

COMMISSION OF THE EUROPEAN COMMUNITIES

**A STUDY OF THE EVOLUTION
OF CONCENTRATION
IN THE UNITED KINGDOM
TEXTILE INDUSTRY**

The study of the evolution of concentration in the textile industry (wool, cotton and knitted goods sectors) has previously been carried out in four community countries (Germany, France, Italy, Belgium). It has been extended to cover the current situation in one of the new Member States, the United Kingdom. In fact the textile sector, as well as the overall structure in this country, presents a very sharp interest.

The study is presented in this report.

COMMISSION OF THE EUROPEAN COMMUNITIES,
Brussels

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TEXTILE INDUSTRY**

by F. Fishwick and R. B. Cornu,
Cranfield School of Management

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P R E F A C E

The present volume is part of a series of sectoral studies on the evolution of concentration in the member states of the European Community.

These reports were compiled by the different national Institutes and experts, engaged by the Commission to effect the study programme in question.

Regarding the specific and general interest of these reports and the responsibility taken by the Commission with regard to the European Parliament, they are published wholly in the original version.

The Commission refrains from commenting, only stating that the responsibility for the data and opinions appearing in the reports, rests solely with the Institute or the expert who is the author.

Other reports on the sectoral programme will be published by the Commission as soon as they are received.

The Commission will also publish a series of documents and tables of syntheses, allowing for international comparisons on the evolution of concentration in the different member states of the Community.

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SECTION I

AN OUTLINE OF THE STUDY AND A SUMMARY OF FINDINGS

A. THE ACTIVITIES INCLUDED

This report is about concentration and its implications for competition in three sub-sectors of the textile industry: traditionally referred to as cotton, woollen and worsted and hosiery and other knitted goods. The introduction of man-made fibres, which accounted for 71 per cent of all fibres used in the United Kingdom in 1974, and the formation of large groups with interests in all three sub-sectors have blurred the distinctions between them but traditional boundaries remain. These boundaries are partly geographical: the "cotton industry" is concentrated mainly in East Lancashire and Greater Manchester, the "woollen industry" in West Yorkshire and the "hosiery and knitwear industry" (except for some warp- and weft-knitted fabrics) in the East Midlands. Associations of traders and employers, trade unions and technical institutions are still defined on the older boundaries.

The "cotton industry" is now a small remnant of what existed before self-sufficiency and competition from other countries caused the disappearance of its export markets. The scale of its decline is without parallel in Britain:

	<u>1912</u>	<u>1974</u>
Total employment (000's)	710	104
Fabric production (million m ²)	7,100	1,130
Fabric exports (million m ²)	5,700	280

Sources: Textile Council (1912)
Government departments (1974)

The sub-sector encompasses:

- (a) the spinning into yarn of cotton and of staple man-made fibres on the cotton system (the addition of flax-spinning to official statistics is of negligible importance because of the declining use of this fibre);
- (b) doubling of such yarns and of continuous filament yarns; and
- (c) weaving of cloth from yarn spun on the cotton system and/or from man-made filament.

The woollen and worsted industry did not experience a decline during the earlier decades of this century on the same scale as that in Lancashire. There are two reasons for this: less reliance on plain easily manufactured fabrics and no reliance on exports to warm climates. The industry is defined in this report (and in official statistics) to cover:

- (a) the preparation and spinning of wool into woollen or worsted yarns (the latter consist of longer-staple fibres, combed before spinning and with less twist in the yarn), the preparation and spinning of man-made fibres on the same systems; and
- (b) the weaving of woollen and worsted yarns (including man-made fibre yarns spun on the same systems) into fabric.

The hosiery and other knitted goods sub-sector has expanded since the last war because of the inclusion within it of warp- and weft-knitted fabrics used for a wide variety of purposes, including shirts, trousers, soft furnishings and bedding as well as more familiar knitted garments. Between 1948 and 1968 total employment in this sub-sector increased from 103,000 to 135,000. The official definition of the sub-sector (1971 Census) shows the breadth of its coverage: knitting of fabrics on warp looms; knitting of stockings, socks; knitted garments and other goods including weft-knitted fabrics.

Making up of household textiles and of clothes cut from knitted fabrics is included when it is carried out in the same establishment as the knitting of the fabric.

Because for many purposes cotton-type, woollen- and worsted-type and knitted products are close substitutes, the report also examines concentration in the three sub-sectors combined under the title "textile processing". The report is not directly concerned with the production of artificial and synthetic fibres but, because of the importance of such fibres in all three sub-sectors, the dominant position of the two major British producers and the interests which they have acquired in the processing industries, frequent reference is made in the report to this other sub-sector.

B. THE OBJECTIVES OF THE STUDY AND RESEARCH METHODS

The investigation forms part of a series sponsored by the Commission of the European Communities throughout the European Economic Community. One objective is to provide a detailed statistical analysis of concentration according to a standard methodological framework specified by the Commission; this statistical analysis appears as Appendix B of this report (Tables of Concentration). Another objective is to identify the main factors influencing competition within the sub-sectors and the relationship between this competition and industrial concentration.

The research programme began with a search of statutory accounts of companies identified as operating within one or more of the sub-sectors. Over 500 companies were included in this search, although not all these were included in the statistical analysis (for definitions of samples see the first part of section IV). After the statistical analysis had been completed and certain conclusions drawn, there was a series of discussions with major companies in each of the three sub-sectors, with a sample of some of the smaller undertakings and with each of the major retail concerns, who are the main customers for certain major products.

