of Argentina, Boletín Estadístico, April-June 1963.

9/ The difference between the 1954 census data and those of the 1957 survey is 4,615 establishments and 16,219 workers employed. These differences represent a group of small enterprises, since the average is 3.5 workers per enterprise and the total number of workers is slightly under 10 per cent of the total for the textile industry.

3. The situation in recent years

In later years the trend of the quantum of production for the various industrial sectors was less similar. Thus the general index for manufacturing production in 1960 (with 1952 as the base year) was 120.4, with peak levels of 198.8 for the rubber industry, 191.3 for printing and publications and 184.0 for paper and paperboard, while for the textile industry the index was 91.6.10/ Thus the textile industry was no longer in second but in fourth place, the first three being occupied by the food, metal manufactures and machinery, and motor vehicle industries.11/

In 1962 and the early part of 1963 there was a marked decline in the economic situation. In 1962 the general index of manufacturing production fell by an average of 10 per cent in relation to 1961, and the index for the textile industry fell by 28.5 per cent. In the last months of 1962 there was an even sharper decline, and the indexes reached a low point in February 1962, 80.1 for manufacturing as a whole and 31.8 for the textile industry.

From March 1963 there were signs of recovery. The textile industry index rose to 60, and remained at this level until the end of the year, while the general manufacturing index also rose by a number of points. This brief analysis will suffice to show that the textile industries are very vulnerable to downturns in manufacturing as a whole.12/

It was against this general background that the ECLA study of the operational conditions of the Argentine textile industry took place. The base year of 1961 was selected, not only in order to provide a basis of comparison with the surveys made in the other countries, but also because it was a year of relatively normal activity in the industry. However, at the request of the industrialists themselves, it was decided to consider also, in relation to certain aspects, the situation existing during part of 1963.

10/ Only leather products, with an index of 73.3, and "other industries" (not specified as belonging to other categories of manufacturing), with an index of 38.0, were lower than the textile industry. See Boletín de Estadística, op.cit.

11/ See Arthur D. Little Inc., Some aspects of industrial development in Argentina: report to the Government of Argentina and the International Co-operation Administration, Cambridge, Mass., 25 August 1961.

12/ Apart from the intrinsic problems of the textile industry, this vulnerability is due to the facility with which textile consumption declines in periods of depression. See chapter IV below, on textile consumption.

/Although it

Although it is undeniable that a deterioration in the economic situation may interfere with rational management in an enterprise, because some of the factors that govern the economic structure of the enterprise itself may have to be raised to their maximum or reduced to their minimum levels, this effect may sometimes be beneficial, and lead to a change for the better in the structure of the enterprises that succeed in surviving the critical period.

Table 7 gives a number of official indexes that reveal certain significant trends. It can be seen that the productivity levels recover more rapidly than those of the quantum of production. As early as May 1963 the productivity index was only 9.3 per cent less than the average for 1961, while the production index was 34.6 per cent less than in 1961. This ratio was maintained in subsequent months.

The index for the hours worked per capita in the last few months of 1963 is also very significant, since it is higher than in the base year, while the index for workers employed remained at a very low level, thus there was a growing tendency to keep the number of workers low and increase the hours of work.

These general comments will suffice here, since this subject is dealt with further in connexion with the examination of the results of the direct survey in each branch separately.

4. Monetary aspects

The rate of exchange, which had remained at about 83 Argentine pesos to the dollar between 1959 and 1961, was an average of 116.23 pesos in 1962, and 138.72 in 1963, with a high of 149.80 in September 1963.13/ When machinery bought in earlier years arrived in 1963 the buyer had to face an increase of about 75 per cent, which in many cases made it impossible to take it out of the customs, with a consequent accumulation of interest and costs.

In conjunction with this need for capital due to external factors, there was a deterioration in the domestic situation of the consumer market. As always in periods of low demand, the periods allowed for payment began to be extended, and payment with commercial paper became general, thus creating a typical situation of general illiquidity. At an earlier stage the situation of a textile enterprise was usually represented by 30 per cent fixed capital, 40 per cent working capital and 30 per cent liquid, but this was replaced by a situation in which corresponding percentages of 70, 5 and 25 were normal, in other words, there was a sharp reduction in working capital (given that the fixed capital had changed little in value) which underlines the low profitability of the industry.

13/ See International Monetary Fund, International Financial Statistics (various issues).

/Table 7

Table 7

TEXTILE INDUSTRY INDEXES a/

(1952 = 100)

	Quantum (1)	Workers employed (2)	Hours worked (3)	Overall productivity index (1)/(3)	Hours per worker (3)/(2)
1952	100	100	100	100	100
1961	91.6	67.6	73.1	125.3	108.1
1962	65.5	61.6	59.8	110.5	96.3
1963	54.8	50.2	49.7	110.3	99.0
1962					
January	71.9	66.3	67.0	108.4	101.1
February	64.0	65.8	56.6	113.1	86.0
March	72.6	65.9	60.1	120.8	91.2
April	77.7	64.9	66.8	116.3	102.9
May	81.8	63.8	68.9	118.7	108.0
June	76.4	62.9	65.7	116.3	104.5
July	67.6	62.1	64.1	105.4	103.2
August	55.9	59.6	58.2	96.4	97.7
September	58.7	57.1	54.8	107.1	96.0
October	59.8	58.5	55.5	107.7	94.9
November	55.6	56.8	52.8	105.3	93.0
December	43.6	55.3	41.5	105.1	75.0
1963					
January	38.5	51.6	37.9	101.6	73.4
February	31.8	51.4	29.9	106.4	58.2
March	53.6	50.7	48.4	110.7	95.5
April	56.7	50.0	50.6	112.1	101.2
May	59.9	49.3	52.7	113.7	106.9
June	53.1	49.3	47.8	111.1	97.0
July	59.4	49.2	54.3	109.4	110.4
August	61.2	49.1	54.6	112.1	111.2
September	58.8	49.2	53.7	109.5	109.1
October	60.9	50.6	58.5	104.1	115.6
November	61.9	51.0	56.0	110.5	109.8
December	62.1	50.7	51.6	120.3	101.8

Source: Boletín de Estadísticas, op.cit., for columns (1), (2) and (3).

a/ These indexes are based on the production of ginned cotton, scoured wool and cotton yarn, and consequently do not reflect the actual structure of the textile industry as a whole. Hence these data should be regarded as purely illustrative.

/Furthermore, there

Furthermore, there were such special problems as the lack of wool in the country, due to the fact that because the industry was not paying cash, wool supplies were diverted to export markets.

With the aim of providing a general picture of the practical consequences of the unfavourable situation, an average was taken of the financial results of ten of the major wool companies, since the wool sector was most severely affected by the crisis (see table 8). These clearly show how the situation deteriorated. And even though the profit levels may appear to represent a reasonable average, they relate to a period of marked inflation, which affects the reliability of the accounting figures.

In the 1954 and 1957 surveys the total value of textile production was given as 9,878 and 21,018 million pesos, respectively. As the last figure appears somewhat low, because a different methodology was used for the second survey, it should be raised by 10 per cent for purposes of comparison with the first survey, and should thus be 23,120 million pesos.

In a study carried out by a major Argentine institution, an estimate was made of the value of textile production in the years following on the last census, on the basis of the changes in the price and quantum indexes. The results are presented in table 9.

Although the figure for 1957 is different from that appearing in the above-mentioned results of the official survey (these calculations were made before the publication of the data in question), the difference is not significant, and hence the series in question may be regarded as valid.

Deflating the values by the price index for textiles gives the value of production at constant prices (see last column of table 9).

These figures also reveal the scale of the present crisis, since the real value of production is considered to have fallen considerably. Furthermore, a comparison of the textile price indexes for 1957-62 with general wholesale prices shows that during this period the textile prices fell by about 18 per cent in relation to the over-all index.

This conclusion does not necessarily imply that prices have fallen while quality remains constant, since it is quite possible that the industry has tried to offset to some extent the decline in demand by offering products at lower prices and inferior quality, with the aim of thus reducing the quantitative decrease in production.

A characteristic feature of the textile industry (and other industrial activities) during periods of crisis due to insufficient demand is the lowering of product prices at the expense of quality; this partly explains why there is a reduction in unit output and productivity in such periods.

/Table 8

Table 8

ARGENTINA: FINANCIAL DATA FOR A GROUP OF TEN WOOL COMPANIES, 1959-62

	Total sales	Total profit	Average profit as a percentage of sales
	(Thousands of Argentine pesos)		
1959	2 550 725	250 323	9.8
1960	3 015 958	310 904	10.3
1961	4 023 758	409 616	10.2
1962	3 749 532	70 668 a/	1.9

Source: ECLA, on the basis of the companies' balance sheets.

a/ Includes three deficit balances.

Table 9

ARGENTINA: CURRENT AND CONSTANT VALUE OF TEXTILE PRODUCTION, 1957-62

	Value of textile production (Millions of pesos at current prices)	Index of textile prices (1957 = 100)	Value of textile production (Millions of pesos at 1957 prices)
1957	22 290.1	100.0	22 290.1
1958	27 133.1	131.7	20 602.2
1959	42 874.0	253.5	16 912.8
1960	55 037.2	294.9	18 663.0
1961	63 347.8	330.7	19 155.7
1962	59 440.2	409.5	14 515.3

Sources: Values at current prices: Federal Investment Council of Argentina, Programa conjunto para el desarrollo agropecuario e industrial, Second report, Vol. III, p. 348.
Indexes of textile prices: Boletín de Estadística, op. cit.
Values at 1957 prices: ECLA.

Chapter III

DESCRIPTION OF ARGENTINA'S TEXTILE INDUSTRY

1. Size

Any study of Argentina's textile industry meets with a number of problems due to the great size of this sector, the high degree of dispersion of production units, and the lack of basic statistics for certain branches.

According to statistics and estimates appearing in national and international specialized publications, the textile machinery inventory (spindles and looms) in 1961 was as shown in table 10. These data are given here for the purpose of analysing them and comparing them with those that will be given below as the result of the ECLA survey.

According to the data shown in the table, the Argentine cotton industry is the third largest in Latin America (following after those of Brazil and Mexico), and accounts for 14.0 per cent of all spindles and 13.4 per cent of all looms in the region. The Argentine industry is insignificant internationally, its spindles and looms representing less than 1 per cent of the world total.

The wool textile industry in Argentina, on the other hand, is numerically the largest in Latin America, and accounts for about 31 per cent of all spindles and 44 per cent of all looms in the region.1/ At the world level it is also of importance,2/ occupying tenth place in terms of spindles and ninth in terms of looms.3/ (See table 11.)

The 5,000 looms classified as belonging to the man-made fibre industry are mainly silk looms, used now for many years past to weave artificial fibre yarns, synthetic filament, or both. Man-made fibres in staple form are used mainly in cotton or wool spinning or weaving mills, sometimes alone and sometimes in combination with natural fibres. Hence it is difficult to distinguish a man-made fibre branch as a homogeneous unit.4/

1/ These percentages are amended below as a result of the analysis and criticism of the data.

2/ It is hard to calculate the exact percentage share of any country in the world total, especially when the basic picture is very incomplete. However, it can be estimated that Argentina represents, of the world inventory, about 8 per cent for combs, 2 per cent for spindles and over 4 per cent for looms.

3/ In addition it holds seventh place in terms of the number of combs.

4/ In fact the separation between the cotton and wool textile industries is made not on the basis of the raw materials but of the machinery, which is different for the two branches, although it can be used, and sometimes is, for any textile fibre.

/Table 10

Table 10

PRELIMINARY ESTIMATE OF THE TEXTILE MACHINERY INVENTORY ACCORDING TO STATISTICS AVAILABLE IN ARGENTINA

Textile sector	Spindles (Thousands)	Looms (Units)
Cotton	1 019	23 923
Wool	450	9 100
Man-made fibres	24	5 000

Sources: Bulletins published by the National Cotton Board, FITA, and the Association of Silk and Man-Made Fibres, Producers.

Table 11

MAIN WOOL TEXTILE INDUSTRIES IN THE WORLD
(1963)

	Spindles (Thousands)	Looms (Units)
Great Britain	4 035	39 695
Japan	1 798	34 855
Italy	1 719	24 235
France	1 260	15 000
United States	1 250	10 510
West Germany	1 036	12 811
Spain	536	10 074
Belgium	460	4 300
Argentina	440	9 200
Australia	380	4 611

Source: International Wool Textile Organization, 33rd International Wool Conference, Berlin, 15-19 June 1964.

/However, 24,000

However, 24,000 spindles are indicated as belonging to this branch, since they represent machinery used mainly in the processing of man-made fibres. The 5,000 looms referred to in the current estimates as being for use with man-made fibres represent a fairly substantial nucleus, even by international standards.

2. Size and concentration

A study of the size and degree of concentration in the various branches of Argentina's textile industry reveals the gaps and defects of existing statistics.

(a) The cotton industry has a source of highly detailed and analytical data in the annual reports of the National Cotton Board.5/ These annual reports have published, among other information, the data on the cotton industry in 1961 given in table 12.

In 1961 the average size of cotton spinning mills in Argentina was 15,930 spindles and 370 workers, while the average for weaving mills was 26.2 looms and 30.3 workers. In other words, spinning mills employed an average of twelve times as many workers as weaving mills.6/

For the purpose of examining the degree of concentration in the structure of the industry, enterprises were classified by size in accordance with the number of spindles for the spinning mills (see table 13), and with the annual consumption of yarn for weaving mills (see table 14). The degree of concentration is also indicated in figure I.

Figure I shows that 90 per cent of the spinning mills produce (or rather, could produce on the basis of the productive capacity of the spindles) 67 per cent of the yarn, whereas 90 per cent of the weaving mills produce only 15 per cent of all fabric (that is, 85 per cent of the fabric is produced in only 10 per cent of the establishments).

This reveals a peculiar and striking feature of the whole of the textile industry in Argentina (since the same applies, as will be seen later, to wool and man-made fibres); namely, that a very large number of small enterprises, which are not, of course, integrated, operate on the fringes of the industrial nucleus made up of large and medium size mills.

Table 14 shows that in 1961 there were 423 enterprises that consumed less than 10,000 kg of yarn each; considerably less, since to be more precise, the figure is an average of 4,554 kg a year. This represents about the volume of raw material needed to enable one loom to work for two shifts for 300 days.

5/ See La industrialización de fibra de algodón en la República Argentina, and La producción de tejidos y otros artículos de algodón en la República Argentina, published annually.

6/ This statistical source, unlike the ECLA survey, does not permit any distinction between the vertically integrated mills and the others.

Table 12

DATA ON THE COTTON INDUSTRY IN ARGENTINA, 1961

Spinning	
Spinning mills intalled at the end of 1961	64
Spinning spindles intalled at the end of 1961	1 019 492
Consumption of fibres (tons)	111 294
Production of yarns (tons)	95 271
Average count (English) of yarn produced	17.04
Workers employed at mid-year	24 160
Total wages paid (thousands of pesos)	1 819 977
Total salaries paid (thousands of pesos)	361 507
Weaving a/	
Weaving mills installed at the end of 1961	912
Looms installed at the end of the year	23 923
Consumption of pure cotton yarn (tons)	73 998
Consumptions of mixed yarn (tons)	161
Production of pure cotton fabric (tons)	69 771
Production of mixed fabrics (tons)	3 103
Workers employed at mid-year	27 666
Employees employed at mid-year	3 603
Total wages paid (thousands of pesos)	1 598 821
Total salaries paid (thousands of pesos)	437 553

Source: Bulletins of the National Cotton Board.

a/ Excludes production of knitted fabrics, stockings and other textile fabrics and special lines.

/Table 13

Table 13

CONCENTRATION OF ENTERPRISES IN COTTON SPINNING, 1961

Size category (Spindles)	Establishments		Total Spindles	
	Number	Percentage	Number	Percentage
Up to 2 500	4	6.3	6 640	0.7
2 501 to 5 000	8	12.5	30 084	2.9
5 001 to 10 000	18	28.1	128 024	12.6
10 001 to 20 000	19	29.7	278 928	27.4
20 001 to 40 000	10	15.6	296 948	28.9
Over 40 000	5	7.8	280 868	27.5
Total	64	100.0	1 019 492	100.0

Source: National Cotton Board, op. cit.

Figure 1

CONCENTRATION OF COTTON MILLS

Natural scale

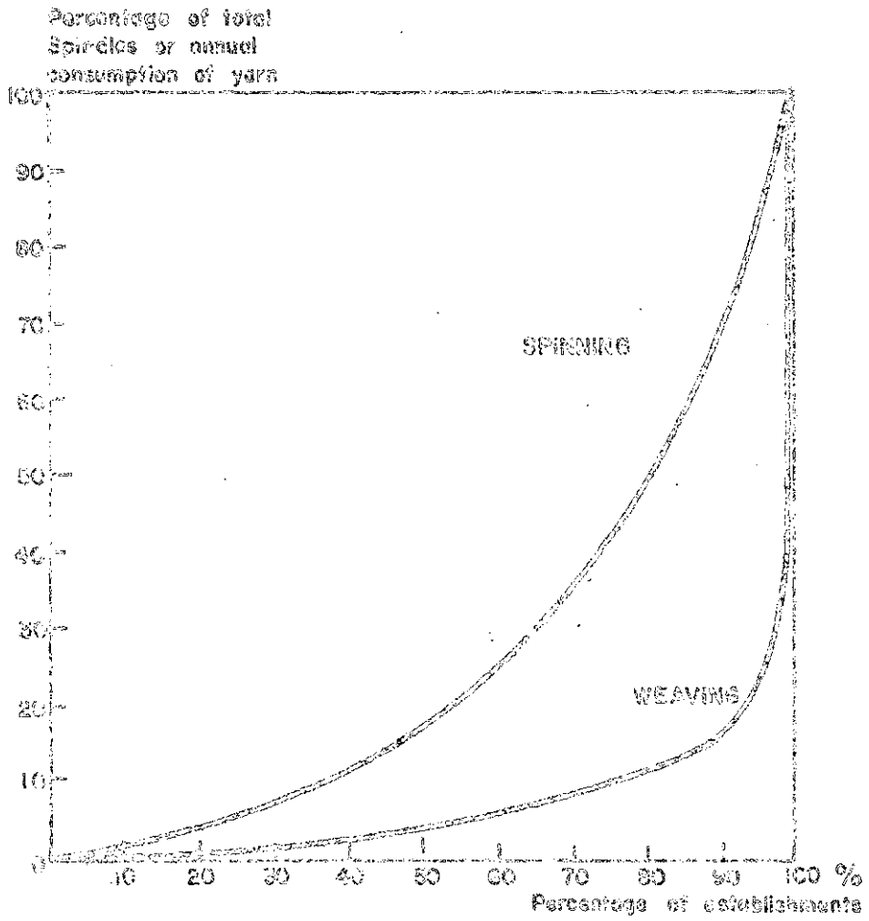

Table 14

CONCENTRATION OF ENTERPRISES IN COTTON WEAVING, 1961

Size category (Annual yarn consumption in kg)	Establishments		Total annual yarn consumption	
	Number	Percentage	Kilogrammes	Percentage
Up to 10 000	423	46.4	1 926 211	2.6
10 001 to 25 000	253	27.7	4 231 208	5.7
25 001 to 50 000	133	14.6	4 615 077	6.2
50 001 to 100 000	48	5.3	3 319 713	4.5
100 001 to 250 000	20	2.2	2 889 565	3.9
250 001 to 500 000	9	1.0	2 977 718	4.0
500 001 to 1 000 000	12	1.3	7 378 249	10.0
1 000 001 to 2 500 000	9	1.0	16 193 818	21.9
2 500 001 to 5 000 000	3	0.3	11 210 842	15.1
Over 5 000 000	2	0.2	19 326 770	26.1
Total	912	100.0	74 069 171	100.0

Source: National Cotton Board, op. cit.

Table 15

CHARACTERISTICS OF THE COTTON LOOM INVENTORY IN ARGENTINA, 1961

Type of loom	Looms installed		Looms operating		Percentage of looms operating
	Number	Percentage	Number	Percentage	
Hand looms	2 276	9.5	1 383	6.3	60.8
Non-automatic looms	5 550	23.2	5 089	23.0	91.7
Modified to automatic	2 227	9.3	1 969	8.9	88.4
Automatic	13 870	58.0	13 678	61.8	98.5
Total	23 923	100.0	22 119	100.0	92.5

Source: National Cotton Board.

/There are

There are 253 mills in the next category, with an average consumption of 16,724 kg, the raw material for less than four looms for two shifts for the year. Next come 133 mills with an average of 34,700 kg of yarn, the raw material for eight looms for two shifts. There are a total of 809 establishments with less than ten looms.

At first glance it is hard to see how such a large number of mills can exist at this economically unpromising size level. The reason is the special conditions existing in Argentina, to be described later, which enable such enterprises to survive.

The ECLA survey could not cover all these small units, since there was not even a list of them available. It can be assumed that the National Cotton Board has considerable difficulty in covering the whole survey universe every year.7/

The qualitative comparison of the loom inventory, and the level of activity for 1961, are given in table 15.

It can be assumed that the hand looms, apart from accounting for the highest percentage of inactivity, decline in number every year. In 1952 they were estimated as 5,870 (21.4 per cent of the total at that date); ten years later over 60 per cent of these looms had disappeared.8/

(b) The wool textile industry in Argentina is not easy to analyse because of the very limited statistics available on its structure and activity.

7/ This is clear from the gaps in the statistical report referred to (see page 17 of that report, tables 18 and 19). For example, it is reported that there are 1,870 looms in Catamarca (of which 1,342 are hand looms and 528 have been modified to make them automatic), and 203 in Salta (of which 186 are hand looms and 17 have been modified); but neither of these provinces appear in the table listing the weaving establishments.

8/ The reason for this is the establishment, in about 1944-45, of a type of organization for the development of productive activity in underdeveloped provinces. For example, the Home Weaving Co-operative, in Catamarca, was established by the authorities of that province, and distributed hundreds of cotton looms to the people, which were wooden hand looms specially built for this purpose, with a very low potential daily output. The Co-operative delivered the yarn to the weavers, who then wove it into sacks that were collected by the Co-operative. This operation, of course, never had any real economic basis, the looms are still operating only spasmodically, even though certain technical improvements must have been made, to judge by the growing number of looms with automatic modification in this province.

/According to

According to the International Wool Textile Organization, 9/ which uses the data provided by the Argentine Wool Federation, at the end of 1959, the industry had 1,600 combs (1,300 rectilinear and 300 circular); 280,000 worsted spindles (50,000 mule spindles and 230,000 ring spindles); 100,000 woollen spindles (50,000 mule spindles and 50,000 ring spindles), and 9,000 looms (6,400 narrow and 2,600 broad). In addition there were 150 carpet looms. The same source also gives a total of 40,000 workers (17,500 men and 22,500 women), excluding those working on dyeing and finishing, as this work is done to order (on commission).

These are practically the only data to be found in any of the publications or studies on the wool textile industry in Argentina. However, it should be noted that these data are not based on any recent statistical survey, but are merely estimates made about ten years ago that have been brought up to date.

For the purpose of estimating how far the ECLA survey is representative of the sample universe the statistical data referred to were submitted to statistical and technical checks, and the results were used to amend the data as shown below. In fact the revised estimates indicate that, in round figures, Argentina's wool machinery inventory consists of 1,150 combs, 110,000 woollen spindles, 250,000 worsted spindles and 6,000 looms. Compared with the figures published in Argentina, these revised estimates represent a reduction of 450 combs (-28.1 per cent), an increase of 10,000 woollen spindles (+10 per cent), a reduction of 30,000 worsted spindles (-9.3 per cent) and a reduction of 3,000 looms (-33 per cent). As these are substantial differences, it is in order to describe the methods used in arriving at the revised estimates.

Firstly, account was taken of the list of all the industrial enterprises that could be classified on the basis of official records, records of trade associations, and the personal knowledge of the experts in this branch. For each enterprise a preliminary estimate was made of the machinery inventory, on the basis of information from all possible sources. In the main these provisional data were later amended on the basis of the replies to questionnaires and direct observation during visits to enterprises. In this manner totals were arrived at of about 1,150 combs, 110,000 woollen spindles, 250,000 worsted spindles and 3,000 looms, which may be regarded as correct for the mill sector proper of the wool textile industry.

It was also found that normally the mills are small, and that even the largest mills are of no great size. Only six enterprises have over 50 combs; another six have over 10,000 worsted spindles, and thirteen have between 5,000 and 10,000 spindles. Woollen spindles total over 5,000 in only four establishments, and number between 3,000 and 5,000 in only five establishments. In the weaving section only seven mills have over 100 looms.

9/ International Wool Conference, held at Palma, Mallorca, in May 1963.

To complete the picture in this sector the small artisan or own-account units should be taken into account. This does not apply in relation to combs and spindles, since the operations concerned cannot be conducted by enterprises so small that there is a large number of unregistered enterprises. Hence the totals for combs and spindles may be regarded as representative of the sample universe; the difference between these estimates and the published figures is small for spindles, and the difference for combs may be partly attributable to a different classification of recombing units. (For further details, see chapter VII, section 5.)

For looms the problem is more complicated. The difference between the accepted estimate (9,000) and the number of looms registered (3,000) is very high, amounting to two-thirds of the former, and twice the latter. There is no publication of an official nature that gives a list of small weaving mills. However, it is known that the looms in question are to be found mainly in the outskirts of Buenos Aires, in such districts as San Martin and Avellaneda. The sight or sound of looms is common in such areas, and they are usually to be found in garages, storerooms, sheds, and even in the houses themselves. The size and the technical and legal standing of these enterprises varies widely. Although they are known as commission weavers, many of them are own-account enterprises, in which the owner buys the yarns and sells the fabric he produces (finishing is done by large specialized establishments); in other cases the looms are lent or rented to the weavers by weaving mills (and although the mills have an option on the work done on the looms, the independent weavers may also work for other clients); sometimes the looms belong to co-operatives (which enjoy certain tax privileges); the looms may be new or old, although the average age is rather high (usually the looms are FAMATEX looms built in 1940-45, some of them modernized). Lastly, the average size of these weaving units is estimated as not exceeding five looms, apart from a few co-operatives. If this estimate is incorrect it is more likely to be over-generous than conservative.

On the basis of different items of information (estimates of yarn consumption, and estimates by a number of industrialists, artisan workers, sellers of textile machinery and accessories, etc.), it can be calculated that there are about 500 enterprises of this type, which would give a maximum of 2,500 looms. If to this is added another 500 looms not operating, a total of 3,000 artisan looms can be estimated, which, with the 3,000 looms verified as existing in the mills, makes a total inventory of 6,000 looms.

/The great

The great difference between this and the number commonly estimated makes it advisable to undertake certain indirect checks on this figure. This involves measuring the technical ratio between spindles and looms.10/ On this basis, also, it was impossible to arrive at a figure of 9,000 looms.

A further indirect estimate can be based on the classic ratio of spindles to loom. The normal situation is that 40 worsted spindles or 50 woollen spindles supply one loom. Here again, if it is assumed that half the worsted spindles can be excluded as producing yarns for knitting and knitted fabrics, the number of looms can be calculated as follows:

Worsted spindles 125,000, divided by 40	3,125 looms
Woollen spindles 110,000, divided by 50	2,200 looms
Total	5,325 looms

In brief, any kind of analysis leads to the conclusion that the new estimate of a total of 6,000 looms is more rational and realistic than the commonly accepted estimate.11/

The amendment of the data that have hitherto been regarded as the official estimates does not imply that they are not based on fact. It is quite possible that, since there are still over 2,000 hand looms for cotton weaving, some thousands of wool weaving looms may still exist physically (as a loom is not easily destroyed) in addition to those estimated. But these would undoubtedly be obsolete looms that have long been unused, not only because of the present over-production crisis, but also because of their decidedly uneconomic nature. It is best to regard them as non-existent from the standpoint of any productive or economic value, leaving their physical dissolution to the effects of rust and exposure.

10/ Suppose that the 250,000 worsted spindles work 300 days a year for two shifts, with an assumed average output of 30 grammes per spindle/hour for metric count 30. This gives an annual output of 36,000 tons of worsted yarn.
Suppose also that the 110,000 woollen spindles work for 300 days a year for two shifts, with an assumed output of 50 grammes per spindle/hour (an average for mules and ring frames) for an average metric count of 8. This gives an annual output of 26,500 tons of woollen yarn.
Lastly, suppose an average consumption per loom of 10 kg of yarn per shift (20 metres of fabric at 2,000 picks, with an average weight of 500 grammes per metre). If it is assumed that half the worsted yarn is for knitted goods and knitting wool, there remain 18,000 tons of worsted yarn, plus over 26,500 tons of woollen yarn, for fabric weaving, a rounded total of 45,000 tons of yarn.
If all the weaving units worked for two shifts (for 300 days a year), this amount of yarn would supply 3,350 looms; for 1-1/2 shifts it would supply 4,500 looms, and for only 1 shift it would supply 6,700 looms.

11/ The statistical data published in Argentina (see FITA, Revista Textil, No. 453-4-5, note to statistical table for wool) are to be revised after a new survey being conducted by the trade association.

/Once the

Once the magnitude of the machine inventory of the wool sector has been thus determined, the next step is to consider the degree of concentration. The method used is the same as for the cotton sector, the classification of each mill by size (including the small weaving units, for which a collective estimate is made), and the division of them all into selected groups (see table 16 and figure II).

Much of the machinery is concentrated in a few enterprises; this is more marked in woollen yarn spinning than in combing and in worsted spinning (whose curves are almost superimposed), and even more marked in weaving.

(c) In the man-made fibres section the distribution of the machinery needs no lengthy comment. Apart from some four or five enterprises the whole of the machinery is divided among small units or co-operatives.

3. Vertical integration

Another basic feature of the structure of an industry is its degree of vertical integration, that is, the extent to which single enterprises undertake the whole cycle of production from the raw material to the finished product, rather than a single stage of the process. Single-stage production involves the marketing of semi-manufactured products, unless, as frequently happens in the wool textile industry, enterprises work to order (commission work) with the raw or semi-manufactured materials owned by third parties.

Generally any vertical division of labour in the industry represents a division of industrial risks; the enterprises concerned with the early processing stages have an entirely different marketing problem from those producing the finished article, since their customers are another industrial branch, and not the distribution sector.

Tax legislation in Argentina, unlike that of other countries,12/ does not differentiate between vertically integrated and other industries, and hence the existing structure can be assumed to reflect a natural balance in terms of the economic system within which the textile industry is operating.

The degree of vertical integration in the cotton industry is shown in table 17. Integrated enterprises account for a fairly high percentage of the total, 50 per cent of looms and nearly 70 per cent of spindles. Their spindle capacity is in excess of their own needs, since they also supply, either by direct sale or through the commissioning out of work, the knitted-goods units and some of the independent looms. The latter are found mainly in the artisan sector, among small enterprises that are often below the scale needed to support a spinning section.

12/ See chapter VI below.

Table 16

ARGENTINA: CONCENTRATION OF ENTERPRISES IN THE WOOL TEXTILE INDUSTRY, 1961

	Establishments		Machines	
	Number	Percentage	Number	Percentage
Combs				
Up to 10	15	33.3	120	10.4
11 - 20	10	22.2	169	14.7
21 - 30	8	17.8	215	18.7
31 - 40	3	6.7	111	9.7
41 - 50	3	6.7	133	11.6
51 - 60	3	6.7	162	14.1
61 - 70	1	2.2	70	6.0
Over 70	2	4.4	170	14.8
Total	45	100.0	1 150	100.0
Worsted spindles				
Up to 1 000	2	4.2	1 600	0.6
1 001 - 3 000	15	31.2	25 874	10.3
3 001 - 5 000	12	25.0	45 910	18.4
5 001 - 10 000	13	27.1	95 236	38.1
Over 10 000	6	12.5	81 380	32.6
Total	48	100.0	250 000	100.0
Woollen spindles				
Up to 1 000	32	54.2	18 750	17.0
1 001 - 2 000	12	20.3	19 226	17.5
2 001 - 3 000	6	10.2	14 380	13.1
3 001 - 5 000	5	8.5	18 204	16.5
Over 5 000	4	6.8	39 440	35.9
Total	59	100.0	110 000	100.0
Looms				
Up to 10	601	93.3	3 020	50.3
11 - 20	7	1.1	135	2.2
21 - 50	21	3.3	731	12.2
51 - 100	8	1.2	521	8.7
Over 100	7	1.1	1 593	26.6
Total	644	100.0	6 000	100.0

Source: ECLA survey and estimates.

/Figure II

Figure II

CONCENTRATION OF ENTERPRISES IN THE WOOL TEXTILE INDUSTRY

Natural scale

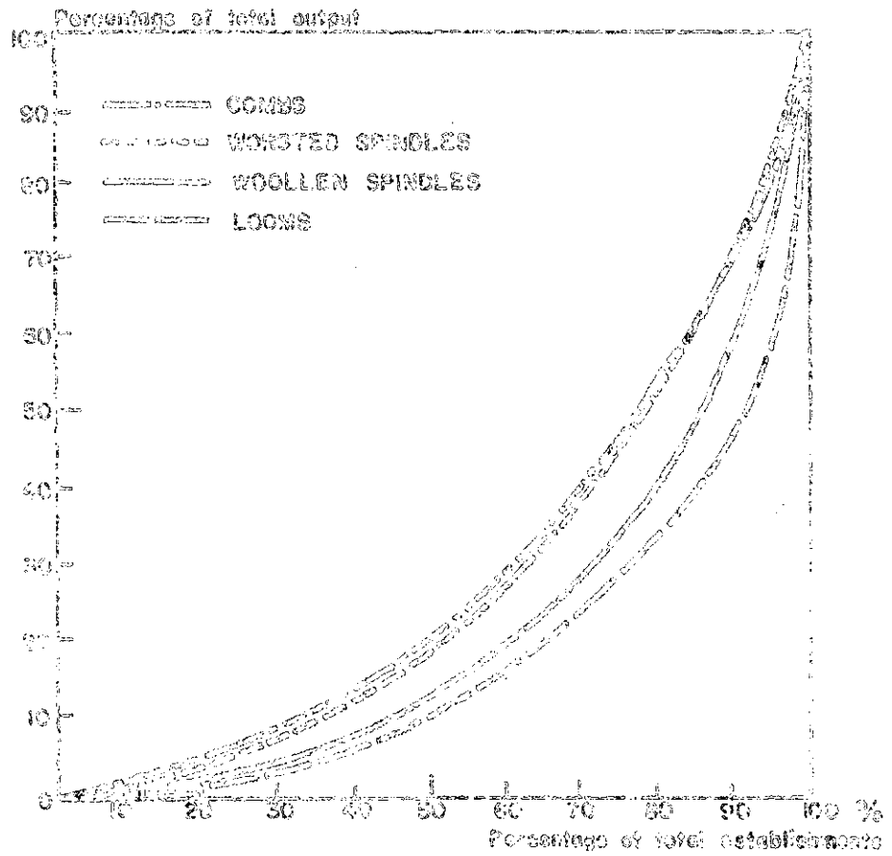

Table 17

ARGENTINA: VERTICAL INTEGRATION IN THE COTTON INDUSTRY, 1961

	Spindles		Looms	
	Number	Percentage	Number	Percentage
In autonomous spinning mills	315 316	30.9	-	-
In autonomous weaving mills	-	-	12 016	50.2
In combined spinning and weaving mills	704 176	69.1	11 907	49.8
Total	1 019 492	100.0	23 923	100.0

Table 18

ARGENTINA: VERTICAL INTEGRATION OF THE WOOL TEXTILE INDUSTRY, 1961

	Combs		Worsted spindles		Woollen spindles		Looms	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Non-integrated enterprises								
Combing units	58	5.1	-	-	-	-	-	-
Worsted spinning units	-	-	33 896	13.6	-	-	-	-
Woollen spinning units	-	-	-	-	29 602	26.9	-	-
Weaving units	-	-	-	-	-	-	3 381	56.3
Integrated enterprises								
Combing and worsted spinning units	681	59.2	127 632	51.0	-	-	-	-
Combing, spinning and weaving units	411	35.7	88 472	35.4	45 556	41.4	1 888	31.5
Woollen spinning and weaving units	-	-	-	-	34 842	31.7	731	12.2
Total	1 150	100.0	250 000	100.0	110 000	100.0	6 000	100.0

/No statistics

No statistics are available on the finishing section. However, it can be assumed that most of the integrated enterprises include a finishing section, while the independent weaving units use plant belonging to third parties, sometimes that of integrated enterprises, sometimes that of specialized establishments.

The processing cycle that is longest and contains most stages is in the wool textile industry. Here the degree of vertical integration may reflect a number of different arrangements. Table 18 shows that the combing section is almost entirely integrated with the subsequent processing stages. There is some surplus capacity for the production of tops in establishments that spin worsted yarn and they have to sell tops on the export market and to the independent spinning units at home.

There is also a considerable degree of vertical concentration in the worsted spinning section. Part of the spindles in this section, those that produce knitting yarns for hand knitting and for the production of knitted goods, represent the last stage of the cycle (excluding yarn finishing). Over 70 per cent of the woollen spindles are in establishments that have their own weaving section. In the weaving section there is a high degree of dispersal, mainly because of the high number of artisan units.

There is no basis for a quantitative assessment of the degree of integration in the finishing section of the wool textile industry, but it should be noted that the independent weavings units do not normally include a finishing section, while the fully integrated mills do. For mills without a finishing section, and for the whole of the artisan or cottage industry, there are available a number of independent specialized units that work to order, a logical enough arrangement, since a finishing plant of its own is not economic for a weaving section that has less than about 40 or 50 looms.

In the man-made fibre section the problem of vertical integration arises for the weaving mills that process yarns made from artificial fibres or man-made staple fibre.13/

The data collected for the man-made fibre sector are not sufficient to give a representative picture. However, it is clear that very few enterprises have both spinning and weaving sections, and hence vertical integration can be said to be practically non-existent.

4. Geographical distribution

The textile industry in Argentina is highly concentrated from a geographical standpoint. The most important nucleus is in Greater Buenos Aires, mainly towards the west (San Martin) and south east (Avellaneda, Lanus, Quilmes, etc.) of Buenos Aires.

13/ The weaving units that use continuous filament, which are the majority of enterprises in this branch, receive the yarn direct from the plants that produce it.

/Table 19 indicates

Table 19 indicates the geographical distribution of the cotton industry (confined to spinning and weaving mills), on the basis of various data from the National Cotton Board. Only six spinning mills are outside the province of Buenos Aires, and environmental factors do not appear encouraging for the development of those mills. Some were established because of political rather than economic considerations, and consequently represent a financial burden for the local authorities that have undertaken their management. The tax privileges and initial capital granted to these enterprises is not always sufficient to make them economically independent.

In the weaving sector the standard of the enterprises located outside the province of Buenos Aires is particularly low. For example, 96 per cent of the existing hand looms (2,187, out of a total of 2,276) are in Catamarca (1,342), Santiago del Estero (473), Salta (186), La Rioja (128) and Santa Fe (58).

Clearly the strong urban concentration of the cotton enterprises (a situation not confined either to the cotton industry or to the textile industry as a whole) entails both advantages and disadvantages. However, this is a problem that goes beyond the scope of the present study, and it is referred to here solely with a view to including an aspect that would be an important element in any possible planning policy for this sector.

The geographical distribution of the wool textile industry is much the same as that of the cotton industry, although detailed statistics are lacking. There are a few mills outside the capital or the Province of Buenos Aires, but they always have sales offices in the capital. Isolated wool mills exist in Villa Constitución, San Nicolás, Bahia Blanca, Pergamino, Rosario and a few other places, and a few of these mills are of considerable size. Unlike the cotton mills that are situated away from the capital, these wool mills in the provinces are efficient units; they cover the whole processing cycle (from the greasy wool to the finished product), and because of their size and degree of specialization have been able to solve staffing and machinery supply problems, and have stimulated the economic progress of the communities in which they are installed.

No statistics are available for the man-made fibres sector (spinning and weaving), but it is known to be centred on the Province of Buenos Aires.

/Table 19

Table 19

ARGENTINA: GEOGRAPHICAL DISTRIBUTION OF COTTON MACHINERY, 1961

Provinces	Spinning				Weaving			
	Mills		Spindles		Mills		Looms	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Capital Federal	9	14.0	278 480	27.3	123	13.5	5 976	25.0
Buenos Aires	49	76.6	644 868	63.3	772	84.7	13 950	58.3
Catemarca	-	-	-	-	-	-	1 870	7.8
Santiago del Estero	1	1.6	7 200	0.7	-	-	614	2.6
La Rioja	-	-	-	-	-	-	188	0.8
Santa Fe	2	3.1	34 808	3.4	7	0.8	947	4.0
Salta	-	-	-	-	-	-	203	0.8
Cordoba	-	-	-	-	4	0.4	54	0.2
Entre Rios	-	-	-	-	4	0.4	105	0.4
Chaco	2	3.1	24 440	2.4	2	0.2	16	0.1
Corrientes	1	1.6	29 696	2.9	-	-	-	-
Total	64	100.0	1019 492	100.0	912	100.0	23 923	100.0

Source: National Cotton Board.

Chapter IV

CONSUMPTION OF TEXTILES

1. The situation during the past twelve years

Apparent per capita consumption of textile fibres in Argentina is about 25 per cent higher than the world average, and 50 per cent higher than the average for Latin America.

In 1950 the average per capita consumption of textile fibres in Argentina was over twice the average for Latin America as a whole (which was 4 kg), but in 1960 it was only 62.7 per cent higher than that average. This was because although the latter rose (by about 7.5 per cent over ten years) the trend in Argentina, although irregular, was declining (by 17 per cent over ten years and 28.4 per cent over twelve). The decline was proportionately more in the wool textile industry (57 per cent between 1950 and 1962) than in the cotton industry (26 per cent); on the other hand the consumption of man-made fibres rose by 44 per cent.1/

The great decline in 1953-54 was due to a general crisis that affected total purchasing power, and also to a drought that reduced the cotton harvest. In 1959 and 1960 the effect of a moderate general economic contraction made itself felt, and the effect was more serious in 1962 and 1963 (see table 20).

Argentina, unlike most of the Latin American countries, has a textile consumption in which wool accounts for a relatively high percentage. In the first years of the period reviewed this percentage was over 20 per cent (23.8 per cent in 1950),2/ while cotton accounted for about 70 per cent and man-made fibres for 7-8 per cent. When total average consumption declined, cotton maintained its former share, but wool and man-made fibres accounted for an equal share of the remaining consumption, with 15 per cent each.

An analysis of the relation between per capita income and the consumption of textile fibres (see table 21) reveals little correlation

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1/ As the consumption of these fibres is low in absolute terms, any increase, however small, represents a substantial percentage change.

2/ This proportion is higher than that in the United States, and in many European countries.

/Table 20

Table 20

APPARENT CONSUMPTION OF TEXTILE FIBRES, PER CAPITA AND TOTAL a/

	Cotton	Wool	Man-made fibres			All fibres	Total apparent consumption (Thousands of tons)
			Cellulose	Non-cellulose	Total		
	(Kilogrammes per capita)						
1950	6.1	2.1	0.60	0.01	0.61	8.8	143.8
1951	6.1	1.9	0.60	0.01	0.61	8.6	166.1
1952	5.8	1.7	0.60	0.01	0.61	8.1	143.8
1953	5.3	1.5	0.50	0.01	0.51	7.3	126.9
1954	5.3	1.5	0.60	0.01	0.61	7.4	134.3
1955	5.8	1.3	0.70	0.01	0.71	7.8	151.8
1956	5.9	1.4	0.80	0.02	0.82	8.1	157.0
1957	5.9	1.4	0.80	0.03	0.83	8.6	164.9
1958	5.6	1.2	0.80	0.08	0.88	7.7	161.6
1959	5.4	1.0	0.80	0.10	0.90	7.3	142.4
1960	5.2	0.9	0.90	0.18	1.08	7.2	149.2
1961	5.2	0.7	0.90	0.23	1.13	7.0	155.1
1962	4.5	0.9	0.66	0.22	0.88	6.3	135.3

Source: FAO, Commodity Bulletin, No. 31, 1960; Vol. XI, No 1, January 1962; and Vol. XIII, No 4, April 1964.

a/ The per capita consumption series is constructed from three-year moving averages. The total apparent consumption series gives the data for each year.

/Table 21

Table 21

INCOME AND PER CAPITA CONSUMPTION INDEXES

(1951 = 100)

	Average real income	Consumption of textile fibres (kilogrammes)
1951	100.0	100.0
1952	92.4	94.2
1953	96.1	84.9
1954	98.7	86.0
1955	104.0	90.7
1956	104.3	94.2
1957	107.2	96.5
1958	110.8	89.5
1959	103.8	84.9
1960	108.2	81.4
1961	112.5	87.2
1962	106.8	73.3

Source: ECLA, and FAO, op. cit.

Table 22

PRODUCTION OF COTTON YARN

	Percentage of total output		Average yarn count (English)	
	1949	1961	1949	1961
Carded	96.1	86.5	13.09	14.61
Combed	3.9	13.5	27.76	32.71
Total	100.0	100.0	13.55	17.04

Source: National Cotton Board, La industrialización de fibras de algodón en la República Argentina, Año 1961, December 1962, p. 14, table 14.

/between the

between the two. For this reason (and for others, such as the shortness of the statistical series and the upsets that took place during the period under review) it was felt advisable to find another more reliable instrument for the projection of textile consumption, which involves postulating a rise in total and per capita income.3/

It should also be noted that it does not appear advisable in these studies to rely on the ratio between income and per capita consumption of textiles in terms of weight, because it results from a group of intermediate factors that have to be borne in mind. For example, over a period of time fashion leads to changes in the characteristics of textile articles (unit weight, count, price, etc.), and these changes in themselves undoubtedly have an important effect on the level of consumption calculated in terms of weight.

In fact it is reasonable to assume that the correlation between income and textile consumption will be clearer if consumption is considered in terms of value, that is, in terms of the share of income devoted to clothing, textiles for domestic use, etc.

A number of studies have considered the problem from this standpoint; one is the ECLA study on the economic development of Argentina,4/ which gives an income elasticity of demand of 0.75 for textiles and 1.10 for clothing. A weighted average of the two coefficients (the weights being 42 for textiles and 58 for clothing) gives an over-all coefficient of 0.96, which may also be applicable in the present analysis.

If the concept of income elasticity of demand is extended beyond the quantitative level of weight, the next step is to establish the ratios between value and first quantity in terms of weight, second, quantity in terms of metres.

In this connexion it should be noted that there is a sharp declining trend in the unit weight of the fabric sought by the consumer, which leads

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3/ In some earlier ECLA studies (on Brazil, Chile and Uruguay) it was found necessary to adopt different coefficients from those obtained through analysing the historical series for the country concerned, because of the irregularity and shortness of the series themselves; consequently a coefficient was calculated on the basis of data from various countries with different levels of income and consumption.

4/ El desarrollo económico de la Argentina, Part I, p.111, table IV. Análisis y proyecciones del desarrollo económico, V.

to a progressively finer average count of the yarn produced and an increasing replacement of carded by combed yarn. According to the statistics of the National Cotton Board, between 1949 and 1961, the type of yarn produced varied as indicated in table 22. This table shows that the proportion of combed yarn in the total has risen and the average yarn count has become finer, for both carded and combed yarn.5/ In addition, since the yarn now imported, although only a small fraction of the total, is of very fine counts (English counts 80 for weaving and 49.7 for total consumption, including production of stockings, knitted goods, etc.), and the aim is to satisfy the needs of industry and the domestic market from domestic production, it can be assumed that this trend will continue in the future. Thus it is postulated that the weighted average yarn count will be 15 per cent higher than at present by 1970, and 20 per cent higher by 1975. (It is prudent to assume a less marked trend in the later period.)