SUMMARY OF FOLLOWING SECTIONS OF THE REPORT

Section II examines trends in the industry, mainly since 1963. The total market for textiles and clothing has expanded only slowly in recent years and overseas suppliers have obtained an increasing proportion of this market, especially in woven cotton and man-made fibre fabrics, and knitted and made-up clothing. Exports have expanded more slowly. Total production in the woollen textile industry has been falling, mainly because of increased imports of made-up clothing and a static market for woollen carpets. Output in the "cotton" sub-sector has been relatively static while output of hosiery and other knitted goods sector expanded until about 1970 and has then tended also to be static.

Intense competition between home-produced goods and imports, between fibres, between knitted and woven fabrics and between companies within each segment of the industry has been expressed in pricing. The response of companies to these competitive conditions has been increased productivity achieved through capital investment and at the cost of a large cut in employment. Much of this investment and associated reorganisation, especially in the cotton and hosiery and other knitting sub-sectors, was financed by the two major U.K. producers of man-made fibres.

Section III examines influences on the structure of the textile industries. In 1963, in spite of reorganisation under the Cotton Industry Act of 1959 the cotton industry remained much less concentrated than manufacturing industries as a whole - firms with fewer than 1,000 employees accounted for over 40 per cent of employment. The wool and knitting sub-sectors were even more fragmented. This structure contrasted sharply with the virtual duopoly already existing in man-made fibre production.

Another feature of the three sub-sectors was a horizontal rather than vertical structure (the only exception was woollen, as opposed to worsted, spinning and weaving). The need for long runs in spinning contrasted with that for variety in weaving and knitting of all but the plainest fabrics (and most of the market for plain fabrics had long before been lost to overseas products). This horizontal structure increased the industries' vulnerability to inventory cycles and to imports and severely impeded marketing activities. Vertical integration

was economic only if undertakings were sufficiently large to permit variety in weaving and knitting together with long production runs in spinning.

A third feature of these industries, which influenced changes in structure, is the importance of a few major customers - the multiple retailers of clothing and, to a lesser extent, household textiles. The role of these customers in importing, in forcing down prices and in generating sharp changes in demand were emphasised by some manufacturers in discussions with the author. Section III also summarises the views of major retailers on these aspects of their trading. There is little doubt that the predominant position of major customers has created pressure for (a) greater size, to give countervailing selling power, and (b) more vertical integration, to facilitate greater control over supplies and outlets and development of branded textile products.

A major reason for the emergence between 1963 and 1968 of large multi-process vertically integrated groups in the textile industries was the intervention of Courtaulds and I.C.I. Section III traces the history of this intervention: the abortive takeover of Courtaulds by I.C.I., the series of acquisitions in textile processing by Courtaulds (£150 m. in five years) and the investments by them and I.C.I. in other major textile groups. The purpose of this intervention was the preservation of the United Kingdom market for fibres. In view of their fragmented and horizontal structure and the importance of major retail customers, themselves forced by intense competition to seek low-cost supplies, the cotton and hosiery sub-sectors might have contracted very sharply without this assisted reorganisation.

Government policy on mergers in the textile industry has varied. Until 1968 there was a favourable policy towards "rationalisation", which had extended over many years (pre-war legislation affecting cotton spinning had common features with the 1959 Cotton Industry Act). In 1969 the Government announced its opposition towards further acquisitions by fibre manufacturers in textile processing and this has restricted further growth of the largest combines in

the cotton and knitting sub-sectors. The government has continued to encourage amalgamations of smaller firms in the textile industry and rationalisation is one of the objectives of a scheme for the reorganisation of the woollen and worsted sub-sector.

Section IV examines changes in concentration between 1963 and 1968 and between 1968 and 1973. To this latter period the statistical framework of the Commission has been applied in complete detail (the first part of Section IV explains the methodology, the coverage of the data and the meaning of the various indices of concentration).

Between 1963 and 1968 concentration increased appreciably in both cotton and hosiery, mainly because of the intervention of the two fibre producers. In the wool sub-sector less development occurred although Courtaulds acquired some capacity and I.C.I. obtained a minority interest in one of the moderately large independent concerns.

In the period 1968-73 concentration increased more in the wool sub-sector than in cotton or knitting. The increase in concentration was confined to the largest firms in the industry: as a result of acquisition of other large groups, Coats-Paton and Illingworth Morris increased their share of total turnover in the sub-sector from about 19 to 30 per cent. The combined share of the ten largest firms in the woollen and worsted industry remained, however, at 60 per cent in 1973 (the same as in 1968).

In the cotton industry a distinct oligopoly group of four firms was reduced to three at the end of 1970 by the merger which formed Carrington-Viyella Ltd. This merger, brought about by financial pressures and effected by I.C.I., was the only major development. A proposal by Courtaulds in 1969 to take over its then largest competitor, English Calico, was aborted by Government opposition which also prevented any further intervention by fibre producers (other than the Carrington-Viyella case) until 1973. There is evidence that the policy has not changed. Although it changed little over the five years, concentration in cotton remained much greater than in wool: ten firms controlled 73 per cent of turnover in 1968 and 75 per cent in 1973.

In hosiery and knitting also, concentration changed negligibly between 1968 and 1973. As in cotton, there had been a big increase in concentration over the previous five years. In 1968 four firms controlled 53 per cent of turnover and 10 firms just over 72 per cent; in 1973 the two proportions were unchanged. As in cotton, government opposition to further intervention by fibre producers was probably of paramount importance.

One of the more unusual features to emerge from the statistical analysis is the existence of an oligopoly in textile processing as a whole. The degree of concentration in the combination of the three sub-sectors (and vertically integrated dyeing, finishing and distribution) is remarkably high: five firms controlled 57 per cent of all turnover in 1968 and 59 per cent in 1973. One of these five firms is itself a major fibre producer (Courtaulds), in another (Carrington-Viyella) I.C.I. have a majority shareholding and in a third (Tootal) both I.C.I. and Courtaulds hold 8 per cent of equity.