2. The projections and the underlying hypotheses

If projections of consumption for future years are to be made on this basis, certain ratios must be established between the various characteristics of the textile goods produced. These ratios, based on hypotheses derived from direct observation, are as follow:

(i) The percentage rise in yarn count entails a reduction in the unit weight of the fabric of 50 per cent of that rise. For example, if the yarn count rises from English count 20 to 24 (a rise of 20 per cent), the weight of the fabric will decrease from 200 to 180 grammes per metre (a reduction of 10 per cent).

(ii) The rise in yarn count also entails an increase in the value of the fabric of 20 per cent of that rise. For example, the same 20 per cent rise in yarn count from English count 20 to 24 gives an increase in the value of the fabric from 100 to 104.

(iii) Hence the reduction in unit weight entails an increase in value of 40 per cent of that reduction. For example, the above 10 per cent weight decrease from 200 to 180 grammes per metre gives an increase in the value of the fabric from 100 to 104.

In order to estimate future textile consumption there must be, in addition to the above hypothesis on the correlations between the characteristics of the textile goods, projections of population and income growth. For Argentina these are:

5/ Although the relevent statistical data are lacking, the trend for wool is probably similar, or even more marked.

/(a) The population

(a) The population will amount to 24,937 million in 1970 and 27,068 million in 1975.6/

(b) The national product will amount to about 113,000 million pesos (at 1950 prices) in 1970, and about 148,000 million in 1975. This involves increases over 1960 of 55 and 103 per cent, respectively.

Consequently per capita income will rise from 3,483 pesos (at 1950 prices) in 1960 to 4,531 in 1970 and 5,468 in 1975, increases of 30.1 and 57.0, respectively.

The various hypotheses are indicated in table 23.

3. Practical conclusions

The procedure used to arrive at projections of textile consumption consisted of the following successive calculations. The results at each stage are given in table 24. The details of the calculations are given in section 1 of annex II, at the end of this report.

(a) Calculation of the rise in individual expenditure, obtained by multiplying the rise in income (of 30.1 and 57 per cent, respectively) by the elasticity coefficient concerned (0.96).

(b) Calculation, on the basis of the correlations given above, of the reduction in the unit weight of fabric resulting from the projected increase in yarn count.

(c) Calculation, on the basis of the same correlations, of the increase in the unit value of the fabric resulting from the projected rise in yarn count.

(d) Calculation of the change in per capita consumption, in metres, resulting from the new unit weight of fabric and the new level of per capita expenditure on textiles.

(e) Calculation of the change in the per capita consumption of textile fibres in terms of weight (grammes), on the basis of the change in consumption in terms of metres and the change in the unit weight of the fabric. 7/

6/ ECLA, Statistical Bulletin, Vol. I, N° 1, p. 17, table 3.

7/ This calculation gives an estimate of the consumption of textile fibres in terms of finished products. To obtain the consumption in terms of fibres, it is necessary to introduce a correction coefficient to allow for wastage.

/Table 23

Table 23

ARGENTINA: PROJECTION OF POPULATION, PRODUCT AND PER CAPITA INCOME
(1970 AND 1975)

	Population (Thousands)		Net product (Millions of pesos at 1950 prices)		Per capita income (Pesos at 1950 prices)	
	Absolute value	Index	Absolute value	Index	Absolute value	Index
1960	20 956	100.0	73 000	100.0	3 483	100.0
1970	24 937	119.0	113 000	154.8	4 531	130.1
1975	27 068	129.2	148 000	202.7	5 468	157.0

Source: ECLA, on the basis of official statistics.

Table 24

PROJECTION OF THE CHANGES IN SOME CHARACTERISTICS OF TEXTILE CONSUMPTION

(Percentage in relation to 1960)

	1970	1975
(a) Change in per capita expenditure on textiles	+28.9	+54.7
(b) Change in unit weight of fabric	-7.5	-10.0
(c) Change in unit value of fabric	+3.0	+4.0
(d) Change in per capita textile consumption (metres)	+25.1	+48.8
(e) Change in per capita textile consumption (grammes)	+15.7	+33.9

Source: ECLA, on the basis of the Survey and other data.

/If it

If it is assumed that the average weight of the fabric in general is 300 grammes per square metre, the projections of textile consumption to 1975 are as indicated in table 25.

What is of interest from the standpoint of the industry are the projections of total consumption that can be derived from table 25. The demand, in terms of metres, will increase by about 50 per cent in ten years and nearly 100 per cent in fifteen years. In terms of weight the demand is slightly lower. Hence the question arises whether the existing machinery can meet this volume of demand, or in what conditions and to what extent it can do so. These points are examined in connexion with the analysis of the characteristics of the existing machinery and the corresponding level of utilization.

4. Methodological conclusions

The projections made permit the deduction of three different coefficients for the elasticity of demand of textile in relation to the independent variable of income.8/ These are:

(a) Quantity-elasticity, the coefficient measuring the changes in weight (kilogrammes) of textile fabrics in relation to changes in income (ε_{iq}).

8/ These coefficients make it possible (assuming that the earlier hypotheses are valid) to project future textile consumption, study the possibilities of exploiting existing and future factors of production, and undertake a more detailed evaluation of the development of textile consumption in recent years. It was shown earlier that from 1951 to 1962 per capita consumption of textile fibres (in terms of weight) declined from 8.6 to 6.3 grammes. Interpolating the line of the graph, on the basis that $y = 96.0 - 1.35x$, where x = years from 0 to 11, the decline over the period considered is, in all, 15 per cent.

If the rise in yarn count between 1951 and 1962 is assumed as being about 20 per cent (the change in yarn count for cotton products between 1949 and 1961 was 26 per cent, but in arriving at an estimate for all textiles it is more prudent to limit the estimate of the change in count to 20 per cent), then the reduction in the unit weight of the fabric consumed would be 10 per cent. Thus the reduction in per capita consumption in terms of metres of fabric would be only 5 per cent (15 - 10), and in terms of total consumption there would be an absolute increase.

/Table 25

Table 25

ARGENTINA: PROJECTION OF TEXTILE CONSUMPTION

	1960	1970	1975
		Absolute values	
Per capita consumption			
In square metres	23.33	29.19	34.71
In kilogrammes	7.00	8.09	9.37
Total consumption			
In thousands of square metres	488 904	727 911	939 530
In tons	146 692	201 740	253 627
		Indexes	
Per capita consumption			
In square metres	100	125.1	148.8
In tons	100	115.7	133.9
Total consumption			
In thousands of square metres	100	148.9	192.2
In tons	100	137.5	172.9

Source: ECLA, on the basis of the Survey and other data.

/(b) Value-elasticity,

(b) Value-elasticity, the coefficient measuring the changes in the total amount spent on textile consumption in relation to changes in income ($\mathcal{E}$ iv).

(c) Area-elasticity, the coefficient measuring the changes in metres of fabric consumed in relation to changes in income ($\mathcal{E}$ ia).

The coefficient $\mathcal{E}$ iv was regarded as equal to 0.96; the other two coefficients can be deduced from the data in table 25, and are:

	1960-70	1971-75
$\mathcal{E}$ iq =	0.53	0.62
$\mathcal{E}$ ia =	0.83	0.89

The changes in the coefficients are accounted for by the changes in the characteristics of the products.9/

These coefficients would be more accurate if the price factor remained unchanged. Without introducing new concepts in relation to this factor, whose effect would be added to that of the changes in income, it will suffice to indicate that the projections might well be higher if the price factor encourages consumption.

However, any hypothesis on this subject would be very rash, mainly because of the high incidence of the raw material cost in the price of textiles, and the impossibility of foreseeing what the changes in that cost will be. In addition other factors would have to be considered, such as the competition from other consumer goods, the possibility that textile products may be replaced by goods produced by other industries, fashion trends, etc.

It would be over-ambitious to embark on an analysis of all these elements in a study such as this, which relates to the structural analysis of the textile industry in Argentina. Suffice it for the moment to express certain basic concepts in terms of projections of consumption, and to indicate the order of magnitude of future expansion.

9/ Attention is drawn to the similarity between the coefficient $\mathcal{E}$ iq, now determined, and the coefficient 0.65, used in the earlier studies referred to.

Chapter V

FOREIGN TRADE

The share of textile products in the total value of Argentina's imports has been declining over the past decade, to a level in the last few years of about 2-3 per cent of the total. Of this percentage, 60-70 per cent represents yarns and fabrics, 20-25 per cent raw materials, and the remainder other textile products such as clothing, knitted fabrics, etc.

The contribution of textiles to exports during the same period was about 15 per cent of the total value. However, of this contribution over 97 per cent represented raw materials and only 3 per cent processed goods, a minute fraction in terms of the total value of Argentine exports.

Hence the difference between imports and exports of textiles is a substantial surplus if raw materials are included (the most important being wool), but for manufactured textile products alone the difference is a deficit, since the value of imports is several times higher than that of exports.

The detailed study of the data on Argentina's foreign trade in textiles1/ that follows gives an idea of the main characteristics of that trade.

1. Raw materials

(a) Imports

The most important item in terms of value is raw cotton, of which imports in recent years amounted to an average of 5,000 to 6,000 tons, with a value of about 5 million dollars. The main supplier was Peru, which accounted for over 95 per cent of the total.

The second most important item in terms of value is jute and ramie. Annual imports of these raw materials range between 6,000 and 11,000 tons, and their value between 1.5 and 2.5 million dollars. Pakistan and Thailand together provide almost the whole of the jute imported.

1/ See tables 26 and 27 at the end of this chapter.

The third product in order of importance is raw pita, of which 3,500 to 6,000 tons a year are imported, with a maximum value of 2 million dollars.2/ This fibre is supplied by a number of countries, but the most important is the Soviet Union, although its contribution varies considerably, having amounted to 25 per cent of the total in 1961 and 50 per cent in 1962. The other supplying countries include Belgium, certain British territories in Africa and Asia, Brazil, and Mexico.

Raw hemp is another raw material imported by Argentina; it comes from the Philippines and Mexico, and its value amounts to a few hundred thousand dollars a year.

(b) Exports

Of the raw materials exported by Argentina, wool stands in the first place. In recent years Argentina has exported annually 110,000 to 130,000 tons of greasy wool amounting in value to over 100 million dollars, about 6,000 tons of skin wools, with a value of between 6 and 7 million dollars, and about 20,000 tons of scoured wool, with a value of nearly 30 million dollars.

The United Kingdom is the main buyer of greasy wool (15 to 20 per cent of the total), followed by the United States, Japan, France, Belgium and other European countries, in proportions that change from year to year.

The skin wools go mainly to the United States, the United Kingdom and the Federal Republic of Germany. The United States is the main purchaser of scoured wool, but most of the European countries are also substantial importers.

There are large exports of cotton fibre to Japan and to Europe, amounting to 22,876 tons in 1961 and 53,089 in 1962. The average price of this cotton was about 50 dollar cents per kg, and its total value was 11 million dollars in 1961 and 24 million in 1962. Thus the value of cotton fibre exports is much higher than the value of imports.

2. Products of the textile industry (yarns and fabrics)

(a) Imports

Cotton industry imports include undyed yarns and piece goods. The former amounted in 1962 to 384 tons with a value of 1,412,000 dollars, of which 299 tons were from Switzerland and 79 tons from Italy. Of the second 293 tons were imported in 1962 for a total value of 977,000 dollars, 100 tons being from Italy, 83 from Japan, 40 from the United States and the remainder from other countries, on a smaller scale.

2/ The unit price of this raw material fluctuates considerably.

/There are

There are few imports of wool yarns and fabrics. A few tons are imported, especially of high quality pure wool fabrics, from Europe or the United States. The average price is 6-8 dollars a kilogramme.

Although nylon yarns are not strictly a product of the textile industry, it should be noted that there are imports of this item, the volume amounting in recent years to over 1,500 tons, to the value of about 5.5 million dollars. The main suppliers are the United States, the United Kingdom, and Italy.

Mention must also be made of imports of some natural silk yarns from Japan, the Netherlans and Italy, and of piece goods of silk, nylon or mixed fabrics from the United States, Switzerland, Germany, and other countries.

(b) Exports

There is only a very small volume of exports of products of the cotton textile industry.

Wool textile products include tops.3/ Their volume has varied widely over the years (like all Argentina's wool exports), amounting to 1,375 tons in 1961 and 2,207 in 1962, with corresponding values of 3,026,000 and 4,586,000 dollars. In 1962 the countries of destination, in order of precedence, included the Netherlands, Chile, Italy, and the Federal Republic of Germany. In 1961 there were substantial exports to China.

Exports of yarns and fabrics, the main products of the textile industry, by continents and countries of destination,4/ provide only very irregular and incomplete series. For example, there was a sharp increse in exports of yarns to other countries in the region, mainly Bolivia, between 1961 and 1962, while exports of fabrics fell off. In 1961 there was a large volume of exports to Uruguay, but the following year there were none.

Such irregularity of data and trends (apart from the steady decline in exports of woollen fabrics to Africa) precludes the drawing of any valid conclusions, and all that is possible is to point out the instability of the external market for Argentina's textile industry.

3/ Provided that these are not regarded as raw materials.

4/ See tables 28 and 29 at the end of this chapter.

3. Other textile products (clothing, etc.)

(a) Imports

Among made-up textile goods cotton and woollen articles are of little importance; in 1962 they amounted to 180 and 15 tons, respectively. Imports of made-up goods of "other fibres", on the other hand, are more substantial, and amounted to 1,335 tons in 1961 and 965 in 1962; they include made-up silk fabrics (other than scarves), made-up goods of silk, silk mixtures or nylon, and other articles made of these fibres, excluding stockings, gloves, passementerie, etc. Imports of stockings etc., amounted to 809 tons to a total value of 1.6 million dollars, 95 per cent of these imports5/being from the United States.

It should be mentioned that imports of sacking amounted in 1954 to over 100,000 tons. The annual average for the last five years was about 47,500 tons, with a value of 17 million dollars. The principal supplier country is India; Pakistan also provides this product, but only on a small scale.

4. Conclusions

This brief examination of Argentina's textile trade confirms the high value of the country's natural resources in textile raw materials. This situation justifies the view that the importing of certain types of wool, cotton and other fibres not produced in Argentina, and that the country's industry can make good use of, would not represent any great financial sacrifice, since the cost of the imports would be offset by the flow of traditional exports of domestic raw materials.6/

As regards textile products,7/ both of the main textile industry (spinning and weaving) and the industry producing made-up goods, knitted goods, etc., Argentina has achieved a marked reduction in its dependence on the external market during the past fifteen years. By about 1948 the country met about 20 per cent of domestic consumption by imports, while in recent years this proportion fell to about 2 per cent, and represents almost entirely products made with man-made fibres. Wool and cotton products have almost disappeared from the import schedule, and the country is practically self-sufficient in those items.

5/ As stated below (chapter IX), it should be noted that there is reason to believe that the unregistered imports of these articles are fairly considerable.

6/ See below (chapter VII, section 11) for further details of this question in relation to the wool sector.

7/ See table 30 at the end of the present chapter.

/At the

At the same time, it is clear that the Argentine textile industry, in addition to being able to supply the domestic market, is making an effort to place its products abroad,8/ especially wool products. However, the results thus far are very modest, and the percentage of total production exported is less than 1 per cent. As already pointed out above, these export flows are still very spasmodic and uneven, and thus Argentina's textile exports can be regarded as still at the exploratory stage.

To sum up, the small scale of Argentina's foreign trade in textile products indicates that the country constitutes a practically closed market. This situation stands in the way of industrial progress receiving the stimulus that might be expected from the abundance of raw materials, the tendency to adopt advanced techniques of industrial processing, and the promising average level of domestic consumption.

8/ See table 30 at the end of this chapter.

Table 26

ARGENTINA: IMPORTS OF TEXTILE PRODUCTS, BY TYPE AND FIBRE, 1955-62

	1955		1956		1957		1958		1959		1960		1961		1962	
	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars
Raw materials	24 398	10 579	16 770	7 254	28 466	12 566	16 358	4 643	22 879	9 075	15 823	7 627	16 965	8 998	21 102	9 424
Cotton	1 843	2 850	1 822	2 013	3 977	4 681	521	600	6 860	5 218	4 997	4 574	5 134	4 619	5 662	4 958
Wool	71	415	15	98	5	21	-	-	-	-	-	-	4	2	7	20
Other fibres	22 484	7 314	14 933	5 143	24 484	7 864	15 837	4 043	16 019	3 857	10 826	3 053	11 827	4 377	15 433	4 446
Yarns	3 019	12 899	1 008	4 927	1 332	5 171	2 524	8 321	2 677	7 608	1 521	5 396	3 034	10 103	2 581	9 166
Cotton	1 947	8 783	407	1 914	762	2 965	1 753	5 588	572	1 614	584	1 691	269	958	412	1 506
Wool	-	-	-	-	4	14	1	3	-	-	-	-	-	4	3	16
Man-made fibres	140	510	29	60	84	308	453	1 686	1 895	5 154	787	2 953	2 656	8 207	2 085	6 946
Other fibres	932	3 606	572	2 953	482	1 884	317	1 044	210	840	150	752	109	934	81	698
Fabrics	57 599	22 089	31 972	13 021	78 311	29 341	60 948	21 766	59 117	21 537	61 326	23 807	15 864	11 555	49 465	26 341
Cotton	-	-	129	245	76	480	64	327	47	235	98	349	368	1 360	365	1 238
Wool	93	601	96	654	55	470	22	172	37	252	39	260	103	821	95	662
Man-made fibres	491	902	1 091	1 786	1 209	2 076	991	1 827	1 158	2 042	1 205	2 079	2 185	3 531	2 244	3 546
Other fibres a/	57 015	20 586	30 656	10 336	76 971	26 315	59 871	19 440	57 875	19 008	59 984	21 119	13 208	5 843	46 761	20 895
Other manufactures	...	2 728	...	393	...	1 730	...	1 671	534	1 340	1 046	1 996	1 542	3 592	1 160	2 764
Cotton	...	191	...	90	...	294	...	242	19	128	92	363	195	841	180	703
Wool	...	34	2	9	...	29	1	6	1	5	2	21	12	59	15	83
Man-made fibres b/	...	394	...	107	...	1 125	...	1 271	495	1 143	565	1 416	1 246	2 537	886	1 849
Other fibres	...	2 109	...	187	...	282	...	152	19	64	387	196	89	155	79	129
All textile products c/	...	37 716	...	18 341	...	36 242	...	31 758	62328	30 485	63 893	31 199	20 448	25 250	53 206	38 271
Cotton	...	8 974	...	2 249	...	3 739	...	6 157	638	1 977	774	2 403	832	3 159	957	3 447
Wool	...	635	...	663	...	513	...	181	38	257	41	281	115	884	113	761
Man-made fibres	...	1 806	...	1 953	...	3 509	...	4 784	3 548	8 339	2 557	6 448	6 087	14 275	5 215	12 341
Other fibres	...	26 301	...	13 476	...	28 481	...	20 636	58 104	19 912	60 521	22 067	13 406	6 932	46 921	21 722

Source: ECLA, on the basis of official statistics on Argentina's foreign trade. (Foreign trade yearbooks 1956-63).

a/ Mainly sacking.
b/ Includes natural silk
c/ Excludes raw materials.

Table 27

ARGENTINA: EXPORTS OF TEXTILE PRODUCTS, BY TYPE AND FIBRE, 1955-62

	1955		1956		1957		1958		1959		1960		1961		1962	
	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars	Tons	Thousands of dollars
Raw materials	112 541	126 180	112 205	126 345	102 196	124 003	110 675	101 051	157 868	128 288	214 666	158 034	267 500	168 657	218 712	173 255
Cotton	2 801	1 902	1 925	1 200	13 424	5 900	4 578	1 528	9 941	2 645	9 161	3 414	23 800	11 335	53 849	24 158
Wool	109 740	124 278	110 279	124 854	88 753	118 094	106 097	99 523	147 927	125 643	142 462	147 187	144 736	145 886	164 708	149 067
Man-made fibres	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other fibres	-	-	1	1	19	9	-	-	-	-	63 043	7 433	98 964	11 436	155	30
Yarns	8	23	16	17	47	52	12	27	9	18	27	108	154	82	211	275
Cotton	5	18	1	4	2	10	-	3	5	10	11	40	4	15	-	-
Wool	-	-	2	9	-	2	12	24	3	7	15	62	5	21	72	225
Man-made fibres	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other fibres	3	5	13	4	45	40	-	-	1	1	1	6	145	46	139	50
Fabrics	168	729	322	1 199	608	2 000	213	724	124	438	76	321	49	175	29	107
Cotton	45	182	47	86	279	668	62	150	26	53	3	7	16	44	8	12
Wool	122	546	273	1 104	230	941	150	572	98	383	73	314	29	129	20	93
Man-made fibres a/	-	-	2	9	96	383	1	2	-	2	-	-	-	-	-	-
Other fibres	1	1	-	-	3	8	-	-	-	-	-	-	4	2	1	2
Other manufactures	246	484	455	377	684	818	183	400	1 496	1 089	1 805	854	1 660	779	2 033	816
Cotton	12	67	9	34	29	135	13	62	8	31	2	11	4	12	2	7
Wool	57	182	35	148	98	364	55	187	40	185	7	62	14	100	4	45
Man-made fibres	-	1	1	6	1	11	-	3	-	3	-	5	-	1	1	19
Other fibres	177	234	410	189	556	308	115	148	1 448	870	1 796	776	1 642	666	2 026	745
All textile products b/	422	1 236	793	1 593	1 339	2 870	408	1 151	1 629	1 545	1 908	1 283	1 863	1 036	2 273	1 198
Cotton	62	267	57	124	310	813	75	215	39	94	16	58	24	71	10	19
Wool	179	728	310	1 261	328	1 307	217	783	141	575	95	438	48	250	96	363
Man-made fibres	-	1	3	15	97	394	1	5	-	5	-	5	-	1	1	19
Other fibres	181	240	423	193	604	356	115	148	1 449	871	1 797	782	1 791	714	2 166	797

Source: ECLA, on the basis of official statistics on Argentina's foreign trade, op. cit.

a/ Includes silk.

b/ Excludes raw materials.

/Table 28

Table 30

ARGENTINA: RATIO OF PRODUCTION TO CONSUMPTION OF TEXTILE PRODUCTS, 1948-60

(Thousands of tons)

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
Cotton															
Imports	17.2	16.0	10.3	9.7	11.3	1.5	0.4	1.9	0.6	0.9	1.9	0.6	0.7	0.8	0.9
Production	81.9	81.7	89.5	107.5	94.1	87.1	97.3	110.9	118.4	115.2	116.9	103.3	113.1	107.5	102.8
Consumption	99.1	97.7	99.8	117.2	105.4	88.6	97.7	112.8	119.0	115.8	118.7	103.9	113.8	108.3	103.7
Production as percentage of consumption	82.6	83.6	89.7	91.7	89.3	98.3	99.6	98.3	99.5	99.5	98.5	99.4	99.4	99.3	99.1
Imports as percentage of consumption	17.4	16.4	10.3	8.3	10.7	1.7	0.5	1.7	0.5	0.8	1.6	0.6	0.6	0.7	0.9
Wool															
Imports	3.7	4.9	2.0	0.6	0.4	-	0.3	0.2	0.1	0.1	-	-	-	0.1	0.1
Production	27.2	31.8	38.6	41.3	33.6	33.1	27.7	30.8	27.7	34.9	28.1	26.3	19.5	24.5	15.9
Consumption	27.8	33.6	35.3	36.7	28.8	29.4	24.8	26.3	22.6	31.6	23.9	20.1	16.4	19.7	9.7
Production as percentage of consumption	97.8	94.6	109.3	112.5	116.7	112.6	111.7	117.1	122.6	110.4	117.6	130.8	118.9	124.4	163.9
Imports as percentage of consumption	13.3	14.6	5.7	1.6	1.4	-	1.2	0.8	0.4	0.3	-	-	-	0.5	1.0
Man-made fibres															
Imports	2.5	5.5	0.6	3.7	1.1	0.3	0.3	0.64	1.13	1.34	1.63	3.23	3.76	8.03	7.29
Production	4.6	6.97	8.14	8.38	8.48	8.59	11.53	12.07	14.27	16.15	17.34	15.07	15.36	19.02	14.61
Consumption	7.1	12.47	8.74	12.08	9.58	8.89	11.83	12.71	15.4	17.49	18.97	18.38	19.12	27.05	21.90
Production as percentage of consumption	64.8	55.9	93.1	69.4	88.5	96.6	97.5	95.0	92.7	92.3	91.4	82.0	80.3	70.3	66.7
Imports as percentage of consumption	35.2	44.1	6.9	30.6	11.5	3.4	2.5	5.0	7.3	7.7	8.6	17.6	19.7	29.7	33.3
All textile products															
Imports	23.4	26.4	12.9	14.0	12.8	1.8	1.0	2.74	1.83	2.34	3.53	3.83	2.81	8.93	8.29
Production	113.7	120.47	136.24	157.18	136.18	128.79	136.53	153.77	160.37	166.25	162.34	145.30	147.96	140.03	133.31
Consumption	134.0	143.8	143.8	166.0	143.8	126.9	134.3	151.8	157.0	164.9	161.57	142.38	147.66	155.05	135.30
Production as percentage of consumption	84.9	83.8	94.7	94.7	94.7	100.7	101.7	101.3	102.1	100.8	100.5	102.1	100.2	90.3	98.5
Imports as percentage of consumption	17.5	18.4	9.0	8.4	8.9	1.4	0.7	1.8	1.2	1.4	2.2	2.7	1.9	5.8	6.1

Source: ECLA, on the basis of FAO, Commodity Bulletin, op. cit.

/Table 31

Table 29

ARGENTINA: EXPORTS OF FABRIC, BY DESTINATION, 1955-62

Destination	Volume (kilogrammes)								Value (dollars)							
	1955	1956	1957	1958	1959	1960	1961	1962	1955	1956	1957	1958	1959	1960	1961	1962
Latin America	85 089	136 260	505 121	122 688	37 019	9 764	17 552	7 089	431 389	542 859	1 603 567	348 645	92 393	41 561	57 084	20 401
ALALC countries	85 089	61 681	480 284	120 711	37 011	9 742	17 552	7 066	431 389	344 636	1 527 324	338 102	92 368	41 428	57 084	20 267
Brazil	246	1 301	1 000	-	-	-	-	-	969	5 168	23 018	-	-	-	-	-
Bolivia	673	51 316	37 923	40 650	99 708	6 074	879	5 183	1 475	297 399	122 815	116 227	22 269	22 260	5 911	13 218
Chile	-	-	-	126	283	80	-	312	-	-	-	1 043	467	65	-	1 728
Ecuador	-	-	632	-	-	-	-	-	-	-	2 930	-	-	-	-	-
Paraguay	84 170	7 641	436 707	79 325	26 981	3 003	2 273	1 460	428 945	35 767	1 357 101	218 026	69 552	14 305	10 892	4 920
Peru	-	673	4 022	610	39	-	-	2	-	3 785	21 460	2 806	80	-	-	16
Uruguay	-	750	-	-	-	585	14 400	109	-	2 517	-	-	-	4 798	40 281	385
Other countries	-	74 579	24 837	1 977	8	22	-	23	-	198 223	76 243	10 543	25	133	-	134
Costa Rica	-	-	400	-	-	-	-	-	-	-	2 396	-	-	-	-	-
Guatemala	-	434	168	2	-	-	-	-	-	1 725	943	2	-	-	-	-
Haiti	-	1 140	-	-	-	-	-	-	-	3 841	-	-	-	-	-	-
Panama	-	-	-	244	8	-	-	-	-	-	-	2 047	25	-	-	-
Venezuela	-	73 005	24 269	1 731	-	22	-	23	-	192 657	72 904	8 494	-	133	-	134
North America	3 126	35 376	2 496	62 648	56 623	14 846	11 176	13 042	14 592	166 318	12 538	274 061	227 259	78 165	37 222	54 106
United States	3 126	33 182	2 496	62 621	56 623	14 846	11 176	7 893	14 592	155 396	12 538	273 904	227 259	78 165	37 222	47 701
Canada	-	2 194	-	27	-	-	-	5 149	-	10 922	-	157	-	-	-	6 405
Europe	636	1 958	5 009	-	-	394	954	671	2 079	14 295	1 975	-	-	2 272	5 553	3 518
Federal Republic of Germany	-	203	-	-	-	394	906	-	-	843	-	-	-	2 272	5 433	-
Belgium	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	404
Finland	485	-	-	-	-	-	-	-	1 970	-	-	-	-	-	-	-
Greece	-	-	-	-	-	-	-	155	-	-	-	-	-	-	-	264
Italy	-	-	5 009	-	-	-	48	3	-	-	1 975	-	-	-	120	13
Norway	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	35
United Kingdom	-	945	-	-	-	-	-	505	-	9 980	-	-	-	-	-	2 802
Switzerland	151	810	-	-	-	-	-	-	109	3 472	-	-	-	-	-	-
Middle East	-	-	1 470	-	-	483	-	-	-	-	6 029	-	-	2 350	-	-
Lebanon	-	-	1 470	-	-	483	-	-	-	-	6 029	-	-	2 350	-	-
Africa	79 222	149 113	93 593	28 166	30 600	51 640	18 441	6 788	281 198	475 448	376 219	102 115	117 948	201 839	74 684	29 391
Portuguese territories	-	811	-	-	-	-	-	-	-	4 010	-	-	-	-	-	-
Union of South Africa	79 222	148 302	93 593	28 166	30 600	51 640	18 441	6 788	281 198	471 438	376 219	102 115	117 948	201 839	74 684	29 391
World total	168 073	322 707	607 689	213 502	124 242	77 127	48 123	27 590	729 258	1 198 920	2 000 328	724 821	437 600	326 187	174 543	107 416

Source: ECLA, on the basis of official statistics on Argentina's foreign trade, op. cit.

/Table 30

Table 28

ARGENTINA: EXPORTS OF YARN, BY DESTINATION, 1955-62

Destination	Volume (kilogrammes)								Value (dollars)							
	1955	1956	1957	1958	1959	1960	1961	1962	1955	1956	1957	1958	1959	1960	1961	1962
South America	7 445	15 609	47 125	5 946	7 268	13 271	5 002	24 064	-	-	-	21 833	18 152	55 318	18 777	79 978
ALALC countries	7 445	15 609	46 141	5 945	7 163	12 992	5 002	23 327	23 598	17 543	52 501	21 829	17 824	53 831	18 777	77 298
Brazil	-	-	-	-	-	5	-	-	-	-	-	-	-	55	-	-
Bolivia	10	14 704	306	2 908	4 201	9 366	1 512	21 296	1.212	13 735	2 057	8 210	8 277	38 037	3 085	73 334
Chile	-	405	125	303	-	65	51	108	-	358	778	3 000	-	2 736	1 124	874
Paraguay	7 435	500	45 710	2 734	2 962	3 556	3 403	923	22 386	3 450	49 666	10 619	9 537	13 003	14 516	736
Uruguay	-	-	-	-	-	-	36	1 000	-	-	-	-	-	-	52	2 354
Other countries	-	-	984	1	105	279	-	737	-	-	289	4	338	1 479	-	2 680
El Salvador	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	176
Guatemala	-	-	-	-	105	-	-	-	-	-	-	-	338	-	-	-
Honduras	-	-	-	1	-	-	-	-	-	-	-	4	-	-	-	-
Panama	-	-	980	-	-	-	-	-	-	-	278	-	-	-	-	-
Venezuela	-	-	-	-	-	279	-	-	-	-	-	-	-	1 479	-	-
United States territories in the Americas	-	-	-	-	-	-	-	697	-	-	-	-	-	-	-	2 504
Netherlands territories	-	-	4	-	-	-	-	-	-	-	11	-	-	-	-	-
North America																
United States	-	-	-	1	-	330	60 707	138 271	-	-	-	1	-	1 715	20 569	47 564
Europe	-	-	-	5 654	-	265	83 566	41 802	-	-	-	5 150	-	350	23 530	115 282
Federal Republic of Germany	-	-	-	-	-	-	83 518	-	-	-	-	-	-	-	23 496	-
Belgium	-	-	-	5 654	-	-	-	-	-	-	-	5 150	-	-	-	-
Italy	-	-	-	-	-	-	48	1 000	-	-	-	-	-	-	84	2 874
Netherlands	-	-	-	-	-	-	-	63	-	-	-	-	-	-	-	112 254
United Kingdom	-	-	-	-	-	30	-	40 739	-	-	-	-	-	279	-	112 254
Sweden	-	-	-	-	-	235	-	-	-	-	-	-	-	71	-	-
Africa																
Union of South Africa	-	-	-	-	-	12 802	4 582	8 903	-	-	-	-	-	49 343	19 580	33 992
World total	7 445	15 609	47 125	11 601	7 268	26 668	153 857	213 040	23 598	17 543	52 790	26 934	18 152	106 718	82 506	276 816

Source: ECLA, on the basis of official statistics on Argentina's foreign trade, op. cit.

/Table 29

Table 31

ARGENTINA: RATIO OF EXPORTS TO PRODUCTION, 1955-62

	1955	1956	1957	1958	1959	1960	1961	1962
Cotton								
Exports (tons)	62	57	310	75	39	16	24	10
Production (thousands of tons)	110.9	118.4	115.2	116.9	103.3	113.1	107.5	102.8
Exports as a percentage of production	0.06	0.05	0.27	0.06	0.04	0.01	0.02	0.01
Wool								
Exports (tons)	179	310	328	217	141	95	48	96
Production (thousands of tons)	30.8	27.7	34.9	28.1	26.3	19.5	24.5	15.9
Exports as a percentage of production	0.58	1.12	0.94	0.77	0.50	0.49	0.20	0.60
Man-made fibres								
Exports (tons)	-	3	97	1	-	-	-	1
Production (thousands of tons)	12.07	14.27	16.15	17.34	15.07	15.36	19.02	14.61
Exports as a percentage of production	-	0.02	0.60	0.01	-	-	-	0.01
All textiles								
Exports (tons)	241	370	735	293	180	111	72	107
Production (thousands of tons)	153.77	160.37	166.25	162.34	145.30	147.96	151.02	133.31
Exports as a percentage of production	0.16	0.23	0.44	0.18	0.12	0.07	0.05	0.08

Sources: FAO, Commodity Bulletin, op. cit., for production data. Table 27, above, for export data.

Chapter VI

THE TAX AND CUSTOMS SYSTEM AND ITS EFFECT ON THE STRUCTURE OF THE TEXTILE INDUSTRY

The general tax and customs provisions clearly affect the structure of industry. These provisions may be the specific means chosen by the State to create or modify certain characteristics or trends of economic activities; but in some cases it can be seen that the effect of applying certain provisions is not what was expected, or else there are secondary and indirect results that were not foreseen.

Hence it is appropriate to survey briefly the main provisions of Argentina's tax and customs legislation as they concern or affect the textile industry, with an account of their consequences.

1. Customs duties

Even at the beginning of the cycle of production, namely, the supplying of the raw materials, there are a number of general provisions that affect the textile industry.

Imported cotton is subject to a customs duty of 18 per cent, plus a surcharge,1/ which has the effect of restricting cotton imports. These measures are designed less as a source of revenue, since very little revenue is obtained from this source, than to protect the domestic production of cotton, which is being encouraged by means of technical assistance from the National Agricultural Technical Institute (INTA). Although the national output of cotton is sufficient to meet the needs of industry from the standpoint of volume, it is not up to standard from the standpoint of quality, since no long-staple cotton is produced, industrial requirements in this respect being met almost entirely from Peru.

The problem is more serious as regards wool. Argentina produces a large volume of wool, about four or five times what is needed for its own industrial consumption, but because of the rules governing trade in this raw material, there may be a qualitative deficit, since although Argentine wool is excellent for certain types of use, for others, such as worsted fabrics and fine-count single yarns, finer wools such as the Australian wools are preferable, either alone or in mixtures. As the wool industry is obliged to use only home-grown wools, certain end goods are at a competitive disadvantage, in terms of quality, on the world market.

1/ This surcharge varies according to staple and provenance. At present there is a surcharge of 150 per cent for cotton with a staple length of less than 30 mm, of any origin; for cotton with a staple length of over 30 mm the surcharge is 40 per cent when it comes from outside the ALALC area, whereas cotton from inside the area is exempt from the surcharge.

/Moreover, the

Moreover, the impossibility of importing wool from abroad, except from neighbouring countries, leads to a closed market, and permits the existence of price levels in the domestic market that are different from world levels, with the expected consequences for the market in the manufactured products.2/

With respect to artificial fibres, the high duties on soda and cellulose, and the necessity of using domestic cotton linters, resulted in the domestic product being dearer than that offered on the world market. There is a high degree of protection for artificial fibres, both continuous filament and staple, amounting to 22 per cent in duty plus 200 per cent in surcharges.3/

The consumption of synthetic fibres is met almost entirely from domestic output, since in addition to a customs duty of 22 per cent, these fibres are liable to ad valorem surcharges that range from 100 to 150 per cent.

There is even more reason for imposing high customs duties on semi-finished or finished goods than on raw materials, since in the first case protectionism is justified by the need to limit expenditure in foreign exchange, as well as to protect domestic industry.

Concentrating for the moment on the question of customs surcharges on raw materials, and leaving aside the more complex problem of manufactured products, it is clear that even when a customs duty is bearable and is paid, has an adverse effect on the cycle of production because of the heavy capital burden it imposes on the industry. The application of an indirect tax prior to the first processing stage necessarily has a discouraging effect on an industry when the main problem is shortage of capital.

The customs charge on imported machinery (reduced to 40 per cent since 1961) calls for special mention.

In fact, and not only in theory, the customs barrier represents an indirect tax that has to be transferred to the consumer, but this mechanism does not operate when the duty is too high and the consumer cannot absorb the tax. Thus not only is government revenue reduced, but there is a paralysing effect on the cycle of production and distribution concerned, with the consequences that might be expected.

2/ However, the situation is much better than it was between 1945 and 1955, when multiple exchange rates (involving aforos, or Government commissions) were in force, with resultant export prices for wool that were 20-25 per cent higher than on the world market. The result was that for a long period stocks were accumulating in Argentina.

3/ In 1963 the world price of rayon staple was 0.55 dollars per kg, while the price of the Argentine product (not considered satisfactory for all types of use) was over 1.50 dollars per kg.

2. Internal taxes

The other indirect tax that affects textile products is the sales tax (Act No. 12,143) on the sale of any merchandise, commodity or product anywhere in Argentine territory. Although the legislation provides that the tax is owed from the moment when the merchandise is delivered, or the act equivalent to delivery takes place, the settlement of the tax and its payment is made by a complex system that covers all the operations that take place during the tax year, which is the calendar year. The deductions allowed by the legislation are those for purchases effected during the period, regardless of whether the merchandise into which the materials are made up are produced and sold within the same tax year.

It is possible to grasp at once, without entering into any details of the functioning of this tax (the rate of which is normally 10 per cent), the fact that it disregards the structure of enterprises, that is to say, how far they are integrated. Moreover, the tax also has the advantage, at least in theory, of being based on the value added by each enterprise, thus representing a burden that is equitably divided among all the stages of the cycle of production.4/

In practice this tax does not affect raw materials at the moment of sale, but is applied only when a sale takes place after the first industrial processing.

The Argentine tax system includes many other taxes (federal, provincial and municipal) and hence the calculation of the final tax on any product is most complex and difficult. Indirect taxes affecting textile production include taxes relating to insurance, silk yarns and fabrics (whether natural, artificial or synthetic, or similar); the stamp tax, the tax to finance technical education, inspection charges on corporations, taxes on sanitary services, on electricity consumption, on motor vehicles, etc. All these charges are, of course, additional to the direct taxes imposed.5/

3. Reimbursement of tax in respect of exported goods

It should be noted, in connexion with the tax system for exported goods, that international rules generally permit exemption from indirect taxes for a country's exported goods and products (since such taxes are intended to fall on the domestic consumer), and this principle is respected by most countries.

4/ However, the sale of co-operatives are exempt from this tax, which thus has the effect of encouraging the spread of this type of enterprise.

5/ The Argentine budget provides the following breakdown of tax revenue: direct taxes 23 per cent, indirect taxes 77 per cent.

/Hence a

Hence a product that is exported is freed from the tax charges of the country of origin at the moment when it leaves that country, and incurs the charges in force in the importing country at the moment of entry into that country.

The lifting of the tax at the moment when the goods leave the country is effected in various ways, depending on the technical features of the tax system. For example, when repeated taxes are applied to a succession of economic acts, the final tax burden depends on the number of these stages, and hence an average rate of reimbursement has to be calculated. The same is true when the tax applies to any phase of the cycle of production other than the final stage.

The simplest and most effective method of ensuring exemption from the indirect tax burden is to make the tax apply to value added, as in Argentina. It is then sufficient to declare that the invoices for exported goods are exempt from the tax; the tax contributions paid at previous stages are recovered in the form of the total of the discounts applied to the billing in the domestic market. One of the main advantages of this system is precisely the automatic nature of the tax exemption for exported products.

It is generally held that direct taxes, unlike the indirect taxes, are not deductible from exported products. This is because in theory direct taxes do not affect the cost of the products but the profit on them, that is, the income produced. The income remains in the country even though the merchandise is exported, and there is no valid reason to exempt that income from the domestic tax.

However, Argentina's legislation in this field does not appear wholly in accord with the principles described above. Firstly, there is a tax refund even though the export invoices are exempt from the sales tax and the end result is, as made clear above, that there is an automatic exemption from all the taxes paid. Secondly, not all products give rise to this refund, only the non-traditional exports. Thus greasy wool, which is a traditional export, cannot benefit, and the tax on it still has to be paid.6/

6/ To be more precise, the tax payable is 12.8 per cent (10 per cent sales tax, 1.5 per cent INTA contribution, 1.0 per cent road development tax, and 0.3 per cent statistics tax). However, this percentage is not applied to the real value of the wool exported, but to its average value, calculated at 900 Argentine pesos per 10 kg, which means that the incidence declines with the rise in the price of wool and in its quality. This is a means of encouraging the export of the finer wools, which are in short supply. In any case the ratios between the prices of wools of various fineness are distorted on the domestic market in relation to the levels on the world market.

/When wool

When wool is sold on the world market at world prices, the tax is in fact paid by the farmer. Exports of the processed products, on the other hand, - tops, yarn, fabrics and made-up goods - qualify, as non-traditional exports, for a refund of 12 per cent at the moment of export.7/

This machinery distorts the real possibilities of the industry, to the point where, as can easily be appreciated, it is possible, for example, for tops to be exported at a price that is the same, if not lower, than the price of wool. It could be argued that these measures are intended to encourage exports, but it is highly questionable that this type of incentive is ideal for encouraging an export industry capable of competing on the world market. Indeed, thus far these measures have not achieved any notable results, and the volume of exports remains relatively small.

7/ From 1 January 1965 (decree 46/65) a refund of 6 per cent was established for exports of scoured wool, and the refund for exports of fabric was raised to 18 per cent.

Chapter VII

OPERATING CONDITIONS IN THE WOOL TEXTILE INDUSTRY

1. Methodological note

The analysis of the wool textile industry in this chapter is based on a methodology that, although it represents no change in the main basic concepts, introduces certain innovations compared with the earlier textile studies on Chile, Brazil, Uruguay, etc. This is due to the natural need for progressive refinement of the instruments of economic analysis as they are used over and over again; and moreover a study of the wool textile industry in Argentina means dealing with a very large industry of complex structure.

After a general note on the industry this chapter goes on to deal separately with the problems relating to the raw materials and the operations of wool sorting, washing, combing, worsted spinning, woollen spinning, and wool weaving. For each of these operations the aim is to give an estimate, as far as possible, of unit output and productivity, and for this purpose certain new standards had to be adopted that are in fact already implicit in the methodology used previously.

In other words, the idea is to break down the former concepts into their component parts. This applies particularly to spinning productivity, as the input of labour calculated for the production of a kilogramme of yarn was obtained from the total number of hours worked, from the time when the material was first received to the end of the spinning operation.

However, for the purpose of providing at the same time a bird's-eye view of the spinning cycle, section 7 recapitulates the data relating to the whole process of worsted spinning, and in addition section 9 gives some information about the wool-spinning process as a whole, for both worsted and woollen yarn.

As regards weaving, the changes are confined to a more extensive analysis of the composition of the labour force and the measurement of the output in picks instead of metres. These concepts constitute only a change of form compared with the earlier methodology, and do not give rise to any problems of comparability between the results of this study and the previous studies.

The technical definitions and the main methodological concepts expressed in numerical terms will be found in the methodological glossary (Annex I) at the end of the present report.

/2. General

2. General

The wool textile industry in Argentina represents an industrial complex of considerable size, both in absolute terms, and in relation to the other textile industries in Argentina and to the woollen and textile industries elsewhere in the region. However, the over-all size of the industry reflects a very large number of enterprises whose average size is small. Few enterprises can be classified as large, and even those few are not very large. In any case, they are lost to sight among the vast number of small and medium sized enterprises, and the very extensive artisan sector.

The existence of many small production units, in which non-integrated mills predominate, naturally means that there is a very large group of entrepreneurs, with different interests and points of view that are often conflicting, which makes it difficult to organize trade associations.1/ This situation, although advantageous from the standpoint of competition and price reduction, does not encourage the co-operation that is often necessary. Hence there is little application of voluntary standardization regulations (relating to conditioning, count tolerance, non-judicial arbitration, general marketing organization, etc.).

In addition the general rule, especially among the small and medium size enterprises (and sometimes among the large enterprises as well), is a form of management based on empirical and personal criteria. In practice the industrialist does not always appear prepared to surrender his power to take decisions to technical staff with managerial powers. This spirit of personal independence is also to be found among the department heads and foremen in the production sections.

In general it can be stated that the wool textile industry in Argentina does not give the impression of a very advanced industrial complex, because of the great difference between the few pioneer enterprises and the majority of establishments that are still lagging behind in terms of the techniques and methods of organization to be expected of a modern enterprise.

The foregoing comments help to explain, although they do not justify, the structural imbalances that exist, of which various examples are given below.

A very important, though not exclusive, role is played by the commission units. This type of unit is most common in the weaving section, where commission weavers (sometimes incorrectly thus termed) have a production capacity, that is a loom inventory, similar to that found in the mill sector (see chapter III). However, from the legal and economic standpoint, these commission weavers are themselves industrialists, since they work on their own account, buying the yarn and selling the fabric. Sometimes they also work for mills, that is to say, when the demand for fabrics is high,

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1/ Many of these entrepreneurs do not belong to any association.

/industrialists prefer

industrialists prefer to farm out part of their work to the commission weavers. But when demand declines and some of the industrialist's own machinery is in danger of becoming idle, he gives priority to maintaining the work level in his own mill. The commission weavers then reduce their rates in order to compete with the cost of the mill products, and if even this does not bring in the work, they work on their own account and sell their products at low prices. At this point the industrialist begins to feel the effects of strong competition from the commission weavers, since the position of the latter is more favourable from the standpoint of social insurance and tax legislation.

Consequently the industrialist, in order to defend himself against this competition, has to reduce his internal costs by modernizing his machinery and raising labour productivity in order to be able to compete, without neglecting questions of product quality, publicity, etc.

This will give a broad picture of the coexistence in the same country, and even in the same city, of enterprises whose technical level is very different. Obviously this coexistence can easily continue provided that demand is at a given level, but if demand is reduced for a long period, a proportion of the producers will have to remain idle - and it cannot be assumed that the enterprises that would be excluded would necessarily all be the commission weavers. A substantial proportion of those weavers would be affected by such a crisis because of their lack of working capital and marketing organization, but some large mills would also be forced to cut down their production, in inverse proportion to the degree of up-to-dateness of their machinery, and even more, to their level of technical progress and organization, the main criterion for defining a modern enterprise.