The concentration of profits in the cotton and wool sub-sectors appears to have varied inversely with the state of trade. In the recession of 1969-70 the share of profits obtained by the five largest concerns fell significantly. In hosiery and other knitting the reverse (and more usual) tendency was observed.

Concentration of most other financial variables (cash flow, capital expenditure, equity, net assets and net cash flow) appears to be greater in most years than that of turnover and the firms with the largest turnover tended to account for even greater proportions of these other variables. One exception to this observation was that exports were more evenly distributed among firms in the textile industry. The five largest textile enterprises (apart from Courtaulds) accounted for a much lower proportion of exports than of sales turnover.

Section V examines in some detail the markets for certain product groups, both intermediate products and end-uses. Intermediate products examined are wool tops (for worsted spinning), woollen and

worsted yarns, spun yarns of cotton and man-made fibres and warp-knitted fabrics. End-use products selected for detailed analysis are hand-knitting yarns, coloured tweeds, sewing thread, shirts, bed linen and ladies' hose. In each of these end-uses the importance of supplies from overseas and of major customers in this country is evident.

Section VI relates the findings of the statistical analysis to the wider competitive situation described in Sections II, III and V. The combined effect of vertical integration, of increasing concentration among customers and continuing imports is likely to be a tendency towards greater concentration in the textile industries over the next few years. This tendency is evident from developments occurring at the time of writing. These developments - mergers and acquisitions - generally result, like those of the 1960's, from defensive motives. Unless this is prevented by Government action, this defensive reorganisation is likely to continue for some years.

SECTION II

RECENT TRENDS IN THE THREE SECTORS

INTRODUCTION

Companies in all three sub-sectors have been operating in a continuously competitive environment in recent years. The total market for textiles and clothing in the United Kingdom has expanded only slowly; competition from imports has affected a growing part of this static market and low-cost producers have also competed in export markets. Within the textile industry there has been intensive competition between fibres and between knitted and woven fabrics. The response from companies to this competition has been increased productivity achieved through capital investment and at the cost of a large cut in employment. This investment has reflected the intervention in the industry of large fibre producers eager to preserve the U.K. textile industry as an outlet for their fibres and to ensure the security of their own sales.

A. THE U.K. DEMAND FOR TEXTILE PRODUCTS

An analysis of textile demand by end-uses was produced by the National Economic Development Office (1) for 1970. This analyses consumption of fibres by weight:-

Table 1: End-uses of textile products (by weight), including imports and excluding exports

	<u>%</u>
Made-up clothing (woven or knitted fabrics)	28.2
Knitted garments and hosiery	8.9
Hand-knitting yarn and sewing thread	3.0
Household textiles, furnishings and blankets	14.6
Carpets, linoleum and leathercloth	18.5
Tyre cord	3.4
Other industrial uses and narrow fabrics	18.8

	100.0

Clothing is the largest single end-use for textile fibres in the U.K. and, when knitted garments are included, accounted for 37.1 per cent of 1970 consumption by weight. Consumers' expenditure on clothing has remained in recent years at about 8 per cent of total consumers' expenditure. Between 1963 and 1974 total expenditure rose by 32 per cent and expenditure on clothing by 33 per cent; analysis of data for intervening years confirms that the elasticity of demand for clothing in relation to consumers' expenditure is close to 1 (See footnote 1).

Knitted garments (that is hosiery and garments knitted complete) accounted for between 22 and 25 per cent of annual consumers' expenditure on clothing in each of the years 1963-71 (1); later data are not available. There are few data on the relative importance of knitted and woven fabrics in made-up clothing.

As with that for clothing, demand for household textiles and soft furnishings has grown approximately in proportion to consumers' total expenditure with a 30 per cent growth over the period 1963-74. Analysis of annual data over this period confirms that expenditure-elasticity was close to unity². The shares of knitted and woven fabrics are not known.

The weaving and tufting of carpets do not come within the terms of reference of this report but represent a major market for spun yarns of wool and man-made fibres. In 1974 carpet manufacturers took 6 per cent of the output of the cotton and man-made fibre spinning sector (most of it spun rayon) and 33 per cent of the yarn produced in the woollen industry. In recent years, sales of woven woollen carpets have remained static, in contrast to those of tufted carpets, in which man-made filament fibres predominate:-

¹ A regression equation produced an estimate of 1.036 with a standard error of 0.032.

² Regression analysis produced an estimate of 0.980 with a standard error of 0.138. The greater instability possibly reflected fluctuations in indirect taxation and new housebuilding.

Manufacturers' sales of woven and tufted carpets in the United Kingdom
(million square metres)

	<u>1966</u>	<u>1968</u>	<u>1973</u>	<u>1974</u>
Woven woollen	31.2	31.9	32.9	27.1
Woven man-made	18.1	18.5	20.1	19.7
Tufted	27.5	49.2	102.2	100.1

Most of the smaller categories of end-use have also shown slow growth of demand in recent years. For example, U.K. use of tyre cord (U.K. production - exports + imports) rose by 40 per cent between 1958 and 1963 but the figure for 1973 was less than 1 per cent above that for 1963.

Measured in volume terms, total demand for textile products has grown more slowly than real income in the United Kingdom over the ten years up to 1974. Evidence has been presented elsewhere (2) that this low income-elasticity of demand for textiles is a characteristic of most western European countries.

B. EXTERNAL TRADE

Table 2 shows imports and exports of textile products in 1968 and 1973. Production of man-made fibres (as opposed to processing) has been excluded, but made-up textiles have been included because much of their value content falls within our terms of reference.