3. Raw materials

Argentina is a major producer and exporter of wool, but the current stagnation of production capacity means that one of its potential riches is being wasted. Moreover, most wool exports consist of the unprocessed wool, with no industrial value added.

The problems of the woollen industry in Argentina begin with the raw materials, which means that any analysis has to begin at that stage. Argentina is the fourth largest producer of sheep and wool. In the last twenty years development has lagged behind that of other countries; the increases in the sheep population and wool production of other countries were 50 per cent and 70 per cent, respectively, in Australia, 58 and 74 per cent in New Zealand, 6 and 28 per cent in South Africa, and 22 and 60 per cent in Uruguay. In Argentina, on the contrary, the sheep population declined by 14 per cent and wool production by 22 per cent. During the same period the world sheep population rose by 35 per cent and world wool production by 50 per cent (see table 32).

/Table 32

Table 32

WORLD SHEEP POPULATION AND WOOL PRODUCTION, 1941-62

	1941/42		1951/52		1961/62	
	Sheep population (Million head)	Wool production (Thousands of tons, greasy basis)	Sheep population (Million head)	Wool production (Thousands of tons, greasy basis)	Sheep population (Million head)	Wool production (Thousands of tons, greasy basis)
Australia	105	447	118	488	158	757
USSR	52	102	85	171	138	384
New Zealand	31	156	35	184	49	271
Argentina a/	53	232	50	191	46	181
South Africa	32	114	35	112	34	146
United States	48	195	32	119	31	144
Uruguay	18	55	24	84	22	88
United Kingdom	23	46	20	42	30	59
Turkey	17	27	25	33	35	48
Spain	23	29	26	38	26	40
India	38	33	39	32	40	35
Other countries	240	264	301	366	311	447
Total	680	1 790	790	1 860	920	2 570
Equivalent in scoured wool	-	970	-	1 070	-	1 470

Source: International Wool Textile Organization (IWTO), International Wool Conferences, (annual publications), Op. cit.

a/ The figures for Argentina do not agree fully with those published by the Argentine Wool Federation that are shown in table 34, but the difference is negligible.

/Table 33 shows

Table 33 shows that Argentina is the world's third largest exporter of wool. The figures given above confirm that world demand for wool continues to rise, and that there is a large market for Argentine wool. Yet, the supply of Argentine wool has long remained at about the same level, as table 34 shows.

Since world demand for wool, both present and future, exceeds supply, it is obviously desirable for the Argentine economy to give every encouragement to wool production. Spokesmen for the Argentine Wool Federation2/ themselves recognize that conditions for wool production in Argentina are so favourable that production could be doubled in only a few years.

Measures should accordingly be adopted to encourage wool production from the standpoint of both quantity and quality, since the existence of a strong demand will not evoke any automatic response from the wool sector. The low wool yield of Argentine sheep is an indication of the defective organization of the agricultural sector. It should be noted (although the difference in the types of wool deprives the comparison of some of its significance) that Argentine sheep give an average of 2 kg of wool a year (in the scoured wool equivalent), as against 3.80 kg in New Zealand, 2.80 kg in Australia, 2.70 in Uruguay and 3.30 in South Africa.

Any examination of the problems of Argentine wool, and hence of the woollen industry, must include the marketing system. "The wool producers can choose one of three basic systems for selling their fleeces and hides: (1) making them available for sale on the centralized markets of Avellaneda and Bahia Blanca; (2) making them available for sale abroad; (3) selling them direct from the farm. The third system can, in turn, be subdivided into (a) sale prior to shearing; (b) sale after shearing when the wool is available. Competing purchasers for fleeces and hides include about 150 exporting firms, 50 textile mills and a large number of wholesale buyers from rural areas and local merchants who buy a number of lots and then join together to sell them to exporters or to local industry."3/

Argentina's wool output is considerably in excess of the requirements of domestic industry, and exports are an average of two-thirds of total production. Given its productive potential and technical skill, domestic industry is faced with the need to increase exports of manufactured products (that is, products with a greater value added), by gradually undertaking the processing of some of the wool now exported.

2/ La lana (a technical publication issued in Buenos Aires), Vol II, No. 7, 1963, p. 41.

3/ La lana, op. cit. p. 38.

Table 33

EXPORTS OF WOOL FROM THE FIVE PRINCIPAL EXPORTING COUNTRIES

(Average of clips for 1959/60, 1960/61 and 1961/62)

(Thousands of tons)

	Actual weight	Clean wool equivalent
Australia	632	383
New Zealand	245	182
Argentina	140	94
South Africa	119	67
Uruguay	48	33

Source: IWTO, op. cit.

Table 34

ARGENTINA: SHEEP POPULATION AND WOOL PRODUCTION, 1951-63

Clip	Sheep population (Thousand head)	Wool production (Tons, greasy basis)
1951/52	50 000	185 000
1952/53	49 200	184 150
1953/54	46 800	180 100
1954/55	43 800	165 100
1955/56	45 200	176 900
1956/57	45 900	176 000
1957/58	47 885	185 500
1958/59	48 867	190 950
1959/60	48 867	171 850
1960/61	46 000	185 500
1961/62	44 600	186 000
1962/63	45 000	185 200

Source: Argentine Wool Federation, Boletín estadístico.

/Exports of

Exports of wool from the last clip, by degree of processing of the product, are shown in table 35. Broadly speaking it can be estimated that about 70 per cent of the wool exports during 1962/63 were in the form of greasy wool and sheepskins with no industrial value added; about 20 per cent (pulled wool and scoured wool) have a very small value added (about 5 per cent) and about 5 per cent (tops and waste) a slightly higher value added (10 to 15 per cent). Processed products with a substantial value added (40 to 60 per cent), namely yarns and fabrics, amount to only 1 per cent of the total.

4. Scoured wool

Scoured wool offers the best opportunities for exporting a processed wool with some value added. Scouring is a simple process, but should not be under-estimated, since it is the basis of the subsequent behaviour of the textile fibre.4/

Scouring is preceded by a difficult operation, sorting, which is precisely the weak link to which many of the problems of Argentina's woollen industry are attributable. Sorting, or the classifying of the wool according to its position in the fleece, and to fineness, determines what use will be made of the wool, and if the sorting is badly done or does not correspond to the requirements of the spinning mills, the mills will naturally prefer to buy greasy wool and do their own sorting and scouring.

It is difficult, if not impossible, to obtain statistics on the scouring establishments in Argentina and their machinery inventory. There are many inactive units, probably obsolete, that would be difficult to locate and classify. Without including this machinery that is potentially operational, but undoubtedly uneconomic, it can be assumed that there are at present 34 scouring units,5/ classifiable as indicated in table 36.

The machinery of the independent and integrated scouring units can be subdivided by age and production capacity as shown in table 37. Clearly this production capacity is excessive in relation to the market, since a daily capacity of 902,500 kg represents, for a working year of 300 days, something over 270,000 tons, one and a half times the total clip in Argentina. In fact, out of a total production of about 180,000 tons about 120,000 tons are exported as greasy wool. The remaining 60,000 tons could be scoured in 66 days, on the basis of a uniform output of all the machinery on a three-shift basis, and in 97 days on a two-shift basis.

In addition there is a great variation in the unit output, that is, output per hour of operation, of the various types of machinery. Thus the average output of the machinery over thirty years old amounts to only 32 per cent of the output of machinery less than ten years old, while the machinery aged between 10 and 30 years has a unit output that is 55 per cent of that of the newest group of machinery.

4/ La lana, op. cit., p. 31.

5/ Excluding certain scouring units that have been closed or are not operating.

/Table 35

Table 35

ARGENTINA: WOOL EXPORTS, 1.10.62/31.9.63

	Actual weight (Tons)	Approximate equivalent in greasy wool	
		(Tons)	(Percentage)
Greasy wool	122 441	122 441	62.2
Pulled wool	4 561	7 411	3.8
Scoured wool	19 710	33 022	16.8
Carbonized wool	271	542	0.3
Carded wool	1	2	-
Tops	4 241	8 482	4.3
Yarn	514	1 028	0.5
Fabrics	109	218	0.1
Noils	1 521	3 042	1.5
Waste	942	1 884	0.9
Miscellaneous	1 442	2 884	1.5
Woolled skins	19 539	15 875	8.1
Total		196 831	100.0

Source: Argentine Wool Federation, Informe mensual estadístico, No. 50, September 1963, page 8.

Table 36

SCOURING ENTERPRISES, BY INTEGRATION AND SIZE CATEGORY

Scouring units (Number of machine sets)	Number of establishments			Number of machine sets		
	Independent	Integrated a/	Total	Independent	Integrated a/	Total
1	8	7	15	8	7	15
2	4	6	10	8	12	20
3	3	3	6	9	9	18
4	2	-	2	8	-	8
5	-	-	-	-	-	-
6	1	-	1	6	-	6
Total	18	16	34	39	28	67

Source: ECLA, on the basis of statistics provided by the Argentine Association of Scourers and Fellmongers (CALP).

a/ Includes both combing and spinning sections.

/Table 37

Table 37

WASHING MACHINE SETS, BY AGE AND DAILY OUTPUT CAPACITY

Age of machinery	Independent establishment			Integrated establishment			Total		
	Number of sets	Average daily output capacity (kg)		Number of sets	Average daily output capacity (kg)		Number of sets	Average daily output capacity (kg)	
		Total	Average		Total	Average		Total	Average
Up to 10 years	12	318 000	26 500	3	43 000	14 333	15	361 000	24 067
10 to 30 years	16	218 000	13 600	10	123 500	12 350	26	241 500	13 135
Over 30 years	11	92 000	8 364	15	108 000	7 200	26	200 000	7 692
Total	39	628 000	16 102	28	274 500	9 304	67	902 500	13 470

Source: ECLA, on the basis of statistics obtained from the Argentine Association of Wool Scourers and Fellmongers (CALP).

Notes: This table does not include a number of scouring units that are closed or inactive, which represent a total of about 12 to 15 machine sets.

The production capacity and the output of the scouring machine sets are measured in Argentina (unlike other countries) in terms of the raw materials put into the machines.

/The following

The following list gives the percentage of production units and total production capacity for the various types of machinery, by age.

Age groups	Percentage of total scouring units	Percentage of total production capacity
Up to 10 years	22.4	40.0
10 to 30 years	38.8	37.8
Over 30 years	36.8	22.2

It should be noted that the machinery of the specialized scouring units is considerably more modern and productive than that of the integrated mills. The unit output of the integrated mill machinery is only 60.9 per cent of that of the independent plants. While the proportion of the total machinery inventory represented by the machinery of the independent plants and the integrated mills is 58 and 42 per cent, respectively, the corresponding percentages of total production capacity is 69.6 and 30.4.

The specialized scouring establishments have the disadvantage that they are subject to a collective labour contract that is less favourable than that for the integrated woollen industry. There is a difference of about 50 per cent in labour costs, due to the fact that the sheds are generally located in the harbour district and in practice have to pay their workers wages similar to those received by the dockers, which are very high.6/ Although the incidence of labour costs in the total cost of scoured wool is low, the specialized establishments have to use their machinery to the maximum to offset the extra labour costs. However, - and this is likely to affect the least efficient machinery first - the level of demand does not permit full utilization of capacity.

CALP estimates that, apart from the closed or idle establishments, the independent scouring establishments operate at 30 per cent of capacity. It reports that the total number of workers employed is 523, whereas if these units were working normally the number would be 2,360.

Despite the high labour costs (the average wage in the specialized scouring establishments is 700-750 pesos a day, which amounts, with social security contributions, to a total of 1,000 pesos7/), productivity levels in

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6/ This choice of location is due to the fact that the enterprises in question engage in a number of other activities in addition to their wool operations, particularly exporting.

7/ These figures represent a wage and a total labour cost of 0.50 and 0.75 dollars an hour, respectively, at the rate of exchange prevailing in 1963.

Argentina are high enough, in relation to costs, to permit fairly competitive prices on the world market. In fact unit output is very good compared with European standards, which for scouring correspond to an average of 400 kg per machine/hour, or 800 kg of greasy wool, amounting to 19,200 kg a day. Hence the price factor should not affect exports8/ and the difficulties must be sought elsewhere.

Argentine industrialists consider that wool exports have been created and channelled by the affiliates of foreign purchasing firms which thus far have been the main exporters of Argentine wool. Their aim has never been to seek new ways of processing the raw materials that would involve using more Argentine labour, and hence larger foreign exchange earnings. On the contrary, the operations carried out on the raw materials have been kept to a minimum, the sorting of wool by commercial grades and its baling... This is because the exporters prefer to sell the wool a penny per pound cheaper in its original state rather than undertake its proper classification in Argentina.9/

The foregoing statement contains the kernel of a hotly debated problem. The exporters take an opposite view, and deny that trade is governed by foreign interests; they affirm, on the contrary, that the nature of the international wool trade, with its preference for the purchase of greasy wool, is due mainly to technical reasons. In fact it is no easy matter to classify wool according to industrial requirements. Industrialists are accustomed to mix various types of wool (of different origin, fineness, etc.) according to the requirements of the moment, and in addition to each enterprise having its own standards, these standards are likely to change with time. Hence the only possibility of successfully exporting scoured wool would be to undertake a very detailed prior sorting that would later permit every kind of blending. However, in many cases such an operation might prove superfluous, and hence needlessly expensive, with the result that the saving in labour and transport obtained by exporting scoured wool would not be sufficient to offset the cost of the additional operation. Moreover, it is not easy to see when and how this classification could be made. It is out of the question for the ranchers to undertake it, because they find it easier to sell the wool ungraded, or even before shearing. There are not wool depots in Argentina, or warehouses for public auctions such as those in Australia, New Zealand and South Africa, to which a sorting section can be added. In short, it is hard to see who could undertake this operation.

In fact none of the major wool-exporting countries have a well-developed wool-scouring sector, and most wool is exported in the greasy state, only small quantities being exported part-scoured. Hence it seems unlikely that this activity will be developed on a full scale in Argentina. However, in some European countries, especially Belgium and France, scouring is carried out

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8/ It should also be mentioned that exports of scoured wool qualify, from 1 January 1965, for a refund of 6 per cent in respect of taxes paid (see chapter VI).

9/ Translation of a quotation from La lana, op. cit., p. 32

on an independent basis, but not as a strictly industrial operation, the procedure being that buyers scour the wool and also assume the risk of selling it.

Something on these lines could be done in Argentina. Certain scouring units could be organized, either individually or on a co-operative basis, to sell either in Argentina or abroad certain types of scoured Argentine wool, classified according to a standard system. However, this would involve a structural change which could not take place spontaneously, given the many problems that would have to be faced.

This technical shortcoming also explains why the integrated mills have scouring sections, although the machinery is less up-to-date than in the specialized plants.

According to direct surveys conducted by ECLA, in 1961 scouring machine sets worked at 61.3 per cent of capacity, and in 1963 at 41.9 per cent. The mills surveyed totalled 16 machine sets in 1961 and 15 in 1963, of which 15 and 14, respectively, were operating. The hours worked averaged 4,308 in 1961 and 2,963 in 1963. Average unit output was 435 kg, greasy basis, in 1961, and 535 kg in 1963, or an increase of 23 per cent.

In 1961 and 1963 average productivity was 192 and 202 kg, respectively, of greasy wool per man/hour (direct labour); this represented 104 and 133 kg per man/hour (total labour), in the scouring section alone, and 38 and 44 kg per man/hour including the sorting stage.

This indicates that the productivity of the sorters was 60 kg in 1961 and 66 kg in 1963. However, these data are only approximate, since they relate to the production of the scouring section (greasy basis), and not exactly to the production of the sorted wools, although over long periods these two data tend to coincide.

5. Combing

The second choice for a possible export product with value added is tops. As indicated in table 35 above, exports of tops between 31 October 1962 and 31 September 1963 amounted to 4,241 tons real weight, representing about 8,500 tons of greasy wool, which is about 4 per cent of total exports in terms of greasy wool. In previous years the volume of these exports was even lower (see table 38).

According to published statistics[10/] there are 1,600 combs in Argentina, 1,300 rectilinear and 300 circular. However, these figures differ from those obtained by a revised estimate (see chapter III), based on the combs enumerated in the survey, together with an estimate (based on a careful analysis of individual mill capacity) of the machines not covered

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10/ See the statistical table in FITA, Revista Textil, op. cit. The same data are given in the IWTO statistics, and also indicate a subdivision of combs into rectilinear and circular combs.

Table 38

Table 38

EXPORTS OF TOPS, 1951-62

	Tons		Tons
1951	2 468	1957	5
1952	1 445	1958	1 186
1953	1 055	1959	856
1954	821	1960	1 096
1955	827	1961	1 375
1956	367	1962	2 207

Source: Republic of Argentina, Estadística de Comercio Exterior, various issues.

Table 39

OUTPUT OF COMBING UNITS IN THE MAIN PRODUCER COUNTRIES OF THE WORLD, 1962

	Comb production units[a] (Rectilinear comb basis)	Tops production[b] (Tons)	Output per comb/year (Kilogrammes)
United Kingdom	4 528	150 000	33 127
Japan	4 454	118 000	26 493
France	2 710	100 000	36 900
Federal Republic of Germany[c]	2 730	56 000	20 513
Italy	2 341	65 000	27 766

Source: IWTO, op. cit.

a/ One Noble circular comb is regarded as the equivalent of 2.8 rectilinear combs. See IWTO, Palma de Mallorca Conference, table 23, note d.

b/ Except for Japan, tops of man-made fibres produced by the woollen industry are also included.

c/ It is not known how many circular combs exist, if any.

/by the survey

by the survey. The result obtained was 1,150 combs. This may be due to the fact that the Argentine statistics appear to include (although exact information on this point is lacking) combs used for recombing, or that these statistics are based on an out-of-date estimate, as the figure of 300 circular combs seems to indicate (since there are now very few of these combs, and they are not in use); or possibly both these assumptions are valid.

The estimate of 1,150 production combs appears fairly realistic, in the light of a comparison with the major producers of tops (see table 39). Since Argentina's estimated output of tops is 18,000 tons a year (a figure confirmed by the ECLA survey), 1,150 combs with an average output of about 16,000 kg each are more than enough; any larger number of combs would reflect an excessive imbalance, that is, it would mean that the additional combs would be used little, if at all.

In the combing sector the survey covered 21 enterprises. The number of combs involved was 757 in 1961 (66 per cent of the total) and 753 in 1963 (in the same enterprises). Although the number of combs was nearly the same, there was an improvement in the quality of the machinery inventory, as indicated by its composition by machinery age in those two years (see table table 40). The obvious improvement shown in this table was probably due to the need to meet the strong competition that had already begun to be felt in 1961, and which was marked in 1962. In the latter year there was undoubtedly a sharp decline in output, and in 1963 there was a slight recovery, thanks to the increase in exports.

As regards machinery utilization, the results obtained are given in table 41. The total output of the combs surveyed was 13,632,398 kg in 1961, and 5,585,729 kg in April-September 1963. This means that even after adjustment of the 1963 figure to make it comparable with the twelve-month figure for 1961, there was a decline of 25 per cent between the two periods. This situation was brought about, despite the rise in exports, by the low level of domestic demand, which necessarily takes time to remedy. The lower level of production, in conjunction with the technological modernization revealed in table 40, meant a decline in over-all utilization, obviously to the detriment of investment plans.

As to how far production was competitive, the survey indicates that unit output was 4.46 kg in 1961 and 4.63 in 1963. Moreover, productivity was 4.22 kg per man/hour in 1961, and 4.31 kg in 1963. This productivity figure relates to all workers in the combing section (from the openers to the intersecting gill boxes), that is, 1,628 workers in 1961 and 1,241 in 1963, working a total of 3,229,334 and 1,295,692 hours respectively.

If direct labour only is included there were 535 workers in 1961 and 342 in 1963, working a total of 1,039,272 hours and 368,403, respectively. This gives a productivity for direct labour of 13.12 kg in 1961 and 14.68 in 1963.

/Table 40

Table 40

COMBS COVERED BY THE SURVEY, BY AGE CATEGORY, 1961 AND 1963

Age category	Number of combs			
	Absolute figures		Percentage	
	1961	1963	1961	1963
Up to 10 years	34	131	6.5	17.4
10 to 30 years	613	512	81.0	62.0
Over 30 years	110	110	14.5	14.5
Total	757	753	100	100

Source: ECLA survey.

Table 41

UTILIZATION OF COMBS, 1961 AND 1963

		1961	1963 a/
(a)	Combs surveyed	757	753
(b)	Combs operating	632	638
(c)	(b) as percentage of (a)	83.5	84.7
	Comb/hours per year		
(d)	Available	6 600	6 600
(e)	Worked	4 838	3 468
(f)	(e) as percentage of (d)	73.3	52.5
(g)	Over-all utilization index $\frac{(c) \times (f)}{100}$	61.2	44.5

Source: ECLA survey.

a/ The 1963 data, confined in the survey to April-September, were multiplied by $\frac{11}{6}$ (to take account of the one month of vacation or suspension of operations that generally occurs in the other half of the year) in order to make the data comparable with those for 1961, which relate to the full calendar year.

/These average

These average figures are based on the separate data for each enterprise, and it is of interest to note the degree of dispersion for each of the variables analysed. This can be seen in figures III, IV and V, which also permit a comparison of the productivity data with the average and with the Latin American standard and indicate the difference between 1961 and 1963. Figure III indicates the dispersion for unit output; the bars indicate what percentage of operating combs achieve a given average unit output.11/ The highest frequency, for both 1961 and 1963, is at the 4-5 kg per hour level, which is also where the arithmetic mean lies. This class of frequency represented 48.3 per cent of the total in 1961 and 40 per cent in 1963. Only 2.5 per cent of combs (the figure is the same for both years) achieved a level higher than the Latin American standard of 8 kg per comb/hour. However, the frequency classes for the highest ranges of unit output (5 kg and over) increased between 1961 and 1963, and would probably have increased more if the rate of production had been more sustained. In any case, figure III shows a fairly regular dispersion of unit output around the arithmetic mean.

Figures IV and V show that there is a less regular distribution for manpower organization as a whole. The workload (number of machines per unit of direct and total labour, as shown in figure IV) is reflected in the following averages:

	1961	1963
Combs per unit of direct labour	2.94	3.28
Combs per unit of total labour	0.95	0.93

These figures are far below the standard adopted for Latin America, 6 combs per worker for direct labour and 2.4 combs per worker for total labour. In 1961, 29.5 per cent of combs had a workload higher than the standard, but in 1963 this percentage fell to 14.1. In fact there was a sharp rise in the modal class of 4 to 6 machines per unit of direct labour. It should be noted that in neither year does this group coincide with the arithmetic mean.

With respect to the workload per unit of total labour, in 1961 only 4.8 per cent of the machines had values above those of the standard. Between 1961 and 1963 there was a slight deterioration, despite the increase in the direct-labour workload.

11/ For example, in 9.8 per cent of the combs operating in 1961 unit output ranged between 2 and 3 kg per hour, while in 1963 the percentage of combs with this level of unit output fell to 9.4. The same principle, adapted to each variable, underlies the other graphs in this chapter and in chapter VIII.

/Figure III

Figure III

PERCENTAGE DISTRIBUTION OF COMBS
BY UNIT OUTPUT CATEGORY, 1961 AND 1965

Natural scale

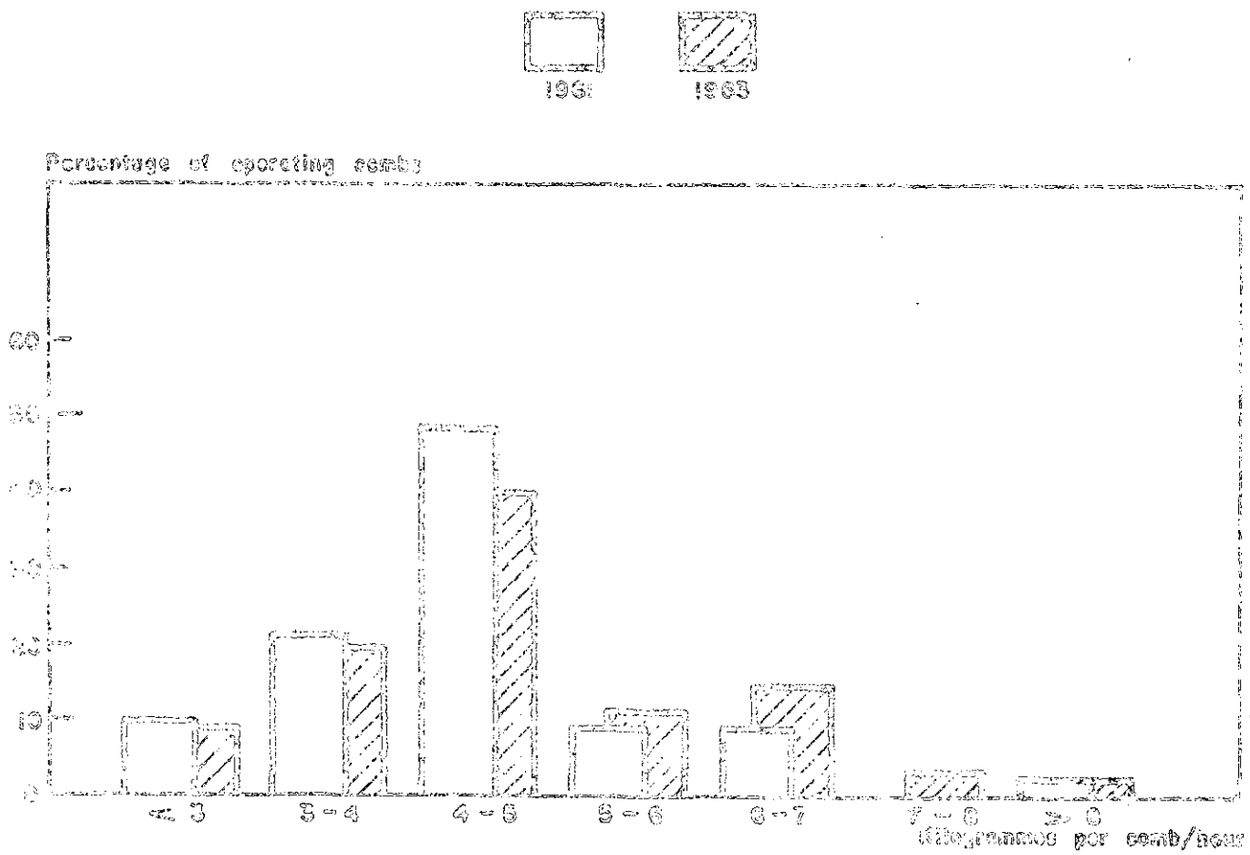


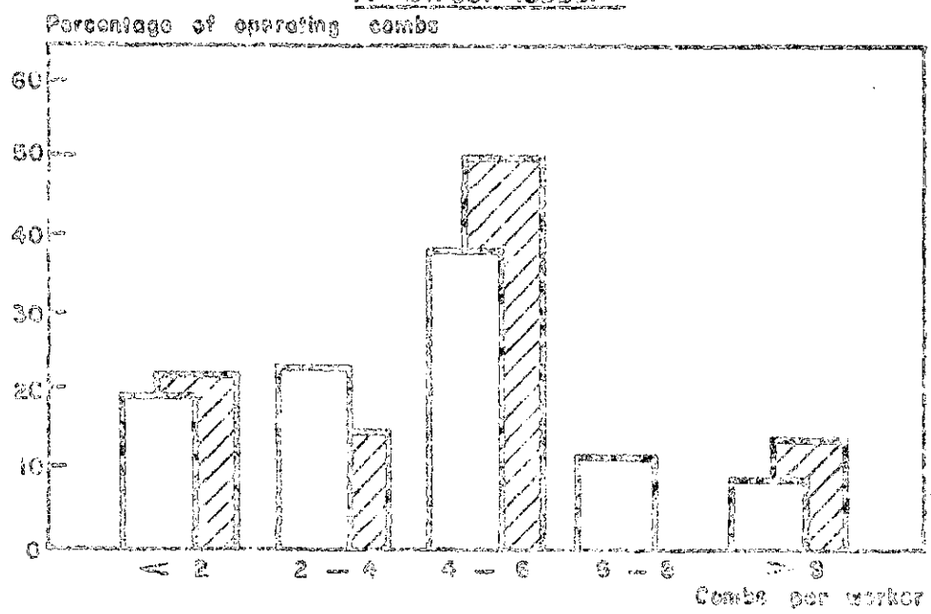
Figure IV

PERCENTAGE DISTRIBUTION OF COMBS
BY WORKLOAD CATEGORY, 1961 AND 1963

Natural scale

1961 1963

A- Direct labour



B- Total labour

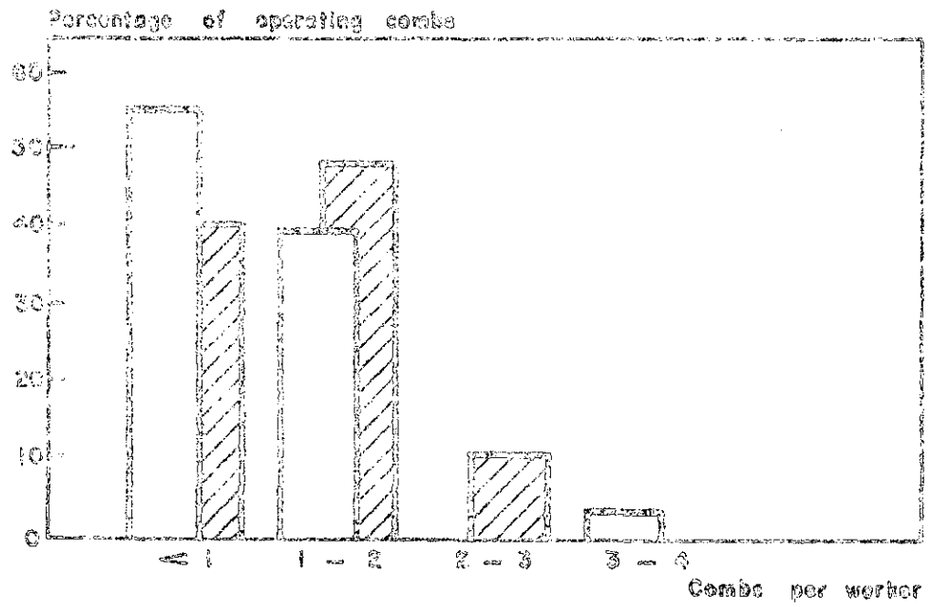
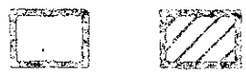


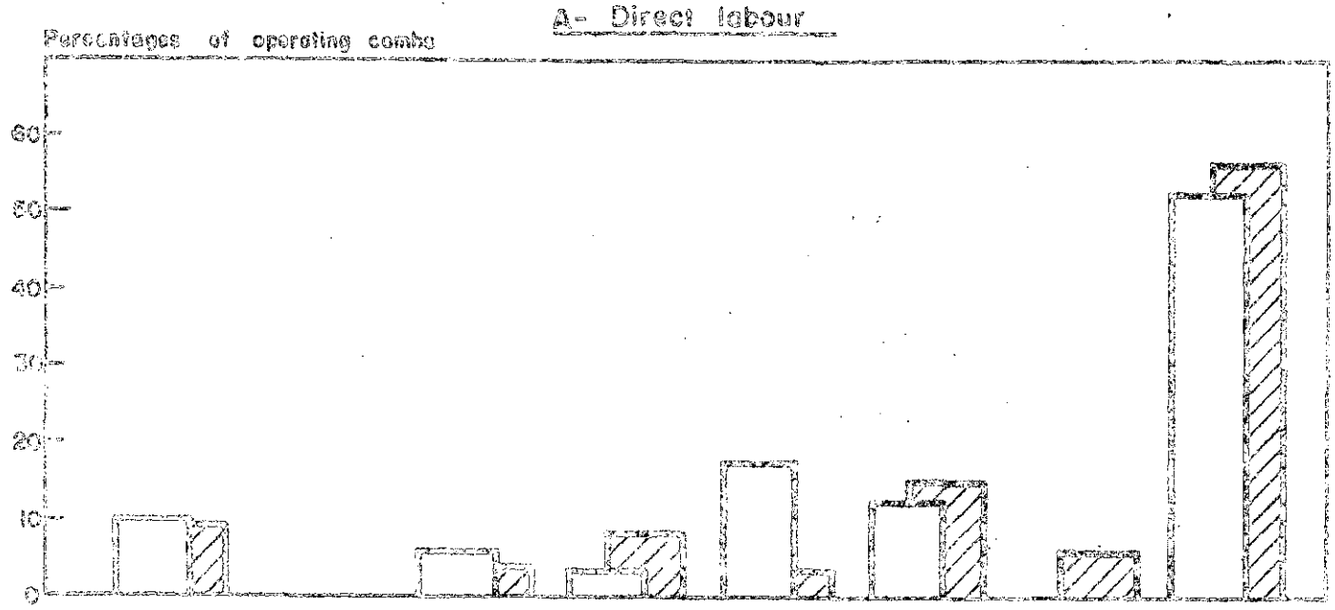
Figure V

PERCENTAGE DISTRIBUTION OF COMBS
BY PRODUCTIVITY CATEGORY, 1961 AND 1963

Natural scale



A- Direct labour



B- Total labour

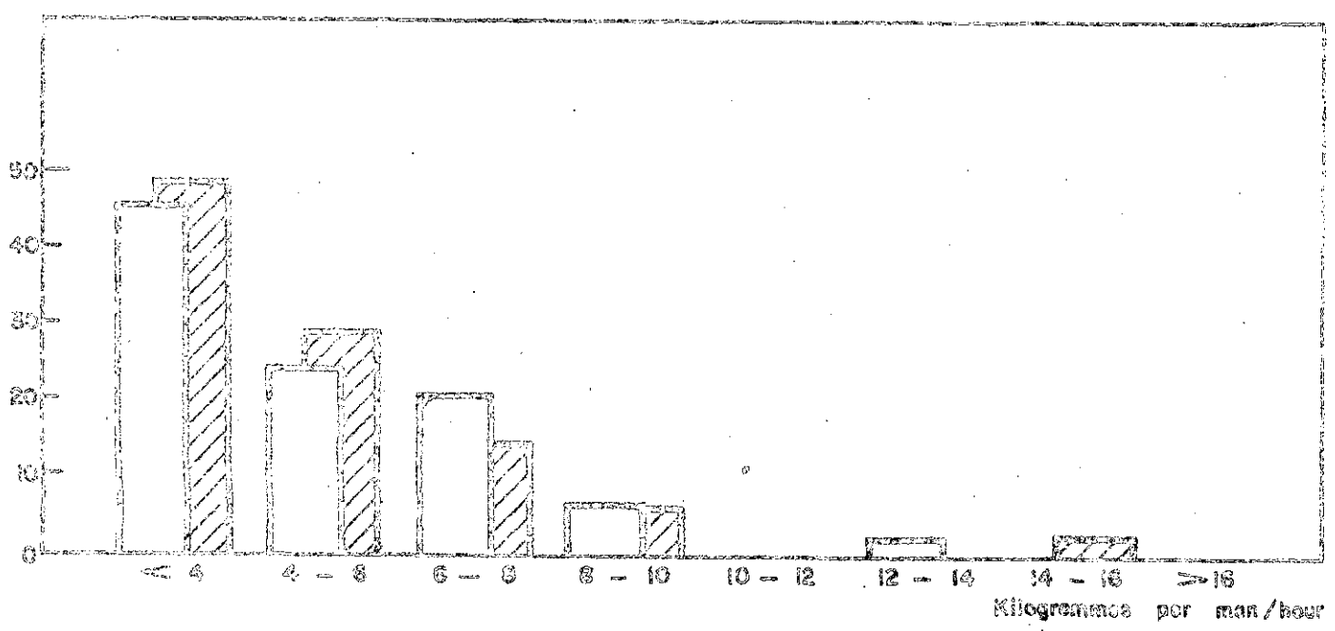


Figure V gives the distribution for productivity, the combination of unit output and workload. Despite the high degree of dispersion of the values, no enterprise attained the standard productivity for direct labour (48 kg per hour of direct labour and 19.2 kg per hour of total labour), and hence it is clear that the maximum values for unit output and workloads in the other figures cannot have been for the same enterprises.

A study of the distribution of combs by productivity indicates that the modal-average class does not coincide with the arithmetic-mean class, for either direct or total labour. However, for direct labour the modal average is higher than the arithmetic mean, while for total labour it is lower.

It should be noted that the distribution of combs by workload and productivity reflects a wider dispersion for direct labour and a higher concentration for total labour.12/

If any proposed structural changes are to be of real benefit (that is, if the cost of the additional investment is to be offset by savings in labour costs), some equilibrium must be aimed at between the distribution of workloads and productivity in respect of both direct and total labour. From the over-all standpoint the concentration of values for total labour in the combing section, in comparison with the dispersion for direct labour, indicates the possibility of a future improvement in manpower organization, on a progressive basis.

6. Worsted spinning

Only a small amount (between 10 and 20 per cent, according to the year) of domestic tops are sold abroad. Apart from changes in inventories, which may be substantial during periods when the economic situation is unfavourable, all the remaining tops produced in Argentina are used for the next processing stage of the wool textile cycle, worsted spinning.

Worsted spinning mills include a preparation section in which the tops receive a preliminary treatment before going on to the spinning frames. The tops may also pass through a blending section to obtain good blendings of the various types of wool or of wool and other fibres, and the tops may also be put through a dyeing section. However, for the purpose of studying the efficiency of enterprises in terms of unit output, account was taken only of the spinning section proper. Blending and dyeing, apart from being operations that are not of great importance from the manpower standpoint, are difficult to measure in terms of unit output and productivity. Preparation for worsted spinning, on the other hand, is a highly important process, and is unquestionably a reliable

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12/ A higher workload for direct labour is accompanied by an increase in ancillary staff.

indicator of the degree of up-to-dateness of the enterprises. In fact this stage reflects one of the most important technological advances in the wool-processing cycle in recent years, since the tops now undergo only four, or even three, preparation passages, compared with the six that were formerly considered the minimum, and the eight or more that were the general rule. In other words, the changes in the spinning-preparation machinery, which are related to certain changes in the spinning machines (such as the introduction of high draft), represent, together with the presence of automatic looms, the clearest evidence of the modernization of a woollen mill.13/ Moreover the changes in this machinery, quite apart from meeting certain obvious technical and economic needs, has a demonstration effect that cannot be ignored. Despite the problem of importing machinery, many worsted-spinning mills in Argentina have succeeded in modernizing the preparation machinery, and consequently much of the spinning frames. Most of the mills that co-operated in the survey now have preparation machinery that is partly or wholly new. There may still be a considerable number of the traditional machines in the country, since a number of experts on the textile machinery market agree that the modern machines represent 40 to 50 per cent of the total.

However, these changes are not always accompanied by the necessary environmental improvements, and one of the most obvious gaps is in air conditioning, a most important factor in these sections. Domestically produced air conditioning machines do not appear very satisfactory, and importing this machinery is a complicated undertaking (installation, checking, etc.). Consequently the performance of these machines is not always up to expectations, although this is due to details that could quickly be corrected.

In the spinning section proper, it should be noted that 24 enterprises answered the survey questionnaires; these enterprises represented a total of 157,056 spindles in 1961 and 155,544 in 1963, or about 65 per cent of the total spindle inventory. The spindles are almost all ring spindles, since mules have practically disappeared from worsted spinning.

With respect to the age of the machinery, table 42 indicates the marked increase between 1961 and 1963 in the number of machines less than ten years old. There was a reduction of about the same magnitude in the number of machines between ten and thirty years old. The number of spindles over thirty years old remained about the same. Obviously the fact that fairly up-to-date machines have been replaced while obsolete machinery is kept operating indicates that the market forces are not operating normally.

13/ It should be noted that the use of automatic looms raises certain problems regarding the production programme, and that the installation of these looms does not always result in an improvement from the economic standpoint. This does not apply to the machinery in the spinning preparation section.

/Table 42

Table 42

WORSTED SPINDLES, BY AGE CATEGORY, 1961 AND 1963

Age category	Number of spindles			
	Absolute figures		Percentage	
	1961	1963	1961	1963
Up to 10 years	23 184	37 036	14.8	23.8
10 to 30 years	118 828	103 464	75.6	66.5
Over 30 years	15 044	15 044	9.6	9.7
Total	157 056	155 554	100	100

Source: ECLA survey.

Table 43

UTILIZATION OF WORSTED SPINNING MACHINERY, 1961 AND 1963

	1961	1963 a/
(a) Spindles surveyed	157 056	155 544
(b) Spindles operating	155 456	142 238
(c) (b) as percentage of (a)	99.0	91.4
Spindle/hours per year		
(d) Available	6 600	6 600
(e) Worked	4 522	2 742
(f) (e) as percentage of (d)	68.5	41.5
(g) Over-all utilization index $\frac{(e) \times (f)}{100}$	67.8	37.8

Source: ECLA survey.

a/ See footnote a/ to table 41 on the combing section; the same principle applies to the other sections analysed below.

/Table 44

Table 44

UNIT OUTPUT IN WORSTED SPINNING, 1961 AND 1963

(Grammes per spindle/hour)

	Actual unit output	Weighted unit output
1961	17.2	16.1
1963	18.8	18.4

Source: ECLA survey.

Table 45

DISTRIBUTION OF MANPOWER IN WORSTED SPINNING MILLS, 1961 AND 1963

	Absolute figures		Percentage	
	1961	1963	1961	1963
Spinning preparation	1 334	786	33.7	33.1
Spinners	1 515	928	38.2	39.0
Other workers in the spinning section	1 112	664	28.1	27.9
Total	3 961	2 378	100.0	100.0

Source: ECLA survey.

/In both

In both the periods covered by the survey most of the spindles were operating, but at a very low level of activity, especially in 1963, when there was a sharp decline in the level of utilization of production capacity. The average number of days worked was 269.2 in 1961 and 119.4 in 1963 (April-September), in both cases below the maximum hypothesis of 300 days a year (see table 43). Actual output amounted to 12,166,927 kg in 1961 and 4,004,380 kg in 1963, for an average (metric) count of 29.1 and 29.8 and an average twist of 403 and 396 turns per metre, respectively.

The production figures are little changed by weighting for an average yarn count of 30 metric, being 11,483,177 for 1961 and 3,928,810 for 1963 (April-September).

Unit output would be as indicated in table 44, levels which represent 54.6 per cent of the Latin American standard (29.5 grammes) in 1961, and 62.4 per cent in 1963.

The increase between the two years can be regarded as satisfactory in the light of the decline in total output, which usually entails a decline in unit output. However, most of the enterprises aimed at increasing the efficiency of the spindles still operating, and modernization of the machinery contributed to that end. If the volume of work has been normal, unit output would have risen more. As figure VI shows, in 1961 over 45 per cent of the spindles operating had an average unit output of between 10 and 15 grammes per hour. In the second period (April-September 1963) the highest frequency range was 15 to 20 grammes an hour, and the arithmetic mean was in the same range. In 1961 no enterprise attained an average equal to the Latin American standard, but in 1963 that standard was exceeded by 6.6 per cent of the spindles, while 21.6 per cent were in the 25 to 30 grammes per hour category. In brief, during the second period Argentina's worsted spinning mills produced at a high level, although there is still room for further improvement.

As regards utilization of the other factor of production, labour, the distribution in the worsted spinning mills surveyed is given in table 45. The sharp reduction in the number of workers (40 per cent) between the two periods was distributed equally among the various types of worker, since the ratio of the number employed in each of these categories to the total remains practically the same.

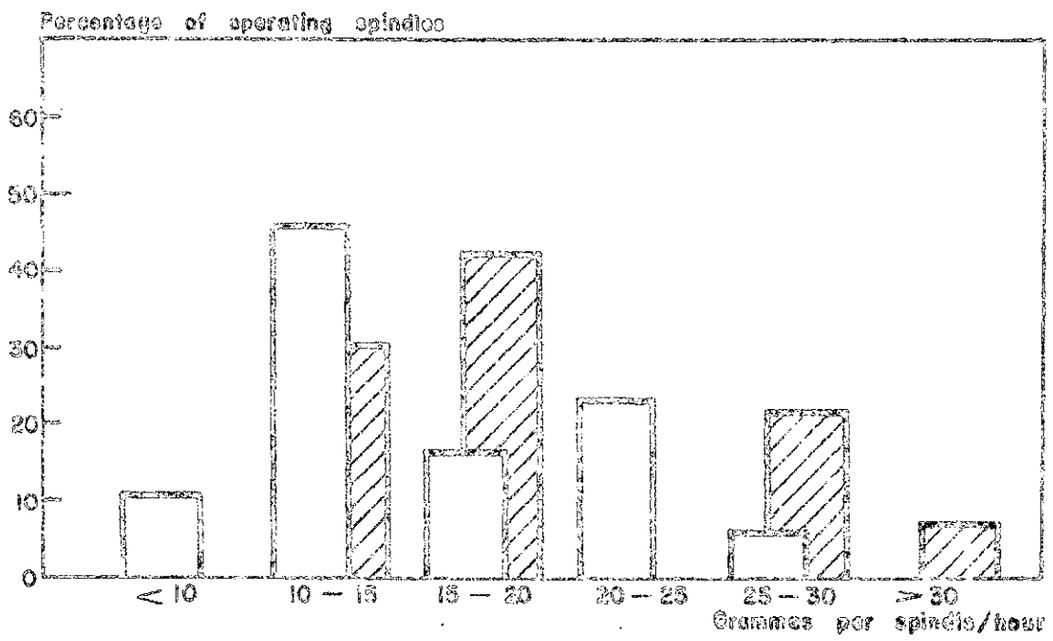
The decline in the number of workers is due almost entirely to the unfavourable economic situation, and not to any reorganization, as the data in table 46 make clear. In fact, although it would theoretically be possible for a reorganization to take place in a period such as that under review, when enterprises are cutting down staff through lack of work, it would be difficult, if not impossible, to undertake it without a complete interruption of production for the purpose of reorganizing, which was in fact what a few enterprises did.

/Figure VI

Figure VI

PERCENTAGE DISTRIBUTION OF WORSTED SPINDLES
BY UNIT OUTPUT CATEGORY, 1961 AND 1963

Natural scale



In 1961 708,743,525 spindle/hours were worked, and in 1963 (April-September) 212,753,228. The man/hours worked were as shown in table 46.

Workloads and productivity figures are given in table 47, together with the levels for the selected Latin American standard, and the percentage of that standard represented by the actual figures.

From the above figures, and those given previously (see again table 44), the following conclusions can be drawn.

(a) Although modernization of the machinery during this period of crisis led to a rise in unit output, there was no increase in workloads, which in fact decreased. Hence the higher productivity was due solely to the rise in unit output.

(b) The workload indexes are higher for all workers in the spinning section (including winding) than for the over-all total, and the difference is even greater for the workload indexes for the spinners alone. These differences are perhaps due to the existence of a certain number of automatic cone winders and up-to-date preparation machine sets, which reduce the number of workers needed, while the Latin American standard adopted is based on traditional machinery (see methodological annex at the end of the report).

(c) The rise in productivity in spinning varies for the different sections. Productivity rose between 1961 and 1963 by 16.5 per cent for spinners alone, 13.5 per cent for all spinning section workers, and only 8.1 per cent for all workers including spinning preparation. This indicates that the organization effort is concentrated on the spinning frames.

The distribution of workloads and productivity among the various enterprises is shown in figures VII and VIII. As regards the workloads, in both years the frequency distribution is fairly symmetrical in relation to the modal average, which coincides with the arithmetic mean, but there was an improvement between 1961 and 1963. In 1963 the spinner workload in some enterprises (5.6 per cent of the spindles) was higher than the Latin American standard, while for the spinning section as a whole, and also for all workers (including those in the preparation section), the workload was considerably higher than that standard. To be more precise, for the two years concerned it was higher for 28.5 and 31.5 per cent of the spindles, respectively, for all workers in the spinning section, and for 29.1 and 31.5 per cent of the spindles for all workers including the preparation stage. This shows that it is more important to increase the workloads of the spinners than those of the other categories.