Table 2: The value of external trade 1968 and 1973 (£m)

Product category	1968			1973		
	Exports	Imports	Balance	Exports	Imports	Balance
Cotton yarn & thread	10.8	8.8	+2.0	22.0	15.6	+6.4
Spun man-made fibre yarn	4.4	3.6	+0.8	28.1	17.1	+11.0
Woollen & Worsted yarn	20.4	1.9	+18.5	41.6	10.4	+31.2
Woven fabrics - cotton	28.2	67.7	-39.5	39.5	103.5	-64.0
- man-made f.	20.6	33.0	-12.4	49.9	115.4	-65.5
- wool	66.5	8.8	+57.7	91.5	11.8	+79.7
Knitted fabrics	11.4	7.0	+4.4	43.2	12.6	+30.6
Carpets	29.6	18.8	+10.8	78.2	41.5	+36.7
Other textile products	70.7	58.5	+10.3	104.9	121.7	-27.2
TOTAL SPUN YARNS & FABRICS	262.6	208.1	+52.6	498.9	449.6	+38.9
Knitted garments	27.1	44.9	-17.8	70.1	112.8	-42.7
Other clothing	57.4	65.2	-7.8	109.5	220.7	-111.2
TOTAL CLOTHING	84.5	110.1	-25.6	179.6	333.5	-153.9

Source: Textile Industry Statistics Bureau

Since 1974 was a year of international recession, the comparison of 1966 with 1973 probably indicates trends over the survey period more satisfactorily than a comparison with 1974. One recent development which has produced extensive comment within the industry has been a sharp increase in the imports of cotton and man-made fibre spun yarns, from 31,100 tonnes in 1973 to 53,400 tonnes in 1974. The overall trading surplus on spun yarns and fabrics increased in 1974 to £47.9m but the deficit in trade of clothing widened to £172.9m.

One of the reasons why the overall balance of trade in textile products has not worsened more sharply has been a favourable movement in the terms of trade - U.K. export prices have risen more quickly than those of imports. The deterioration in volume terms is shown in the increases in import penetrations and decreasing ratios of exports to imports shown in Table 3.

There are two elements in the growth of imports which affect the U.K. textile industry: (a) the increase in imports of clothing and made-up textiles, of which the fabric contents are also produced overseas (with negligible exceptions) and (b) the increase in imports of intermediate products - fabrics and yarn. Because of the importance of vertical integration in the industry on the part of major producers of man-made fibres, the increased import penetration of the U.K. market for unprocessed staple fibres and filament yarns is also significant to this study of competition. Table 3 shows estimates of import penetration in volume terms for each of the main categories of textile products together with the ratio of imports (in weight or area) to exports (measured in the same way).

$$\text{Import penetration} = 100 \times \frac{\text{Imports}}{\text{Manufacturers' deliveries} - \text{exports} + \text{imports}}$$

Table 3: Import penetration and export/import ratios.

	Import penetration (%)			Ratio of Exports to imports		
	1963	1972	1974	1963	1972	1974
Man-made staple fibre	10	26	26	2.63	2.77	2.53
Continuous filament yarn	5	29	30	5.06	1.50	1.23
<u>Spun Yarns</u>						
Cotton & man-made fibres	5	13	23	0.75	0.64	0.26
Woollen & worsted	1	3	4	7.00	3.50	3.00
<u>Woven fabrics</u>						
Cotton	41	47	55	0.35	0.25	0.24
Man-made fibres	9	37	42	1.33	0.56	0.49
Wool & worsted	11	8	9	3.17	4.88	4.72
<u>Knitted fabrics</u>	6	7	5	1.67	3.88	4.00
Carpets	8	7	13	0.85	2.57	2.24
Made-up clothing	6	13	20	0.59	0.56	0.47
Hosiery & Knitwear	12	23	27	0.49	0.65	0.62

Sources: NEDO and Department of Trade.

Tables 2 and 3 need to be interpreted with care. Those firms making intermediate products such as man-made fibres, yarns and loom-state fabrics, are adversely affected by increased imports of textiles incorporating such products. For example in 1974 imports represented 42 per cent of the volume of man-made fibre fabrics supplied to U.K. customers (mainly makers-up of apparel, household textiles or other end-use products). Of the man-made fibre content of all end-use products, 52 per cent was imported. These "indirect imports" become progressively more significant with movement away from the final market. Indirect imports substantially diminish the duopoly position of the two major producers of man-made fibres and contributed to their policies described in Section III of vertical integration in the textile processing and consumer-product industries.

The Geographical Pattern of Trade

Most of the United Kingdom's textile imports originate from the Far East or from the Mediterranean. In contrast, the main markets for exports are western Europe and (to a lesser extent) North America. The following table shows total trade in textiles and made-up clothing in 1973. (See note at end of table).

TABLE 4: THE GEOGRAPHICAL PATTERN OF TRADE 1973 (£m)

Country (a)	U.K. imports from (a)		U.K. exports to (a)		Overall Trade Balance
	Textiles	Clothing	Textiles	Clothing	
Republic of Ireland	50.9	30.0	46.3	21.1	-13.5
Italy	28.4	10.3	13.5	3.7	-21.5
Other E.E.C.	124.0	33.4	116.0	41.7	+0.3
E.E.C. Total	203.3	73.7	175.8	66.5	-34.7
Portugal	38.7	29.1	11.7	2.7	-53.4
Other Western Europe	98.7	46.0	126.9	49.4	+31.6
U.S.S.R. & E. Europe	11.1	9.7	24.9	3.5	+7.6
North America	45.7	4.7	70.5	29.6	+49.7
Pakistan	9.4	1.1	0.9	-	+49.7
India	28.0	4.7	0.6	-	-32.1
Taiwan	5.6	18.7	0.3	-	-24.0
Hong Kong	33.8	123.4	12.7	2.9	-141.6
S. Korea	4.5	8.4	-	-	-12.9
Japan	9.6	3.4	29.7	3.7	+20.4
Total of above six	90.9	159.7	44.2	6.6	-199.8
All countries n.e.s.	26.5	10.6	135.6	21.3	+119.8
WORLD TOTAL	514.9	333.5	589.6	179.6	-79.2

Note: Owing to the degree of detail published in official statistics, it was not possible to produce Table 4 for exactly the same data as those in Table 2. Table 4 includes man-made filament yarn and does not include carpets. Total imports of filament yarn in 1973 were £70.7 millions and exports £110.0 millions; for carpets the corresponding figures were £41.5 millions and £78.2 millions.