/Table 46

Table 46

HOURS WORKED IN WORSTED SPINNING, 1961 AND 1963

Type of worker	Hours worked	
	1961	1963 (6 months)
Spinning section	5 214 713	1 569 966
Spinners	3 178 917	932 745
Other workers in spinning section	2 035 796	637 221
Workers in preparation section	2 692 643	918 904
Total workers, preparation and spinning	7 907 356	2 488 870

Source: ECLA survey.

Table 47

WORKLOADS AND PRODUCTIVITY IN WORSTED SPINNING MILLS, 1961 AND 1963

	Latin American standard	Argentina			
		Absolute figures		Percentage of standard	
		1961	1963	1961	1963
A. Workloads					
Number of spindles:					
Per spinner	400	223	228	55.8	57.0
Per worker in spinning	167	136	135	81.4	80.8
Per worker in preparation and spinning	122	90	85	73.8	69.7
B. Weighted productivity					
Grammes per man/hour:					
Per spinner	11 800	3 612	4 208	30.6	35.7
Per worker in spinning	4 927	2 202	2 500	44.7	50.7
Per worker in preparation and spinning	3 599	1 459	1 577	40.5	43.8

Source: ECLA survey.

/Figure VII

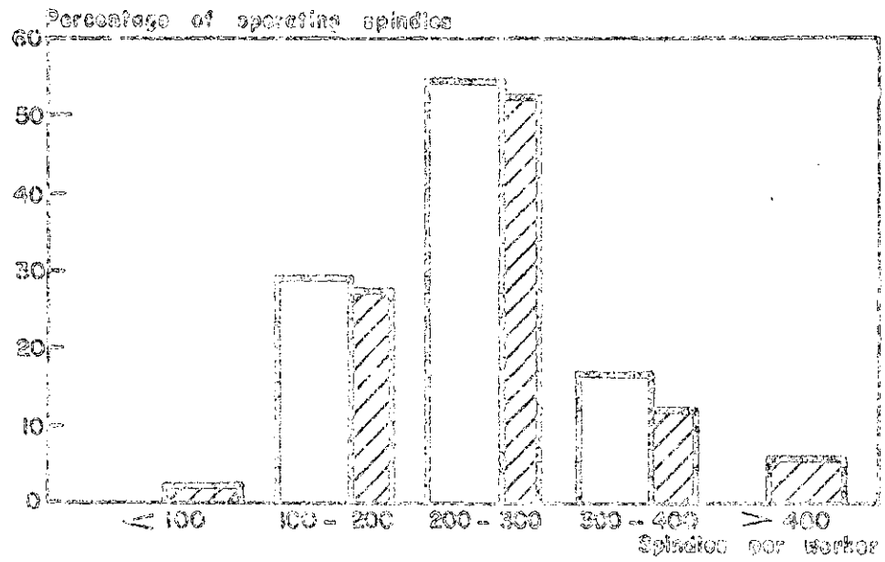
Figure V.1

PERCENTAGE DISTRIBUTION OF WORSTED SPINNERS BY WORKLOAD CATEGORY, 1961 AND 1963

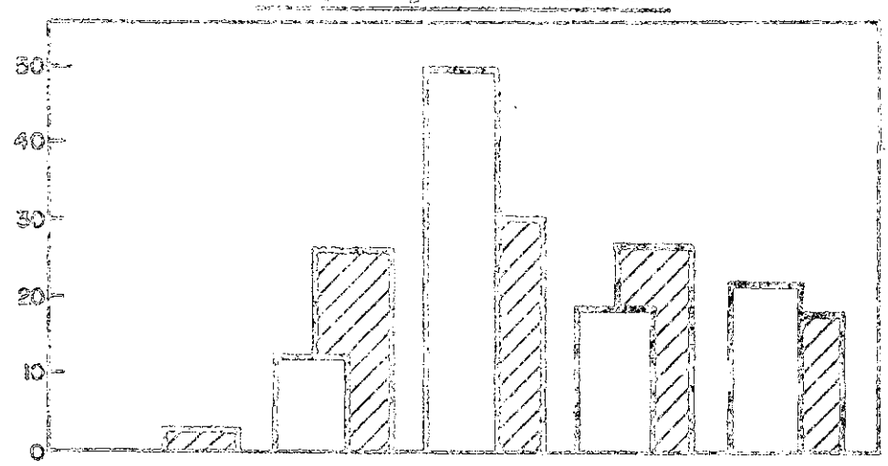
Natural scale

1961 1963

A - Spinners



B. Spinning section workers



C - All workers

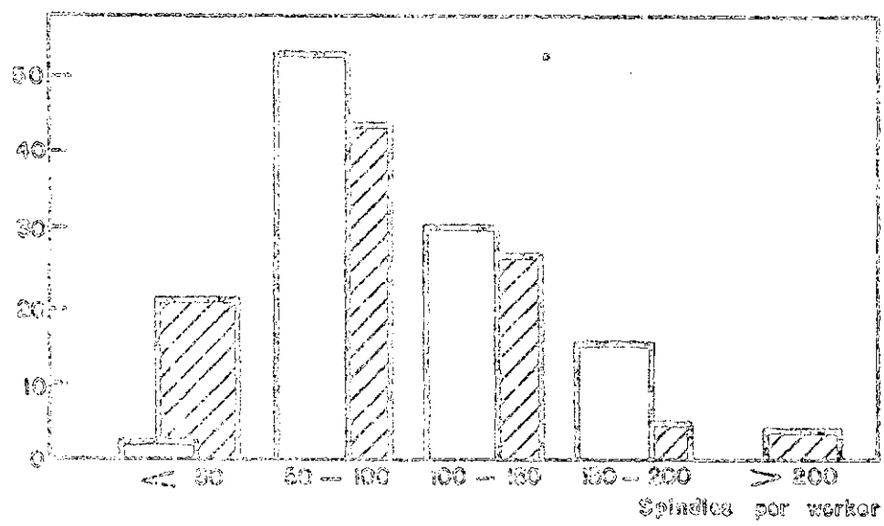
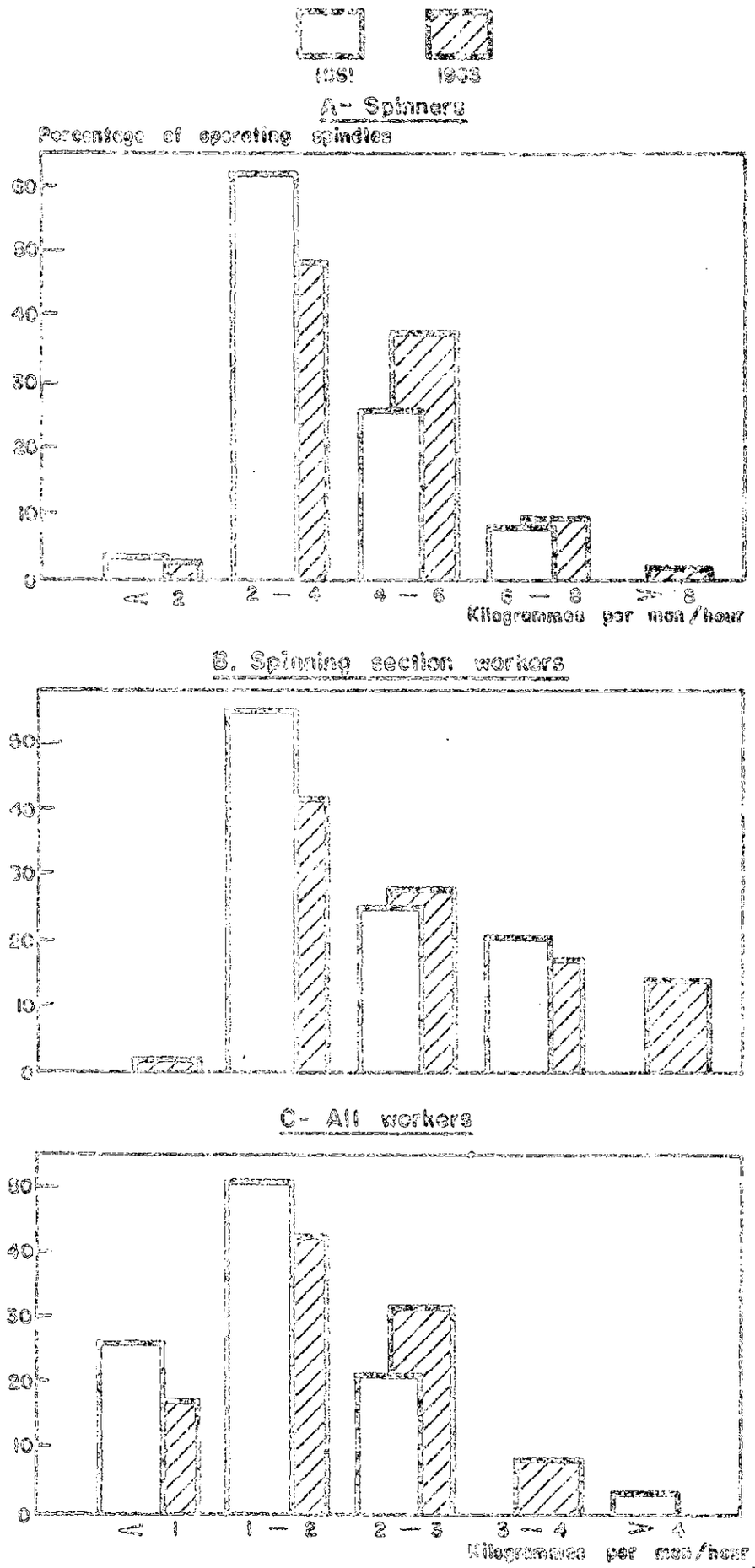


Figure VII

PERCENTAGE DISTRIBUTION OF COMBED SPINDLES
BY PRODUCTIVITY CATEGORY, 1961 AND 1963

Natural scale



As regards productivity, the arithmetic mean coincided with the highest frequency only for the spinners, in 1961. Although the dispersion is marked, only a few enterprises achieved levels higher than the Latin American standard: 6.8 per cent of spindles in 1963 for all workers in the spinning section, and only 3.4 per cent of spindles in 1961 for all workers. However, this was undoubtedly due to the low unit output rather than defective organization.

(a) Analysis by mill-size

In table 48 certain elements of the survey data are presented with a view to verifying whether, and to what extent, mill-size governs the operational efficiency of the enterprises.

It can be seen that the average unit output rose sharply between 1961 and 1963 in the enterprises with up to 3,000 spindles. There appears to have been a considerable renewal of the machinery in this group, since the maximum figure in 1961 represented 55 per cent of the Latin American standard, whereas in 1963 the standard was exceeded by 16 per cent. A level higher than the standard was also attained in the 3,001-5,000 spindle group, but the average in that group is very low; moreover the average declined between 1961 and 1963, a trend not repeated in any other group.

Although the size of a mill is undoubtedly one of the factors that determines its viability within a certain type of market, it would be rash to regard it as the deciding factor among the many indicators considered in this study as reflecting the efficiency of an enterprise. The levels of unit output and productivity depend largely on the vitality of management, its sales promotion, internal organization, level of up-to-dateness of the machinery, level of manpower training, etc.

However, it has been shown - without any causal relationship being claimed - that the level of utilization of the machinery is higher in enterprises in 3,000-5,000 spindle group, and that this group also has the highest average productivity for the two periods studied, and the highest unit output in 1961.

In general it appears that this group is the most favourably situated, while the least favourably situated, whether from the standpoint of average minimum or maximum unit output, or utilization of the machinery, are the largest mills, with over 10,000 spindles. The largest enterprises naturally have to face greater difficulties in times of recession, and any plans to change their structure (including both the machinery and the organization of the work), involve more effort. It does not seem wise to draw any conclusions, as yet, on this question. The aim of this paragraph is merely to indicate some aspects of the effect of mill size.

/Table 48

Table 48

OPERATIONAL CHARACTERISTICS OF WORSTED SPINNING MILLS BY SIZE CATEGORY, 1961 AND 1963

	Size category (spindles)									
	Up to 3 000		3 001 to 5 000		5 001 to 10 000		Over 10 000		Total	
	1961	1963	1961	1963	1961	1963	1961	1963	1961	1963
Total spindles installed	8 580	7 780	26 960	25 788	65 636	68 015	55 880	53 940	157 056	155 544
Operating spindles as percentage of total	100	94.9	100	84.4	100	97.1	97.1	87.2	99.0	91.4
Over-all utilization index (Percentage)	70.6	33.7	75.0	46.8	67.9	41.4	65.3	33.9	67.8	37.9
Unit output (grammes per spindle/hour										
Average	12.76	24.65	21.76	19.88	17.97	20.23	11.54	14.08	16.1	18.4
Minimum	9.18	13.44	18.69	10.98	12.50	14.44	9.04	10.89	9.04	10.89
Maximum	16.36	34.03	29.05	37.38	24.33	26.86	13.22	16.43	29.05	37.38
Productivity[a/] (grammes per man/hour										
Average	928	1 717	1 929	1 999	1 571	1 506	1 119	1 459	1 459	1 577
Minimum	694	750	1 376	599	877	751	926	1 075	694	599
Maximum	1 675	2 959	2 311	3 492	4 024	3 195	1 306	2 315	4 024	3 492

Source: ECLA survey

a/ For all workers including those in the preparation section, but excluding the sorting, scouring and combing sections.

/(b) Analysis

(b) Analysis by age and up-to-dateness of the machinery

Table 42 showed that about 15,000 worsted spindles were already over thirty years old, even in 1961 or 1963, that the number of spindles less than ten years old increased by about 14,000 between those two years, and that at the same time there was a reduction of about the same number in the spindles between ten and thirty years old.

This change was responsible, although only in part, for the rise in average unit output between 1961 and 1963. Table 49 shows the unit output levels for the various age categories of spindles for the two years. The average level of unit output for each group is, as might be expected, inversely proportional to the age of the machinery. The rise in unit output between 1961 and 1963 is appreciable, especially in the machinery less than ten years old, partly as a result of the addition of new and more efficient units in this group between the two periods. The unit output of the oldest category of machinery also improved markedly, amounting to 55 per cent of the Latin American standard. As the level of utilization of these machines is very low, it must be assumed that the improvement was due to the manufacture of certain special types of product that permitted operation at a speed higher than the normal. It should be noted that in 1963 machinery utilization is inversely proportional to its age, whereas in 1961 the new machinery was less intensively used than that in the intermediate age group.

In Argentina modernization of the machinery does not mean modification of old machinery; in other words, the up-to-dateness of the machinery corresponds to its age. In this connexion it should be noted that the under-ten age group includes both recently produced models and machinery that can be termed conventional, which was considered satisfactory in establishing the Latin American standard.

(c) Conclusions

In conclusion, attention is drawn to the fact that Argentina's worsted spinning mills are fairly well organized from the technical standpoint, and that there is a good deal of room for improvement in the other aspects of their organization.

Although the recent crisis prevented any strengthening, in principle, of the system of manpower organization, there was a clear improvement in the efficiency of the machinery, despite the low level of utilization. There was an increase in the average levels of both unit output and productivity, and it can be expected that once demand has recovered their levels will rise even higher, which means that there are good prospects that the Argentine product can compete in the world market.

/Argentina would

Argentina would undoubtedly like to increase its exports of worsted yarn, in view of the generally favourable conditions on the world market. In fact, apart from the share reserved for hand knitting, this yarn represents the raw materials for the textile branches (weaving and knitting mills) that are the first to be established in the developing countries interested in the textile industry (Venezuela, for example). Moreover it is a product that can be exported to the industrial countries - when price and quality permit -, since those countries can transform it into whatever end goods will meet the standards and requirements of the market concerned.

7. Worsted spinning as a whole

At the end of this study of the operational features of the various stages in worsted spinning, a recapitulation of the data studied is in order.

As regards unit output, the analytical method adopted poses no problems of comparability with the earlier studies, since output is measured, as before, as the weighted output of the spindles over a unit of time. Even if data on the unit output of the main machines in the earlier stages of the cycle of production (scouring and combing) were also included, the unit output of the spindles would still be regarded as representing the operational efficiency of the spinning mill.

In fact the additional data relate to productivity. In this case, in order to determine the labour input in a unit of final output, the labour of the earlier stages is added to the spinning labour proper. However, account must first be taken of the waste produced at each stage, since this waste represents not only a loss of raw material (subsequently recovered), but also a loss of the labour input, which represents a net addition to the cost of the product.

The waste in worsted spinning as determined in the survey[14] was: from the scoured wool to the tops, 17.6 per cent, and from the tops to the single yarn, 7.8 per cent. This means that to produce 1 kg of worsted yarn 1.078 kg of tops is required, and to produce this quantity of tops 1.268 kg of scoured wool is required, which in turn needs 2.536 kg of greasy wool.

14/ These data are very similar to those published in the FITA Revista Textil (No. 453/6/5, October-December 1963), as follows:

Wastage and yield - scoured wool to worsted yarn (percentages)

Combing		Spinning preparation		Spinning	
Noils	11	Lint	1	Cap and ring waste	1
Card waste	3	Roving waste	1.5	Yarn waste	1
Waste and dust	3	Laps	0.5	Roving waste	1
Miscellaneous	1		3.0		3
	18				

/Table 49

Table 49

UTILIZATION AND UNIT OUTPUT OF WORSTED SPINDLES, BY AGE CATEGORY, 1961 AND 1963

Age category	Number of spindles	Over-all utilization index (Percentage)	Average unit output	Percentage of Latin American standard
Under 10 years				
1961	23 184	66.7	19.73	66.9
1963	37 036	43.9	23.56	79.9
10 to 30 years				
1961	118 828	70.9	15.88	53.8
1963	103 404	38.4	16.53	56.0
Over 30 years				
1961	15 044	51.7	12.65	42.9
1963	15 044	20.6	16.18	54.8

Source: ECLA survey.

Table 50

INPUTS OF RAW MATERIALS AND LABOUR IN THE PRODUCTION OF A KILOGRAMME OF STANDARD YARN, 1961 AND 1963

	Output per man/hour (kg)	Labour input per kg of yarn (hours)	Raw material input per kg of yarn (kg)	Total labour input (hours)
		1961		
Sorting[a]	60	0.017	2.54	0.043
Scouring[b]	52	0.019	1.27	0.024
Combing	4.22	0.237	1.08	0.255
Complete spinning section	1.46	0.685	1.00	0.685
				1.007
		1963		
Sorting[a]	66	0.015	2.54	0.038
Scouring[b]	66.5	0.015	1.27	0.019
Combing	4.31	0.232	1.08	0.251
Complete spinning section	1.58	0.633	1.00	0.633
				0.941

Source: ECLA survey.

a/ Greasy basis.

b/ Clean scoured basis, equivalent of 50 per cent of greasy wool.

/By calculating

By calculating the reciprocals of the levels of productivity, at each stage of the process of worsted spinning, as determined in the earlier sections of the present chapter, the corresponding labour input is obtained, and if these data are combined with those for the raw materials (and semi-finished goods) needed to produce 1 kg of yarn, the data given in table 50 are obtained.

With respect to productivity, calculating the reciprocal of the labour input data gives the output per man/hour, on the basis of the total labour force from the raw material stage. The results are given in table 51, which gives the Latin American standard concerned and compares it with the levels achieved in worsted spinning in Argentina. The table also gives, for purposes of comparison, the unit output averages previously referred to, which, as already explained, relate to the output of the spindles.

The average level of productivity in Argentina is lower than the level of unit output, and both, despite the improvement between 1961 and 1963, are below the level considered attainable in Latin America. However, as regards productivity, the lag is partly due to the machinery factor, or in other words, the organizational shortcomings are reflected mainly in the difference in the levels of unit output and productivity.

The productivity in the complete spinning cycle can be calculated only for fully integrated enterprises with a balanced production flow, that is, in only one section of the industry. It was considered more relevant to study the productivity levels for each section. The over-all data would tend to cover up, as a result of the balancing out of differences, any internal disequilibria that might exist, and consequently would be less useful from the standpoint of a sectoral policy for the reorganization of the manpower factor.

8. Woollen spinning

Woollen spinning mills do not constitute a very large sector. There are 110,000 spindles in this sector, representing a production capacity that is small not only in absolute terms but also in relation to the worsted spindle inventory. In fact the ratio of woollen to worsted spindles in Argentina is 1:2.3, while the world ratio is 1:1.5. The difference between the two sectors in Argentina is even more marked if viewed in terms of the value of production instead of the machinery inventory. The disproportion is quite surprising in view of the fact that not only is the purchasing power of the Argentine market fairly low, but the climate is such as to permit the consumption of heavy woollens.

There is undoubtedly a potential demand for woollen goods in Argentina, and the production of this sector should be greatly increased. In order to compete on the market with worsted goods, woollen goods should be able to offer certain advantages, especially as regards price, since otherwise the consumer will prefer the slightly more expensive but more

/attractive product.

attractive product. In fact woollen goods could be much cheaper than worsted, firstly because the cycle of production is simpler and shorter, and secondly because their production permits the use of much cheaper raw materials.

The relative under-development of woollen spinning is perhaps due to the fact that the raw material used for this purpose in Argentina is very expensive (when cheap raw material is used the finished product is of very poor quality). This situation is the result of the abundance of wool in Argentina in earlier periods, of technological factors, of the lack of versatility in the use of by-products (which are naturally more difficult to spin), and to a general lack of interest in using cheap raw materials, such as recovered waste. In fact the main problem in woollen spinning is the very high incidence of the raw material in the cost of the product.

As regards the processing cycle, very few mills have a proper sorting and/or recovery section, and even when they have, the final result is still largely dependent on the preparation of the raw material.

Twenty enterprises, representing a total of 70,060 spindles in 1961 and 64,068 in 1963, replied to the ECLA questionnaire. The average size of these mills was about 3,500 spindles in 1961 and 3,200 in 1963, but the average for the whole country is much lower (see chapter III).

The enterprises surveyed account for about 60 per cent of the total machine inventory, and it can be assumed that the remainder of the industry is made up of small enterprises whose level of production and organization is undoubtedly lower than in the mills surveyed.

The raw material for the woollen spinning mills first goes through the carding process. In 1961 the mills surveyed contained 116 cards, 95 in sets and 21 separate machines; 9 cards were less than ten years old, 90 were between ten and thirty years old, and 17 were over thirty years old. No further information was obtainable as to the condition and degree of activity of the cards, but the hours worked by these machines is, on the average, almost the same as for the spindles, and thus there is a balance between the two sections. In 1963 the same enterprises had only 100 cards, 81 in sets and 19 separate machines; 12 cards were ten years old, 74 were between 10 and 30 years old, and 14 were over 30 years old. These figures indicate that some machinery renewal took place, but even so the equipment as a whole remains fairly old.

Thus the production capacity of the woollen spinning mills declined between 1961 and 1963. The number of cards decreased by 14 per cent, which, despite the addition of 3 up-to-date cards, reflected a total reduction in production capacity. The same was true of the spindles: there was some qualitative improvement, but total production capacity declined.

/Table 51

Table 51

UNIT OUTPUT AND PRODUCTIVITY IN THE COMPLETE PROCESS
OF WORSTED SPINNING, 1961 AND 1963

	Absolute figures		Percentage of Latin American standard	
	1961	1963	1961	1963
Unit output (grammes per spindle/hour)				
Latin American standard	29.5	29.5	100	100
Argentina	16.1	18.4	54.6	62.4
Productivity (grammes per man/hour)				
Latin American standard	2 682	2 682	100	100
Argentina	993	1 063	37.0	39.6

Source: ECLA survey.

Table 52

WOOLLEN SPINDLE INVENTORY, BY TYPE AND AGE CATEGORY, 1961 AND 1963

Age category	1961			1963		
	Ring spindles	Mule spindles	Total	Ring spindles	Mule spindles	Total
	Absolute figures					
Under 10 years	5 620	480	6 100	5 872	480	6 352
10 to 30 years	3 424	36 636	40 060	5 640	31 176	36 816
Over 30 years	-	23 900	23 900	-	20 900	20 900
Total	9 044	61 016	70 060	11 512	52 556	64 068
	Percentage					
Under 10 years	8.0	0.7	8.7	9.2	0.7	9.9
10 to 30 years	4.9	52.3	57.2	8.8	48.7	57.5
Over 30 years	-	34.1	34.1	-	32.6	32.6
Total	12.9	87.1	100.0	18.0	82.0	100.0

Source: ECLA survey.

/Table 52 shows

Table 52 shows that ring spindles represent only a small proportion of the total. This alone indicates a certain degree of machinery obsolescence, although in some cases the mule spindles may be appropriate for particular types of raw materials or products.

However, between 1961 and 1963 there was a slight improvement in the composition of the machinery inventory, and ring spindles (although not all new) replaced some of the mule spindles eliminated. But as the replacement was not complete, total production capacity declined. Most of the machinery remained obsolescent, with a high proportion (over 30 per cent) of obsolete machinery, consisting of mules over thirty years old.

The level of activity of the spindles in 1961 and 1963 is shown in table 53. There is a sharp decline in the level of utilization between 1961 and 1963, together with a reduction in the machinery inventory (8.6 per cent in terms of spindles, although less in terms of production capacity). The operating spindles worked 266 days in 1961, for an average of about two shifts (16.5 hours a day), while in the 1963 half-year (April-September) they worked 120 days for an average of about 1.3 shifts (approximately 10.2 hours a day).

This sharp reduction in the level of activity resulted in a decline, though moderate, in labour and machine output. The 291,072,584 spindle/hours worked in 1961, and the 71,493,537 worked in 1963 (April-September) correspond to total outputs of 6,142,500 kg and 1,583,071 kg for average yarn counts (metric) of 8.0 and 7.2, respectively. Actual unit output was therefore 21.1 grammes per spindle/hour in 1961 and 22.1 grammes in 1963.

If both the total and unit output figures are weighted on the basis of metric count 8, there is very little change in the figures, which become 6,144,827 kg for 1961 and 1,448,457 for April-September 1963, the corresponding figures for unit output being 21.1 and 20.3 grammes per spindle/hour, respectively. In comparison with the Latin American standard of 80 grammes these unit output figures represent 26.4 per cent and 25.4 per cent, respectively, an extremely low level. However, it should be noted that the standard relates to an enterprise equipped wholly with ring spindles, whereas the Argentine machine inventory in this sector consists mainly of mule spindles (see again table 52). Hence a more detailed analysis is called for.

If a distinction is made between ring and mule spindles, unit output for the two periods is as shown in table 54. Although the data for the mules indicates that they are mainly responsible for the low general level of unit output, the ring spindles considered separately have a unit output that is still low compared with the 80 grammes of the standard, amounting to 65.7 per cent of the standard in 1961 and 61.3 per cent in 1963.

/Table 53

Table 53

MACHINERY UTILIZATION IN WOOLLEN SPINNING MILLS, 1961 AND 1963

	1961	1963 a/
(a) Total spindles	70 060	64 068
(b) Operating spindles	66 300	58 628
(c) (b) as percentage of (a)	94.6	91.5
Spindle/hours per year		
(d) Available	6 600	6 600
(e) Worked	4 390	2 234
(f) (e) as percentage of (d)	66.5	33.8
(g) Over-all utilization index $\frac{(e)x(f)}{100}$	62.9	30.9

Source: ECLA survey.

a/ See footnote (a) to table 41.

Table 54

WEIGHTED UNIT OUTPUT IN WOOLLEN SPINNING MILLS, 1961 AND 1963

Type of spindles	1961	1963
Ring frame	29.5	28.9
Mule	19.7	18.4
Total	21.1	20.3

Source: ECLA survey.

/As explained

As explained in the methodological glossary,15/the adoption of a Latin American standard for woollen spinning on the basis of ring frames represents a concept that takes account of the existing level of technology and the trend towards the progressive adoption of this type of machinery in the future. However, there are undoubtedly a large number of mule spindles still in existence not only in Argentina and the rest of Latin America, but also in most countries that have a well developed woollen industry, and consequently it is relevant to examine the real efficiency of the machinery in the light of the two possible types of machinery.

The unit output range in woollen spinning mills in Argentina is examined separately for the two types of machinery (see figure IX). It will be seen from section A of this figure that no enterprise in the ring-frame section attained the Latin American standard of 80 grammes per spindle/hour. Most of the ring spindles belong to the under-30 gramme range, and between 1961 and 1963 the only increase was in the 40-50 gramme range. This may be both because some of the machines are still at the experimental stage, and because of the economic recession.

For the mules unit output is distributed much more evenly, and there was some improvement between 1961 and 1963. The highest frequency range is 15-20 grammes, for both periods, and there was an increase in this range between 1961 and 1963, at the expense of the two neighbouring ranges. In both periods the modal average is not the same as the arithmetic mean, which is higher. In 1961 8.6 per cent of mule spindles, and in 1963 8.4 per cent, exceeded the unit output of 30 grammes considered as the standard for this type of machinery.

Productivity data are given in table 55. Compared with the Latin American standard the Argentine workloads are satisfactory. The Latin American standard is 180 spindles per spinner and 40 per unit of the total labour force; thus the Argentine mills were found to have a workload slightly below the standard in spinning proper (90.6 per cent for 1961 and 92.2 per cent in 1963), and much above it for the whole processing cycle (230 per cent for 1961 and 205 per cent for 1963).

15/ See annex I at the end of this study.

Table 55

WORKLOADS AND PRODUCTIVITY IN WOOLLEN SPINNING MILLS, 1961 AND 1963

	1961	1963 (6 months)
Spindle/hours	291 072 584	71 493 537
Spinner/hours	1 776 717	429 731
Total man/hours	3 165 507	873 030
Workloads (spindles)		
Per spinner	163	166
Per unit of total labour force	92	82
Productivity (grammes per man/hour)		
Per spinner	3 459	3 371
Per unit of total labour force	1 941	1 659

Source: ECLA survey.

Table 56

COMPARISON BETWEEN WORKLOADS AND PRODUCTIVITY IN WOOLLEN SPINNING MILLS AND THE STANDARD LEVELS, 1961 AND 1963

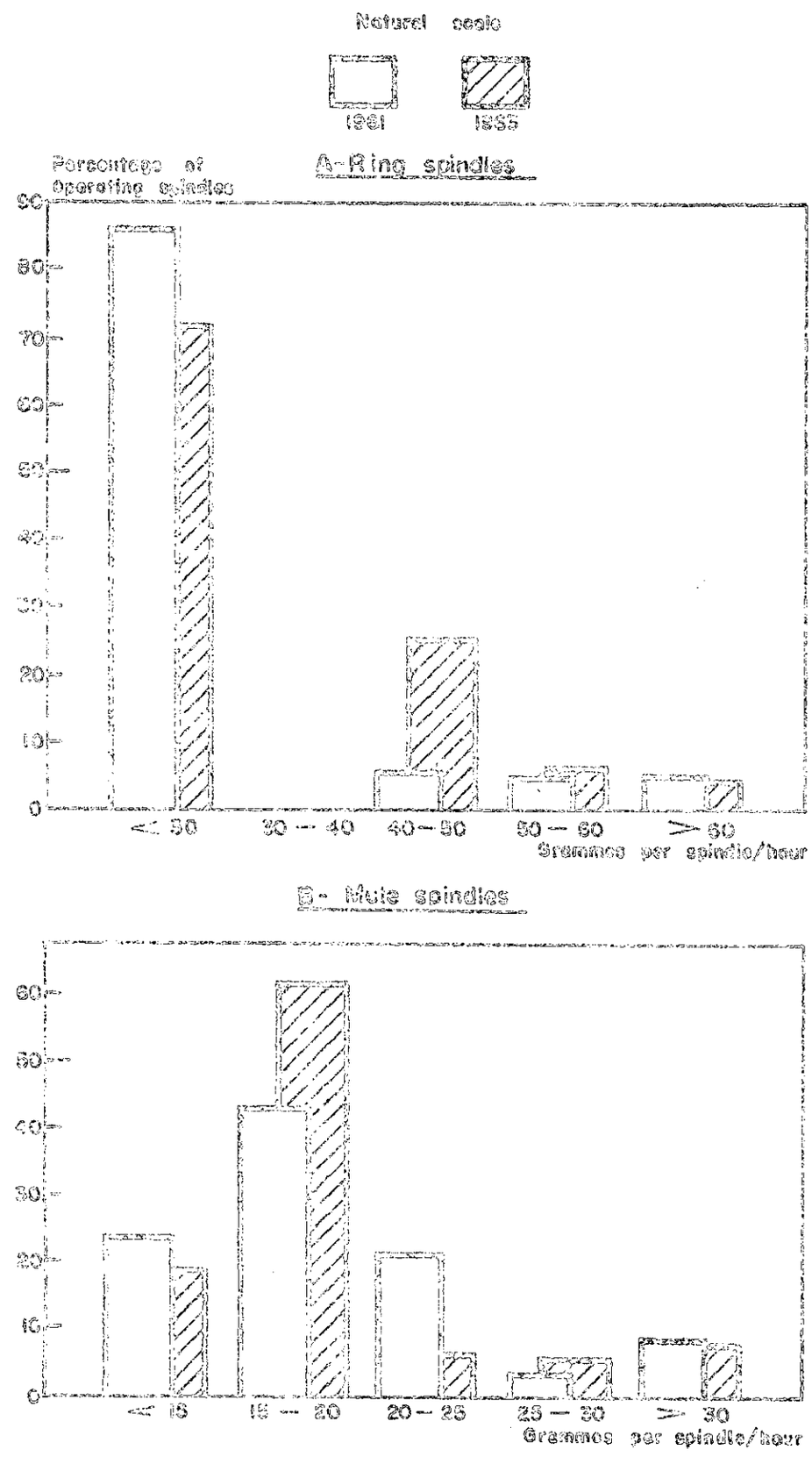
	Latin American standard	Absolute figures 1961	Absolute figures 1963	Percentage of standard 1961	Percentage of standard 1963
Workloads:					
Spindles per spinner					
Ring frames	180	130	154	72.2	85.6
Mules	238	171	169	71.8	71.0
Spindles per unit of total labour force					
Ring frames	40	70	62	175.0	155.0
Mules	77	97	88	126.0	114.3
Productivity					
Grammes per spinner/hour					
Ring frames	14 400	3 851	4 444	26.7	30.9
Mules	7 140	3 371	3 118	47.2	43.7
Grammes per unit of total labour force					
Ring frames	3 200	2 076	1 804	64.9	56.4
Mules	2 310	1 910	1 616	82.7	70.0

Source: ECLA survey.

/Figure IX

Figure IX

PERCENTAGE DISTRIBUTION OF WOOLLEN SPINDLES
BY UNIT OUTPUT CATEGORY



Despite these high workload levels average productivity is rather low compared with the standards. Thus, in comparison with the standard of 14,400 grammes per man/hour for spinners only, the mills surveyed achieved levels of 24.0 per cent in 1961 and 23.4 per cent in 1963, and in relation to the standard of 3,200 grammes per man/hour for unit of the total labour force, the percentages were 60.7 in 1961 and 51.8 in 1963.

However, in these cases also a distinction between ring frames and mules is relevant, and consequently a separate analysis is made for the two types of machine, since apart from having different unit outputs, the workloads, and consequently productivity, are different (see table 56). Even when the data are considered separately, it is clear that in both types of machinery the spinner workload is fairly satisfactory. Moreover for both types of spindles the workload for the total labour force exceeds the standard level.

However, because of the low unit output productivity is low, even lower when the distinction is made between the ring frames and mules. From this standpoint it is clear that in 1963 there was a fairly marked over-all decline compared with 1961. It could be argued that the low level of unit output is due partly to excessive economizing on labour, since manpower skill, especially in the pre-spinning sections, is not adequate to ensure satisfactory efficiency in the spinning frames.

Figures X and XI give the percentage distribution of operating spindles by workload and productivity categories.16/ The workload ranges tend to be lower for the ring frames as might be expected. The distribution of frequencies is quite different in 1961 and 1963; for the total labour force there is a marked concentration of frequencies in 1961, while in 1963 there was a wide dispersion with an emphasis on the lower ranges.

The same applies to the productivity ranges, to an even more marked extent. In this case the levels for the ring frames are evenly distributed throughout all the ranges, although they should be concentrated at the higher levels.

For the total labour force there was a widespread decline between 1961 and 1963 (apart from the increase in the 2,000 to 2,500 gramme range). This would be difficult to understand in the absence of a sharp falling off in machinery utilization such as that already indicated.

(a) Analysis by size

As stated in chapter III (table 16), in Argentina woollen spinning is mainly concentrated in the medium size enterprises. However, a study

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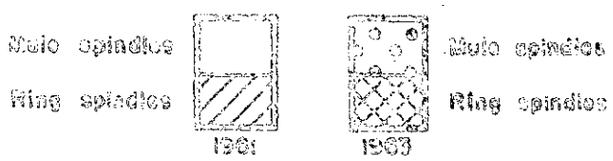
16/ In these figures the distinction between ring frames and mules is indicated by different patterns, in order to permit a visual grasp of the pattern of distribution between the two types of machine.

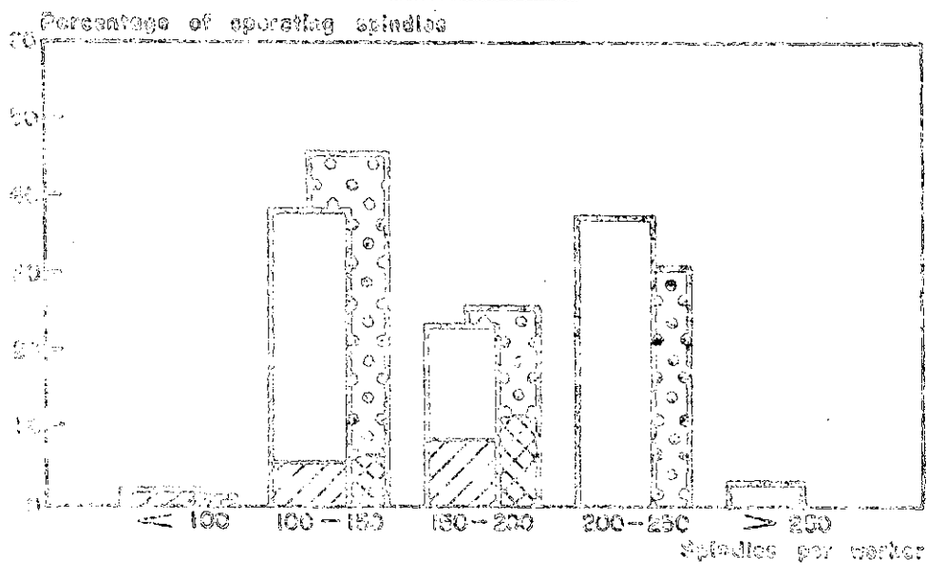
Figure X

PERCENTAGE DISTRIBUTION OF WOOLLEN SPINDLES BY WORKLOAD CATEGORY, 1961 AND 1983

Natural scale



A- Spinners



B- Total labour force

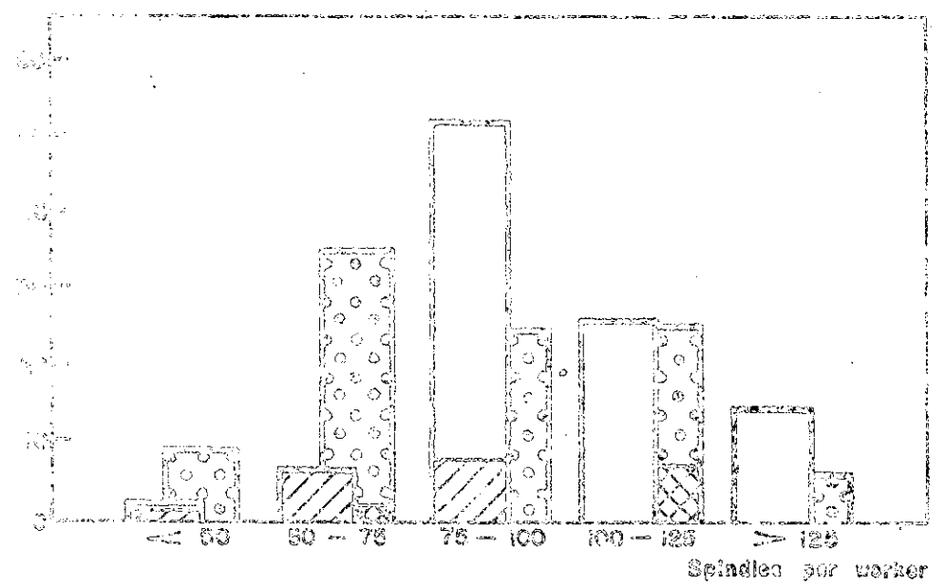
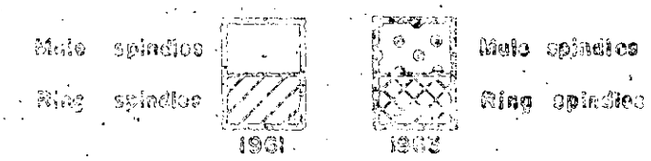


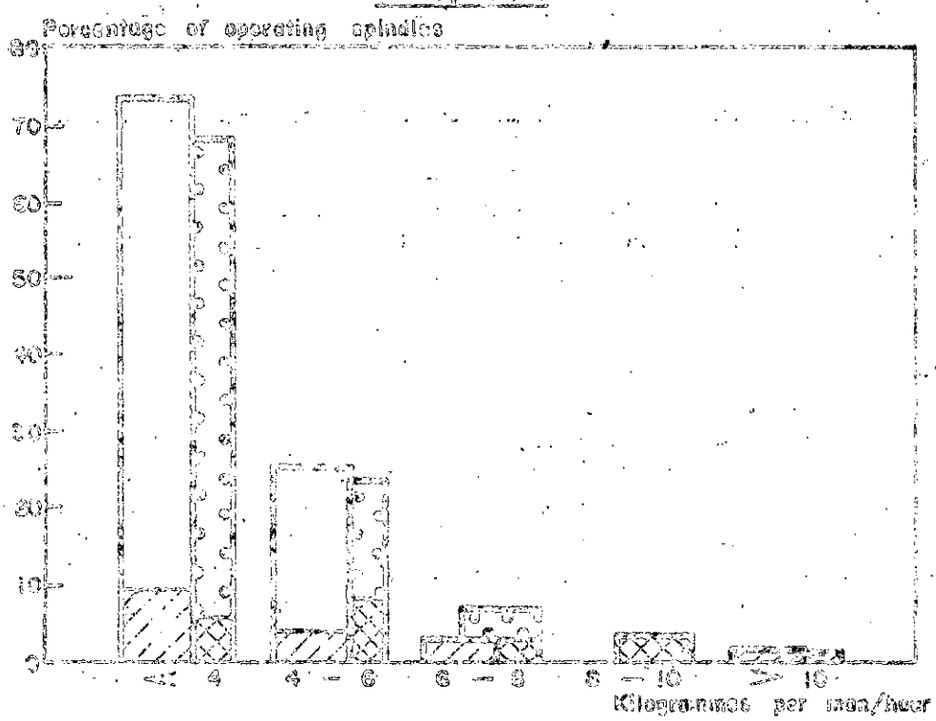
Figure XI

PERCENTAGE DISTRIBUTION OF WOOLLEN SPINDLES BY PRODUCTIVITY CATEGORY, 1961 AND 1963

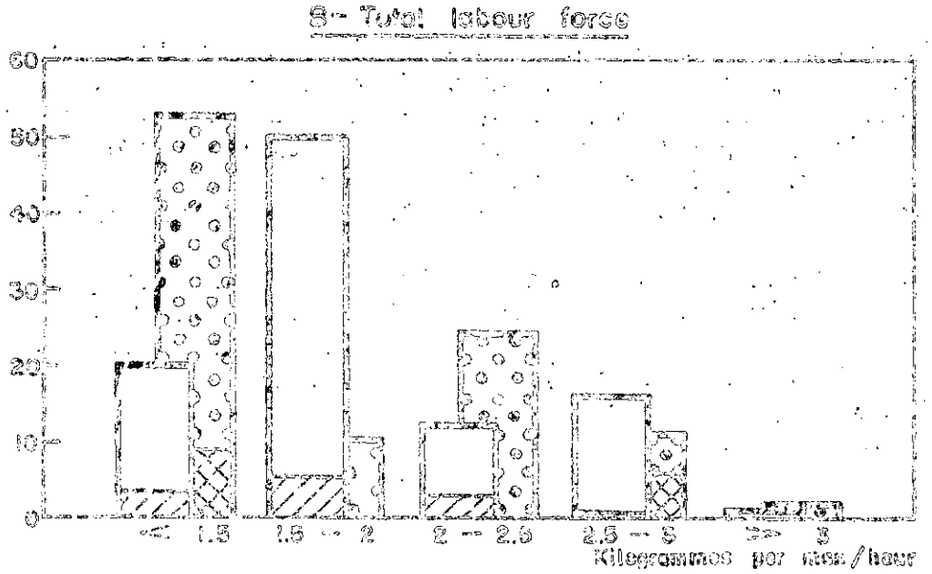
Natural scale



A - Spinners



B - Total labour force



of the data on the technical and organizational efficiency of the enterprises surveyed shows that the highest levels are attained by the smallest enterprises (see table 57).

In fact the same observations apply here as in the analysis of worsted spinning. Apart from size, many other factors help to determine the efficiency of an enterprise, and for woollen spinning the machinery factor also has to be taken into account, that is, a distinction must be made between ring frames and mules.

However, it can be seen that the average levels of unit output and productivity tend to decline as mill-size increases, and the same can be confirmed, broadly speaking, for the minimum and maximum levels.

(b) Analysis by the age and up-to-dateness of the machinery

For the purpose of determining the level of efficiency of the textile industry through a study of the machinery, woollen spindles offer the advantage that their degree of up-to-dateness can be determined on the basis not only of age, but also of the proportion of ring spindles to mule spindles.

However, it sometimes happens that some of the modern machines have a much lower level of efficiency than the older machines, in relation to the standard concerned. This may be due, among other reasons, to the fact that some mills are still at the experimental stage, and also, in the particular case of the woollen spinning mills, to the generally low level of production, which precludes any possibility of intensive use of installed capacity, as table 58 shows. The table indicates that there is a constant correlation between the age of the machinery and unit output only for the mules; the ratio of the unit output of the most recent category to that of the oldest category is about 1:0.6. There is no correlation for the ring spindles.

(c) Conclusions

The woollen spinning mills in Argentina as a whole are fairly obsolete as regards machinery, and the unit output is consequently low. This situation is aggravated by the general recession in Argentina, and even the installation of new machinery may not be able to raise efficiency. The number of workers is generally in proportion to the machinery, although sometimes rather low, but productivity is much below the standard adopted.

Hence it must be concluded that before there is any question of Argentina's woollen yarns competing on the world market (to permit one proposed solution of the wool industry's basic problem, namely, the selling of its products abroad), many internal problems must be dealt with, particularly in view of the entrenched position of the European competitors in the world market.