Restrictions on Imports of Textile Products

Until 1959 imports of textile fabrics were allowed into the United Kingdom free of duty if they originated in Commonwealth countries. This explains the emergence of Hong Kong as a major supplier. Subsequently, rising "ceilings" (quotas) were imposed on cotton textiles from such sources to prevent disruption of the domestic industry (under the provisions of article 19 of GATT).

From February 1962 until the end of 1973, restrictions on trade in cotton textiles were regulated by a Long Term Arrangement negotiated by 50 member countries of GATT, which provided for expansion of sales by developing countries but also for protective quotas to prevent disruptive effects. Because the U.K.'s policies at that time were among the most liberal and any increase in restrictions was subject to external scrutiny, they remained more liberal than those of most other western European countries.

Quotas are regarded as preferred to tariffs by most enterprises in the industry which express the fear that imports may be subsidised in order that foreign exchange may be gained. Although quotas were to have been replaced by tariffs in January 1972, they were retained (because of industry pressure) at a higher level and accompanied by tariffs. Quotas were confined to cotton goods and during 1972 there was a switch by Asian producers to fabrics containing more than five per cent man-made fibres. During 1973 the quotas were extended to certain man-made fibre fabrics.

Table 4 showed that most imports from Hong Kong and nearby Asian countries now consist of made-up and knitted clothing and since early 1973 restrictions have been widened to a range of clothing. Under E.E.C. arrangements,

restrictions are specific to individual countries.

These arrangements are now subject to a four-year multiple-fibre agreement reached in December 1973 by 50 countries of GATT. This agreement, which set-up a Textile Surveillance body, concerns most textile products - tops, yarns, piece-goods, made-up articles, garments and other products of cotton, wool, man-made fibres or blends thereof. No new unilateral or bilateral restraints are to be placed on trade in textiles unless specifically authorised under the provisions of the arrangement; all existing restraints were to be "notified immediately and thereafter to be either phased out or justified under the provisions of the arrangement". Phasing-out is to be within three years of April 1974. New restrictions can be introduced under strict conditions and multilateral surveillance; they can apply only to precise products and specific countries. They are essentially temporary and quotas on imports from developing countries are to be enlarged automatically by six per cent per year.

The 1973 multi-fibre agreement appears to prevent the imposition of more severe restrictions on imports of textiles into the U.K. The expansion of textile imports may, however, be restrained by membership of the European Economic Community which negotiates as a single unit under the GATT arrangement. Recent proposals put forward by the Commission of the European Communities provide for a wider sharing of textile imports from developing countries among members of the Community. Textile imports may remain fairly static over the next two or three years but in the longer term, restrictions are unlikely to provide continuing protection.

C. PRICES, OUTPUT, PRODUCTIVITY AND EMPLOYMENT

There are several different elements of competition within the textile industry:-

1. Between fibres: cotton, wool, flax and a widening variety of man-made fibres available in staple or filament form. Competition between rival producers of synthetic and cellulosic fibres is affected by their investments in textile processing.

2. Between alternative methods of fabric production: many end-uses are now supplied by woven, warp-knitted or weft-knitted fabrics. These processes are usually carried out in different establishments and individual companies have differing degrees of investment in each.
3. Between home-produced and imported fibres, yarns and fabrics: this element of competition is complicated by the importation of intermediate products by some firms engaged more heavily in the later stages of production.

This intensely competitive environment is to some extent reflected in trends in wholesale prices of textile products. These prices also reflect the changing costs of raw materials, especially the increasing prices of natural fibres in relation to those of man-made. Table 5 shows that until 1970 the prices of man-made fibre textile products rose more slowly than the general price level. In the case of natural fibre yarns and fabrics, prices rose much less than those of the raw material content in 1973.

TABLE 5: SELECTED PRICE INDICES 1963-74 (1963=100)

	<u>1968</u>	<u>1970</u>	<u>1973</u>	<u>1974</u>
Raw cotton (1)	130	116	246	265
Raw Wool (2)	99	81	291	215
Man-made fibres (3)	86	90	95	124
Man-made spun yarns	100	108	136	171
Cotton and mixture yarns	130	144	207	274
Cotton cloth (loomstate)	124	144	200	279
Man-made fibre cloth (loomstate)	106	114	150	196
Worsted yarns	97	100	189	190
Hosiery and knitwear	98	99	115	138
Made-up clothing	109	115	138	160
Prices of all manufactured products	117	128	158	194

(1) refers to c.i.f. price of cotton landed at Liverpool from New Orleans.

(2) refers to the average price at selected auctions of Merino 64s (source of these data U.N. Monthly Bulletin of Statistics).

(3) this and all following indices refer to wholesale prices and are calculated by the Department of Industry (or its predecessors).

Their falling cost in relation to that of cotton has encouraged an acceleration of the shift to man-made fibres in the "cotton" industry before 1970 and the rapid rises in the prices of both cotton and wool during 1972 and 1973 led to more widespread replacement of these fibres:-

Table 6: U.K. mill consumption by category of fibre (000 metric tonnes)

	1966	1968	1970	1973	1974
Man-made	340	432	469	627	560
Cotton	206	172	166	126	112
Wool	187	189	163	149	121
<u>Total</u>	<u>733</u>	<u>793</u>	<u>795</u>	<u>902</u>	<u>793</u>
Man-made as % of total	46.4	54.5	59.0	69.5	70.6

Source: Textile Industry Statistics Bureau (Quarterly Review)

Although the switch from natural to man-made fibres occurred partly within the traditional weaving industries, it also reflected the increased adoption of knitted in place of woven fabrics. In 1973 warp knitting absorbed 15 per cent of the total U.K. output of filament yarn, 1.8 times as much as weaving. Weft knitters absorbed 15 per cent of the output of yarns spun on the cotton system.

The competition between woven and knitted fabrics is considerably affected by fashion and by technological developments in man-made fibres. For example in both shirts and bedding the advance of warp-knitted nylon fabrics has been reversed in 1973 and 1974 by the popularity of woven polyester and cotton mixtures. Table 7 shows indices of production for major sectors of the industry:-

Table 7: Indices of Production (1963=100)

	<u>1968</u>	<u>1970</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Man-made fibre production	201	238	255	303	265
Cotton & m.m.f. spinning and weaving	99	101	100	106	97
Wool and worsted spinning and weaving	93	85	83	83	74
Knitting	132	149	149	153	146

Source: Textile Industry Statistics Bureau (Quarterly Review)

Some indications of the relative importance of the three sectors covered by this study is given by a comparison of net output (value added). In Table 8 value-added in each sub-sector is shown as a percentage of the total of the three sub-sectors combined. (This method of comparison avoids the distorting effect of inflation on the absolute figures.)

TABLE 8: VALUE ADDED WITHIN EACH SECTOR

<u>Sector</u>	<u>1963 (%)</u>	<u>1968 (%)</u>	<u>1971 (%)</u>
Spinning & weaving of cotton and man-made fibres	33	33	34
Wool & worsted	41	34	31
Hosiery & other knitted goods	26	34	35

Source: Censuses of Production

Further evidence of the competitive pressures on the textile industries is provided by the rapid rise in labour productivity since the late 1950's. With falling sales, this increased productivity has been accompanied by decreased employment:-

TABLE 9: EMPLOYMENT AND PRODUCTIVITY 1963-74

	<u>1963</u>	<u>1968</u>	<u>1973</u>	<u>1974</u>
<u>Spinning & weaving of cotton & man-made fibres</u>				
Employees: Male	80.8	77.5	61.4	58.3
(000's) Female	118.1	86.7	50.0	45.7
<u>Total</u>	<u>198.9</u>	<u>164.2</u>	<u>111.4</u>	<u>104.0</u>
Index of Employment	100	83	56	52
Index of Output	100	99	106	97
Index of Productivity	100	120	189	186
<u>Wool and Worsted</u>				
Employees: Male	89.1	78.6	56.0	51.8
(000's) Female	99.2	74.3	47.9	43.2
<u>Total</u>	<u>188.3</u>	<u>152.9</u>	<u>103.9</u>	<u>95.0</u>
Index of Employment	100	81	55	50
Index of Output	100	93	83	74
Index of Productivity	100	115	151	148
<u>Hosiery & Knitwear</u>				
Employees: Male	38.2	44.0	42.4	41.7
(000's) Female	89.4	90.9	82.4	80.9
<u>Total</u>	<u>127.6</u>	<u>134.9</u>	<u>124.8</u>	<u>122.7</u>
Index of Employment	100	106	98	96
Index of Output	100	132	153	146
Index of Productivity	100	125	156	152

Source: Department of Employment and Department of Industry

Note that part-time employees are included on a "full-time equivalent" basis.

The greatest increases in productivity have occurred in the spinning and weaving of cotton and man-made fibres, though even in this sub-sector there was a deterioration in the 1974 recession. The increased productivity has been achieved through capital expenditure, much of it financed by the largest enterprises. In 1968 the 19 largest employers in weaving accounted for 44 per cent of employment and 66 per cent of capital expenditure. In spinning, the corresponding proportions for the 15 largest employers were 59 and 71 per cent. In order to maximise utilisation of the new equipment most firms have introduced shift-working and total capacity has been correspondingly reduced.

Table 10: Capacity in Spinning and Weaving (000's)

	1968	1973
Spindles in place	3,860	2,660
Spindles running (average)	3,470	2,470
% operating on three shifts or on 7-day working	26	45
Looms in place	90.1	54.9
Looms running	77.3	48.7
% operating on three shifts or 7-day working	23	35

The widespread use of shiftwork in the "cotton industry" is one reason for the growing proportion of males in the labour force. A large part of the labour force on night shifts consists of Commonwealth immigrants.

The wool and worsted sub-sector had much less capital expenditure than cotton spinning and weaving and hosiery and knitwear during the survey period.

This is shown in Table 11:-

Table 11: Expenditure on Plant and Machinery (Gross) Per Employee

	<u>1968</u>	<u>1970</u>	<u>1971</u>
Cotton and m.m.f. spinning & weaving	179.8	163.7	147.6
Wool & Worsted	96.4	105.6	112.8
Hosiery & Knitwear	162.5	182.1	182.3

Source: Censuses of Production 1970 and 1971

Note that figures are at current prices and not adjusted for inflation.

This lower rate of capital expenditure may be associated with the more fragmented structure of the woollen industry (see Section III) and with the decline in total sales by this sub-sector.

In the hosiery and knitwear sub-sector a major objective of capital investment has been to increase capacity. Of the three sub-sectors this had the highest productivity in the survey period, but Census figures confirm that productivity increases were greater in the other sub-sectors.