/Table 57

Table 57

OPERATIONAL CHARACTERISTICS OF WOOLLEN SPINNING MILLS,
BY SIZE CATEGORY, 1961 AND 1963

	Size category (spindles)							
	Under 1 000		1 000 to 3 000		Over 3 000		Total	
	1961	1963	1961	1963	1961	1963	1961	1963
Spindles surveyed	3 894	4 454	24 086	21 434	42 080	38 180	70 060	64.028
Ring spindles	420	420	3 064	5 560	5 532	5 560	9 044	11 512
Mule spindles	3 474	4 034	21 022	15 902	36 520	32 620	61 016	52 556
Over-all utilization index (percentage)	56.9	33.1	63.1	34.5	63.5	28.8	62.9	30.9
Unit output (grammes per spindle/hour)								
Average	37.4	30.3	21.8	23.8	19.4	16.5	21.1	20.3
Minimum	17.2	18.0	12.9	11.2	13.8	9.3	12.9	9.3
Maximum	65.8	65.8	30.7	43.6	25.0	25.0	69.8	65.8
Productivity (grammes per man/hour) a/								
Average	2 189	1 911	2 065	1 774	1 808	1 515	1 941	1 659
Minimum	1 235	1 553	1 105	856	1 405	1 116	1 105	856
Maximum	3 201	3 201	2 876	2 876	2 433	2 808	3 201	3 201

Source: ECLA survey.

a/ Including all workers in the whole spinning section.

Table 58

MACHINERY UTILIZATION AND UNIT OUTPUT IN WOOLLEN SPINNING MILLS,
BY DEGREE OF UP-TO-DATENESS AND SPINDLE AGE

Age category and type	Total spindles		Over-all utilization index (percentage)		Average unit output (grammes per spindle/hour)	
	1961	1963	1961	1963	1961	1963
Under 10 years						
Ring spindles	5 620	5 872	66.1	25.5	28.7	30.4
Mule spindles	480	480	60.1	53.3	29.5	31.8
10 to 30 years						
Ring spindles	3 424	5 640	78.1	35.5	30.7	27.7
Mule spindles	36 036	31 176	63.2	41.1	21.1	19.4
Over 30 years						
Ring spindles	-	-	-	-	-	-
Mule spindles	23 900	20 900	57.3	25.4	18.6	18.4

Source: ECLA survey.

9. Wool spinning as a whole

Previous sections have dealt with, inter alia, levels of unit output and productivity in woollen and worsted spinning mills, on the basis of the methodology referred to in the introductory note to this chapter and described in annex I to this study.

However, for the purpose of comparison with previous ECLA studies (in which wool spinning was considered as a whole, the actual figures being weighted by an over-all average yarn count, on the basis of a theoretical distribution of 65 per cent worsted and 35 per cent woollen) it is necessary to provide an over-all picture of the spinning section of Argentina's wool industry.

In view of the importance of comparisons in this type of study it was thought appropriate to make a joint examination of the two types of spinning, and calculate the unit output and productivity levels on the basis of the earlier methodology. Table 59 gives the figures for 1961 and 1963. It should be noted that the absolute figures, for both output and productivity, do not represent the average of the data given above, and are not comparable with them,17/ since they are worked out on the basis of different output coefficients and relate to a different standard. The figures in the table indicate levels of productivity and unit output that can be regarded as fairly satisfactory compared with the other Latin American countries studied, and with the standard adopted in the earlier methodology.

However, although the new methodological concepts do not affect this comparison, they reveal, by a more detailed analysis, certain defects in the Argentine industry, and possibilities of improving its efficiency.

10. Weaving

Weaving is the final stage in the structural transformation of textile fibres. The yarn not destined for hand knitting undergoes its final industrial processing in the weaving or knitting section, and then goes through the finishing treatments and passes on to be made up either in factories, or in the artisan or cottage industry sector.

Excluding made-up goods, which are beyond the scope of the present report the fabric, grey or finished, represents the last opportunity, for a country like Argentina, to export the wool in any form; moreover this product, which has the greatest added value, offers prospects of higher export earnings.

17/ A full comparison of all the Latin American countries is given in the regional study now under way.

Table 59

PRODUCTION CAPACITY AND OPERATIONAL CHARACTERISTICS OF WOOL SPINNING MILLS IN ARGENTINA, 1961 AND 1963

	1961	1963 a/
(a) Total spindles	360 000	360 000
(b) Total spindles surveyed	227 116	219 612
(c) (b) as percentage of (a)	63.1	61.0
(d) Operating spindles surveyed	221 756	201 866
(e) (d) as a percentage of (b)	97.6	91.9
Spindle/hours per year		
(f) Available	6 600	6 600
(g) Worked	4 509	2 581
(h) (g) as a percentage of (f)	68.3	39.1
(i) Over-all utilization index $\frac{(e) \times (h)}{100}$	66.7	35.9
Unit output (grammes per spindle/hour)		
(j) Latin American standard	52.5	52.5
(k) Argentina	26.4	27.9
(l) (k) as a percentage of (j)	50.3	53.1
Productivity (grammes per man/hour)		
(m) Latin American standard	2 400	2 400
(n) Argentina	1 913	1 829
(o) (n) as percentage of (m)	79.7	76.2

Source: ECLA survey.

a/ April-September figures multiplied by 11. See footnote a/ to table 41.

/In the

In the fabric the value added completely overshadows the raw material, and thus is particularly important in relation to competition on the world market. However, the fabric's ability to compete does not depend only on economic factors. Whereas in producing tops - and to some extent in producing worsted or woollen yarn - the technical process is more or less standard (that is, the process is mainly mechanical), at the weaving stage many creative elements are added to the fabric (colour, design, etc.) which are often more important than its strictly technical characteristics. Thus the success of a wool fabric on the market depends not only on technical and economic factors, but on others, relating to aesthetics, that have a considerable influence on consumer preference.

Hence although the economic analysis of unit output and productivity in the weaving sector is of basic economic importance for the purpose of solving certain industrial problems, it is not enough (as it is for other less processed products) to provide a full picture of the present and future possibilities of either the national industry or an individual enterprise. The additional factors are not susceptible of economic measurement, and cannot be analysed in the present study, but it should be noted that they exist. From this standpoint the verdict for Argentina, however rough and ready, is undoubtedly favourable. In fact the products of Argentina's wool industry are well equipped with respect to quality and taste to compete with the best that the world market can offer. In other words, if the Argentine product does not succeed in obtaining a good sale abroad, it is not for any lack of such qualities, and the reason that no substantial flow of exports has been developed must be sought elsewhere.

According to the survey data, there were a number of structural changes in wool weaving between 1961 and 1963. In 1961 15 enterprises reported a total of 1,797 looms, and in 1963 two additional enterprises (that did not exist, or had no weaving section, in 1961) replied to the questionnaire, and the total number of looms reported feel to 1,739. At first sight it would seem that these looms are not very representative of the total universe, since they represent only 30 per cent of that total. However, since the survey was directed only to mill enterprises, which were estimated to have a total of 3,000 looms in 1961, the survey represents about 60 per cent of the section, much the same as for the other stages of the wool processing cycle.

The distribution of looms by type and age category was found to be as shown in table 60. The proportion of obsolete machinery in wool weaving is striking 45 per cent of the looms are over 30 years old. On the other hand there is a marked increase between 1961 and 1963 in the number and proportion of automatic looms, although much remains to be done before the structure of the wool weaving industry in Argentina can be regarded as that of a modern industry. Furthermore, since most of the looms not covered by the survey are not new, the results for the whole industry could be even more unfavourable than for the mills surveyed.

/Table 60

Table 60

LOOMS SURVEYED, BY TYPE AND AGE CATEGORY, 1961 AND 1963

Age category	Automatic looms		Non-automatic looms		Total	
	1961	1963	1961	1963	1961	1963
			Absolute figures			
Less than 10 years	24	228	7	4	31	232
10 to 30 years	214	224	735	511	949	735
Over 30 years	-	-	817	722	817	772
Total	238	452	1 559	1 287	1 797	1 739
			Percentage			
Less than 10 years	1.3	13.1	0.4	0.2	1.7	13.3
10 to 30 years	11.9	12.9	40.9	29.4	52.8	42.3
Over 30 years	-	-	45.5	44.4	45.5	44.4
Total	13.2	26.0	86.8	74.0	100.0	100.0

Source: ECLA survey.

Table 61

DISTRIBUTION OF LOOMS BY THEORETICAL SPEED, 1961 AND 1963

Picks per minute	Number of looms		Percentage of total	
	1961	1963	1961	1963
Up to 95	858	705	47.8	40.6
96 to 105	658	539	36.6	31.0
106 to 115	79	79	4.4	4.5
116 to 125	194	348	10.8	20.0
Over 125	8	68	0.4	3.9
Total	1 797	1 739	100.0	100.0

Source: ECLA survey.

/This is

This is confirmed by the averages obtained from the sample mills for the theoretical loom speed, namely, 97.6 picks per minute in 1961 and 101.3 picks per minute in 1963. The distribution is shown in table 61. As might be expected, the automatic looms were all in the higher groups, with an average of 122 picks per minute in 1961 and 127 in 1963.

According to the survey results the average loom width was 212 cm in 1961 and 210 in 1963, the distribution being as shown in table 62.

The machinery utilization in wool weaving is shown in table 63. This table shows how serious the situation is in this industrial branch. In 1961 the looms worked for 262 days in the year for 12.4 hours a day; in April-September 1963 they worked 119 days, for an average of 8.9 hours a day. These levels of activity, even though they are only averages, would be enough to discourage any additional investment. Moreover the possibility of renewing the machinery also seems rather remote.

Table 64 shows the actual ouput for the periods under review, and the qualitative and technical features of the product. This ouput involved a total of 5,683,776 loom/hours in 1961 and 1,603,190 in the 1963 half-year. Unit output was 2.68 metres per loom/hour in 1961 and 2.47 metres in 1963 (in terms of weight, 1,348 grammes per loom/hour in 1961 and 1,240 in 1963). In terms of picks per metre unit output was 4,307 and 3,833 picks per loom/hour, which corresponds (on the basis of an average loom speed of 97.6 and 101.3 picks per minute in 1961 and 1963, or 5,856 and 6,078 picks per hour) to an average efficiency of 73.5 per cent in 1961 and 63.1 per cent in 1963.18/

In terms of the Latin American standard, 19/ unit output in Argentina's wool weaving industry was 61.5 per cent in 1961 and 54.8 per cent in 1963 (see table 65).

18/ These levels should be regarded as indicating only the order of magnitude of efficiency, since they represent an average and for the purpose of the calculation a uniform utilization of all productive units is assumed.

19/ The Latin American standard is based on an output of 3.5 metres per loom/hour, for a fabric of 2,000 picks per metre, which represents 7,000 picks per loom/hour. If an efficiency of 90 per cent is assumed, the standard loom has a theoretical speed of 7,778 picks per hour, or 130 picks per minute.

/Table 62

Table 62

DISTRIBUTION OF LOOMS BY WIDTH, 1961 AND 1963

Reed space in centimetres	Number of looms		Percentage of total	
	1961	1963	1961	1963
Up to 190	215	196	12.0	11.3
191 to 210	583	693	32.4	39.8
211 to 230	943	784	52.5	45.1
Over 230	56	66	3.1	3.8
Total	1 797	1 739	100.0	100.0

Source: ECLA survey.

Table 63

MACHINERY UTILIZATION IN WOOL WEAVING, 1961 AND 1963

	1961	1963 a/
(a) Looms surveyed	1 797	1 739
(b) Operating looms surveyed	1 750	1 577
(c) (b) as percentage of (a)	97.4	90.7
Loom/hours per year		
(d) Available	6 600	6 600
(e) Worked	3 248	1 934
(f) (e) as percentage of (d)	49.2	29.3
(g) Over-all utilization index $\frac{(c) \times (f)}{100}$	47.9	26.6

Source: ECLA survey.

a/ April-September only.

/Table 64

Table 64

OUTPUT OF WOOL FABRIC IN ARGENTINA, 1961 and 1963

Products	1961	1963 (6 months)
Worsted fabric		
(a) Metres	6 723 841	1 792 932
(b) Kilogrammes	2 179 412	615 731
Woollen fabrics		
(a) Metres	6 744 172	1 823 950
(b) Kilogrammes	3 519 023	889 424
Blankets		
(a) Metres	1 761 387	488 604
(b) Kilogrammes	1 965 245	555 799
Total		
(a) Metres	15 229 400	4 105 486
(b) Kilogrammes	7 663 710	2 060 954
Over-all characteristics		
Grammes per metre (linear)	503	502
Average width (cm)	147	148
Grammes per square metre	342	339
Average yarn count (metric)	16.1	18.9
Picks per metre	1 607	1 552
Average warp length (metres)	481	422

Source: ECLA survey.

/Table 65

Table 65

UNIT OUTPUT AND EFFICIENCY IN WOOL WEAVING, 1961 AND 1963

	1961	1963
Unit output (picks per loom/hour)		
(a) Latin American standard	7 000	7 000
(b) Average maximum attainable with looms installed	5 856	6 078
(c) Averages observed	4 307	3 833
Indexes		
(d) Unit output: (c) as percentage of (a)	61.5	54.8
(e) Maximum efficiency attainable (b) as percentage of (a)	83.7	86.8
(f) Actual machinery efficiency (c) as percentage of (b)	73.5	63.1
Operational deficiency		
(g) Total deficiency (100 - (d))	38.5	45.2
(h) Deficiency due to the machinery (100 - (e))	16.3	13.2
(i) Deficiency due to operation ((g) - (h))	22.2	32.0

Source: ECLA survey.

/The decline

The decline in production had a marked effect on the level of unit output, despite the machinery modernization referred to. Loom efficiency, already low in 1961, and even lower in 1963 (partly as a result of the reduction in average warp length), and the low level of utilization, aggravate the financial difficulty of making the structural changes needed.

The distribution of looms by unit output category is shown in figure XII. Already in 1961 most of the looms were working at a speed of 3,000 to 4,000 picks per hour, and this concentration was even more marked in 1963. In 1961 15 per cent of the looms were working at a speed higher than the standard, but in 1963 this percentage fell to 9.4, despite the installation of a substantial number of new automatic looms.

Table 66 shows the labour employed in weaving during the two periods. There was a sharp reduction between the two periods both in the number of weavers and in the preparation workers, while the ancillary weaving staff remained about the same. This was partly due to the higher demand for auxiliary staff that accompanies an appreciable increase in the number of looms per weaver. Nevertheless, this increase in the weavers' workload does not justify such a proportion of auxiliary staff (see tables 67 and 68).

The 5,683,176 and 1,663,190 loom/hours worked respectively in 1961 and in April-September 1963 correspond to the man/hours shown in table 67. Workloads and average productivity are given in table 68, and compared with the Latin American standard.

The following points should be noted:

(a) The workload for weavers only increased by 15 per cent between 1961 and 1963, but for all workers in the weaving section there is no increase, while for all workers including preparation workers the increase is only 4.2 per cent. Nevertheless, weaver workload falls further below the Latin American standard than do the workloads either for all weaving section workers or for all workers including those in preparation.

(b) As regards productivity, which is affected by the level of unit output, comparison between wool weaving in Argentina and the Latin American standard is even more discouraging. Between 1961 and 1963 the weavers increased their average productivity by 6.1 per cent, while for all weaving workers, and all workers including those in preparation, productivity fell by 8.3 per cent and 3.7 per cent, respectively.

The changes in workloads and productivity are shown in figures XIII and XIV. The workload frequencies are highly concentrated for weavers, and more dispersed as more workers are included. This indicates that some effort has been made to improve organization, even though it has been limited to increasing the weaver workloads, which seems to be the general trend. In brief, it can be asserted that this reorganization has yielded little result, because of the general decline in the rate of production.

/Table 66

Table 66

MANPOWER DISTRIBUTION IN WOOL WEAVING, 1961 AND 1963

	Number of workers	
	1961	1963
Preparation workers	752	403
Weavers	1 570	948
Other weaving workers	471	465
Total	2 793	1 816

Source: ECLA survey.

Table 67

HOURS WORKED IN WOOL WEAVING, 1961 AND 1963

	Hours worked	
	1961	1963 (6 months)
Weavers	3 477 104	884 502
Other weaving workers	942 888	417 611
Total, weaving section	4 419 992	1 302 113
Preparation workers	1 574 099	377 898
Total workers including preparation	5 994 091	1 680 011

Source: ECLA survey.

Figure XII

PERCENTAGE DISTRIBUTION OF WOOL LOOMS
BY UNIT OUTPUT CATEGORY

Natural scale

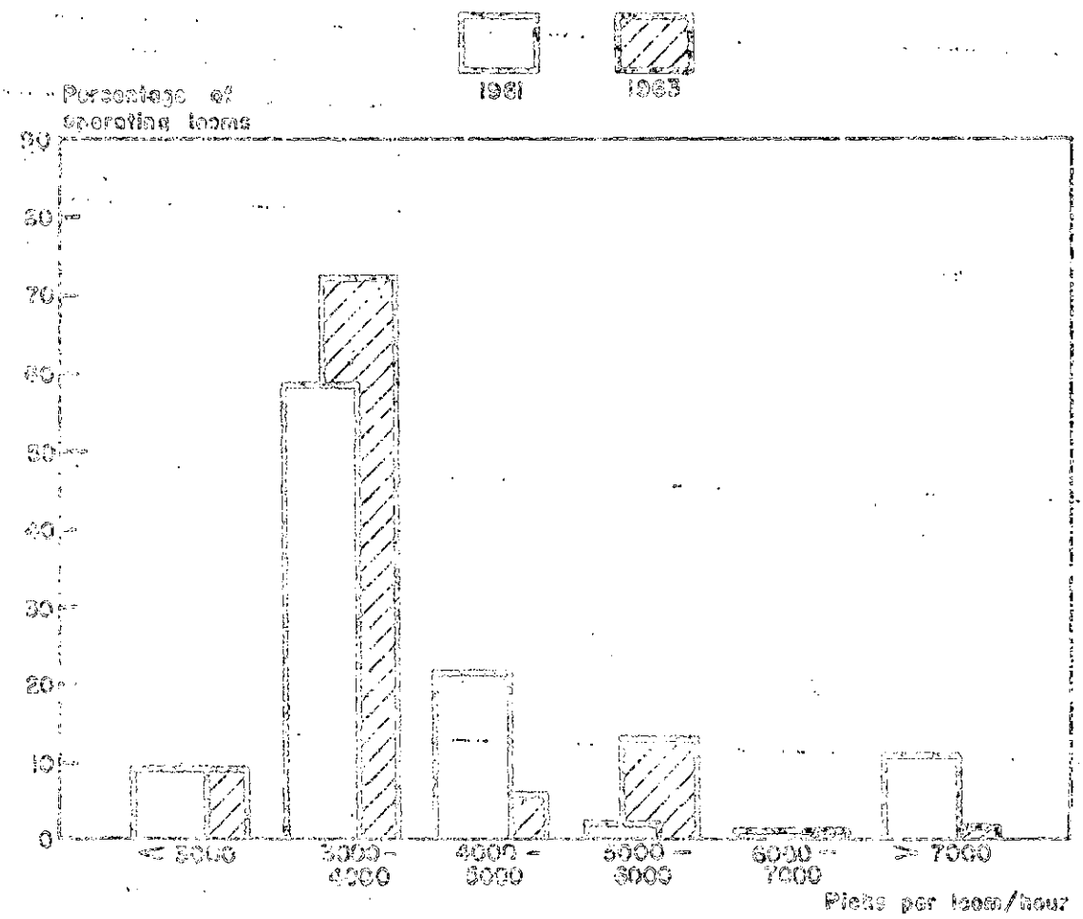


Figure XIII

PERCENTAGE DISTRIBUTION OF WOOL LOOMS
BY WORKLOAD CATEGORY

Natural scale

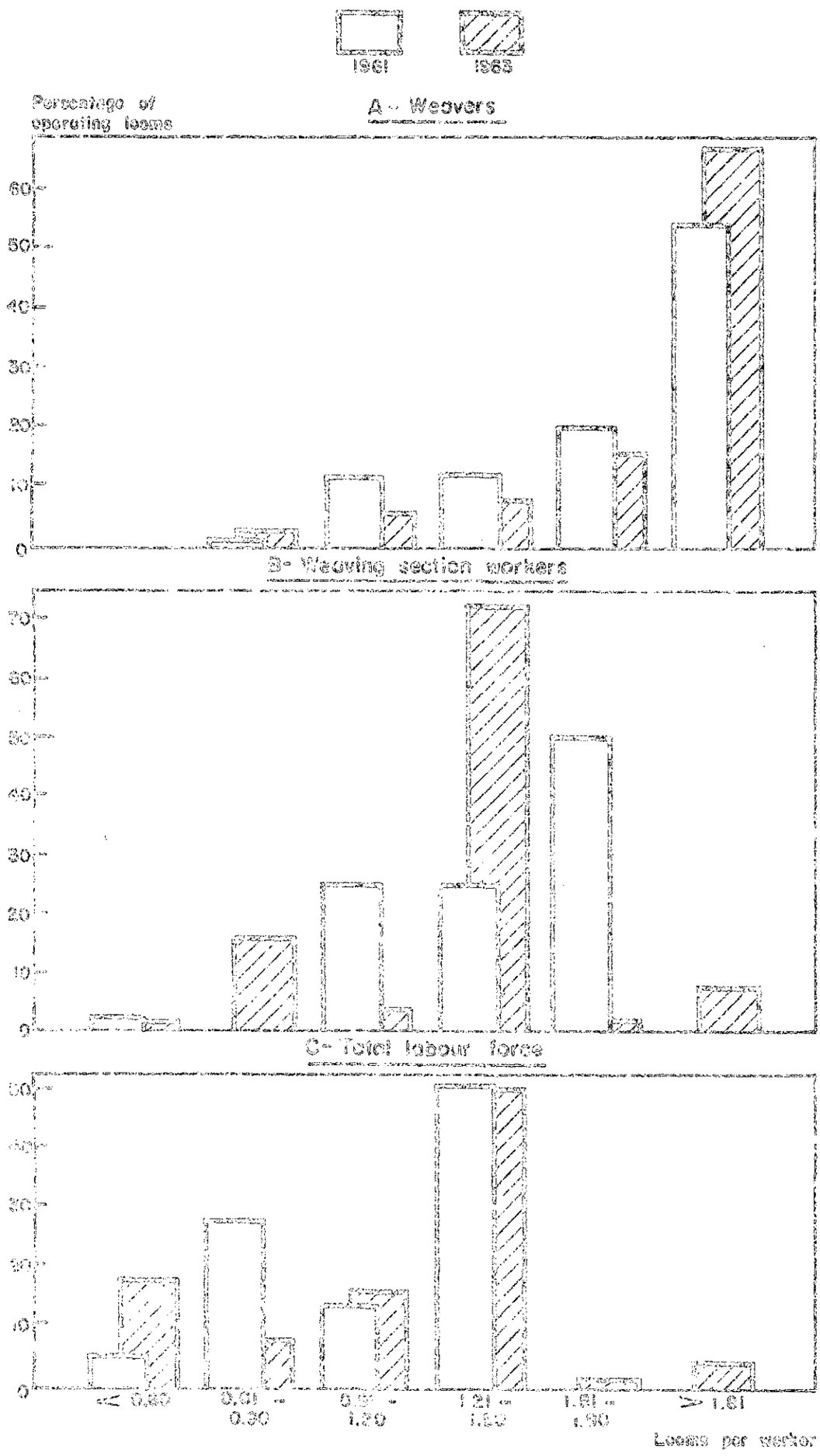


Figure XIV

PERCENTAGE DISTRIBUTION OF WOOL LOOMS
BY PRODUCTIVITY CATEGORY

Natural scale

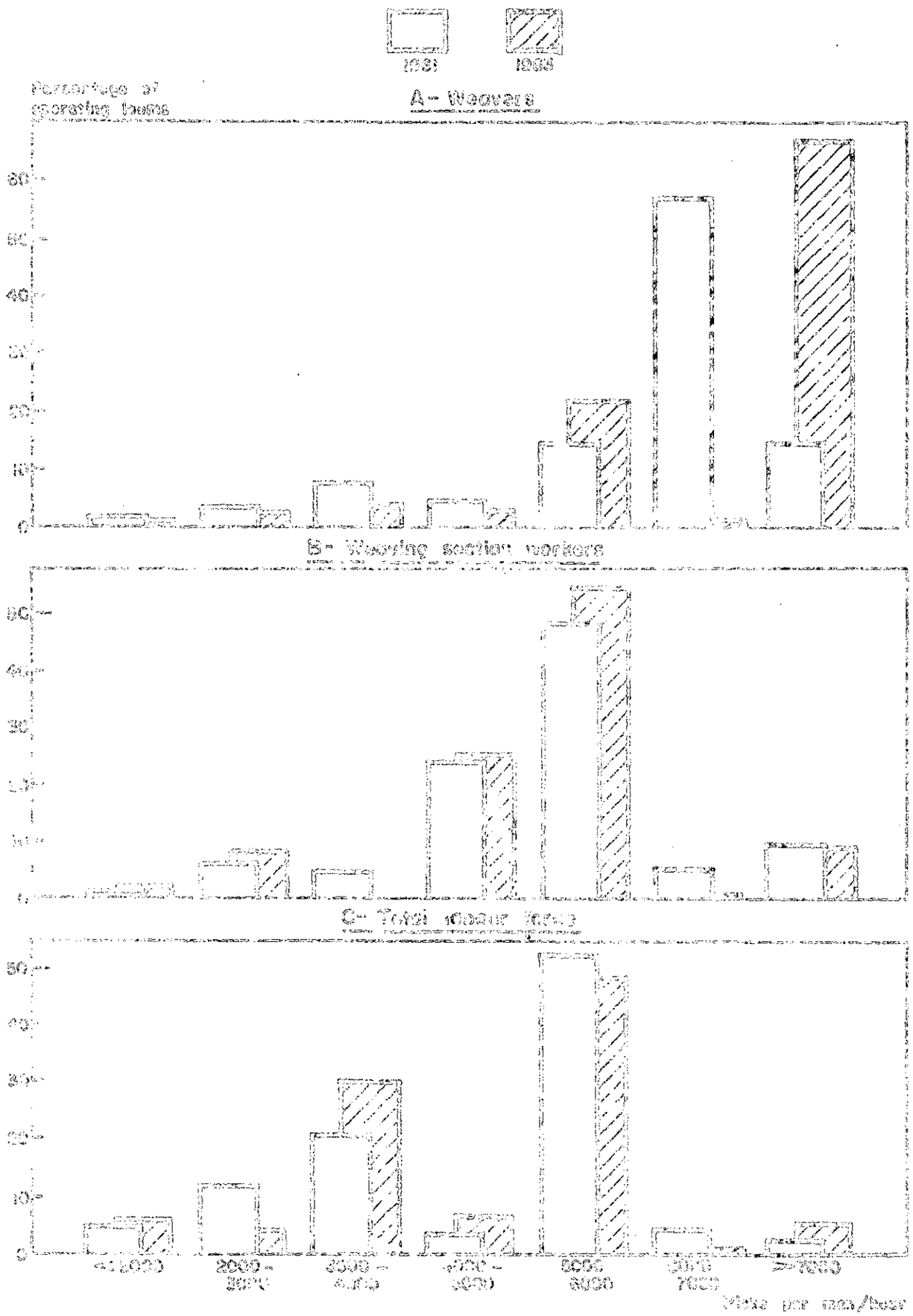


Table 68

WORKLOADS AND PRODUCTIVITY IN WOOL WEAVING, 1961 AND 1963

	Latin American standard	Argentina			
		Absolute figures		Percentage of standard	
		1961	1963	1961	1963
A. Workloads (looms per worker)					
Per weaver	6.0	1.63	1.88	27.2	31.3
Per worker in weaving section	2.7	1.29	1.28	47.8	47.4
Per worker in weaving and preparation	2.0	0.95	0.99	47.5	49.5
B. Productivity (picks per man/hour)					
Per weaver	42 000	7 038	7 469	16.7	17.8
Per worker in weaving section	19 900	5 544	5 085	29.3	26.9
Per worker in weaving and preparation	14 000	4 082	3 933	29.2	28.1

Source: ECLA survey.

Table 69

OPERATIONAL CHARACTERISTICS OF WOOL WEAVING MILLS, BY SIZE CATEGORY, 1961 AND 1963

	Up to 50 looms		51 to 100 looms		Over 100 looms		Total	
	1961	1963	1961	1963	1961	1963	1961	1963
Total looms surveyed	151	189	401	429	1 245	1 121	1 797	1 739
Over-all utilization index (percentage)	54.9	21.8	41.5	29.9	49.1	26.1	47.9	26
Unit output (picks per loom/hour)								
Average	5 776	4 880	3 625	3 452	4 050	3 917	4 307	3 893
Minium	2 920	2 756	2 182	1 855	3 551	3 391	2 182	1 855
Maximum	10 080	8 928	5 827	5 833	7 717	5 237	10 080	8 928
Productivity (picks per man/hour) a/								
Average	5 886	4 290	2 732	3 841	3 445	4 565	4 082	3 933
Minimum	1 314	1 161	1 199	1 439	2 935	3 065	1 199	1 161
Maximum	11 289	9 100	5 222	8 849	7 403	5 130	11 289	9 100

Source: ECLA survey.

a/ For all workers, including those in preparation.

/It should

It should be noted that in 1961 the weaver workloads of all the enterprises, even the most efficient, were far below the standard level. Only in 1963 were there two enterprises (representing 4.8 per cent of all operating looms) that exceeded the standard level. The same was true for the workload of all weaving section workers, while for the total labour force the proportion of operating looms for which the workload was higher than the standard level was only 4 per cent.

As regards productivity, the higher degree of concentration for weavers than for the total labour force is confirmation of what was affirmed in relation to the workloads. However, no enterprises achieved productivity levels higher than the standard, either in 1961 or in 1963.

(a) Analysis by mill-size

With respect to the analysis by size of the weaving mills the same comments apply as those made in introducing the same analysis for the other sections. Thus it should be noted, in studying the data given in table 69 on unit output and productivity for different size categories, that any correlation that may appear to exist between size and performance cannot be assumed to reflect a causal relationship between the two.

As in woollen spinning, the average level of unit output for the wool weaving industry as a whole declines as size increases. It should be noted that the maximum level for any mile was reached by a mill in the smallest size category, which gives this category a higher average than it would otherwise have.

The productivity trend is similar, except that in this case the lowest levels are in the intermediate category. This category had the lowest machinery utilization index in 1961, and the highest in 1963, because its level changed less between the two dates than that of the other two categories.

(b) Analysis by age and up-to-dateness of the machinery

Other factors that have a considerable effect on efficiency are the age and degree of up-to-dateness of the machinery. For looms the distinction between modern and old-fashioned machines (including obsolete looms) coincides with that between automatic and non-automatic looms. Table 70 indicates the levels of machinery utilization and unit output by type of machine and age category. The 1961 data appear normal; the unit output of the automatic looms is nearly twice that of the non-automatic looms, and the level declines as the age category increases. Machinery utilization is much higher for the automatic looms.

In 1963 the picture is more irregular. Machinery utilization is still higher for automatic than non-automatic looms; on the other hand over-all productivity declined, while the productivity of the oldest looms rose. This seems incomprehensible, but this period was so abnormal that a number of other phenomena occurred that are hard to explain.

/Table 70

Table 70

OPERATIONAL CHARACTERISTICS OF WOOL WEAVING MILLS,
BY TYPE AND AGE CATEGORY

	Age category of looms					
	Less than 10 years		10 to 30 years		Over 30 years	
	Automatic	Non-automatic	Automatic	Non-automatic	Automatic	Non-automatic
			1961			
Total looms surveyed	24	7	214	735	-	817
Over-all utilization index (percentage)	59.5	40.9	66.8	49.2	-	40.7
Average unit output (picks per loom/hour)	6 300	3 200	6 157	4 008	-	3 342
			1963			
Total looms surveyed	228	4	224	551	-	772
Over-all utilization index (percentage)	40.9	34.8	38.6	22.7	-	21.7
Average unit output (picks per loom/hour)	4 974	3 200	5 162	2 568	-	3 523

Source: ECLA survey.

/In brief,

In brief, the structure of the wool weaving sector in Argentina appears fairly out of date, and a radical programme of machinery renewal is needed before satisfactory levels of efficiency can be reached. Nevertheless, the essential condition for this process is a guarantee, or at least a well grounded expectation, that a reasonable level of activity can be maintained.

11. Costs

Apart from the strictly technical aspects, the survey also took account of the factors of production in economic terms, that is, from the cost standpoint. As this is rather a delicate question, it was not always possible to obtain answers on this point. Furthermore, enterprises sometimes apply different criteria in their administrative and accounting organization, and thus the same question may give rise to answers that, though correct, are based on different criteria (such as the evaluation of inventories at cost or at current value). The homogeneity of the data is also reduced by the tax rules, which do not always coincide with economic criteria. 20/

For all these reasons, the observations made below should be considered as approximations representing a wide range of different situations. However, before examining the figures some observations are in order on the main cost components, or on those that present some feature of interest. By way of general comment, it can be stated that broadly speaking the shortage of capital and the high prevailing rates of interest mean that any element involving mobilization of working capital is very costly.

(i) Raw Materials

Despite the substantial volume of domestic production, raw materials constitute one of the industry's main problems. Apart from the shortage, industrialists maintain that certain market conditions result in the domestic price being 20 to 25 per cent higher than the world price. It is not easy to investigate this question and confirm or deny such statements. However, if this difference is due to the interest rates that the industry has to pay to loan institutions, it is incorrect to state that the wool price is not the same on the domestic as on the world market. In fact the seller of wool will receive the same sum for his product either in Argentina or abroad,

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20/ For example, corporations, in their official balance sheets, must define "gross profit" as the difference between "net sales" and "cost of merchandise", and the last named includes the cost of raw material and labour. Then, to obtain net profit or loss, what is subtracted is a group of other items such as salaries, directors' salaries, social insurance contributions, amortization payments, interest, rent, etc. Hence although the official balance sheets indicate a number of marginal items, they do not give those that would be of most interest for the purpose of this study, namely, the separate incidence of labour and raw material costs.

the difference going to the bank (or to the private lender). If the loan is offered by the seller himself, that is, if the sale is made against deferred payment, then here again the price differences is imputable not to the raw material but to the financial transaction involved. A foreign buyer who has no capital of his own will also have to borrow what he needs, and in that case the cost of the raw material for him, too, would be higher than the amount invoiced.

Hence the difference in price is transferred from the raw material to the cost of working capital. That is, an analysis of the difference would involve a study of the cost of money in general and the difference in interest rates, which would require a consideration of various factors, including not only the nominal rate of interest, but also its real cost, which is inversely related to the currency depreciation, a factor which alters the current incidence of rates of interest.

However, there are undoubtedly some periods (such as the last months of 1963 and the first of 1964) when, because of the restricted purchasing power of the domestic industry, wool exports rose and there was a shortage of this raw material in the country. As a consequence, the domestic manufacturers officially asked the authorities to introduce a regulation that a quota of the national clip must remain in Argentina, at the disposal of the domestic industry.

Although there are legitimate reasons for such a request, there are also objections to a regulation of this type.21/ They include the creation of a closed market, problems of raw material distribution, possibility of speculation, etc., all factors that hamper the orderly development of an industrial activity. It might be preferable to permit imports of wool, which would bring domestic prices into line with world prices (apart from the cost of working capital, as already explained). This policy would not involve any expenditure in foreign exchange, since the export and import operations in wool would balance out.

Wool costs in Argentina are given in table 71, and the distribution of consumption of greasy wool by the domestic industry, by type, in table 72. Application of the distribution coefficients in table 72 to the prices of the various types given in table 71 gives a general average of 628.40 Argentine pesos per 10 kg in 1961 and 1,538.10 pesos in 1963, and increase between the two dates of about 145 per cent. In terms of dollars (at the rate of 83 pesos to the dollar in 1961 and 138.72 pesos in 1963) the average price of wool, greasy basis, would be 7.75 dollars per 10 kg in 1961 and 11.09 in 1963, and increase of only 46.5 per cent. It will be shown in a later section how this increase affected the total cost of the product.

21/ By the time this report is published this problem may have been solved.

Table 71

ARGENTINE WOOL PRICES, a/ 1961 AND 1963

Type of wool	Pesos per 10 kg	
	1961	1963
Fine wool merinos	648.82	1 442.57
Fine crossbreds	596.05	1 488.57
Medium crossbreds	668.30	1 969.18
Low crossbreds	699.14	1 442.50

Source: Boletín de Estadística, Nos. I and III, 1964, and Trade Statistics.

a/ Sales prices in the Avellaneda Mercado de Frutos and in Buenos Aires and Avellaneda warehouses. The prices are obtained by dividing the total sum realized by the number of kilogrammes sold.

Table 72

COMPOSITION OF WOOL CONSUMPTION IN ARGENTINA BY TYPE

Type of wool	Greasy wool	
	Tons	Percentage
Fine wool merinos	22 000	30.3
Fine crossbreds	36 000	49.7
Medium crossbreds	10 000	13.8
Low crossbreds	4 500	6.2
Total	72 500	100.0

Source: FITA, Revista Textil, Nos. 453, 454 and 455, October-December 1963.

(ii) Labour

Next to the raw material, labour is the most important cost component. Its final weight in the total price depends on two factors, the unit cost of labour, and productivity.

As regards unit cost, the industrialists surveyed commented not so much on the direct cost of labour, or the wage paid to the worker, which many considered low in relation to the cost of living, as on the excessive burden represented by social security contributions. In Argentina it is estimated that for every 100 pesos paid in wages 55 pesos have to be paid in social security contributions (40 per cent for salaries), which means that of the total labour cost about 35 per cent is received by the workers only in an indirect form.

This situation leads to a number of problems. Firstly, the undeniably high level of social security contributions encourages evasion, especially in the enterprises of marginal size, which resort to evasion in order to achieve what can only be termed unfair competition. Moreover there is another form of competition that arises which, although not illegal, is certainly distorted. The artisan units working on own account are regarded as independent workers, and are hence not liable to the social security charges. There are insurance funds to cover illness, accidents, etc., but they are mainly voluntary. Thus the cost of labour in the mill sector and outside it is not the same.22/ The difference between the cost to the industry and the wage received, especially when the quality of the social services is not all that might be expected in view of the heavy burden they represent, results in a distortion of the relations between workers and management in terms of purchasing power of the wages paid, on the one hand, and the heavy incidence of labour costs on the costs of production, on the other.

The survey showed, on the basis of a sufficiently broad sample, that wage levels in the wool industry were as shown in table 73, the estimated social security contributions that had to be paid in addition being estimated at an over-all average of 55 per cent.

The average unit labour costs for the different sections 23/ are shown in table 74.24/ Here the cost differences are due to the different distribution of the various types of manpower among the different sections. However, as the wages are those actually paid, they may include differences due to productivity rewards or incentives, they also include payments to piece workers.

22/ This partly explains why the rates of the commission weavers are 30 to 40 per cent below those corresponding to the internal costs of mills, for the same machinery.

23/ See table 79 below.

24/ For the sake of simplification it was assumed that the average working day was the same for the various types of worker, since this assumption does not lead to any great difference in the result.

/Table 73

Table 73

WAGE AND MANPOWER COSTS IN THE ARGENTINE WOOL INDUSTRY, 1961 AND 1963

(Pesos per hour)

Type of worker	Wages		Total cost	
	1961	1963	1961	1963
Foremen and supervisors	59.68	73.25	92.50	109.88
Direct workers	44.60	54.36	66.90	100.35
Indirect workers	28.35	41.40	42.53	62.10

Source: ECLA survey.

Table 74

AVERAGE LABOUR COST IN WOOL ENTERPRISES, 1961 AND 1963

(Pesos per hour)

Section	1961	1963
Combing[a]	55.71	80.97
Worsted combing[a]	58.87	86.04
Woollen combing[a]	56.66	83.00
Weaving[b]	65.07	92.59

Source: ECLA survey.

a/ From raw material stage.

b/ From cone or bobbin winding.

/(iii) Electric

(iii) Electric power

The third item of interest is electric power, which has a high cost in Argentina, possibly the highest in Latin America.25/ Its weight in the final cost is not high, but as it is a basic factor for all production, in fact for any economic activity, its high cost is a disadvantage for the country.

(iv) Amortization

It should be noted that, subject to differences due economic factors and subjective criteria, which vary considerably, it is now possible to amortize machinery rapidly from a tax standpoint. Thus the amortization component of costs is an advantage when the market can absorb this charge in the cost. This component is also high because of the high cost of the machinery, which in turn is due to the increased customs charges.

(v) Interest

The financial problems relating to the raw material also apply to all capital used in the cycle of production. Moreover, in recent years the serious difficulties of the market have sometimes forced the industry to undertake in addition to bear the cost of a certain portion of the financing of distribution, which further aggravates the problem of working capital. The same applies to exports, since the exporting industrialist has to meet the costs of interest in the form of discounts on bills of exchange.

The data on labour costs presented here, and the labour inputs arrived at in earlier sections (as the reciprocal of productivity) permit the calculation 26/ of labour productivity in monetary terms.

25/ The average prices in 1959 per kwh of industrial energy, in dollar mills, was Argentina 45.0, Bolivia 21.5, Brazil 14.8, Colombia 15.4 Chile 17.1, Ecuador 28.6, Mexico 12.2, Peru 14.1 and Venezuela 34.1. See ECLA, Estudios sobre la electricidad en América Latina (United Nations publication, Sales No. 63.II.G.3),1962, Vol. I, p. 378, table I. The cost in the United States is given as 13.2 mills.

26/ However, it is necessary at this point to take account also of weaving waste. The survey data indicate that waste, from the single yarn to the grey goods, amounts to 6 per cent. This means that to produce 1,000 grammes of fabric 1,060 grammes of yarn are required.

Table 75

LABOUR COSTS FOR THE PRODUCTION OF THE MAIN PRODUCTS OF THE ARGENTINE WOOL INDUSTRY, 1961 AND 1963

	1961	1963	Percentage change between 1963 and 1961
	1 kg tops		
Productivity (grammes per man/hour) a/	3 663	3 817	+4.2
Labour input (man/hours per kg)	0.298	0.285	-4.4
Labour cost			
Pesos per man/hour	55.71	80.97	+45.3
Pesos per unit of output	16.60	23.08	+39.0
Dollars per unit of output	0.200	0.166	-17.0
	1 kg worsted yarn (metric count 30)		
Productivity (grammes per man/hour) a/	993	1 063	+7.0
Labour input (man/hours per kg)	1.007	0.941	-6.6
Labour cost			
Pesos per man/hour	58.87	86.04	+46.2
Pesos per unit of output	59.28	80.96	+36.6
Dollars per unit of output	0.714	0.583	-18.3
	1 kg woollen yarn (metric count 8)		
Productivity (grammes per man/hour) a/	1 941	1 659	-15.0
Labour input (man/hours per kg)	0.515	0.603	+17.1
Labour cost			
Pesos per man/hour	56.66	83.00	+46.5
Pesos per unit of output	29.18	50.05	+71.5
Dollars per unit of output	0.351	0.361	+2.8
	1 metre of worsted fabric b/		
Productivity (picks per man/hour) c/	4 082	3 933	-3.7
Labour input (man/hours per metre)			
For weaving section c/	0.490	0.508	+3.7
For preceding sections	0.213	0.199	-6.6
Total d/	0.703	0.707	-0.5
Labour cost			
Pesos per man/hour	63.19	90.74	+43.6
Pesos per unit of output	44.42	64.15	+44.4
Dollars per unit of output	0.535	0.462	-13.6
	1 metre of woollen fabric e/		
Productivity (picks per man/hour) a/	4 082	3 933	-3.7
Labour input (man/hours per metre)			
For weaving section c/	0.294	0.305	+3.7
For preceding sections	0.246	0.288	+17.1
Total d/	0.540	0.593	+9.8
Labour cost			
Pesos per man/hour	61.24	87.93	+43.6
Pesos per unit of output	33.07	52.14	+57.7
Dollars per unit of output	0.398	0.376	-5.5

Source: ECLA, on the basis of the survey data.

a/ From the greasy wool stage.

b/ 2 000 picks per metre; 200 grammes per linear metre, 150 cm wide.

c/ All workers, including those in weaving preparation.

d/ For details of the calculation see Annex II, Statistical Calculations.

e/ 1 200 picks per metre, 450 grammes per linear metre, 150 cm wide.

Table 75 gives the data necessary for calculating labour costs per unit of output, in accordance with the characteristics specified, either in Argentine pesos or, on the basis of the rate of exchange prevailing on the dates in question, in dollars. The data in this table show that even in those sections where productivity increased (production of tops and worsted yarn), this increase was not sufficient to offset the increases in money wages between 1961 and 1963; in other words, in the domestic market, apart from the changes in the cost of raw material and the other factors of production, the labour element had the effect of increasing the money prices. In woollen spinning productivity declined, as a result of the decline in production, and the effect was aggravated by the rise in wages, that is, both factors had the effect of increasing costs.

In weaving productivity declined, in terms of the labour input for the weaving section alone per unit of output. However, in the case of worsted fabrics, if the calculation covers the input for both weaving and worsted spinning, the productivity level is about the same for the two periods, since the decline in productivity in the weaving section was offset by an improvement in worsted spinning productivity. For woollen fabric, on the other hand, there was a productivity decline in both the weaving and spinning sections.

However, as far as the external market was concerned, as the inflationary changes in labour costs were smaller than the changes in the rate of exchange, the cost of the labour input in terms of dollars declined with the single exception of woollen yarn. In other words, the changes in the rate of exchange offset the changes in monetary unit costs on the domestic market. Hence in the period concerned the world prices of the products were much more affected by currency changes than by the changes in the domestic costs of labour or structural changes in internal organization.

Nevertheless, although currency depreciation undoubtedly enables exporters to sell at an advantageous price on the world market, in the long run this advantage is illusory. Domestic prices adjust to the new currency value, and wages do the same, while the cost of imports (machinery, materials, etc.) rises in proportion to the depreciation, interest on capital also rises, and the illusory advantage vanishes.

It is also true that when currency is not stable there is little incentive to achieve a competitive system based on the best use of the factors of production, since it is more profitable to know how to make use of the currency changes and obtain speculative profits instead of production profits. This system makes for larger profits, but also for heavy losses.

The individual cost components together determine the total cost, and can be broken down into percentages. By means of the direct survey total costs were first calculated on the basis of the invoiced cost, and then the cost was broken down into its various components.

Value added in 1961 was about 30 per cent of total cost in the independent spinning mills (the average figures for worsted and woollen yarn being very similar), and about 40 per cent for the integrated enterprises (spinning and weaving). It should be noted that for the integrated mills the data relate to the over-all figures for the enterprises, that is, for both the value of production and for costs they cover the whole cycle of production (including, for example, twisting and finishing), and not only the sections dealt with in the present report.

In monetary terms the value of production per worker was 700,000 pesos in the independent spinning mills and about 400,000 pesos in the integrated mills. Value added per worker was 210,000 pesos for spinning mills and about 160,000 pesos in the integrated mills. The interest of these data is less their absolute levels (which cannot be regarded as the correct levels for the country as a whole, since the sample does not cover the complete universe) than in the economic trend they reveal, namely, that marginal value added per worker (and also the total value of production per worker) tends to decline as the coverage of the processing cycle is extended. This is due to two main factors, the high cost of raw materials in the wool industry, and the fact that the cost of investment per worker is much higher in the earlier than in the later sections of production. This question deserves careful study since from the standpoint of a rational and advantageous use of the available capital, the more complete processing cycle, the more effective to investment, with a rise not only in total value added, but also in the product/capital ratio. These few comments must suffice, for the moment, to indicate the outlines of a phenomenon that requires much more detailed study.

The cost composition of the enterprises in the sample chosen for the survey was found to be as shown in table 76. It should be noted that these data may not agree with the calculations referred to in preceding pages. The concepts are not the same, the data in the first case being for the market as a whole (wool cost) or for specific sections in the cycle of production. In table 76, on the other hand, the raw material percentages are calculated in accordance with business accounting methods, the labour force is the total in all sections (including yarn and fabric processing, finishing, general services, etc.) and, in short, the various percentages are by definition related to the total cost, which varies considerably according to the article produced. The figures in the table nevertheless permit the drawing of certain conclusions, in that the differences for the various items may have consequences of some magnitude in the final cost.

In view of the number of factors now hampering the economy of Argentina's wool industry, it would be an academic exercise to study the effect on costs of a hypothetical situation in which, for example, the productivity levels were the same as in the Latin American standard. It is enough, for illustrative purposes, to present a few calculations, data, and hypotheses that are somewhat closer to practical possibilities. The following hypotheses were accordingly considered:

/Table 76

Table 76

PERCENTAGE COMPOSITION OF THE COST OF PRODUCTION, 1961

Cost components	Woollen yarn	Worsted yarn	Spinning and weaving
Raw materials	62.5	54.3	40.4
Labour			
Workers	16.7	13.3	22.2
Employees	1.1	2.2	3.0
Electric power	2.6	1.7	3.4
Auxiliary materials	1.7	3.1	6.7
Fuels and lubricants	0.4	1.5	2.4
Maintenance	0.7	2.0	3.9
Amortization	5.3	6.9	6.8
Other costs	4.9	5.4	10.0
Payments for services of third parties	4.1	9.6	1.2
Total	100.0	100.0	100.0

Source: ECLA survey.

Table 77

REDUCTION IN THE COST OF WOOL PRODUCTS IN ACCORDANCE WITH CERTAIN HYPOTHESES OF CHANGES COMPONENT COSTS AND IN PRODUCTIVITY

(Percentage)

Cost component	Worsted yarn	Woollen yarn	Fabric (both types)
Raw material	-10.86	-12.50	-8.08
Labour	-2.66	- 3.34	-4.44
Other costs	-1.36	- 0.48	-2.00
Total	-14.88	-16.32	-14.52

Source: ECLA, on the basis of the survey data.

/(a) A reduction

(a) A reduction of 20 per cent in raw material costs
(b) A rise of 30 per cent in productivity in terms of volume and 20 per cent in terms of value.27/
(c) A reduction of 20 per cent in other costs.

The component and total reductions in the three main types of wool products that would result from each of these three hypotheses are indicated in table 77. The hypotheses, of course, serve only to indicate the effect of the factors. In fact it is very difficult to evaluate the possibilities of a reduction of capital costs in Argentina; nor is it easy to estimate the chances of a rise of productivity in terms of volume, and even less in terms of value, although some pointers have been given on these questions in earlier chapters. In point of fact, economic developments between 1961 and 1963 were very different from what might have been expected. The changes in the proportion of the total cost represented by the two main cost factors (raw materials and labour), on the assumption that the percentage represented by the other factors remained unchanged, are indicated in table 78. This table also gives the rises in the cost indexes for Argentine wool products, on the domestic market and on the world market. Despite some rise in productivity the price levels of wool products rose considerably, mainly as a result of rises in wool prices. The wholesale price index28/rose from 475.5 in 1961 to 804.7 in 1963, an increase of 57.8 per cent, a rise that can be assumed to reflect the degree of inflation, and the prices of wool products increased much more than this. Present difficulties can be attributed to this fact, which illustrates the generally complex nature of the problem.

On the world market the rise in costs had an adverse effect, since the changes in the exchange rate were not sufficient to offset this rise. However, between 1961 and 1963 world wool prices also rose;29/for example, between January 1961 and January 1963 64's were quoted in the United Kingdom (clean cost c.i.f. UK) at 76 and 94 pence per pound, respectively, an increase of 23.6 per cent. Although this does not equal the dollar-based increase of 46.5 per cent in Argentina, it does reduce the difference between Argentine and world levels, and leaves the way open for exports.

27/ It is assumed that the increase in productivity in terms of value would be allocated pro rata between consumers (price reduction), workers (wage increase) and the enterprise (increased gross profit).

28/ Boletín de Estadística of Argentina.

29/ Wool Intelligence, No. 5, May 1963, Annex, table 36.

/Table 78

Table 78

COST COMPOSITION OF WOOL PRODUCTS ON THE BASIS OF THE AVERAGE CHANGES IN RAW MATERIAL AND LABOUR COSTS a/ BETWEEN 1961 AND 1963

	Percentage cost composition in 1961	Monetary 1963 index (1961 = 100)		Percentage cost composition in 1963
		Pesos	Dollars	
		Worsted yarn		
Raw material	54.3	133.0	79.5	57.2
Labour	13.3	18.2	10.9	10.4
Raw material and labour cost	67.6	151.2	90.4	67.6
Other costs	32.4	72.5	43.3	32.4
Total cost	100.0	223.7	133.7	100.0
		Woollen yarn		
Raw material	62.5	153.1	91.6	68.3
Labour	16.7	28.6	17.2	10.9
Raw material and labour cost	79.2	181.7	108.8	79.2
Other costs	20.8	47.7	28.6	20.8
Total cost	100.0	229.4	137.4	100.0
		Fabric b/		
Raw material	40.4	99.0	59.2	46.5
Labour	22.2	33.8	20.8	16.1
Raw material and labour cost	62.6	132.8	79.4	62.6
Other costs	37.4	79.3	47.4	37.4
Total cost	100.0	212.1	126.8	100.0

Source: ECLA survey.

a/ The calculations made in arriving at the estimated cost in 1963 were based on the data grouped under three headings as in table 77. The raw material cost was adjusted in line with the change between 1961 and 1963, in both pesos and dollars, given in subsection (i) of the present section; this gives the monetary cost of raw material in 1963. For labour costs the figure was arrived at by applying to the base year the changes shown in table 75, in both pesos and dollars. The remaining costs were assumed to represent the same percentage as in 1961, and hence could be calculated from the new values for raw material and labour costs. The three changes taken together give the difference between the 1961 level and the monetary cost for 1963, in both pesos and dollars, while the last column of this table gives the new percentage composition of the total cost.

b/ This fabric represents an average between worsted and woollen, on the basis of output of the two in Argentina (see table 6).

12. General aspects of the wool textile industry

The operational characteristics of the production machinery of the most representative sectors have already been examined in previous sections. Nevertheless, there are other sectors in the industry whose activity contributes to the industrial processing of wool. For the purpose of an evaluation, though incomplete, of the importance of the various sections, it is appropriate to examine the composition of the labour force according to the data obtained from the enterprises surveyed. Thus the total shown in table 79 does not represent the total for Argentina, but only for the mills surveyed.

Since the survey covered 65 per cent of the industry's total production capacity (excluding the artisan sector), the industry's total labour force can be estimated as about 23,500 in 1961 and 16,600 in 1963. This reduction is undoubtedly in accordance with the facts (indeed the hours worked indicate an even greater reduction), and confirm the serious nature of the recession that took place between 1961 and 1963.

Moreover the data show that the sections analysed (scouring, sorting, combing, preparation for spinning, spinning, preparation for weaving and weaving) represent, in terms of manpower, about 75 per cent of the total. The remaining workers are mainly in sections to which it is very difficult to apply any form of measurement of unit output or productivity. In any case, the general picture is sufficient to permit evaluation of the relative importance of each section and the possible consequences of reorganization plans.

Table 80 sets forth the production data for the past seven years for all the mills surveyed. These figures are not representative of the production of the textile industry in Argentina as a whole, since for each section the data reflect different percentages of the total for the country, in that the percentage of the replies received in relation to the total number of questionnaires differs for each section. The percentage representativeness in each case is indicated in the analysis of the section concerned. However, it is considered that the indexes given in the table for the change that took place during the seven years accurately reflect the trends in the various sections.

Although all operations declined between 1961 and 1963, the decline was less in the production of tops and worsted yarns than in weaving and woollen spinning. It is quite possible that one of the reasons for the difference is the volume exported, as explained in chapter V.

(a) Inventories

Before estimating total output, it is important to note the magnitude of the stocks of raw materials, semi-processed items and finished products in the wool textile industry, since these data are important from both the economic and technical standpoints.

/Table 79

Table 79

LABOUR FORCE OF THE WOOL TEXTILE MILLS SURVEYED, BY SECTION, 1961 and 1963

Section	1961				1963			
	Foremen and supervisors	Direct labour	Indirect labour	Total	Foremen and supervisors	Direct labour	Indirect labour	Total
Sorting	15	202	69	286	18	150	39	207
Regeneration	5	25	17	47	4	23	8	35
Scouring	19	95	45	159	14	77	27	118
Combing	111	535	982	1 628	86	342	813	1 241
Blending	7	48	4	59	1	21	3	25
Preparation for spinning	77	1 101	155	1 333	58	628	100	786
Worsted spinning	125	1 515	987	2 627	96	928	568	1 592
Woollen spinning	85	687	726	1 498	78	402	451	931
Yarn finishing	66	1 485	408	1 959	49	1 163	307	1 499
Preparation for weaving	40	606	106	752	30	284	89	403
Weaving	93	1 570	278	1 941	156	948	309	1 413
Dyeing	30	270	81	381	26	254	19	299
Fabric sizing and finishing	78	1 013	193	1 284	66	886	158	1 110
Auxiliary sections	100	505	704	1 309	94	446	623	1 163
Total	851	9 657	4 755	15 263	776	6 532	3 514	10 822

Source: ECLA survey.

Table 80

OUTPUT OF THE TEXTILE MILLS SURVEYED, 1957-63

Product	1957	1958	1959	1960	1961	1962	1963 a/
				Absolute figures (tons)			
Tops	11 246	10 982	9 024	10 551	13 632	8 724	10 240
Worsted yarn	10 840	10 000	8 723	9 952	12 166	8 261	7 282
Woollen yarn	6 020	5 701	5 043	6 112	6 143	4 122	2 832
Fabric	7 468	7 321	6 232	7 796	7 723	4 950	4 136
				Indexes (1961 = 100)			
Tops	82.5	79.9	66.2	77.4	100	64.0	75.1
Worsted yarn	89.1	82.2	71.7	81.8	100	67.9	60.3
Woollen yarn	98.0	92.8	82.1	99.5	100	67.1	47.2
Fabric	96.7	94.8	80.7	88.0	100	64.2	53.6

Source: ECLA survey.

a/ Annual data estimated on the basis of the April-September figures.

/From the

From the technical standpoint the stocks represent the requirements of a particular structure of the market or of the cycle of production. The products of the initial and final phases of the wool processing cycle, that is, the wool in the form of raw material, and the yarn or fabric as the end product, are affected by the seasonal changes due to climatic factors. These changes naturally affect the work schedule for the year. Consequently at some periods stocks are abundant, and at others very low. In addition to these changes, which are particularly important from the economic standpoint, there are changes in stocks resulting from the general economic situation.

In the survey the first step was to determine the average level of stocks30/of wool products (from the raw material to the end product) in 1961. To place these figures in perspective, their ratio to the consumption or production concerned was calculated.

The average stocks of the worsted spinning mill represented 5.89 months of consumption for wool, 1.16 months of consumption for tops, and 1.40 months of production for yarn. In the woollen spinning mills raw material stocks represented 5.55 months of consumption, and yarn stocks 2.26 months of production.

In the weaving mills yarn stocks represented about 2.5 months of consumption (in the integrated enterprises these stocks appear as stocks of yarn in the spining section), and there were fabric stocks (grey or finished) representing 2.6 months of production.

The above annual averages for 1961 represent levels that varied in accordance with the general economic situation, and the survey showed that between 31 December 1960 and 31 December 1961 the charges were as follows, in percentages; raw materials, +8.2; tops, -2.0; worsted yarn, +5.7; woollen yarn, +9.4; fabric, -2.5. The rise in stocks of all items except tops and fabrics presaged a period of lower sales, subsequently confirmed.

(b) Extrapolation of the survey data to the universe

The next step was to extrapolate the survey data to the national universe in order to obtain a complete assessment of the Argentine wool textile industry and its structure.

If the survey data were regarded as representative of the general average, and if the total number of machines were known with certainty, it would be a simple matter to extrapolate the survey data in order to obtain the data for the whole country, by merely multiplying by the correct coefficient.

30/ Average of the data at the end of each of the four quarters.

/However, as

However, as explained earlier, the complete machinery inventory of the whole of Argentina's textile industry, including artisan and cotagge units, can only be approximately estimated. Moreover, observation during the survey indicated that in most of the enterprises that did not reply to the questionnaire machinery utilization, output and productivity were far below the averages obtained through the survey. At the time when the survey was made, when the country had partly recovered from the economic recession, many enterprises were still closed, either temporarily or permanently, and did not reply to the questionnaire for this reason. The economic depression, which was at its worst in the last two months of 1962 and the first two of 1963, only spurred on the enterprises that continued to operate to increase their average unit output and productivity, while at the same time it worsened the uneconomic standing of many marginal mills and made it impossible for them to compete.

However, in view of the great elasticity of a highly fragmented structure such as that of Argentina's textile industry, it necessarily follows that when demand recovers much of the production capacity now idle will become active again. Nevertheless, the enterprises concerned will be at a great competitive disadvantage, since while inactive they have missed the technological and organizational changes that have been taking place in the enterprises that have continued to operate. Consequently an assessment of the total output of the country's whole textile industry will require, after extrapolation of the survey results, the application of certain correction coefficients which, even though established on an empirical basis, can be regarded as sufficiently indicative of the actual situation. Table 81 gives the average utilization and unit output figures for the wool textile industry's machinery after adjustment by means of these correction coefficients, as indicated in footnote a/to the table.

On the basis of the data in table 81 the total output of the country's wool textile industry was calculated, as indicated in table 82. This table gives output of tops in actual weight; the yarn output, on the other hand, is weighted for yarn count 30 for worsted yarn and count 8 for woollen yarn. In fact, as explained previously, these yarn counts are very close to the actual average counts.

As for fabric, the fact that output is expressed in terms of picks obviates the need for weighting, but to make the figures more easily comprehensible they were converted into metres and kilogrammes. For this purpose the actual average number of picks and average weight obtained in the survey were used. In terms of standard fabrics such as those referred to earlier in the section on costs, the over-all estimates will naturally be different. However, in the present calculation, aimed at presenting a true picture of the industry in Argentina and its future possibilities, it appears more suitable to use the actual characteristics as the basis. Thus the fabric production expressed in terms of picks represents 31,124 000 metres in 1961 and 15,688 000 in 1963, and 15,870 tons in 1961 and 7,875 tons in 1963.

/Table 81

ESTIMATED AVERAGE MACHINERY UTILIZATION AND UNIT OUTPUT OF THE WHOLE MACHINERY INVENTORY OF ARGENTINA'S WOOL TEXTILE INDUSTRY, a/ 1961 AND 1963

Type of machine	Production machinery				Over-all utilization Index (Percentage)		Unit output (Grammes per machine/hour)	
	Number		Percentage					
	1961	1963	1961	1963	1961	1963	1961	1963
Combs								
Surveyed	737	753	65.8	65.5	61.2	44.5	4 480	4 630
Not surveyed	393	397	34.2	34.5	55.1	40.1	4 032	4 167
Total	1 150	1 150	100.0	100.0	59.1	43.0	4 327	4 470
Worsted spindles								
Surveyed	157 056	155 544	62.8	62.2	67.8	37.9	16.1	18.4
Not surveyed	92 944	94 456	37.2	37.8	61.0	30.3	14.5	14.7
Total	250 000	250 000	100.0	100.0	65.3	35.0	15.5	17.0
Woollen spindles								
Surveyed	70 060	84 068	63.7	58.2	62.9	30.9	21.1	20.3
Not surveyed	39 940	45 932	36.3	41.8	56.6	24.7	19.0	16.2
Total	110 000	110 000	100.0	100.0	60.6	28.3	20.3	18.6
Looms								
Surveyed	1 797	1 793	30.0	29.0	47.9	26.6	4 307 b/	3 833 b/
Not surveyed								
Mills	1 220	1 181	20.3	19.7	38.3	21.3	3 445	3 066
Artisan units	2 983	3 080	49.7	51.3	24.0	13.3	3 445	3 066
Total	6 000	6 000	100.0	100.0	34.1	18.7	3 704	3 288

Source: ECLA, on the basis of the survey data.

a/ In view of the different situation for the various sections and types of enterprise, it is estimated that in 1961 the mills not surveyed should be subject to a downward correction of 10 per cent for both machinery utilization and unit output. This adjustment was made for all sections except weaving, for which a correction of 20 per cent was considered necessary for the unit output of the non-surveyed enterprises; for machinery utilization 20 per cent was considered a realistic correction for the mills and 50 per cent for the artisan units.

In 1963 the same 10 per cent correction was considered appropriate for combing and weaving, but for the other sections the correction coefficient was changed from 10 to 20 per cent for both unit output and machinery utilization.

b/ Picks per loom/hour.

Table 82

OUTPUT OF ARGENTINA'S WOOL TEXTILE INDUSTRY, 1961 AND 1963

	1961	1963
Tops (tons)	19 409	14 589
Worsted yarn (tons)	16 700	9 318
Woollen yarn (tons)	8 931	3 822
Fabric (millions of picks)	50 017	24 348

Source: ECLA, on the basis of the survey data.

Table 83

POTENTIAL OUTPUT OF ARGENTINA'S WOOL TEXTILE INDUSTRY, 1963

	Potential output	Percentage difference, compared with 1961
Tops (tons)	30 288	+56.1
Worsted yarn (tons)	26 665	+59.7
Woollen yarn (tons)	18 723	+109.6
Fabric (Thousands of metres (linear))	108 139	+243.7
Fabric (Tons)	54 286	

Source: ECLA, on the basis of the survey data.

/(c) Production

(c) Production capacity

The data on the existing situation clearly reveal the under-utilization of the industry's machinery, especially in 1963. The maximum output attainable with the existing machinery on the basis of various hypotheses was calculated, in order to estimate total production capacity and how far it could meet an expanded future demand as projected in chapter IV.

The calculation of the production capacity of the existing machinery inventory was based on the following hypotheses:

(i) Up-to-date machinery should achieve a unit output equal to the Latin American standard, and a machinery utilization of 100 per cent (6,600 hours a year).

(ii) The remaining machinery should maintain the present level of unit output and a machinery utilization of 72.7 per cent (4,800 hours a year).

These hypotheses appear fairly conservative, since even with the machinery that is not up-to-date levels of unit output higher than the existing levels can be attained as well as more intensive utilization of the machinery.

To permit a more complete calculation it was necessary to ensure that the classification of the machinery by age in the non-surveyed mills was in line with that in the mills surveyed, except in weaving, where it is an accepted fact that the bulk of the artisan looms are not up-to-date. In this case it was assumed that 17 per cent of the looms (1,000 out of the total of 6,000) were up-to-date, as against 37 per cent in the weaving enterprises surveyed.

On the basis of the 1963 figures the potential output of the wool industry for the whole country was calculated, together with the percentage change in relation to 1961 a more normal year than 1963 from the production standpoint, as shown in table 83. This table is revealing. Firstly, it points to a marked under-utilization of the machinery, and a lack of balance between the various sections. Although the estimated number of looms adopted here is lower than that reflected by the published statistics, the increase in the production potential for fabrics shows that there is an excessive lack of balance between spindles and looms.

/Table 84

Table 84

INPUT-OUTPUT FLOW IN ARGENTINA'S WOOL TEXTILE INDUSTRY, 1961

	Scouring			Combing			Worsted spinning			Woollen spinning			All spinning			Weaving			Materials for other industries		
	Consumption	Waste	Output	Consumption	Waste	Output	Consumption	Waste	Output	Consumption	Waste	Output	Consumption	Waste	Output	Consumption	Waste	Output	For knitted fabrics	For knitting wools	Total
Greasy wool	64 802	32 401																			
Clean scoured			32 401	22 711	3 302					9 690	759		9 690	759							
Tops: Total						19 409	17 996	1 296					17 996	1 296							
Exports						1 375															
Changes in inventories						+38															
Worsted yarn									16 700										5 119	766	5 885
Woollen yarn												8 931							141	604	745
All yarn: Total															25 631	16 822	952		5 260	1 370	6 630
Exports															5						
Changes in inventories															+2 174						
Fabric: Total																		15 870			
Exports																		29			

/In addition

In addition it should be noted that according to the projections of consumption given in chapter IV, there will be an over-all increase in demand (in terms of weight) of 37.9 per cent by 1970 and 72.7 per cent by 1975 (the corresponding increases in terms of metres being 50 and 100 per cent). This increase relates to the production of all fibres. In any case, if these figures are taken as being fairly close to the future increase in wool products as well, table 83 shows that the existing machinery will suffice, on the basis of the hypotheses adopted, to meet the demand for tops and worsted yarns up to about 1973. As regards woollen yarn and, to an even more marked extent, fabrics, capacity is appreciably higher than that required to meet the demand projections for 1975.

(d) Input-output flow

On the basis of the data processed and other incidental items resulting from the survey, a flow of raw materials and products of the wool textile industry in 1961 was obtained, and is shown in table 84. In addition to the data on output and waste, the table shows output destined for other industries, data which were obtained during the survey. It was also possible to establish through the survey that of knitted articles for men's wear 64 per cent are worsted and 36 per cent woollen, whereas for women's wear woollen articles represent 73 per cent of the total and worsted articles only 27 per cent.

These data should be regarded, of course, solely as indications of the order of magnitude of the phenomena concerned. Thus they indicate the increase in yarn stocks, the sign that a difficult period is beginning; they also show that exports represent only a small fraction of total production, and indicate the level of raw material consumption. Here it should be noted that the term "wool" covers all woollen raw materials, but the other materials included are of little significance, except for recovered wool waste.

(e) Marketing

The survey also provided marketing data, shown in table 85. Sales distribution follows a fairly normal pattern. Clothing manufacturers are likely to become more important in the future, at the expense of the wholesalers. Retailers do not appear to be sufficiently well organized to make contact with the large producers, and maintain relations only with the smaller production units. However, efforts are now being made to encourage more modern and economic marketing systems.

The sales systems are more important from the economic than the technical standpoint. If they are rationalized and made more efficient it should be possible to lighten the financial burden of the producer. However, this is not a purely Argentine problem, and requires separate treatment.

/Table 85

Table 85

PERCENTAGE DISTRIBUTION OF SALES IN THE DOMESTIC MARKET OF THE WOOL TEXTILE INDUSTRY, 1961

(Percentages)

	Clothing industry	Wholesalers	Retailers	Other	Total
Yarn	39.0	60.0	1.0	-	100.0
Fabric	28.3	61.0	10.0	0.7	100.0

Source: ECLA Survey.

Chapter VIII

OPERATIONAL CONDITIONS IN THE COTTON INDUSTRY

1. Methodological note

The analysis of the operational conditions of the cotton industry in Argentina is based on the same methodology as previous ECLA studies on the textile industry in Latin America,1/ except for some break-downs of the productivity standards, which are added for the purpose of studying the characteristics of the labour force in some production sections. The details are given in the methodological glossary that appears as an appendix to the present report.

Although the survey is not very representative of the weaving industry universe, since the artisan or cottage industries could not be covered, National Cotton Board statistics for the country's total production were used to determine the data for the universe in the case of this branch.

The analysis in the following sections refers mainly to the mill sector, on which the present study has concentrated.

It should also be noted that the periods studied cover January-December 1961, and July-September quarter of 1963. The latter period represents an addition to the survey as originally planned, at the request of the industrialists, to give a picture of the development of the operational conditions in the cotton industry during the crisis which reached its peak in 1962, and which undoubtedly affected the structure of the textile industry. It was considered preferable to study this quarter rather than a longer period of the same year, since there were fewer abnormal features, and the period is more representative of the recently attained equilibrium in the industry.

The fact that most of the economic indexes used in this analysis (machinery utilization, degree of up-to-dateness, unit output, productivity, etc.) are determined on the basis of the data for a single quarter detracts little from their validity either in absolute terms or in comparison with 1961. On the other hand, there is a problem in extrapolating the quarterly data to the whole year for the calculation of certain over-all figures (production, machine/hours worked, man/hours, etc.), needed for purposes of comparison with 1961, since it must be assumed that certain structural changes had taken place in the interval. As there were no official statistics to indicate the trends it was considered legitimate to extrapolate the quarterly data to obtain the figures for the whole

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1/ ECLA, The textile industry in Latin America, Vol. I-VI, op.cit.

year, even though in the other quarterly periods production was lower. Consequently the quarterly data were translated into annual data by dividing the figures by three and multiplying them by eleven; that is, the level of activity for the whole year was assumed to be the same as the average for the quarter analysed, but one month of complete inactivity was postulated. This arbitrary procedure should not greatly affect the validity of the results and the possibility remains open of verifying any discrepencies due to this method when the official statistics appear.

2. General

The first impression made by Argentina's cotton industry is favourable. The spinning enterprises, especially the large or integrated ones, have modern, functional buildings and offices and a high level of technical and administrative internal organization; managerial staff are well qualified and aware of the general economic problems.

These industrialists are fully abreast of the economic and technical development of the cotton industry in the industrial countries, and are successfully applying their knowledge. Contacts with the cotton industry in Europe and the United States are more than merely casual.

The cotton industry in general has no specific problems of its own; its difficulties are those that affect the whole economy of Argentina and problems relating to technology, machinery, product standardization, marketing techniques, etc., are approached in a wholly modern and realistic spirit. The quality of the industry's output reflects an advanced technological level.

This aspect of efficient organization is more evident in the spinning sector, which has the largest enterprises. In the weaving sector conditions are more varied; large vertically-integrated enterprises similar to those in the spinning sector exist side by side with a large number of small enterprises and production units whose organizational level is very low.

Raw material represents a special problem for the cotton industry. Argentina produces an appreciable volume of cotton fibres, sufficient to supply almost the whole requirements of the domestic industry, as well as a surplus for exports. However, as the national crop is wholly confined to one area where precipitation is uniform, it is thus very dependent on the weather conditions in that area. Many experts consider that cotton growing could be extended to larger areas, thus permitting a more constant and even volume of production. A number of experiments are being carried out for this purpose, with the advice of the National Institute of Agricultural Technology (INTA), with encouraging results.

Besides the problem of standardizing the volume of production, there is the problem of quality, since Argentina's cotton is of too short a staple for certain purposes, and the cotton industry therefore has to buy Peruvian

/cotton (see

cotton (see chapter V). A number of experiments have shown that the production of longer-staple cotton presents no insurmountable technical difficulties, but it is expensive, or at least less profitable for the cotton grower. In other words, the problem is not that the cultivation of long-staple cotton is costly in itself, but that the farmers prefer to use the high-yield soil for other more profitable crops. It is this opportunity cost that is responsible for the lack of a domestic supply of fine long-staple cotton, and compels Argentina's industry to remain dependent on Peruvian producers; however, from the point of view of regional integration this is the best solution to a problem which is essentially one of comparative marginal productivity.

Argentina's cotton industry does not appear to have any other major problems apart from those deriving from the country's general economic situation.

3. Cotton spinning

The preparation of the raw materials, by means of openers, scutchers, cards (and combs for worsted yarn), and drawing and roving frames, represents a large group of individual operations in which none predominates. The problems that arise here are perhaps more organizational than technical; from the technical standpoint the problem concerns the speed and degree of automation of the machinery, and hence it is preferable to consider the data on the age of the machinery for all the sections preceding the spinning section proper as a whole, without any breakdown for the separate operations. The answers to the questionnaires on the distribution of the machinery by age cover only about 60 per cent of the machines for which data on production and productivity were obtained. Nevertheless, tables 86 and 87 can be considered fairly representative as regards both the composition by mill-size and the degree of up-to-dateness of the machinery.

Table 86 shows that in 1961 the large mills had the highest percentage of the most modern machines, but in 1963 the medium-sized mills had considerably increased their share of the machines less than 10 years old. For both size categories the percentage of machinery between 10 and 30 years old remained unchanged; nor was there any change in the distribution of the totals among the large and medium-sized enterprises. The medium-sized mills retained the highest proportion of older machinery (for the mills the number of machines in this age category is negligible). Table 86 covers 101 scutchers for 1961 and 105 for 1963, including 94 and 99 single-process scutchers respectively, in 1961 and 1963, and 7 and 6 multiple-process scutchers.

The machinery is sufficiently up-to-date, partly because it is not very old, and partly because there have not been any major technological changes in this section in recent years. As these machines do not require a large labour force, their optimum utilization relates less to their unit output and productivity than to the structural balance of the subsequent productive sections.

/Table 86

Table 86

PERCENTAGE COMPOSITION OF THE SCUTCHER INVENTORY BY SECTION SIZE AND AGE CATEGORY

Age category of scutchers (in years)	Section size (number of scutchers)			
	1	2-6	Over 6	Total
Under 10				
1961	2.0	5.9	12.9	20.8
1963	1.9	9.5	13.3	24.7
10 - 30				
1961	3.0	33.7	30.6	67.3
1963	2.9	30.5	30.5	63.9
Over 30				
1961	-	7.9	4.0	11.9
1963	-	7.6	3.8	11.4
Total				
1961	5.0	47.5	47.5	100.0
1963	4.8	47.6	47.6	100.0

Source: ECLA survey.

Table 87

PERCENTAGE COMPOSITION OF THE INVENTORY BY SECTION SIZE AND AGE CATEGORY

Age category of combs	Section size (number of combs)			
	Under 3	4 to 15	Over 15	Total
Under 10 years old				
1961	0.9	11.9	15.6	28.4
1963	-	7.9	29.6	37.5
10 - 30				
1961	0.9	8.3	62.4	71.6
1963	-	4.2	58.3	62.5
Over 30				
1961	-	-	-	-
1963	-	-	-	-
Total				
1961	1.8	20.2	78.0	100.0
1963	-	12.1	87.9	100.0

Source: ECLA survey.

/The main

The main problem with the scutchers is to achieve a sound balance between their output and the consumption of fibres by the spinning section. As this consumption varies with the yarn count, the scutchers have to vary their output. A steady level of work can be maintained in this section through proper organization, by using stocks to meet the variations in demand. For Argentina's cotton industry as a whole, the average working day for a scutcher is about the same as for the combs and spindles, which means that the machinery as a whole is fairly balanced, although this is not true of all mills.

The survey showed that 11.5 per cent of the yarn, by weight, is combed,2/ and the remaining 88.5 per cent is carded. The composition of the comb inventory by section size and age category is given in table 87.

The large mills produce most of the combed yarn, though in some medium-sized mills combed yarn represents a very high proportion of the total output. Thus, the combs are concentrated in a few large mills and are fairly up-to-date; of the 218 combs listed in 1961 and the 240 in 1963 (in the same mills, that is, there was an increase of 7.4 per cent), none were over 30 years old. The largest mills increased their inventory of the most modern machines (less than 10 years old) between 1961 and 1963. The medium-size or small-size mills seem to be disappearing, as a result of a machinery expansion which removes them to a higher size category.

In spinning proper, the machinery is older than in the previous sections, as table 88 shows. Moreover, the large mills do not have the newest machinery, although some modernization took place between 1961 and 1963. Although there were few changes in the cotton spinning inventory between 1961 and 1963, in the main the machinery is fairly efficient, since the age of most of the machinery in the 10-30-year category is actually closer to ten than thirty years. As shown in table 89, official statistics indicate that in recent years Argentina's unit output has not exceeded the maximum level reached earlier. These official data refer to all the cotton mills - 64 mills representing 1,019,492 spindles, in 1961 - while the ECLA survey covered only 37 mills with 826,002 spindles in 1961 and 845,372 in 1963, about 81 per cent of the total inventory. The survey did not include 27 mills which did not reply to the questionnaire; these mills have a total of 193,490 spindles, that is, an average of 7,166 spindles per mill, as against the average of 22,324 spindles per mill of the mills covered by the survey.

2/ These data are very close to the National Cotton Board's statistics: combed 11.3 per cent in 1960, 13.5 per cent in 1961 and 13.6 per cent in 1962.

/Table 88

Table 88

PERCENTAGE COMPOSITION OF COTTON SPINNING INVENTORY BY SECTION SIZE AND AGE CATEGORY

Age category of spinning frames (in years)	Section size (spindles)				Total
	Under 10 000	10 000 to 20 000	20 000 to 50 000	Over 50 000	
Under 10					
1961	-	5.0	9.3	-	14.3
1963	0.9	4.6	10.4	2.2	18.1
10 - 30					
1961	7.1	12.6	32.3	16.0	68.0
1963	7.5	11.8	32.0	15.7	67.1
Over 30					
1961	-	0.9	11.3	5.5	17.7
1963	-	-	11.1	3.7	14.8
Total					
1961	7.1	18.5	52.9	21.5	100.0
1963	8.4	16.4	53.6	21.6	100.0

Source: ECLA survey.

Table 89

UNIT OUTPUT OF COTTON: SPINDLES, 1953-1962

	Average yarn count (English)	Coefficient for conversion to yarn count 18 (English)	Unit output	
			Actual	Weighted a/
1953	15.7	0.883	22.8	20.1
1954	16.2	0.908	21.9	19.9
1955	16.4	0.918	21.5	19.7
1956	16.4	0.918	20.9	19.2
1957	16.7	0.954	20.7	19.7
1958	16.8	0.937	20.4	19.1
1959	16.8	0.937	20.1	18.8
1960	16.7	0.931	20.2	18.8
1961	17.0	0.950	19.6	18.6
1962	17.1	0.955	19.5	18.6

Source: National Cotton Board for the data on actual output, and ECLA for other data.

a/ Weighted on the basis of yarn count 18 (English).

/The utilization

The utilization of the spinning machinery in the two periods covered by the survey is shown in table 90.3/ The levels in both years were below normal, despite the installation of new machinery. According to the survey, the average number of days worked was 280 in 1961 and 67 in the July-September quarter of 1963. The spindle/hours operated in the two periods were 4,116,683,284 and 852,361,245, respectively, which represents an average working day of 18.6 hours (2.3 shifts) in 1961 and 17.6 hours (2.2 shifts) in 1963. Actual output was 78,971,438 kilogrammes, with an average yarn count (English) of 16.83, in 1961, and 17,035,696 kilogrammes, with an average yarn count of 16.41, in 1963. By applying the appropriate coefficients, an output weighted for yarn count 18 of 75,862,588 kilogrammes is obtained for 1961 and 16,046,809 kilogrammes for 1963, giving a weighted unit output of 18.4 grammes per spindle/hour in 1961 and 18.8 grammes per spindle/hour in 1963.4/ In relation to the Latin American standard of 22 grammes, the index rose from 83.6 in 1961 to 85.5 in 1963, as shown in table 91. This represents an increase of 2.27 per cent, which is by no means inconsiderable in view of the high level reached and the decline in the machinery utilization between 1961 and 1963.

The average weighted unit output figures given above represent the distribution patterns for 1961 to 1963 shown in figure XV. In 1961 the highest frequency range was 18 to 20 grammes per spindle/hour.5/ The last range in the figure represents the spindles with a unit output above the Latin American standard; these totalled 13.5 per cent of all spindles operating in 1961, and 17.3 per cent in 1963.

3/ According to the National Cotton Board statistics the utilization of the cotton spindles in recent years was as follows:

	Percentage of installed spindles operating	Percentage of machinery operating for 6,600 hours per year	Over-all index of machinery utilization
1957	98.6	83.9	82.7
1958	98.7	83.0	81.9
1959	99.5	73.4	73.0
1960	99.0	79.7	78.9
1961	99.8	81.4	81.2
1962	98.1	67.7	66.4

The difference between the ECLA survey data and those of the National Cotton Board, which gives higher figures for both the percentage of all spindles operating and for machinery utilization, seems to indicate that the larger mills had a lower level of activity. This can be confirmed by analysing the ECLA survey (see table 94 below).

4/ The actual unit output, with the actual yarn counts indicated above, was 19.07 grammes in 1961 and 19.92 in 1963.

5/ Each frequency range represents the percentage of active spindles whose level of unit output is within the limits of this range.

/ Figure XV

Figure XV

PERCENTAGE DISTRIBUTION OF COTTON SPINDLES
BY UNIT OUTPUT CATEGORY

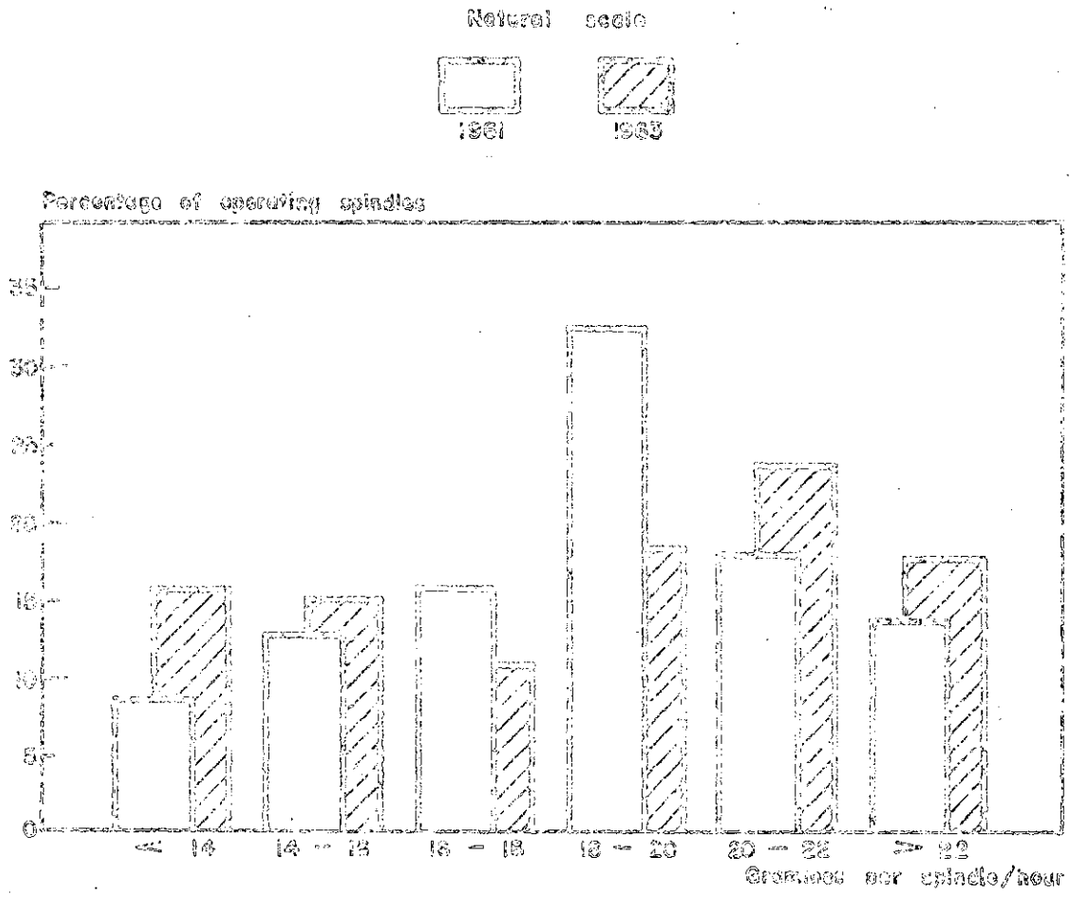


Table 90

UTILIZATION OF MACHINERY IN COTTON SPINNING

	1961	1963 a/
(a) Spindles surveyed	826 002	845 132
(b) Spindles operating	791 314	722 731
(c) (b) as percentage of (a) $(\frac{b}{a} \times 100)$	95.8	85.5
Operating hours per year		
(d) Available	6 600	6 600
(e) Worked	5 202	4 129
(f) (e) as percentage of (d) $(\frac{e}{d} \times 100)$	78.8	65.6
(g) Over-all utilization index $\frac{(c) \times (d)}{100}$	75.5	56.1

Source: ECLA survey

a/ Survey data multiplied by $\frac{11}{9}$.

Table 91

AVERAGE UNIT OUTPUT IN COTTON SPINNING

(Grammes per spindle/hour)

Unit output	1961	1963
(a) Actual	19.1	19.9
(b) Weighted	18.4	18.8
(c) Latin American standard	22.0	22.0
(d) (b) as a percentage of (c) $(\frac{b}{c} \times 100)$	83.6	85.5

Source: ECLA survey.

/For various

For various reasons, but mainly because of the lower level of production, the distribution pattern for 1963 is quite different and more evenly dispersed. There was a decline in machinery efficiency in some mills, indicated by the increase in the two lowest ranges of unit output. On the other hand, the increase in the last two ranges reflects an improvement in other mills. This analysis shows that although the average difference between the two years is not very marked, there were considerable changes at the level of the individual mills.

Table 92 indicates the total man/hours worked, and shows that there was some change in the hours worked in the two periods by the various categories of workers. If the data for the quarter are extrapolated to give annual figures, it can be seen that between 1961 and 1963 the hours worked declined by about 36 per cent in winding, 31 per cent in spinning and 29 per cent in preparation.

Table 93 gives the workload and average productivity in Argentina, and the percentage of the Latin America standard they represent. The percentages for the spinners are the lowest. The comparison is more favourable if preparation is included and even more so if winding is also included.

The separate examination of the data averages for individual mills in figure XVI shows that no mill attained the standard workload for spinning. The modal average is in the 300-400 spindle range, and so is the arithmetic mean. The workloads for preparation and spinning together are higher, and many mills exceeded the standard (14.7 per cent of the spindles operating in 1961, and 20.6 per cent in 1963). For all sections, including preparation and winding, the Latin American standard workload was exceeded in mills representing 33.5 per cent of the spindles operating in 1961 and 30.0 per cent in 1963.

Figure XVII shows a similar trend for productivity, although as a result of the gap between the actual unit output of the machinery and the standard, the productivity of all workers, including those in preparation and winding, exceeds the standard in only a few mills, which represented 15 per cent and 13.3 per cent, respectively, of the spindles operating in 1961 and 1963.

(a) Analysis by size

Table 94 gives the operational characteristics of the cotton spinning mills surveyed, by size categories. The table shows that there was a sharp decline in machinery utilization between 1961 and 1963, in all size categories except the 20,000-50,000-spindle category, in which the utilization rose from 69.9 to 88.5 per cent, the highest percentage for 1963. In 1961 the highest percentage was attained by the smallest size category. In both years the highest unit output, both the average and the maximum for any individual mill, were attained by the largest size category, which was also responsible for the highest average level of productivity in

Table 92

MAN/HOURS WORKED IN COTTON SPINNING

Type of worker	Man/hours worked	
	1961	1963 (3 months)
Preparation	9 224 106	1 794 081
Spinning	13 147 321	2 475 373
Preparation and spinning	22 371 427	4 269 454
Winding	7 728 520	1 351 835
Total	30 099 947	5 621 289

Source: ECLA survey.

Table 93

WORKLOADS AND PRODUCTIVITY IN COTTON SPINNING

	Latin American standard	Argentina				
		Absolute figures		Percentage of standard		Percentage change $\frac{1963}{1961} \times 100$
		1961	1963	1961	1963	
A. Workloads (spindles per worker)						
Spinning	750	313	345	41.7	46.0	+10.3
Preparation and spinning	300	184	200	61.3	66.7	+8.8
Preparation, spinning and winding	200	137	152	68.5	76.0	+10.9
B. Productivity (grammes per man/hour)						
Spinning	16 165	5 770	6 482	35.7	40.0	+12.0
Preparation and spinning	6 456	3 391	3 759	52.5	58.2	+10.9
Preparation, spinning and winding	4 300	2 520	2 855	58.6	66.4	+13.3

Source: ECLA, on the basis of the survey data.

/Figure XVI

Figure XVI

PERCENTAGE DISTRIBUTION OF COTTON SPINDLES BY WORKLOAD CATEGORY

Natural scale

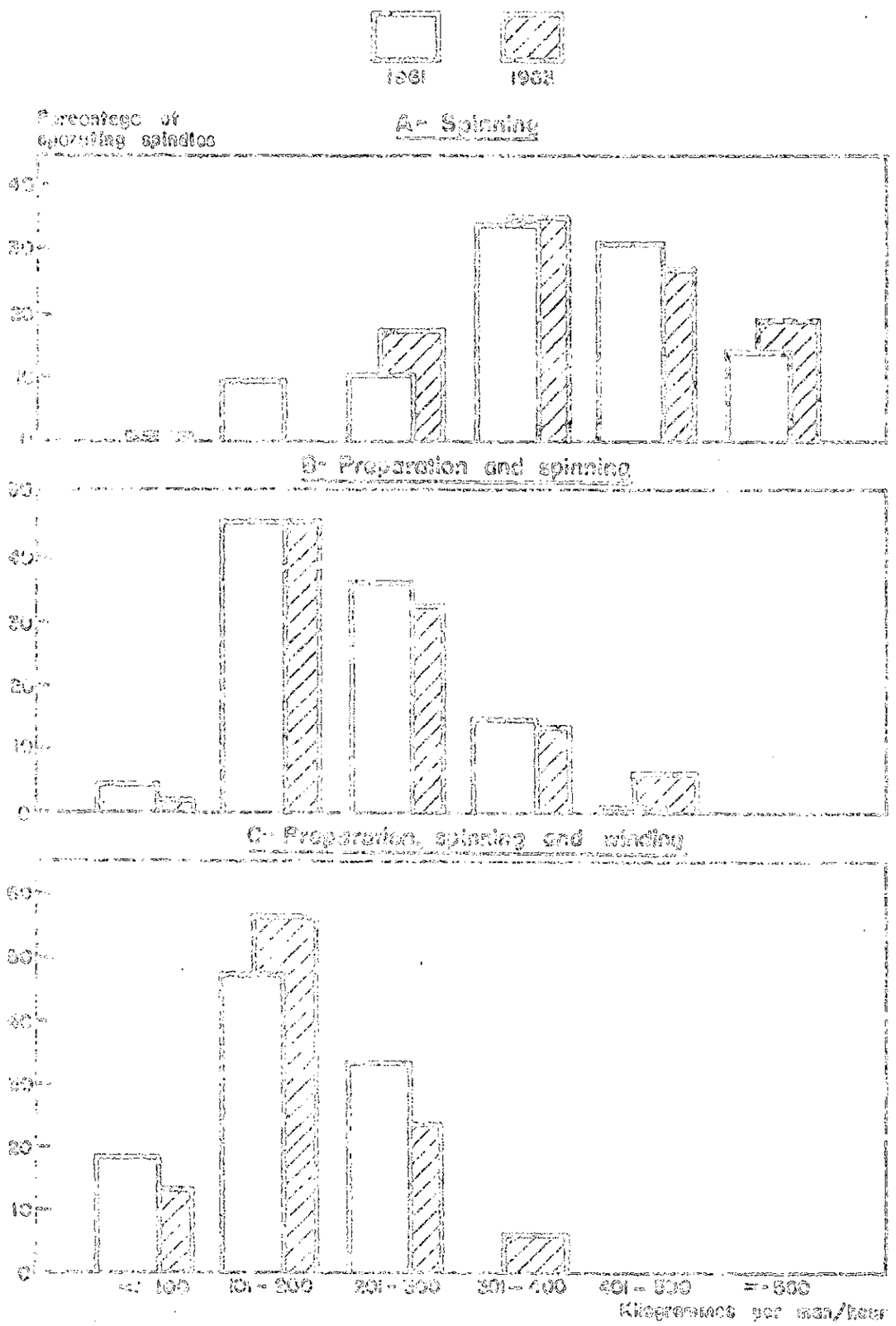


Figure XVII

PERCENTAGE DISTRIBUTION OF COTTON SPINDLES BY PRODUCTIVITY

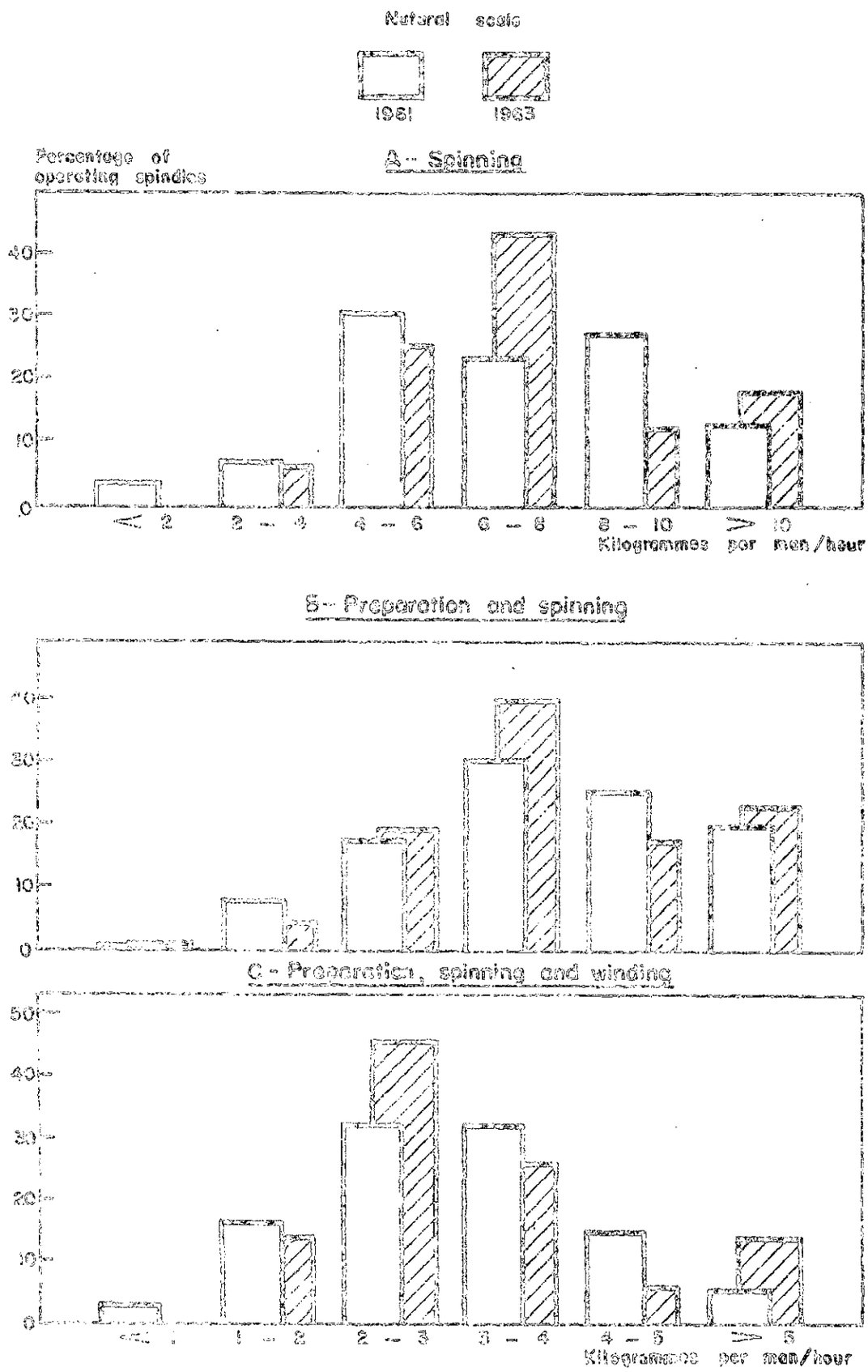


Table 94

OPERATIONAL CHARACTERISTICS OF COTTON SPINNING MILLS, BY SIZE CATEGORY

	Size category (spindles)									
	Under 10 000		10 001 to 20 000		20 001 to 50 000		Over 50 000		Total	
	1961	1963	1961	1963	1961	1963	1961	1963	1961	1963
Spindles surveyed	51 040	60 768	198 156	189 428	440 370	455 196	136 436	140 040	826 002	845 372
Operating spindles as percentage of total	97.1	93.8	92.3	86.8	97.7	82.2	94.4	90.7	95.8	85.5
Over-all utilization index	91.2	65.0	79.2	60.1	69.9	88.5	82.5	71.2	75.5	56.1
Unit output (grammes per spindle/hour) a/										
Average	18.9	21.1	18.0	17.7	18.0	17.3	20.8	22.7	18.4	18.8
Minimum	12.7	15.1	14.3	12.8	11.5	11.1	18.6	20.1	11.5	11.1
Maximum	23.5	28.7	22.0	26.3	22.6	27.7	25.7	29.3	25.7	29.3
Productivity (grammes per man/hour) a/										
Average	2 355	2 865	2 158	2 173	2 502	2 831	3 327	4 028	2 520	2 855
Minimum	1 725	1 965	1 139	1 080	759	1 108	2 218	2 618	759	1 080
Maximum	3 308	4 341	3 904	4 180	5 070	3 871	4 899	5 782	5 070	5 782

Source: ECLA survey.

a/ Weighted for yarn count 18 (English).