Table 12: Value added per Employee (£ - current prices)

	<u>1968</u>	<u>1970</u>	<u>1971</u>	<u>% increase 1968-71</u>
Cotton etc.	1300	1496	1615	24
Wool & Worsted	1415	1487	1668	18
Hosiery & Knitwear	1475	1538	1676	14

Data on wage earnings show that (in spite of the high proportions receiving shift premia in the "cotton industry") average earnings in all three sub-sectors were less than those in manufacturing as a whole:-

Table 13: Earnings and shiftwork in April 1973 (Full-time manual workers)

	Average hourly earnings (pence)		% receiving shift premium	
	Men	Women	Men	Women
Cotton etc. spinning	70.6	48.8	24.3	8.1
Cotton etc. weaving	74.6	48.6	20.6	10.9
Wool & Worsted	69.3	44.1	19.1	2.4
Hosiery & Knitwear	81.0	50.2	11.5	0.0
All Manufacturing	83.6	49.5	22.6	5.2

Source: Department of Employment, New Earnings Survey.

Table 9 showed a loss of 193,100 jobs in the cotton and woollen industries between 1963 and 1974. The progressive decline in employment in the cotton and woollen industries has led to an ageing labour force and a consequently high rate of natural wastage but the social consequences of reduced employment are aggravated by geographical concentration.

In the "cotton industry" over 80 per cent of employment is concentrated in East Lancashire, Greater Manchester and immediately adjacent parts of other counties. Over 70 per cent of the woollen industry is located in West Yorkshire. The economic consequences for many Pennine towns of the decline of textile employment are a major pressure for greater trade protection.

The Knitting industry is less concentrated: about 55 per cent of employment in hosiery and weft knitting is in the East Midlands and 15 per cent in southern Scotland; about 40 per cent of employees in warp knitting are in the East Midlands and 25 per cent in the North-West (Lancashire, Merseyside or Greater Manchester).

D. FINANCIAL TRENDS

No official data are published on company profits within individual sub-sectors and estimates of profits must be based on examination of company accounts. The data collected for this report refer to firms with a turnover of over £1 million, subject to a maximum of 60¹. Because of increasing concentration, especially in the wool sub-sector, the proportion of industry turnover represented by the samples increased progressively during the survey period, (this is discussed in Sections III and IV.) The following table shows total turnover and net results (including both profits and losses) in each sub-sector sample annually from 1968 to 1973. Absolute figures are not corrected for inflation.

TABLE 14 : TURNOVER AND NET PROFIT BEFORE TAX - SAMPLE DATA

		(a) Turnover £m.	% of industry	(b) Net Results £m.	(b) % of (a)
Wool	1968	315.3	55	16.5	5.2
	1969	341.0	-	13.4	3.9
	1970	333.8	56	9.0	2.7
	1971	346.2	62	11.8	3.4
	1972	398.2	64	25.6	6.4
	1973	499.7	65	34.9	7.0
Cotton	1968	386.1	73	21.7	5.6
	1969	415.0	74	20.0	4.8
	1970	425.8	75	18.9	4.4
	1971	457.8	77	19.2	4.2
	1972	501.2	80	26.3	5.3
	1973	590.2	82	37.5	6.4
Hosiery	1968	364.7	79	25.5	7.0
	1969	392.2	-	23.0	5.9
	1970	431.2	77	22.8	5.3
	1971	461.6	85	29.0	6.3
	1972	483.0	86	32.9	6.8
	1973	583.8	89	41.8	7.2

¹ In one instance (Wool 1970) the maximum was extended to 61, as there was a discrete gap in the distribution of sales turnover after the 61st firm.

These data show that in all three sub-sectors there was a decline in profitability in 1969 and 1970 and that in all three sub-sectors profits as a percentage of sales did not recover to their 1968 level until 1973. This period of reduced profitability can be attributed to falling (or levelling off) of demand (see Table 7) accompanied by increases in costs of natural fibres and of labour. The 1973 boom in demand led not only to fuller utilisation of capacity but also to increases in margins.

Since 1973 the three sub-sectors have been severely hit by trade depression (in common with textile industries throughout the world) which has once again led to "weak" selling and to reduced profit margins.

SECTION IIIINFLUENCES ON THE STRUCTURE OF THE SUB-SECTORSA. THE STRUCTURE OF THE INDUSTRY IN THE EARLY 1960's

Table 15 shows the distributions of enterprises by size of employment in cotton spinning, cotton weaving, woollen and worsted and hosiery and knitting in 1963:-

TABLE 15 : CLASSIFICATION OF ENTERPRISES BY SIZE OF EMPLOYMENT

No. of employees	Cotton etc. Spinning	Cotton etc. Weaving	Woollen & Worsted	Hosiery & Knitting
1 - 99	191	277	790	681
100 - 199	44	109	154	95
200 - 499	55	81	133	64
500 - 1999	36	28	63	52
2000 and over	8	5	7	5
Total of above categories	334	500	1147	897
Firms reporting unsatisfactorily	11	29	44	40
TOTAL NO. OF FIRMS	345	529	1191	937
Total employment (000's)	104.3	89.1	177.1	124.5

Source: 1963 Census of Production

The official separation of spinning and weaving overstates the number of enterprises in the cotton industry because of the double-counting of vertically integrated enterprises. There were about 80 such firms controlling

about 70 per cent of spinning capacity and around 40 per cent of looms in weaving.¹

The structure of the cotton industry had been changed considerably during its long period of contraction partly as a result of government action. Before the 1939-45 war legislation had been introduced to give legal enforcement to the Yarn Spinners Price Agreement which set common prices and to empower spinners' organisations to purchase compulsorily excess spindle capacity. (This common price list was declared illegal by the Restrictive Practices Court in the late 1950's). Although one or two large spinning combines resulted from the pre-war groupings, the weaving sector remained highly fragmented and many small spinning concerns continued to compete within the industry. The existence of excess capacity and the associated danger of "cut-throat" (= marginal cost) pricing were widely regarded as deterrents to re-equipment within the industry. The view that such re-equipment was essential to the stabilisation of the cotton industry found expression in the Cotton Industry Act 1959.