/Table 95

Table 95

UTILIZATION AND UNIT OUTPUT OF COTTON SPINDLES BY AGE CATEGORY AND DEGREE OF UP-TO-DATENESS

	Age of spindles (years)							
	Under 10		10 to 30		Over 30		Total	
	1961	1963	1961	1963	1961	1963	1961	1963
Spindles surveyed (percentage)								
Up-to-date	14.3	18.1	56.1	58.6	13.1 a/	11.0 a/	83.5	87.7
Suitable for re-conditioning	-	-	11.9	8.5	-	-	11.9	8.5
Obsolete	-	-	-	-	4.6	3.8	4.6	3.8
Total	14.3	18.1	68.0	67.1	17.7	14.8	100.0	100.0
Degree of utilization (percentage)								
Up-to-date	78.1	62.2	76.8	54.9	68.2	51.4	75.7	55.8
Suitable for re-conditioning	-	-	78.5	60.0	-	-	78.5	60.0
Obsolete	-	-	-	-	63.4	49.6	63.4	49.6
Total	78.1	62.2	77.1	55.4	67.0	50.9	75.5	56.1
Unit output (grammes per spindle/hour)								
Up-to-date	18.5	19.8	18.5	19.0	20.3	19.4	18.9	19.2
Suitable for re-conditioning	-	-	16.7	16.5	-	-	16.7	16.5
Obsolete	-	-	-	-	13.7	10.9	13.7	10.9
Total	18.5	19.8	18.2	18.7	18.7	17.3	18.4	18.8

Source: ECLA survey.
a/ Including reconditioned spindles.

/1961 (the

1961 (the maximum level was reached by a mill in the 20,000-50,000 category) and the highest average and maximum levels in 1963. Between 1961 and 1963 there was a rise in unit output levels for both the largest and smallest size categories, but this was not parallelled in the intermediate categories. Productivity levels rose in all categories, although not to the same extent.

(b) Analysis of spindles by age and degree of up-to-dateness

Table 95 gives an analysis of the cotton spindles surveyed by age category and degree of up-to-dateness. There appears to be no correlation between the levels of unit output and the age of the machinery; in fact, the highest unit output levels figures are in the over 30 age category, which apparently includes a large number of reconditioned spindles. Machinery utilization was naturally higher for the new spindles, because of the need for more rapid amortization.

In fact, the 1963 data show that the spindles suitable for reconditioning (in the 10-30 age category) and the obsolete spindles (in the over 30 category) represents a very small percentage of the total (12.3 per cent), a confirmation of the generally satisfactory state of Argentina's cotton spinning machinery.

To sum up, an encouraging feature of Argentina's textile industry is the advanced level of organization and productivity in cotton spinning. Unit output appears to be already the maximum attainable in view of the quality of the raw material available.

4. Cotton weaving

In cotton weaving the structure of production is less concentrated than in spinning; while there are only 64 spinning mills in the country, according to the National Cotton Board there are 912 weaving mills, 336 knitting mills and 78 stocking mills, apart from 486 other weaving units producing fabric and special items.

Many of the spinning mills did not use the yarn they produced in their own weaving section if they had one. A small part of this output is a finished product in the form of sewing thread.

Cotton weaving (which in this study excludes the production of knitted fabrics and stockings) suffers from the standard problems entailed by structural dispersal - fragmentation of production, strong competition, a multitude of marketing problems, a low level of organization, lack of sales promotion, etc. - although there are some large well-established enterprises in the country that are an example of the possibilities of rational organization in terms of modern industrial standards.

Besides these large enterprises there are some medium size mills, as well as a large number of artisan or cottage enterprises.

/Table 96

Table 96

PERCENTAGE COMPOSITION OF COTTON LOOM INVENTORY, BY SECTION SIZE AND AGE CATEGORY

Age category of looms (in years)	Section size (number of looms)			
	Under 100	100 to 500	Over 500	Total
Under 10				
1961	0.7	4.0	5.5	10.2
1963	1.3	7.5	18.1	26.9
10 to 30				
1961	2.4	22.9	50.6	75.9
1963	1.7	20.5	40.9	63.1
Over 30				
1961	1.6	5.4	6.9	13.9
1963	1.0	4.9	4.1	10.0
Total				
1961	4.7	32.3	63.0	100.0
1963	4.0	32.9	63.1	100.0

Source: ECLA survey.

/Consequently

Consequently the coverage of the ECLA survey is smaller than for spinning, although the small enterprises, which are discussed below, need separate treatment. In any case, the looms covered by the survey are regarded as a sufficiently substantial group to represent Argentina's cotton weaving industry and to permit an evaluation of its development possibilities in the context of an international comparison. On the other hand, it should be noted that a complete picture of the country's cotton industry might be misleading since the averages could be influenced by certain sectors which, though apparently active, do not make any real contribution to the production of this industrial branch.

The survey covered 25 enterprises in 1961 and 26 enterprises in 1963, representing 8,054 and 8,841 looms, respectively. Thus despite the recession there was an increase of about 10 per cent in production capacity; however, the number of looms operating was 7,884 in 1961 and only 7,366 in 1963.

Table 96 shows the composition of the cotton loom inventory in the enterprises surveyed, by age category and mill size. There was considerable modernization of the looms between 1961 and 1963; the percentage of looms less than 10 years old almost tripled, thus reducing the proportion of looms over 30 years old by 40 per cent and those 10-30 years old by 17 per cent. The difference was more marked in the larger enterprises, which represent over 60 per cent of the production capacity covered by the survey.

Most of the machinery remains in the 10-30 year category; even so, the loom inventory is more up-to-date than the machinery of the other sections of the textile industry covered by the survey. The small enterprises that were in the main excluded from the survey undoubtedly have a higher proportion of obsolete machinery and consequently a complete picture of the national loom inventory would be much less encouraging than that given by the survey.6/

Of the looms covered by the survey, only 9.3 per cent in 1961 and 6.8 per cent in 1963 were non-automatic; the remainder were automatic looms, plus a small percentage of shuttleless looms, which is steadily increasing as a result of further imports and installations. In 1963 there were about 50 shuttleless looms.

The characteristics of the looms surveyed are given in tables 97 and 98. The average theoretical loom speed was 146 and 153 picks a minute respectively, in 1961 and 1963; this change is attributable to the increase in the percentage of looms in the 191-220 pick category, which nearly doubled, and to the increase of 22.5 per cent in the proportion of looms in the 161-190 pick category.

6/ As stated in chapter III, in 1963 there were 2,110 hand looms, according to the National Cotton Board.

Table 97

PERCENTAGE DISTRIBUTION OF LOOMS BY THEORETICAL SPEED, 1961 AND 1963

Number of picks a minute	1961	1963
Under 100	2.1	1.1
101 to 130	34.6	30.0
131 to 160	34.2	29.8
161 to 190	24.0	29.4
191 to 220	4.9	9.5
Over 220	0.2	0.2
Total	100.0	100.0

Source: ECLA survey.

Table 98

PERCENTAGE DISTRIBUTION OF LOOMS BY WIDTH

Reed space (centimetres)	1961	1963
Under 50	1.9	1.6
51 to 100	15.3	16.7
101 to 150	52.7	54.3
151 to 200	22.4	22.6
201 to 250	3.4	4.3
Over 250	0.3	0.5
Total	100.0	100.0

Source: ECLA survey.

/The average

The average loom width was 127 centimetres in 1961 and 130 centimetres in 1963, which hardly constitutes a trend. Most of the looms appear to be in the 101-150 centimetre category, which is the standard width for the production of the articles in most demand.

The utilization of production capacity, in terms of both the proportion of the machinery in operation and the hours of operation, is shown in table 99. The sharp decline in machinery utilization is due partly to a reduction in the number of hours worked by the looms that remained in operation, but also to a considerable increase in idle capacity since many mills were brought to a complete, though temporary, standstill. This may mean that a number of enterprises were working very close to a minimum level of economicity, and that it was impossible to take measures to cope with a period of reduced production without exceeding the economic limits of tolerance.7/

In 1961 and in the July-September quarter of 1963, the looms worked a total of 43,489,246 and 9,100,803 hours, respectively, and total output was as shown in table 100. Actual unit output was 3.77 metres per loom/hour in 1961 and 4.03 metres in 1963 (in terms of weight, 940 grammes in 1961 and 985 grammes in 1963). Multiplying these metres per loom/hour by the average number of picks concerned gives a productivity of 5,787 picks per hour in 1961 and 5,960 per hour in 1963.

The ratios between actual and standard output, in terms of picks, are not affected by converting actual output into weighted output if the weighting coefficient used is the number of picks per metre divided by 2,000 (that is, the picks per metre for the standard fabric). The weighted output so calculated was 2.89 and 2.98 metres per loom/hour, respectively, in 1961 and 1963, representing 53.5 and 55.2 per cent of the Latin American standard. However, the difference between these levels and the standard is partly due to the characteristics of the machinery, for which the theoretical maximum attainable for the two years was 146 and 153 picks per minute, respectively, which at 90 per cent efficiency gives a weighted unit output of 3.94 and 4.13 metres. This is an example of how the operational deficiencies in weaving can be broken down according to the factors concerned as table 101 shows.

7/ The same trend is revealed in the statistics of the National Cotton Board, which showed 912 weaving mills in 1961 and 752 in 1962. (The mills in the Federal District decreased from 123 to 93, and in the Province of Buenos Aires from 772 to 642.) The number of looms installed fell from 23,923 to 23,113, and the number operating from 22,119 to 20,767, representing utilization levels of 92.5 and 89.8 respectively. The hours worked per loom were 4,525 in 1961 and 3,637 in 1963, which means a total machinery utilization (on the basis of a theoretical maximum of 6,600 hours) of 63.4 and 49.5 per cent, respectively. Thus, there was an obvious decline in machinery utilization between 1961 and 1963, and already in 1961 it had fallen off in the small enterprises (with an average of 18 looms) which were not included in the survey.

/Table 99

Table 99

MACHINERY UTILIZATION IN COTTON WEAVING

	1961	1963 a/
Percentage of looms operating		
(a) Looms surveyed	8 054	8 841
(b) Operating looms surveyed	7 884	7 366
(c) (b) as a percentage of (a) ($\frac{b}{a}$ 100)	97.9	83.3
Operating hours per year		
(d) Available	6 600	6 600
(e) Worked	5 516	4 530
(f) (e) as percentage of (d)	83.6	68.6
(g) Over-all utilization index $\frac{(c) \times (f)}{100}$	81.8	57.1

Source: ECLA survey.

a/ The annual data were obtained by multiplying the quarterly data by $\frac{11}{3}$.

Table 100

COTTON WEAVING OUTPUT, 1961 AND 1963

	1961	1963 (3 months)
Metres produced	163 850 452	36 650 656
Kilogrammes produced	40 862 974	8 965 720
Average weight (grammes per linear metre)	249	245
Average width of fabric (centimetres)	119	125
Average weight (grammes per square metre)	209	196
Average yarn count (English)	16.7	16.2
Average picks per metre	1 535	1 479
Average density	2 110	1 981

Source: ECLA survey.

/Table 101

Table 101

UNIT OUTPUT AND EFFICIENCY IN COTTON WEAVING, 1961 AND 1963

	1961	1963
Weighted unit output (metres per loom/hour)		
(a) Latin American standard	5.40	5.40
(b) Average maximum attainable with looms installed	3.94	4.13
(c) Averages observed	2.89	2.98
Indexes		
(d) Unit output: (c) as percentage of (a) $(\frac{c}{a} 100)$	53.5	55.2
(e) Maximum output attainable (b) as percentage of (a) $(\frac{b}{a} 100)$	73.0	76.5
(f) Actual machinery efficiency (c) as percentage of $(\frac{d}{e} 100)$	73.3	72.2
Operational deficiencies		
(g) Total: 100 - (d)	46.5	44.8
(h) Deficiency due to the machinery: 100 -(e)	27.0	23.5
(i) Deficiency due to operation (g) - (h)	19.5	21.3

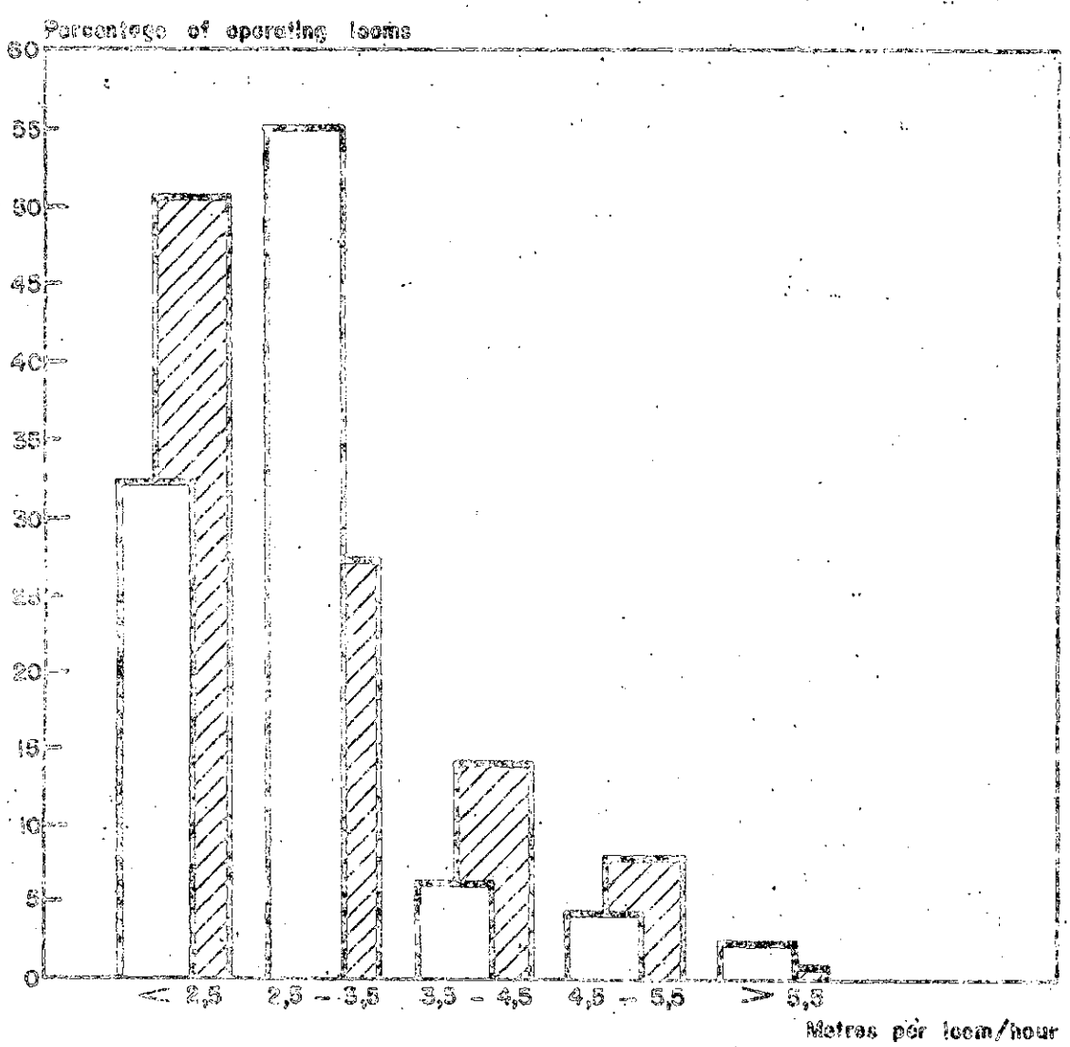
Source: ECLA survey.

/Figure XVIII

Figure XVIII

PERCENTAGE DISTRIBUTION OF COTTON LOOMS
BY UNIT OUTPUT CATEGORY

Natural scale



Thus, although the unit output index rose slightly, there was actually a slight decline in loom efficiency, since the increased efficiency made possible by the improved machinery characteristics as a result of re-equipment was not fully exploited in terms of output per loom/hour.

The distribution of unit output levels among the enterprises covered by the survey is shown in figure XVIII. There were marked changes between 1961 and 1963. In 1961, 55 per cent of the looms were in the 2.5-3.5 metres range, the second highest frequency range being the lowest, with under 2.5 metres per loom/hour; there were few mills in the remaining ranges. In 1963 the number of mills in the 2.5-3.5 metre range declined, while in all the other ranges it rose considerably, except in the last range, representing a level higher than the standard, where the number of mills already low, became negligible.

Thus, the increase in the average unit output in fact conceals a much less satisfactory evolution, in which only some enterprises succeeded in overcoming the difficulties due to the economic crisis.

As for workloads and productivity, the 43,489,245 and 9,100,803 loom/hours worked in 1961 and in the July-September quarter of 1963 reflect the man/hours indicated in table 102.

The percentages of the total man/hours worked by the various types of worker is not the same for the two periods: the weavers accounted for 37 per cent of the total in 1961 but only 30.5 per cent in 1963. The hours worked by the other workers in the weaving section rose from 40.6 to 44.7 per cent; and for the workers in weaving preparation the percentage rose from 22.4 to 24.7 per cent. This clearly reflects the increase in the workload of the weavers indicated in table 103, which also gives the Latin American standard and the indexes for Argentina.

In weaving, as in spinning, the increase in the average unit output between 1961 and 1963 was not very high, but there was a real improvement in manpower organization, and consequently in productivity. The weavers' workload increased by 32.3 per cent, and their productivity by 36.9 per cent (as a result of the slight increase in unit output). For all workers in the weaving section the increase is less, and less still for all workers including those in the preparation section, being 12.7 per cent for the workload and 16.4 for productivity, in the first case, and 9.1 per cent for the workload and 12.6 per cent for productivity in the second.

Although the total result was modest, this section of Argentina's cotton industry took energetic and well-judged measures to deal with the problem of manpower organization. Nevertheless, the workload and productivity levels are on the whole very much below the standard levels, probably because of the overriding effect of the level of unit output.

/Table 102.

Table 102

MAN/HOURS WORKED IN COTTON WEAVING

Type of worker	Man/hours worked	
	1961	1963 (3 months)
Weavers	5 868 428	926 500
Other weaving workers	6 432 538	1 357 149
Total, weaving section	12 300 946	2 283 649
Preparation workers	3 544 017	799 264
All workers, including preparation	15 844 983	3 032 913

Source: ECLA survey.

Table 103

WORKLOADS AND PRODUCTIVITY IN COTTON WEAVING

	Latin American standard	Argentina				
		Absolute figures		Percentage of Latin American standard		Percentage change
		1961	1963	1961	1963	
A. Workloads (looms per worker)						
Weavers	20	7.41	9.82	37.1	49.1	+32.3
All weaving section workers	10	3.54	3.99	35.4	39.9	+12.7
All workers in preparation and weaving	5	2.75	3.00	55.0	60.0	+9.1
B. Productivity (metres per man/hour)						
Weavers	108	21.43	29.25	19.8	27.1	+36.9
All workers in weaving section	54	10.22	11.87	18.9	22.0	+16.4
All workers in preparation and weaving	27	7.94	8.94	29.4	33.1	+12.6

Source: ECLA survey.

/Between 1961

Between 1961 and 1963 there were marked changes in the distribution of workloads and productivity levels, especially as regards both the weavers and the weaving section workers, as figures XIX and XX show. For example, the frequency distribution of the weavers' productivity had become very uneven by 1963. There were also notable changes as between the frequency ranges from 10 to 15 and from 15 to 20 metres per hour. However, for all workers including those in preparation, the distribution of productivity was much the same in the two years, despite the changes in the workload (a sharp rise in the 5-7 loom workload range in 1963).

Some enterprises had attained the standard workload level already in 1961, and more attained it in 1963. The weavers' productivity, on the other hand, did not attain the standard level, and in only one small enterprise did the productivity of all the workers, including those in preparation, exceeded the standard in 1963.

It should be noted that the rise in productivity is related to the increase in the weavers' workload, while that workload, in turn, stands in a fairly constant inverse relation to the ratio between the indirect workers in the weaving section and the total number of workers in the section. This is only to be expected, since if a weaver looks after additional looms, he will need more auxiliary workers to perform certain ancillary operations (lubrication, transport, etc.), which he could do himself when he had fewer machines to mind. Thus thereis not only a relative increase in the number of indirect workers, through the reduction in the number of weavers in relation to the looms, but also an absolute increase in their number.

(a) Analysis by size

Table 104 gives the operational characteristics of the looms covered by the survey, by mill size. Like the preceding tables, it shows that size is not a major factor in determining the level of utilization of the factors of production; since there is no correlation between mill-size and utilization trends. However, the small mills have the lowest levels of loom utilization and it was only in this group that the average unit output declined between 1961 and 1963.

The minimum and maximum unit output levels were in the medium-sized category in 1961, but in 1963 they were in the smallest size category, which shows the considerable range covered in this category.

In both years, the highest productivity averages fall in the intermediate size category. In 1961, the minimum level was attained by a small mill and the maximum by a medium-size mill; in 1963 both were in the smallest size category.

/Figure XIX

Figure XIX

PERCENTAGE DISTRIBUTION OF COTTON LOOMS
BY WORKLOAD CATEGORY

Natural scale

1961 1963

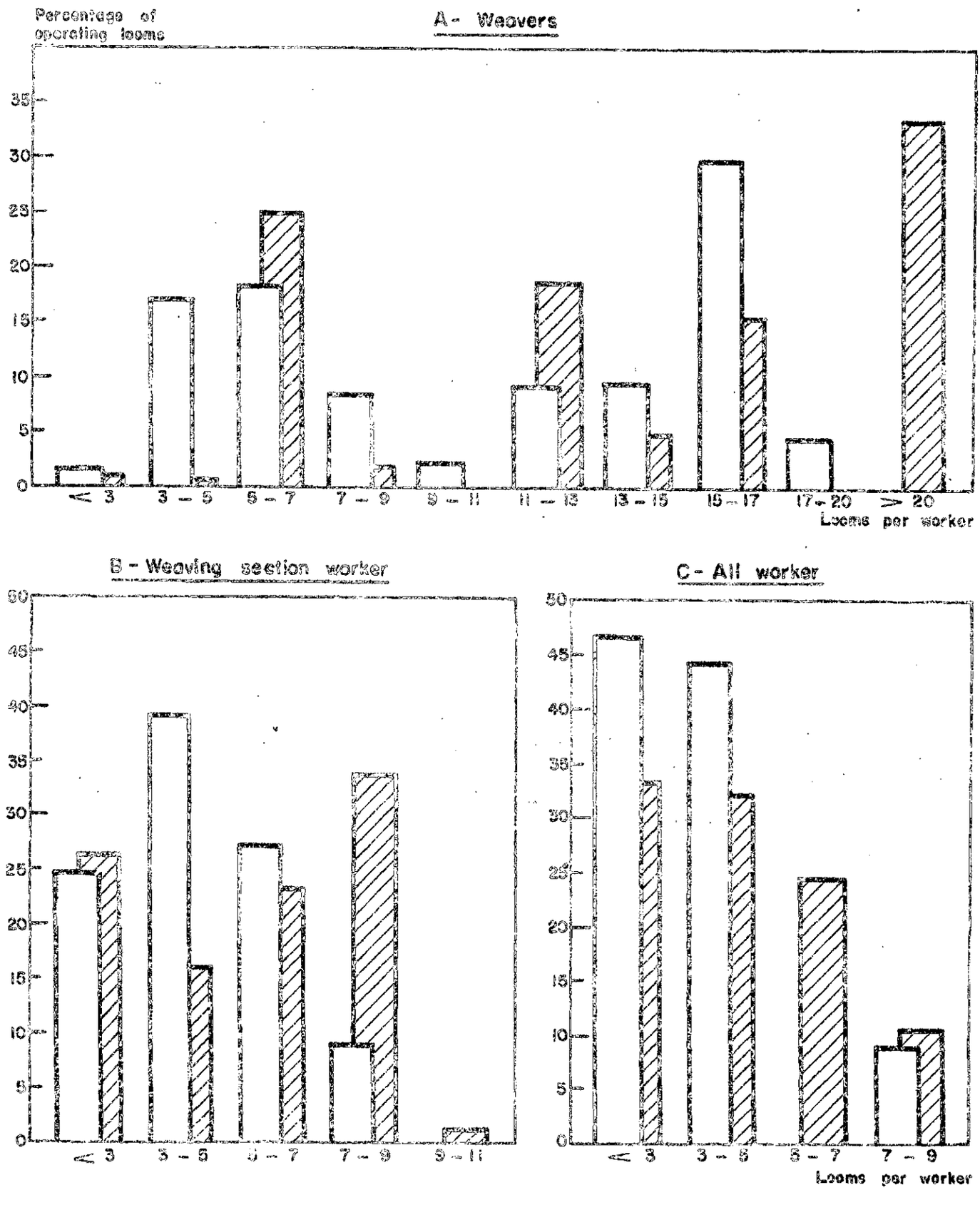


Figure XX

PERCENTAGE DISTRIBUTION OF COTTON LOOMS
BY PRODUCTIVITY CATEGORY

Natural scale

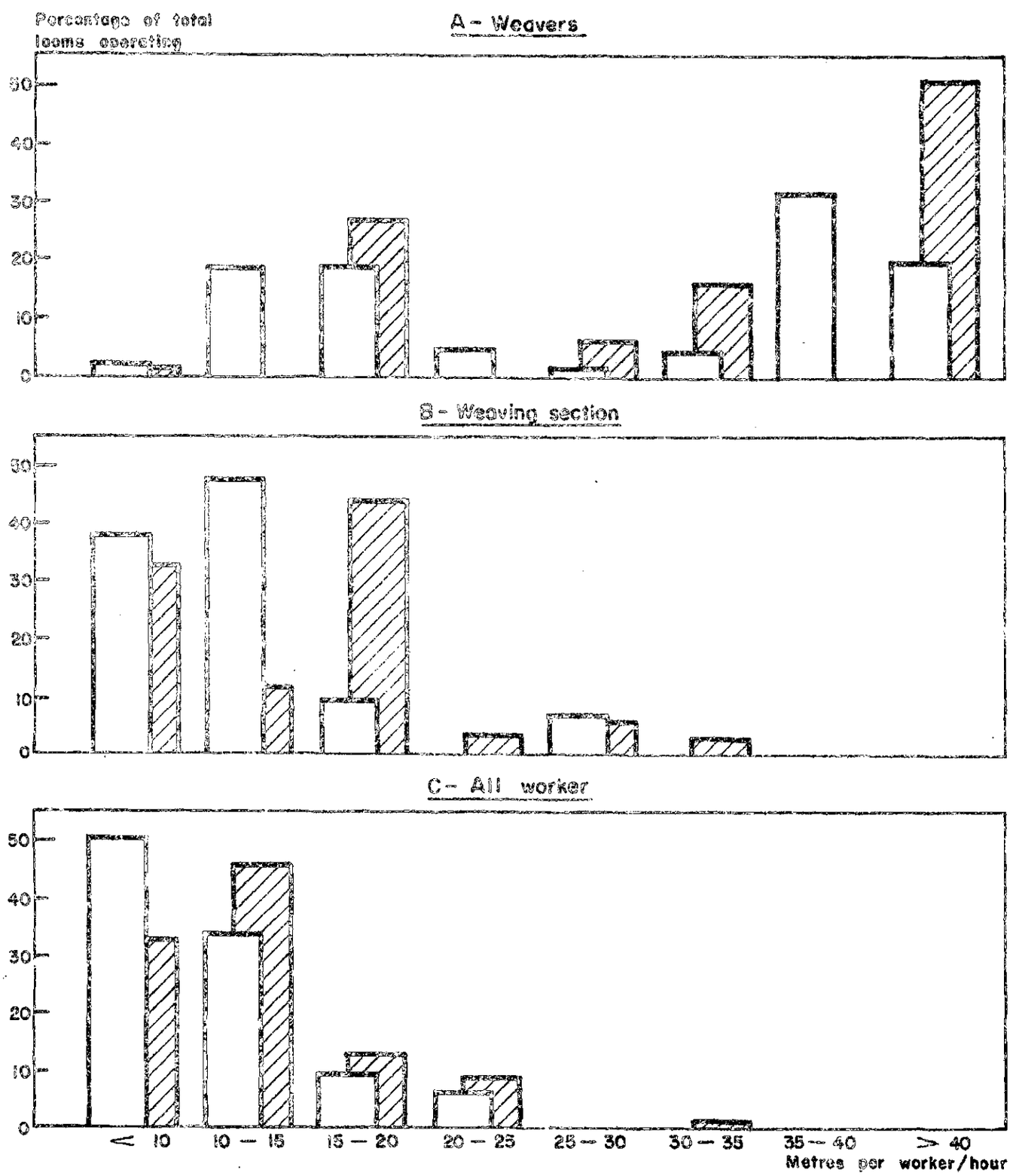


Table 104

OPERATIONAL CHARACTERISTICS OF COTTON WEAVING MILLS, BY SIZE CATEGORY

	Size category (number of looms)							
	Under 100		100 to 500		Over 500		Total	
	1961	1963	1961	1963	1961	1963	1961	1963
Total looms surveyed	381	354	2 602	2 913	5 071	5 574	8 054	8 841
Operating looms as percentage of total	92.9	68.9	99.2	97.3	97.1	76.9	97.6	83.3
Over-all utilization index (percentage)	54.7	43.9	80.7	61.4	84.4	55.8	81.8	57.1
Unit output (weighted) (metres per loom/hour)								
Average	3.29	2.75	3.34	3.46	2.65	2.71	2.89	2.98
Minimum	1.44	0.81	1.39	2.02	2.16	2.03	1.39	0.81
Maximum	4.10	11.28	5.70	4.80	3.34	3.91	5.70	11.28
Productivity (weighted) (metres per man/hour)								
Average	4.91	6.50	9.22	10.78	7.57	8.08	7.94	8.94
Minimum	2.02	0.81	3.60	4.64	5.54	5.18	2.02	0.81
Maximum	8.86	30.09	22.62	23.38	17.15	15.79	22.62	30.09

Source: ECLA survey.

/In the

In the light of the foregoing it can be concluded that the large mills do not stand out from the rest (except in 1961, when the maximum loom utilization was in this category) because of their operational characteristics. On the whole the intermediate-sized category achieves higher levels.

(b) Analysis by age and degree of up-to-dateness of the looms

The utilization of the factors of production is regarded as being much more closely related to the type of machinery used than to mill size. Table 105 gives the composition of the cotton looms by age and degree of up-to-dateness. Between 1961 and 1963 there was a significant change in the percentage of up-to-date looms, particularly as regards the under-10 age category. Despite their low level of utilization, these looms achieved the highest average unit output in 1963, with 3.88 metres per loom/hour (weighted). In 1963, 89 per cent of the looms surveyed were up-to-date (new or modernized); only 5.8 per cent were suitable for re-conditioning, and 5.1 per cent obsolete. Thus the loom inventory, like the cotton spinning machinery, is essentially up-to-date. Although unit output is not very high, probably because of the low level of utilization, but an expansion of demand would undoubtedly result in an improvement in the technical efficiency of the machinery.

5. Costs

The essentially technical elements examined so far represent one aspect - admittedly fundamental - of the economy of the mills and of the cotton textile industry as a whole. However, the translation of these data into economic terms, that is, their expression as monetary values, if it could be done, would make it possible to present a much more useful picture, from the standpoint not only of a structural analysis, but also of the potential industry's capacity to compete on both the domestic and world markets. As already stated in relation to the wool section, this is an ambitious and difficult aim, mainly for two reasons, one subjective and one objective: the first is the industrialists' reluctance to supply economic data for statistical surveys, and the second is the chronic monetary instability, which leads to constant changes in the ratios of the cost components in monetary terms.

However, a number of observations converging on the same focal point can give an idea of the cost structure of the textile industry, and indicate, even though roughly, the most significant or vulnerable aspects.

The sections on costs show that the raw material is the main cost component. As previously stated, there are limitations on the domestic supply of cotton. The National Cotton Board data shown in table 106, together with the general statistics, confirm that the imported fibre represents only a small fraction of the total consumed. However, in recent years there has undoubtedly been an increase, small but appreciable, in the proportion of imported fibre consumed, which is a sign of high standards as regards to quality.

/Table 105

Table 105

MACHINERY UTILIZATION AND UNIT OUTPUT OF COTTON LOOMS, BY AGE CATEGORY AND DEGREE OF UP-TO-DATENESS, 1961 AND 1963

	Age category (years)						Total	
	Under 10		10 to 30		Over 30			
	1961	1963	1961	1963	1961	1963	1961	1963
Looms surveyed (percentage)								
Up-to-date	10.2	26.8	69.0	57.3	5.4	4.9	84.6	89.0
Suitable for re-conditioning	-	0.1	6.9	5.8	-	-	6.9	5.9
Obsolete	-	-	-	-	8.5	5.1	8.5	5.1
Total	10.2	26.9	75.9	63.1	13.9	10.0	100.0	100.0
Loom utilization (percentage)								
Up-to-date	78.3	52.9	83.7	60.2	96.7	53.5	83.9	57.6
Suitable for re-conditioning	-	61.3	65.9	55.2	-	-	65.9	55.3
Obsolete	-	-	-	-	74.2	51.6	74.2	51.6
Total	78.3	52.9	82.1	59.7	82.9	52.5	81.8	57.1
Unit output of looms a/ (metres per loom/hour)								
Up-to-date	3.34	3.88	2.86	2.70	2.75	2.75	2.91	3.03
Suitable for re-conditioning	-	2.85	3.01	2.71	-	-	3.01	2.72
Obsolete	-	-	-	-	2.63	2.37	2.63	2.37
Total	3.34	3.87	2.87	2.70	2.68	2.56	2.89	2.98

Source: ECLA survey.

a/ Weighted.

/Table 106

Table 106

CONSUMPTION OF COTTON FIBRE IN SPINNING MILLS, 1958-62

Year	Absolute figures (tons)			Percentages of total		
	Domestic	Imported	Total	Domestic	Imported	Total
1958	115 291	1 285	116 576	98.9	1.1	100
1959	100 710	2 606	103 316	97.5	2.5	100
1960	108 223	4 967	113 190	95.6	4.4	100
1961	104 853	6 441	111 294	94.2	5.8	100
1962	82 614	6 421	89 035	92.8	7.2	100

Source: National Cotton Board, La industrialización, op.cit., November, 1963.

/Table 107

Table 107

CONSUMPTION OF COTTON YARN IN WEAVING MILLS

(Tons)

Year	Absolute figures							Percentages of total		
	Pure		Mixed		Total					
	Domestic	Imported	Domestic	Imported	Domestic	Imported	Total	Domestic	Imported	Total
1958	73 039	729	167	4	73 206	733	73 939	99.0	1.0	100
1959	63 888	635	128	-	64 016	635	64 651	99.0	1.0	100
1960	74 916	582	171	-	75 087	582	75 669	99.2	0.8	100
1961	73 258	650	161	-	73 419	650	74 069	99.1	0.9	100
1962	58 797	692	14	-	58 811	692	59 503	98.8	1.2	100

Source: National Cotton Board, La producción de tejidos, op.cit., December, 1963.

Table 108

PERCENTAGE COMPOSITION OF RAW MATERIAL CONSUMPTION IN THE COTTON SECTOR

Raw material	Percentages	
	Total	Partial
Cotton by staple (inches)		
Less than 1"	57.2	62.8
1" to 1 3/32"	25.2	27.7
1 3/32" to 1 5/32"	3.1	3.4
Over 1 5/32"	5.6	6.1
All cotton	91.1	100.0
Artificial fibres	5.4	
Synthetic fibres	0.1	
Waste	3.4	
Total	100.0	

Source: ECLA survey.

/The Cotton

The Cotton Board data indicate that in recent years the consumption of yarn by cotton looms reaches the levels indicated in table 107. In this case consumption is based almost wholly on the domestic product, because of the high customs duties on cotton yarn. The result of this raw material situation is that Argentine cotton yarn, and hence the fabrics have a low yarn count and a high unit weight.

The survey indicates that in 1961 the percentage composition of the consumption of raw materials in the spinning mills was as shown in table 108. Almost 90 per cent of the cotton used by Argentine spinning mills is the fibre graded according to the international classification as short-staple. Although this has had technical ill-effects in that it has reduced the unit output in spinning (and in weaving), it has also had a favourable effect on cost composition by considerably reducing the proportion of the total cost representing the raw material.

As regards the cotton prices, the Boletín Estadístico 8/ indicates, as a characteristic product, Type "c" with a staple length of 22.22 millimetres (or 7/8"), and gives the following prices in Argentine pesos per ton, as 43,567.50 in 1961, 51,975.00 in 1962 and 67,000.00 in 1963 (6 months). Thus between 1961 and 1963 the average price increased by about 54 per cent.

The cost in dollars, on the other hand, followed a contrary trend, because of the change in the exchange rate between the two years, from 0.525 dollars in 1961 to 0.483 in 1963, a reduction of 8 per cent.

As regards the second major cost component, labour, the unit costs per man/hour obtained through the survey were as shown in table 109. The comments on the institutional factors made in section 10 of chapter VII in relation to the wool textile industry also apply here.

The average unit costs for the various sections, on the basis of the different types of workers employed in them,9/ are given in table 110. This shows that between 1961 and 1963 there was an average increase of 49.94 per cent in the cost per man/hour in spinning and 47.92 per cent in the cost per man/hour for weaving (including preparation).

In 1961 costs were proportionately higher in weaving than in spinning because there are more foremen and supervisors in weaving, although the increase in the individual costs was less in this category than in the rest of the labour force. Hence, the average unit costs of the two sections were almost equal, those for spinning being slightly higher.

8/ July-September 1963, page 137.

9/ See table 114 below.

/Table 109

Table 109

HOURLY WAGES AND LABOUR COSTS, PER MAN/HOUR, 1961 AND 1963

(Pesos)

	Hourly wage		Cost per man/hour a/	
	1961	1963 (June-September)	1961	1963 (June-September)
Foremen and supervisors	67.84	77.70	105.15	116.55
Direct workers	36.09	55.46	54.14	83.19
Indirect workers	31.66	47.39	47.49	71.09

Source: ECLA survey.

a/ Including social security contributions.

Table 110

AVERAGE MANPOWER COSTS IN COTTON MILLS

(Pesos per man/hour)

	1961	1963
Spinning (from raw material stage)	53.84	80.73
Weaving (from cone or bobbin winding)	54.28	80.29

Source: ECLA survey.

/There is

There is no need to repeat the comments already made with respect to electric power, amortization and interests, in the wool industry, which also apply to the cotton industry although the incidence of these components in the total cost of the product is slightly different.

By combining the unit cost components and labour productivity of the various processing sections the variations in productivity and unit cost can be measured in economic terms. Further, it is possible to convert the national currency figures into dollars in order to determine the position of the Argentine product on the world market as regards labour costs. Table 111 gives a breakdown of the data for spinning and weaving (including the main auxiliary sections). These data indicate the cumulative effect of the three factors that between 1961 and 1963 led to a change in the position of Argentine cotton products on the domestic and world markets in terms of labour costs. These factors are the productivity level, the monetary wage level, and the exchange rate between the peso and the dollar. It should be noted that although productivity increased in both spinning and weaving, the increase was not sufficient to offset the rise in wages, and the end result was an increase in the cost of the labour input. Nevertheless, the most powerful factor was the decline in the dollar value of the peso, which permitted a much more lower price in 1963 than in 1961. However, the warning as to the illusory advantages of currency devaluation applies here too, as in the wool sector.

In addition to calculation of the cost components on the basis of direct investigation, the survey provided some financial data for the group of enterprises that permit evaluation of the relative importance of the component costs, not only from the production standpoint but also from the administrative and accounting angle. First the value of output and the value added per worker were estimated. In 1961 the value of output per worker was about 390,000 pesos in the spinning mills and 370,000 in the integrated mills. As in the wool industry, the total value per worker drops as the processing cycle is extended, although much less sharply.10/ The value added per worker is estimated as about 135,000 pesos in the spinning mills and about 120,000 pesos in the integrated enterprises.

Table 112 gives the percentage of the total cost represented by the main cost component in 1961. This table makes it clear how the different cost components are combined in terms of quality and quantity. For example, the component representing the raw material (which, as previously stated, is of poor quality) might, if the textile manufacturers were free to buy their material anywhere they wished, rise slightly, on the assumption that

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10/ For some weaving mills the estimated value of output per worker was higher, over 700,000 pesos; this seems unduly high, but the reason is that the enterprises that undertake weaving only are all very small, and consequently have only a small labour force, especially on the administrative side.

/Table 111

Table 111

LABOUR COSTS FOR THE PRODUCTION OF COTTON PRODUCTS, 1961 AND 1963

	1961	1963	Percentage changed
A. Spinning Production of 1 kg of yarn count 18 (English)			
Productivity (gr. per man/hour)	2 520	2 855	+13.3
Labour input (hours per kg of output)	0.397	0.350	-11.8
Labour cost per man/hour (pesos)	53.84	80.73	+49.96
Labour cost for 1 kg of yarn count 18			
(a) pesos	21.37	28.26	+32.2
(b) dollars	0.257	0.204	-20.6
B. Weaving (Production of 1 metre of fabric) a/			
Productivity (metres per man/hour)	7.94	8.94	+12.6
Labour input (hours per 1 metre of fabric)			
(a) Weaving	0.125	0.112	-10.4
(b) Spinning b/	0.054	0.048	-11.1
Total	0.179	0.160	-10.6
Labour cost per man/hour	54.28	80.29	+47.9
Labour cost for 1 metre of fabric			
(a) pesos	9.72	12.85	+32.2
(b) dollars	0.117	0.093	-20.5

Source: ECLA, on the basis of the survey data.
a/ Fabric of 2 000 picks per metre, 130 grammes per metre, 150 cm wide.
b/ On the basis of 137 grammes of yarn to allow for 5 per cent wastage.

Table 112

PERCENTAGE COST COMPOSITION, 1961

Cost components	Spinning mills	Spinning and weaving mills	Weaving mills a/
Raw materials	47.0	36.2	62.1
Labour: Workers	25.1	33.5	19.9
Employees	4.2	5.5	2.0
Electric power	4.0	3.4	1.0
Related materials	2.0	1.9	0.9
Fuels and lubricants	0.5	0.7	0.3
Maintenance	3.0	3.1	2.0
Amortization	6.3	6.1	5.0
Other costs	7.9	7.6	5.8
Payments for services of third parties	-	2.0	1.0
Total	100.0	100.0	100.0

Source: ECLA survey.
a/ As stated in note 10/, this sector cannot be considered as very significant, since it is representative only of small enterprises.

/the cost

the cost of cotton would increase 15-20 per cent.11/ The result would be an increase of about 8 per cent in the total cost. However, this finer cotton would permit an increase in unit output, and hence in productivity. If productivity could be raised to the level of the Latin American standard, there would be an increase in output per man/hour of 60 per cent compared with 1961 and 45 per cent compared with 1963. This would reduce the labour cost by 20 per cent (on the assumption that two thirds of the total saving is distributed between labour and the enterprise). That is, the labour costs in spinning would be reduced by 5.02 per cent for workers and 0.84 per cent for employees, a total saving of 5.86 per cent in the total cost, only 2 percentage points less than the increase in raw material cost. This means that in theory, as far as the two main cost components are concerned, if it is assumed that the other components remain unchanged, the spinning mills could substantially improve the quality of their product with a negligible increase in the total cost.

This and other similar calculations that could be worked out are, of course, not only theoretical but to some extent abstract as well; that is to say they ignore many factors of the existing situation that are of a general and institutional nature. Nevertheless, these concepts make it possible to evaluate the effect on the total cost of the changes that took place between 1961 and 1963.

Table 113 shows the changes between the two periods in the raw material and manpower components only, on the assumption that the other components as a whole remain unchanged.

The increase in the monetary costs of cotton products (46.2 per cent and 43.3 per cent for yarn and fabric respectively), was lower than the general rise in wholesale prices in the country (57.8 per cent). Although the calculation of the change in the price of cotton textiles relates only to two price components (which, nevertheless, account for about two-thirds of the total cost), the general statement can perhaps be ventured that the cotton industry did not substantially contribute to the inflation, but that on the contrary, because of a series of extraneous factors (an only moderate increase in the price of raw materials and a rise in productivity), the industry acted as a brake on the cost of living. This fact explains, incidentally, why the crisis in the cotton sector was less severe than in the wool sector.

As for the world market, the dollar prices of cotton products rose several points, and certain types of products were able to consolidate their position in this market.

11/ Approximately the percentage difference between the price of a 7/8" staple and a 1"1/16 staple cotton.

/Table 113

Table 113

COST COMPOSITION OF COTTON PRODUCTS, ON THE BASIS OF AVERAGE CHANGE IN RAW MATERIAL AND LABOUR COSTS, a/ 1961 AND 1963

	Percentage cost composition in 1961	Monetary 1963 index (1961 = 100)		Percentage cost composition in 1963
		Pesos	Dollars	
		Yarn		
Raw material	47.0	72.2	43.2	49.4
Labour	25.1	33.2	19.9	22.7
Raw material and labour cost	72.1	105.4	63.1	72.1
Other costs	27.9	40.8	24.4	27.9
Total costs	100.0	146.2	87.5	100.0
		Fabric		
Raw material	36.2	55.6	33.3	38.8
Labour	33.5	44.3	26.6	30.9
Raw material and labour cost	69.7	99.9	59.9	69.7
Other costs	30.3	43.4	26.0	30.3
Total costs	100.0	143.3	85.9	100.0

Source: ECLA survey.

a/ The detailed calculations are given in the statistical annex.

6. General aspects of the cotton industry

In addition to the data on the main sections which were studied in detail, the survey provided certain general data on the mills themselves, for example, on the labour force in all the sections of the production cycle. Table 114 gives the manpower (workers) data for 1961 and 1963 for the cotton mills surveyed.

The relative importance of the individual sections, and the limitations of the ECLA survey, can be gauged by comparing this table with the official statistics. In fact, as already mentioned in the spinning and weaving analyses, the survey did not cover the same proportions in the two sections.12/ However, it should be noted that, as table 115 shows, the difference is not the same when the criterion is the number of machines as when it is output.

On the basis of the above mentioned data it is possible to calculate the average operational characteristics of the enterprises that were not studied in the survey. Although the results are less detailed than those of the survey, and do not permit an exact comparison, they provide a clear picture of the textile industry.

In the spinning mills not covered by the survey the operating spindles represented a slightly higher percentage of the total than in the mills surveyed, but the hours worked by the operating spindles were less. The average over-all utilization for the whole industry was 71.8 per cent, reflecting a level of 58.1 per cent for the spindles not surveyed and 75.5 per cent for those surveyed. The average real unit output (not weighted for yarn count) of the whole industry was also a little higher (19.6 grammes per spindle/hour as against 19.1 grammes for the mills surveyed).

12/ The same applies in terms of the labour force. According to the National Cotton Board, the total employed in the cotton industry in 1961 amounted to 24,160 in spinning and 27,666 in weaving. The ECLA survey shows (if the workers in dyeing and general services are divided proportionately between the two sections) that there are 21,861 workers employed in the spinning branch as a whole (19,055 from preparation to twisting, plus 2,806 in dyeing and general services) and 12,382 in weaving (10,803 from the preparation to finishing stages, plus 1,579 in dyeing and general services). That is, the proportion of workers covered by the ECLA survey, compared to the total indicated by the statistics of the Cotton Board, is 90.5 in spinning and 44.8 per cent in weaving.

/Table 114

Table 114

LABOUR FORCE, BY PRODUCTION SECTIONS, OF THE COTTON MILLS SURVEYED, 1961 AND 1963

	1961				1963			
	Foremen and supervisors	Direct labour	Indirect labour	Total	Foremen and supervisors	Direct labour	Indirect labour	Total
Carding preparation	223	2 467	1 700	4 390	204	1 979	1 163	3 346
Combing preparation	47	521	258	826	47	417	203	667
Spinning	339	4 700	3 145	8 184	296	3 729	2 269	6 294
Winding	133	2 899	1 378	4 410	126	2 147	755	3 028
Twisting	45	909	291	1 245	36	586	201	823
Preparation for weaving	92	984	628	1 704	70	729	392	1 191
Knotting	13	148	68	229	5	95	29	129
Weaving	420	4 052	3 041	7 513	318	3 036	2 162	5 516
Dyeing	79	524	303	906	70	472	240	782
Finishing	77	977	303	1 357	48	595	211	854
General services	219	1 041	2 219	3 479	185	684	1 563	2 432
Total	1 687	19 222	13 934	34 243	1 405	14 469	9 188	25 062

Source: ECLA survey.

Table 115

COMPARISON BETWEEN THE DATA OF THE ECLA SURVEY AND THOSE OF THE NATIONAL COTTON BOARD

	ECLA survey A	National cotton board B	A as percentage of B
	Spinning		
Number of workers	21 861	24 160	90.5
Number of spindles installed	826 002	1 019 492	81.0
Number of spindles operating	791 314	1 017 024	77.8
Number of spindle/hours (millions)	4 116	4 864	84.6
Output (tons)	78 972	95 271	82.9
	Weaving		
Number of workers	12 382	27 666	44.8
Number of looms installed	8 054	23 923	33.7
Number of looms operating	7 884	22 119	35.6
Number of loom/hours (thousands)	43 489	89 583	48.5
Output (tons)	40 862	72 874	56.1

Source: ECLA survey and the National Cotton Board.

/The differences

The differences are much more marked in weaving. The survey covered only 33.7 per cent of the total looms installed according to the Cotton Board data, but this percentage accounts for 48.5 per cent of the total loom/hours and 56.1 per cent of the total output in terms of weight. Thus the utilization level is much lower for the machinery not surveyed than for that surveyed: 44.1 per cent, as against 81.8 per cent. The over-all machinery utilization index for the total loom inventory was 56.8 per cent.

For actual unit output (data for weighting were not available)also there was a marked difference between the weaving mills surveyed (0.940 kg per loom/hour) and the remainder (0.694 kg per loom/hour). The average unit output for the total loom inventory was 0.813 kg per loom/hour, 13.5 per cent below that of the looms surveyed.

All the above reservations on the degree to which the survey represents the industry as a whole should be borne in mind in reading the analysis that follows. Table 114 shows that between 1961 and 1963 the total employed in the cotton mills surveyed dropped by 27 per cent, from 34,243 to 25,062. This trend was probably more marked in the cotton industry as a whole. In fact, the statistics of the Cotton Board itself, which at the time of the survey were not available for any date after 1962, clearly indicate the same trend, since they show a reduction of 18 per cent in the spinning labour force and 25.8 per cent in the weaving labour force between 1961 and 1962, a reduction of 22.1 per cent in the spinning and weaving labour force as a whole.

(a) Output projection

An estimate of production capacity and of its present level of utilization makes it possible to forecast some probable production trends for the Argentine cotton industry. For spinning, this is a fairly simple task, for various reasons, including the representativeness of the survey sample and the high degree of concentration of the enterprises. The number of spindles installed has remained at about a million since 1957-58, with little variation. The existing economic situation does not encourage the installation of new machinery. The level of utilization of the spindles surveyed was 75.5 and 56.1 per cent respectively, in 1961 and 1963, with a weighted unit output of 18.4 grammes per spindle/hour in 1961 and 18.8 grammes in 1963.13/

13/ Comparison with the National Cotton Board data shows that in 1961 the spindles not surveyed had a slightly higher unit output than the rest, but machinery utilization was lower. However, as the differences are slight, and the survey as a whole provides greater details for the calculation of the projections, the survey data were used for that purpose and the Cotton Board data were used only for projecting total domestic output.

/The estimate

The estimate of the production capacity is usually based on the following hypotheses:

(i) the modern spindles should work at 100 per cent of their capacity (6,600 hours/year) reaching the standard unit output of 22 grammes per spindle/hour;

(ii) the obsolete spindles and those suitable for reconditioning should maintain their levels of utilization capacity and present unit output.

Table 116 shows the possibilities of increasing output in the light of the spindle characteristics indicated in table 95. If this percentage increase had been achieved in 1961, the output for that year, which according to the National Cotton Board statistics was 95,271 tons, would have been about 139,000 tons. A similar calculation for 1963 would give slightly different results, because of the slight increase in the number of up-to-date spindles and the contrary effect of the lower levels of utilization and unit output of the obsolete spindles and those suitable for reconditioning. However, since the present analysis is hypothetical, there is no point in giving a separate table for 1963, the aim here being merely to present a general idea of the volume of output attainable and to compare it with the projected consumption given in chapter IV. That chapter indicated a possible total increase in the demand for textile fibres of 37.9 and 72.7 per cent, respectively, for 1970 and 1975. Hence, the present machinery would suffice to meet domestic demand up to the end of the present decade, and not until the early seventies would there be any deficit in production capacity.

There now follows a similar assessment of production capacity in cotton weaving, where the problem is more complex. In addition to the survey data, the whole artisan and cottage industry sector has to be taken into account (see again table 115).

First, for the weaving mills surveyed, the same hypotheses can be adopted as for the spinning mills, to wit:

(i) 100 per cent machinery utilization (6,600 hours of operation per year) and the standard unit output (5.40 metres per loom/hour) for the up-to-date looms, and

(ii) the existing levels of utilization and unit output for the obsolete looms and those suitable for reconditioning.

The details of these hypotheses are given in table 117. Only the enterprises surveyed would be able to more than double their present output.14/

14/ Here also the results for 1963 are not quite the same as for 1961, for the reasons already indicated in relation to spinning.

Table 116

OUTPUT ATTAINABLE IN COTTON SPINNING (ON THE BASIS OF MILLS SURVEYED IN 1961)

	Up-to-date spindles	Spindles suitable for re-conditioning or obsolete	Total
Spindles surveyed	689 712	136 290	826 002
Over-all utilization index			
- Existing level	75.7	74.5	75.5
- Attainable level	100.0	74.5	95.8
Weighted unit output (grammes per spindle/hour)			
- Existing level	18.9	16.0	18.4
- Attainable level	22.0	16.0	21.2
Weighted total output (tons)			
- Existing level	65 141	10 722	75 863
- Attainable level	100 146	10 722	110 918
Increase attainable			
- Absolute figures (tons)	35 005	-	35 005
- Percentage	53.7	-	46.1

Source: ECLA, on the basis of the survey.

Table 117

OUTPUT ATTAINABLE IN COTTON WEAVING (ON THE BASIS OF MILLS SURVEYED IN 1961)

	Up-to-date looms	Looms suitable for reconditioning or obsolete	Total
Looms installed	6 808	1 246	8 054
Over-all utilization index			
- Existing level	83.9	70.5	81.8
- Attainable level	100.0	70.5	95.4
Weighted unit output (metres per loom/hour)			
- Existing level	2.91	2.79	2.89
- Attainable level	5.40	2.79	5.10
Weighted total output (thousands of metres)			
- Existing level	109 591	16 171	125 762
- Attainable level	242 637	16 171	258 808
Increase attainable			
- Absolute figures (thousands of metres)	133 046	-	133 046
- Percentage	121.5	-	105.8

Source: ECLA, on the basis of the survey.

/It can

It can be assumed that the output of the looms not included in the survey would remain the same as in 1961, which in terms of tons, represents about 78 per cent of the output of the mills surveyed (see again table 115). On the basis of the same ratio applied to weighted output, the weaving mills not surveyed would have produced about 100 million metres in 1961, which gives a total output of some 225 million metres.15/ This figure represents weighted output, that is, it relates to fabrics of 2,000 picks per linear metre. Thus the increased output obtainable by the up-to-date looms surveyed represents an increase of 59.1 per cent over this estimated total output.

The foregoing leads to conclusions similar to those for the spinning mills, in relation to the possible future expansion of demand, since the existing machinery, with improvements confined solely to the levels of utilization and unit output of the up-to-date looms, would be able to meet demand up to the first years of the next decade.

In fact, even though no guarantee of accuracy can be attached to these projections, there is sufficient evidence to show that, on the whole, Argentina does not need additional machinery in order to meet the possible expansion of domestic demand.

Even if conditions change in future years, they may well do, and consumption is either more or less than that envisaged, it appears that there is still a long way to go before there is any real need to install new production units.

(b) Marketing

The survey data on marketing relate to 1961 and indicate that of all the clothing fabrics, 13.6 per cent went to the clothing industry, 77.1 per cent to wholesalers, 3 per cent to retailers, 2.4 per cent to government departments and 3.9 per cent to other economic activities. However, as stated in a previous chapter, it is very probable that since 1961, there has been a substantial change in the structure of distribution, a higher percentage going to the clothing industry and a correspondingly smaller percentage to the wholesalers.

Of all sales of household fabrics, to the consumer, 77 per cent by value represented sales through wholesalers, 14.5 per cent sales through retailers and 8.5 per cent sales to government departments.

15/ According to the National Cotton Board, total output was 400,236,000 square metres. The two figures are not so different as might at first be supposed. For comparative purposes the data of the Board should first be converted into linear metres and then weighted on the basis of the standard fabric. Both operations result in a sharp reduction.

The difficulties and costs of distribution may perhaps be less for most cotton products than for other textile goods, which have the disadvantage that they usually go out of fashion rather rapidly and thus lose their value. However, the cotton industry does have some problems in this respect, and there is no doubt that the relations between producer and consumer are being transformed through the introduction of more up-to-date methods permitting more direct and economical contact.

Marketing is an aspect that deserves attention, since price helps to determine the level of consumption, and the economies made possible by the new technological processes, through higher unit output or productivity, or both, should be passed on to the final consumer and not be frittered away during the marketing process as a result of excessive and indiscriminate mark-ups unrelated to the value of the product, and even less related to the value added by the industrial process.

Chapter IX

THE MAN-MADE FIBRE INDUSTRY

1. General

Any examination of man-made fibres must necessarily take into account the rapid growth in the use of these fibres for various purposes in the textile industry, which makes it difficult to give a clearly defined picture. For example, there is an increasing tendency to use man-made fibres to mix with and supplement the natural fibres and in this form the new fibres are used in the traditional wool or cotton enterprises.

In addition to this joint utilization, there is a separate branch of the textile industry that uses man-made fibres (especially synthetics) to produce consumer goods which are gradually taking the place of articles formerly made only of natural silk (neckties, foulard, fabrics for evening wear, trimmings, etc.) and other goods that in terms of quality can replace articles traditionally made from natural fibres (curtains, household linen, men's shirts, etc.). The looms technically termed "silk" looms, that is, high speed looms, specialize in the production of these articles, although not exclusively. The many manufacturers' associations in this category in Argentina include the Silk and Synthetic Fibre Manufacturers' Association (Cámara Industrial de la Seda y de las Fibras Sintéticas),1/ which has over 130 active members and 9 associate members. Most of these members are weaving enterprises of the type described above, but there are also many already known as cotton and wool enterprises.

Unfortunately there are no statistics on this activity either from official sources or from industrial associations, (they would not be easy to compile in any event, because of the classification problems) and the information available is based on rough estimates. The main difficulty in making such estimates is the fragmentation of this industrial branch, where the artisan and cottage industries bulk even larger than in the wool industry. Moreover most enterprises of any size are co-operatives, which means that they are made up of a group of very small units.

In view of the obvious difficulty of surveying this branch, it was decided to cover all products that the answers to the questionnaire showed to consist solely or mainly of man-made fibres.

1/ This Association and other related organizations recently joined up forming the Synthetic Fibre Textile Federation (Federación Textil de Fibras Sintéticas).

/However, within

However, within this group it is useful to make a separate study of the silk looms, which permits more uniform conclusions than a survey of any and every use of man-made fibres.

Before embarking on the analysis, a reference to some general problems, relating to raw material and smuggling, is in order.

All the textile branches have a problem with raw materials, as already indicated, and man-made fibres are no exception. Argentina has been producing its own textile rayon since 1935, and now has four production plants. Viscose rayon represent about 87 per cent of domestic production, and rayon acetate about 13 per cent. Furthermore, staple fibre - which is mainly viscose - now represents nearly a third of all rayon produced, and continuous filament yarns represent the remaining two-thirds.

At first chemical cellulose from the United States and the Scandinavian countries was used as the raw material, but as a result of the Second World War blockade, Argentine plants were obliged to turn to domestical cellulose, made from cotton linters. What was then imposed by necessity is now imposed by legislation, for other reasons.

By 1956 Argentina's industry had become practically self-sufficient, and most of the imports of previous years had been replaced by the domestic product. The country's existing annual production capacity is estimated as about 18,000 tons; this is made up of approximately 16,500 tons a year of viscose rayon (11,500 of continuous filament and 5,000 of staple fibre) and 1,500 tons of rayon acetate. This is considered more than sufficient to supply the domestic market, and consequently there are no plans to expand installed capacity.

Table 118 shows that consumption of artificial fibres fell off considerably after 1961.

Although there is no supply problem for rayon in Argentina, there is a price problem. For a number of reasons that are outside the scope of the present study, rayon prices in Argentina are higher than on the world market or than in the other ALALC countries, as table 119 shows.

Similarly, the problems relating to the production of high tenacity rayon are also beyond the scope of a textile study. As regards synthetic fibres, there are six nylon yarn mills in Argentina, the first of which was installed in 1948; there are also plans for the manufacture of polyester yarn and fibre, and two enterprises recently began production. Domestic consumption of all these fibres has expanded considerably in recent years, as table 118 shows. Locally produced nylon supplies 50-60 per cent of domestic consumption, while most of the other synthetic fibres are still imported.

The price comparison in table 120 shows that in synthetics also Argentina is at a disadvantage compared to the other ALALC countries.

/Table 118

Table 118

CONSUMPTION OF TEXTILE RAYON AND SYNTHETIC FIBRES, 1950-63
(Tons)

Year	Rayon (all types)	Synthetic fibres		
		Nylon filament a/	Other synthetics	Total
1950	7 444	117	-	117
1951	10 351	193	-	193
1952	7 649	192	-	192
1953	7 356	112	-	112
1954	10 241	211	-	211
1955	11 074	288	-	288
1956	12 034	279	-	279
1957	13 515	414 b/	-	414
1958	14 206	1 003 b/	-	1 003
1959	12 257	1 353	1 200	2 553
1960	10 846	1 680	482	2 162
1961	13 013	3 524	1 371	4 895
1962	8 088	3 820	830	4 650
1963	7 700	3 900	800	4 700

Source: DUCILO, S.A.I.C., Argentina.
a/ The figures for 1950-56 do not include imports, which were negligible until the region south of parallel 42 was made a duty free area in 1958.
b/ Including other synthetic fibres (polyesters, acrylics).

Table 119

COMPARATIVE TABLE OF RAYON PRICES, 1963

(In dollars per kilogramme at the exchange rate prevailing at the time of the survey)

Denier	Argentina (cones)	Chile (cones)	Peru (spinning cakes)	Colombia (spinning cakes)	Mexico (spinning cakes)	Venezuela	Brazil (spinning cakes)
60	3.85	-	3.93	-	-	2.16 a/	2.61
75	3.63	2.73	-	2.49	2.42	-	3.37
100	3.37	2.50	3.18	2.39	2.21	2.15	1.98
125	3.04	-	3.09	2.28	1.96	-	1.84 b/
150	2.81	2.04	2.91	2.20	1.78	1.96	1.65
200	2.70	1.83	2.80 c/	2.05	-	-	1.55
300	2.67	1.76	2.70	1.95	1.79	1.87	1.42
450	2.56	-	-	1.77	-	1.61	1.42
600	4.19	-	2.70	1.70	1.66	1.84	1.42
900	2.52	-	-	-	1.59	-	-
1 200	2.48	-	-	1.77	-	-	-
1 400	2.44	-	-	-	-	-	-
1 800	2.00	-	-	-	-	-	-

Source: DUCILO S.A.I.C., Argentina.
a/ 55 denier price.
b/ 120 denier price.
c/ 225 denier price.

/Table 120

Table 120

COMPARATIVE TABLE OF NYLON PRICES

(In dollars per kilogramme at the exchange rate prevailing at the time of the survey)

Denier	Argentina (bobbins)	Chile (cones)	Peru (bobbins)	Colombia (bobbins)	Mexico (bobbins)	Venezuela	Brazil (bobbins)
12	15.55	-	-	-	-	-	-
15	12.88	8.89	-	12.41	10.80	7.00	11.94
20	10.37	-	-	12.41	-	-	10.75
30	9.19	6.11	-	7.40	5.44	4.20	7.28
40	7.78	5.56	-	6.72	4.96	3.74	7.95
60	7.37	5.56	-	6.60	-	-	-
70	6.96	5.56	7.09 a/	6.51	4.32	3.52	6.39
100	6.81	5.56	-	6.51	4.16	-	5.69
120	-	-	-	-	-	-	-
210	6.59	-	-	-	-	-	5.71

Source: DUCILO S.A.I.C., Argentina.
a/ Stretch process.

/In brief,

In brief, the high prices of the man-made fibres, both artificial and synthetic, restrict domestic consumption. Despite the substantial growth of demand, the contribution of these fibres to total industrial consumption is relatively small and certainly less than in other countries.

The gap between domestic and foreign prices is undoubtedly a main reason for the great appeal of the articles made of these fibres that are smuggled into Argentina. The Association of Silk and Synthetic Fibre Manufacturers, in its annual 1960-61 report, commenting on the inclusion of articles of silk, rayon and cotton, and of synthetic fibres alone or mixed with other materials, etc., in list No. 7, covering items liable to a customs surcharge of 200 per cent, states: "This provision has the effect of giving our industries adequate protection more in line with the present situation with regard to costs."

Even if prices were raised, they could hardly exceed the price of the imported product by 200 per cent. In all its annual reports the above-mentioned Association devotes one section to smuggling, deplores the harm it causes, suggests counter measures (import value control, stamping of imported articles, etc.), and offers to provide technical advice on this question. However, at a certain point the customs administration decided to auction the goods held in bond. Leaving on one side the question of other aspects, it is interesting to note the dismay caused by this decision. The Association, in its 1961-62 annual report, states:

> "...we said that it was necessary to proceed with caution in placing these goods (whether fabrics or clothing of silk or synthetic fibres), on the market, since if the market already had difficulty in absorbing the domestic production of the country, it was obvious that it would have a disastrous effect if the stocks of these goods held in bond were suddenly dumped on the market.
>
> For this reason, we appealed to the common sense of the authorities, and asked for the actions be spaced out and the goods auctioned in quantities modest enough for the market to be able to absorb them without the existing difficulties being added to."

Obviously, if the quantities already processed by the customs authorities are sufficient in volume to damage the industry, the total effect will be serious. This is confirmation that when the difference between domestic and foreign prices exceeds a certain limit, the tariff protection alone cannot really protect an industry, whose main defence must be to renew its operational conditions.

2. Spinning of artificial fibres

If spinning is understood to be the traditional textile process of producing thread by making the fibres parallel and imposing varying amounts of twist, rather than the production of yarn by any method, consideration of man-made fibre spinning is confined to the processing of staple fibre. As the other forms of yarn are produced by a different process they are outside the scope of any study of the textile industry proper.

The staple fibre produced in Argentina consists almost entirely of viscose rayon; in recent years production reached the following levels:

1958	3 531 tons
1959	3 761 tons
1960	3 180 tons
1961	4 287 tons
1962	2 417 tons

Imports are negligible.

Consumption of these fibres is low; certain information obtained through the survey indicates that about 90 per cent of output is used in cotton spinning mills and about 10 per cent in the wool spinning mills (especially in the woollen spinning mills). In any case, as there are so few spinning mills specializing exclusively or mainly in staple fibre, a statistical survey would not be justified.

To sum up, the consumption of staple fibres, even in 1961, which was a peak year, represented only 4-5 per cent of the cotton industry's total consumption of fibre and 1.5-2 per cent of the consumption of wool textile industry. If these small quantities were used soleley for the cotton spindles that work for 6,600 hours a year with a unit output of about 25 grammes per spindle/hour, which sould be possible for a count of 18 (English), they would keep about 25,000 spindles operating, a negligible quantity compared with the one million cotton spindles and the 350,000 wool spindles installed in the country.

3. Man-made fibre weaving mills

In addition to the staple fibre yarns produced in the spinning mills, the man-made fibre weaving mills use the continuous filament produced by the chemical industry. Table 121 gives the production and imports of continuous filaments during recent years.

These quantities, together with an estimated 3,000 tons of spun yarn produced in the spinning mills, are consumed by the man-made fibre weaving mills, knitting mills, stocking factories, and also by the wool and cotton weaving mills, which use them in the fabrics as effect threads.

/Table 121

Table 121

SUPPLY OF CONTINUOUS FILAMENT, 1958-62

(In tons)

	Years				
	1958	1959	1960	1961	1962
Artificial fibres					
Production					
Viscose rayon	8 725	7 008	6 432	7 008	4 734
Rayon acetate	1 893	1 393	1 147	1 672	899
Total	10 618	8 401	7 579	8 680	5 633
Imports					
Rayon	76	154	18	12	10
Total supply of artificial filamnt	10 694	8 555	7 595	8 692	5 643
Synthetic fibres					
Nylon production	389	567	1 146	1 817	2 236
Nylon imports	376	1 233	712	1 611 a/	1 222 b/
Total supply of synthetic filament	765	1 800	1 858	3 428	3 458
Total supply of all man-made filament	11 459	10 355	9 453	12 120	9 101

Source: DUCILO S.A.I.C., Argentina.

a/ Arrived in port, but not necessarily cleared through customs.

b/ Estimate.

/Unfortunately,

Unfortunately there is a lack of statistical information for the estimates that follow, which have had to be founded on certain hypotheses based on the information available.

The high-speed or silk looms installed in the country are estimated as about 5,000. If this estimate is accepted, these looms, operating at 60-per-cent efficiency (4,000 operating hours per year), to produce a fabric weighing 150 grammes per metre, with an average unit output of 3,000 metres, that is, 450 grammes per loom/hour, would consume about 9,000 tons of yarn per year.2/

This level of consumption by the weaving mills, on the basis of the figures for 1961, which was the year of peak output, would leave from 4,000 to 5,000 tons of yarn for the other uses previously mentioned, which appears to be a fairly reasonable proportion.

If these working hypotheses are taken as accurate, or fairly accurate, it follows that merely by attaining 90-per-cent efficiency, without any change in the machinery, output could increase 15.7 per cent, and a level of 10,413 tons could be achieved. Further, by increasing machinery utilization to 6,600 operating hours a year, output could increase by 65 per cent, reaching a level of 17,181 tons. The two improvements together would mean that output could increase 90 per cent over its present level without any change in the machinery.

However, this possibility depends on various market factors, in particular the level of demand in relation to the price of products, and factors relating to the organization of the companies. In this branch, individual or co-operative companies of considerable size exist side by side with a large number of small and ill-organized mills. In these small mills, although cost estimation is largely a matter of guesswork, it can be asserted that with few exceptions both profits and the level of utilization of the factors of production are very low. This fragmented structure of production can hardly be regarded as economically desirable; and all these small units should probably be grouped together to form larger weaving enterprises, with the incorporation of finishing operations and sales services.

4. Conclusions

Despite the scanty basic data available, the above paragraphs attempt to present a rough picture of the man-made fibre textile sector. In any case, it would be difficult to draw any definitive

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2/ These operational data are taken from the few answers to the questionnaire that were received, no claim can be made about their representativeness. On this basis, it was estimated that the looms had a theoretical average speed of 150 picks per minute and an efficiency of 78 per cent (117 picks per minute).

/conclusions about

conclusions about this sector, not only because of the lack of data, but in particular because of the uncertainty that exists as to the future of this industry.

There is no doubt that the future consumption of man-made fibres will increase substantially in the future, but it is difficult to foresee whether the traditional cotton and wool industries will undertake the processing of these new materials or whether, for weaving, an autonomous branch will develop, of a specialized and clearly-defined nature.

In all probability, it is reasonable to suppose that large companies will become increasingly interested in the processing of the new fibres. This supposition is based on the marked consumer interest that exists, largely as the result of extensive publicity by the fibre producers.

The result would be that, as in the cotton and wool industries, large enterprises would exist side by side with the small companies that already exist. The small mills would be of a marginal nature, doing well when the general economic situation is good, and in danger of going under when demand contracts.

Since the new enterprises are adopting the most modern production techniques, it can be foreseen that within a few years there will be an uneasy co-existence of companies whose competitive ability is very different, with all the problems entailed by an industrial structure of this type, already illustrated by the situation in the traditional textile branches.

Annex I

TERMINOLOGY AND METHODOLOGICAL CONCEPTS

A. DEFINITION OF MAIN CONCEPTS

Actual unit output - Volume of output produced by one unit of machinery in one hour of work. That is, the volume of a group of machines of a given type divided by the total number of hours for which the machines have operated. For example, the unit output in spinning is expressed in grammes per spindle/hour, and in weaving in metres per loom/hour.

Weighted unit output - Volume of output expressed in terms of a standard type of product in order to obtain data that are homogeneous and comparable. Actual unit output is converted into weighted output by applying the weighting coefficient concerned. The standard types of products and the unit output concerned are given in tables B-1 and C-1.

Real productivity - Real labour productivity is the average volume of output of one man during one hour of work. It is calculated on the basis of the output for a given period of time (week, month or year) and the total man/hours required for this output. Unless otherwise stated, productivity is calculated on the basis of the hours worked by all workers directly and indirectly employed at all stages of production. For example, in measuring productivity in cotton spinning the total man/hours worked would be calculated from opening to cone winding, and in weaving it would cover all stages from the reception of the cones to the production of the grey goods.

Weighted productivity - Productivity expressed in terms of a standard type of product (the same product as that adopted for unit output), in order to make the data comparable. It is obtained by dividing the weighted output by the total number of man/hours worked to produce it.

Workload - The number of machines (or production units) assigned to each worker. The workload can be determined indirectly by dividing the machine/hours by the man/hours.

Weighting coefficient - Coefficient that permits comparison of the output of products that vary as to characteristics which determine the volume of the product produced by the machine in a given unit of time, such as yarn count or the number of picks per metre in a fabric. The weighting coefficient is the ratio between the unit output (in normal operating conditions) for a given product and the unit output for the standard product. The standard products for the various sectors, and the corresponding unit outputs, are given in tables B-1 and C-1.

Machines installed - Machines in operation or ready to operate without further installation, repair or other adjustment.

Machines operating - Machines that were operating during the period under review.

Operating hours available in the year - The standard working year assumed is 6,600 hours, representing a timetable of 22 hours a day for 300 days a year.

/Over-all index

Over-all index of machinery utilization - The product of the individual utilization indexes, namely, the index of utilization of installed capacity (number of machines operating divided by the number of machines installed) and the index of the use of hours available (number of machine/hours worked divided by number of machine/hours available).

Up-to-dateness of the machinery - In classifying textile machinery according to up-to-dateness (whether they are up-to-date or modernized, suitable for reconditioning, or obsolete), account was taken not only of the age of the machinery but also of its main characteristics. A distinction was first made between ring and mule spindles, and between automatic and non-automatic looms, and then further distinctions were made with respect to spindle length, draft, and other technical characteristics.

Labour input - Number of man/hours needed to produce a physical unit of the product. This is the reciprocal of productivity.

Direct workers - Workers employed specifically on tending the machinery directly concerned with the process (carders, spinners, weavers, etc.).

Indirect workers - Workers employed in the production sections to assist the direct workers (card grinders, handlers, etc.).

Latin American standard - A figure representing the average use of the factors of production considered satisfactory and attainable in Latin America's textile industry. The type of machinery and workloads on which the standards are based are not the maximum attainable on the basis of the most modern technology, but allow for the limitations that exist in Latin America as regards availability of capital and suitable labour. The standards adopted are given in the tables that follow.

B. THE WOOL INDUSTRY

1. Standard products and unit outputs

Table B-1

Machine	Product		Output per machine/hour
Leviathan	Scoured wool	kilogrammes	400
Card	Sliver for combing	kilogrammes	50
Comb	Tops	kilogrammes	8
Drawing machinery set (5-passage)	Roving	kilogrammes	91
High draft (7 750 r.p.m.) ring spindle at 88.5 per cent efficiency	Worsted yarn, metric count 30, 460 turns per metre	grammes	29.5
Woollen ring spindle, 6 125 r.p.m. 70.5 per cent efficiency	Woollen yarn metric count 8, 400 turns per metre	grammes	80.0
Automatic loom, plain 130 picks per minute, at 90 per cent efficiency (i.e. 117 picks per minute)	Worsted fabric, 2 000 picks per metre, 200 grammes per linear metre 150 cm wide	metres	(7 000 picks) 3.50
Automatic loom, plain, 130 picks per minute, at 90 per cent efficiency (i.e. 117 picks per minute)	Woollen fabric, 1 200 picks per metre, 450 grammes per linear metre 150 cm wide	metres	(7 000 picks) 5.83

2. Workloads and productivity

(a) Worsted spinning

The workload was determined on the basis of the following manpower table for a 12,000-spindle mill (with 1 leviathan washer, 2 cleaning milleys and 8 cards, 48 combs, 2 sets of 5 process speed frames and 300 winding spindles), and the ratio for 1,000 spindles was then calculated.

Table B-2

MANPOWER TABLE FOR A WORSTED SPINNING MILL

Sections	12 000 spindles			1 000 spindles		
	Direct labour	Indirect labour	Total	Direct labour	Indirect labour	Total
Sorting	8	4	12	0.67	0.33	1.00
Scouring	1	1	2	0.08	0.08	0.16
Carding	4	2	6	0.33	0.17	0.50
Combing	8	6	14	0.67	0.50	1.17
Preparation for spinning	20	6	26	1.67	0.50	2.17
Spinning	30	16	46	2.50	1.33	3.83
Winding	24	2	26	2.00	0.17	2.17
Total	95	37	132	7.92	3.08	11.00

These data make it possible to determine the ratio between production spindles and workers, both in spinning and in the other sections, as the following table shows:

Table B-3

PRODUCTION SPINDLES (RING SPINDLES) PER WORKER

	Direct labour	Indirect labour	Total
Sorting	1 493	3 030	1 000
Scouring	12 500	12 500	6 250
Carding	3 030	5 882	2 000
Combing	1 493	2 000	854
Spinning preparation	599	2 000	461
Spinning	400	752	261
Winding	500	5 882	461
Total	126	345	91

On the basis of the unit output of the production spindles (29.5 grammes per hour) labour productivity can be determined in terms of the volume of final product of the processing cycle, that is, in grammes of worsted yarn per man/hour in each section.

Table B-4

PRODUCTIVITY

(Grammes of yarn per man/hour)

	Direct labour	Indirect labour	Total
Sorting	44 043	89 385	29 500
Scouring	368 750	368 750	184 375
Carding	89 385	173 519	59 000
Combing	44 044	59 000	25 193
Spinning preparation	17 671	59 000	13 600
Spinning	11 800	22 184	7 700
Winding	14 750	173 519	13 600
Total	3 717	9 588	2 685

The data in the above tables also permit determination of the standard for workload levels, and hence productivity, in the various sections of the processing cycle, not only in terms of spindles, but also in relation to the machines in the sections concerned. For example, in the combing section, the carding and combing workers are taken into account, namely: for 48 combs, 8 combers and 12 indirect workers (so termed even though they include the carders), 20 workers in all. This amounts to 6 combs per direct worker and 2.4 per unit of the total labour force in the combing section (4 combs per indirect worker). A productivity of 8 kilogrammes per comb/hour will be 48 kilogrammes of tops per man/hour for direct workers, 32 kilogrammes per indirect worker, and 19.2 kilogrammes per unit of the total labour force in the section.

/As regards

As regards spinning, the workload and productivity standards cover the spinners (direct spinning labour), other workers in the spinning section, and the winding operatives (all termed indirect workers in the spinning section) and spinning preparation workers as a whole. The result is as follows:

Table B-5

WORSTED SPINNING, INCLUDING SPINNING PREPARATION

	Workers per 1 000 spindles	Spindles per worker	Productivity
Spinners	2.50	400	12 800
Indirect spinning workers	3.50	285	8 408
Total spinning section workers	6.00	167	4 927
Preparation workers	2.17	461	13 600
Total, spinning and preparation	8.17	122	3 599

(b) Woollen spinning

The workload is determined on the basis of the following manpower table for a spinning mill with 720 ring spindles (with 2 sets of cards and 30 winding spindles), and then calculating the ratio for 1,000 spindles.

Table B-6

MANPOWER TABLE FOR A WOOLLEN SPINNING MILL (RING FRAMES)

	720 spindles			1 000 spindles		
	Direct labour	Indirect labour	Total	Direct labour	Indirect labour	Total
Raw material preparation	1.5	0.5	2	2.1	0.7	2.8
Carding	2.0	3.0	5	2.8	4.1	6.9
Spinning	4.0	4.0	8	5.6	5.6	11.2
Winding	2.5	0.5	3	3.4	0.7	4.1
Total	10.0	8.0	18	13.9	11.1	25.0

These data permit determination of the ratio between production spindles and workers expressed in reciprocal form in table B-7.

/Table B-7

Table B-7

PRODUCTION SPINDLES PER WORKER (RING FRAMES)

	Direct labour	Indirect labour	Total
Raw material preparation	476	1 429	357
Carding	357	244	145
Spinnning	180	180	88
Winding	294	1 429	244
Total	72	90	40

On the basis of the unit output indicated in table B-1 (80 grammes per spindle/hour) labour productivity can be calculated in terms of the volume of yarn per worker in each section.

Table B-8

PRODUCTIVITY (RING FRAMES)

(Grammes of yarn per man/hour)

	Direct labour	Indirect labour	Total
Raw material preparation	38 800	114 320	28 560
Carding	28 560	19 520	11 600
Spinning	14 400	14 400	7 040
Winding	23 520	114 320	19 520
Total	5 760	7 200	3 200

For a spinning mill that uses mules (720 production spindles with 1 set of cards and 12 winding spindles) the unit output adopted was 30 grammes per spindle/hour, with a manpower table as follows.

/Table B-9

Table B-9

MANPOWER TABLE FOR A WOOLLEN SPINNING MILL (MULES)

	720 spindles			1 000 spindles		
	Direct labour	Indirect labour	Total	Direct labour	Indirect labour	Total
Preparation	0.7	0.3	1.0	1.0	0.4	1.4
Carding	1.0	1.0	2.0	1.4	1.4	2.8
Spinning	3.0	2.0	5.0	4.2	2.8	7.0
Winding	1.0	0.3	1.3	1.4	0.4	1.8
Total	5.7	3.6	9.3	8.0	5.0	13.0

Table B-10

PRODUCTION SPINDLES PER WORKER (MULES)

	Direct labour	Indirect labour	Total
Preparation	1 000	2 500	714
Carding	714	714	357
Spinning	238	357	143
Winding	714	2 500	556
Total	125	200	77

Table B-11

PRODUCTIVITY (MULES)

(Grammes of yarn per man/hour)

	Direct labour	Indirect labour	Total
Preparation	30 000	75 000	21 420
Carding	21 420	21 420	10 710
Spinning	7 140	10 710	4 290
Winding	21 420	75 000	16 680
Total	3 750	6 000	2 310

(c) Weaving

(c) Weaving

The workload was determined on the basis of the following manpower table for a mill with 100 looms.

Table B-12

MANPOWER TABLE FOR A WOOL WEAVING MILL

	100 looms		
	Direct labour	Indirect labour	Total
Preparation	8.3	5.0	13.3
Weaving	16.7	20.0	36.7
Total	25.0	25.0	50.0

These data permit determination of the ratio between looms and workers, as shown in table B-13.

Table B-13

WORKLOAD IN A WOOL WEAVING MILL

	Looms per worker		
	Direct labour	Indirect labour	Total
Preparation	12.0	20.0	7.5
Weaving	6.0	5.0	2.7
Total	4.0	4.0	2.0

On the basis of the unit output indicated in table B-1, labour productivity is as follows.

Table B-14

PRODUCTIVITY

(Picks per man/hour)

	Direct labour	Indirect labour	Total
Preparation	84 000	140 000	52 500
Weaving	42 000	35 000	18 900
Total	28 000	28 000	14 000

In terms of linear metres, this given:

Table B-15

PRODUCTIVITY

(Metres per man/hour)

	Worsted fabric			Woollen fabric		
	Direct labour	Indirect labour	Total	Direct labour	Indirect labour	Total
Preparation	42	70	26.3	70	116.6	43.7
Weaving	21	17.5	9.5	35	29.2	15.7
Total	14	14	7	23.3	23.3	11.7

C. COTTON INDUSTRY

1. Standard products and unit outputs

Table C-1

Machine	Product		Output per machine/hour
Cotton spindle, high draft spindle length over 7", 9 000 r.p.m., at 90 per cent efficiency	Cotton yarn, English count 18 18 turns per inch	grammes	22
Automatic loom, plain 200 picks per minute, at 90 per cent efficiency (i.e. 180 picks per minute)	Cotton fabric 2 000 picks per metre 130 grammes per linear metre 100 cm wide	metres	5.40

2. Workloads and productivity

(a) Spinning

The workload is determined on the basis of the following manpower table for a 20,000-spindle mill for the production of carded cotton yarn, and the ratio for 1,000 spindles is then worked out.

Table C-2

MANPOWER TABLE FOR A CARDED COTTON SPINNING MILL

	20 000 spindles			1 000 spindles		
	Direct labour	Indirect labour	Total	Direct labour	Indirect labour	Total
Preparation	20	20	40.0	1.0	1.0	2.00
Spinning	10	16.6	26.6	0.5	0.83	1.33
Winding	22	11.4	33.4	1.1	0.57	1.67
Total	52	48.0	100.0	2.6	2.4	5.00

These data permit determination of the ratio between production spindles and workers, as shown in the following table.

Table C-3

RING SPINDLES PER WORKER

	Direct labour	Indirect labour	Total
Preparation	1 000	1 000	500
Spinning	2 000	1 205	750
Winding	1 000	1 755	600
Total	385	417	200

/On the

On the basis of the standard unit output of 22 g per hour for the spindles (see table C-1) it is then possible to determine labour productivity in the spinning mill in terms of the volume of yarn produced by the ring frames.

Table C-4

PRODUCTIVITY

(Grammes of yarn per man/hour)

Sections	Direct labour	Indirect labour	Total
Preparation	22 000	22 000	11 000
Spinning	44 000	26 510	16 500
Winding	22 000	38 610	13 200
Total	8 470	9 174	4 400 a/

a/ Subsequently reduced to 4,300 grammes per man/hour to allow for the higher manpower ratio in the combing section. Similarly, the sub-total for preparation and spinning are reduced to 6,456 (instead of the 6,600 that can be calculated in the basis of the postulated data), and the sub-total for spinning to 16,165.

(b) Weaving

The workload is determined on the basis of the following manpower table for a mill with 400 looms, the figures later being reduced proportionately to those for 100 looms.

Table C-5

MANPOWER TABLE FOR A COTTON WEAVING MILL

Sections	400 looms			100 looms		
	Direct Labour	Indirect Labour	Total	Direct Labour	Indirect Labour	Total
Preparation	17	23	40	4.25	5.75	10
Weaving	20	20	40	5.00	5.00	10
Total	37	43	80	9.25	10.75	20

These data permit determination of the ratio of looms to workers, as shown in the following table.

/Table C-6

Table C.6

LOOMS PER WORKER

Sections	Direct labour	Indirect labour	Total
Preparation	23.5	17.4	10
Weaving	20.0	20.0	10
Total	10.8	9.3	5

If these figures are multiplied by the unit output of the looms (5.40 metres per hour), the productivity per worker is obtained, in terms of the volume of fabric produced by the loom.

Table C.7

PRODUCTIVITY

(Linear metres of fabric per man/hour)

Sections	Direct labour	Indirect labour	Total
Preparation	126.90	93.96	54
Weaving	108.00	108.00	54
Total	58.32	50.22	27

Annex II

STATISTICAL CALCULATIONS

1. Projections of consumption

An explanation is given below of the detailed calculations made in arriving at the projections of future consumption shown in table 25. The basic hypotheses are as follows:

(a) Increase in personal expenditure on textile products (indexes)

1960 = 100
1970 = 128.9
1975 = 154.7

(b) Rise in yarn count compared with 1960

1970 = 15 per cent
1975 = 20 per cent

(c) The percentage rise in yarn count results in a reduction in the weight of the fabric corresponding to 50 per cent of the rise in count.

Fabric weight (indexes) 1960 = 100

$1970 = 100 - 15 \left(\frac{50}{100}\right) = 92.5$

$1975 = 100 - 20 \left(\frac{50}{100}\right) = 90.0$

(d) The rise in yarn count results in a rise in the price of the fabric corresponding to 20 per cent of the rise in count.

Price of fabric (indexes) 1960 = 100

$1970 = 100 + 15 \left(\frac{20}{100}\right) = 103$

$1975 = 100 + 20 \left(\frac{20}{100}\right) = 104$

(e) The increase in per capita textile consumption (in metres) is obtained by dividing the change in expenditure (see (a) above) by the change in price (see (d) above).

1970 $\frac{128.9}{103.0} = 125.1$

1975 $\frac{154.7}{104.0} = 148.8$

(f) The rise in per capita textile consumption (in grammes) is obtained by multiplying the rise in the consumption in metres (see (e) above) by the change in average weight per metre (see (c) above).

1970 $\frac{125.1 \times 92.5}{103.0} = 115.7$

1975 $\frac{148.8 \times 90.0}{100} = 133.9$

/2. Labour

2. Labour input in 1 metre of wool fabric

With respect to the data given in table 75, the method of calculation used in determining the labour input in 1 metre of worsted fabric and 1 metre of woollen fabric, in 1961 and 1963, is given below.

		Worsted fabric		Woollen fabric	
		1961	1963	1961	1963
(a)	Labour input per kg of yarn (man/hour per kg)	1.007	0.941	0.515	0.603
(b)	Labour cost in spinning (Argentine pesos per man/hour)	58.87	86.04	56.66	83.00
(c)	Weight of fabric (grammes per linear metre)	200	200	450	450
(d)	Yarn consumption per linear metre of fabric (in grammes)	212	212	477	477
(e)	Picks per metre of the fabric	2 000	2 000	1 200	1 200
(f)	Weaving productivity (including preparation) (picks per man/hour)	4 082	3 933	4 082	3 933
(g)	Labour cost in weaving (Pesos per man/hour)	65.07	92.59	65.07	92.59
(h)	Labour input in weaving (man/hours per metre of fabric, (e) divided by (f))	0.490	0.508	0.294	0.305
(i)	Labour input in spinning (man/hours represented by yarn consumed, or (a) x (d))	0.213	0.199	0.246	0.288
(j)	Total labour input (man/hours per metre of fabric from the raw material stage, or (h) + (i))	0.703	0.707	0.540	0.593
(k)	Labour cost for complete cycle of production (pesos per hour), or $\frac{(b) \times (i) + (g) \times (h)}{(i) + (h)}$	63.19	90.74	61.24	87.93
(l)	Total labour cost per metre of fabric (in pesos), or (j) x (k)	44.42	64.15	33.07	52.14