Under this legislation, the Government compensated firms for scrapping of machinery with additional grants to companies ceasing to trade in the textile industry. It also subsidised the purchase of new equipment. In total £17.1 millions were paid out for scrapping and £13.4 millions for re-equipment. The number of firms in the cotton spinning and weaving industries fell sharply:-

¹ Estimates based on references (3) and (4).

TABLE 16 : THE STRUCTURE OF THE COTTON INDUSTRY 1958-63

Analysis of companies with at least 100 employees and engaged in the spinning and/or weaving of cotton and/or man-made fibres:

Size of firm (No. of employees)	1958			1963		
	No. of firms	Total Empt. (000s)	Net Output (£mill)	No. of firms	Total Empt. (000s)	Net Output (£mill)
100-499	379	81.3	48.6	223	51.1	40.9
500-999	58	41.7	20.9	34	24.3	17.3
1000-4999	38	73.7	41.3	26	54.0	45.5
5000 & over	7	63.9	38.6	6	56.6	49.8
TOTAL	482	260.6	149.4	289	185.9	153.5

Source: Census of Production, 1963

Neither the wool textile nor the hosiery and knitwear industries underwent the degree of reorganisation which took place in cotton in the early 1960s. In both sub-sectors (as was shown in Table 15) there was a preponderance of very small firms.

All three sub-sectors were much more fragmented than manufacturing industry as a whole and this fragmented structure contrasted with the virtual duopoly already existing in the supply of man-made fibres. Five-firm concentration ratios from the five-yearly production censuses show that for only isolated products of the textile processing sector (as well as the supply of man-made fibres) was the market dominated by five (or fewer) firms.

TABLE 17: FIVE FIRM CONCENTRATION RATIOS 1958, 1963 and 1968

	Combined sales of five largest firms as % of total sales of selected products.		
	<u>1958</u>	<u>1963</u>	<u>1968</u>
Man-made fibres	n.a.	99.9	100.0
Finished thread for sewing etc.	n.a.	81.8	87.9
Single cotton or m.m.f. spun yarn	31.9	37.2	50.3
Doubled cotton or m.m.f. spun yarn	34.9	41.7	47.1
Woven cotton cloth	11.6	19.3	31.2
Woven m.m.f. cloth	21.1	35.8	51.9
Wool tops	30.1	34.0	54.7
Yarn of animal hair or m.m.f. - spun on woollen system	26.7	26.0	33.9
- spun on worsted system	25.8	32.9	40.2
Woven woollen fabric	12.0	15.1	24.0
Woven worsted fabric	17.3	26.7	31.0
Knitted fabrics	30.2	34.7	43.2
Socks, stockings etc	21.4	20.1	43.3
Underwear and shirts	25.6	39.5	53.1

Source: Census of Production

From this table it can be seen that for a number of products the combined market share of the five largest firms increased by more than ten per cent of the total market. These were single yarns spun on the cotton system, woven cotton and man-made fibre cloths, wool tops (for worsteds), socks and stockings and underwear and shirts. Except in the case of wool tops, a major cause of increased concentration was the intervention of the large producers of man-made fibres, seeking to strengthen the structure of those parts of the textile industry which were their main customers.

B. HORIZONTAL AND VERTICAL INTEGRATION

Although some activities have remained vertically integrated since the early nineteenth century (for example woollen blanket manufacture), the textile industries were mainly organised on a horizontal basis for the first 60 years of this century. In the cotton and worsted industries separate firms carried out most of the top-making (worsted), spinning, weaving and finishing. Intermediate processes such as winding or beaming, sizing or yarn-dyeing were, in many cases, also carried out on a commission basis by specialists in each process.

The predominantly horizontal structure of the cotton industry developed in the later part of the nineteenth century, and was due to economies of long production runs in spinning and the need for variety of yarns in weaving of all but the plainest of fabrics. Except for some companies with a large output of a limited range of standard cloths (e.g. surgical gauze), integrated mills remain exceptional. Even in such mills it is usual practice to sell some yarn to other weavers and to purchase yarn from other spinners. Vertical integration under these conditions is economic only when the firm concerned is sufficiently large to control several spinning mills and thereby combine product variety with long runs.

Another deterrent, of increasing importance, to vertical integration between small firms in the cotton industry during the 1960's was the growing proportion of yarn sold to knitters and other non-weavers, most of them located outside the Lancashire area. In 1957 weavers absorbed 74 per cent of spun yarn produced within the United Kingdom; by 1967 the proportion had fallen to 58 per cent.¹

¹ The Textile Council: Cotton and Allied Textiles, 1969, p. 149

In the woollen industry the difference between woollen and worsted production is quite pronounced. In the manufacture of woollen fabrics the majority of weaving concerns spin their own yarn; this has been attributed² to the importance of raw material blending to the quality and profitability of woollen cloth. In 1967, 68 per cent of woollen yarns produced by companies engaged predominantly within the industry went into weaving. The other main demand was from carpet manufacturers. (Some carpet manufacturers spun part of their own yarn requirements). Those wool spinning firms which were not engaged also in weaving were mainly concerned with carpet yarns.

In worsted spinning vertical integration is less economic because only about 40 per cent of worsted yarn goes into weaving, the rest going into knitwear, hand knitting and (to a lesser extent than woollen yarns) carpets. The worsted weaver also requires a variety of yarns and, as in the cotton industry, there is a contrast between economies of long runs in worsted top making and yarn spinning on the one hand and smaller machine units and variety of yarn inputs in weaving on the other.

In both the cotton and wool textile industries the traditional practice was for cloth to be sold to merchants or "converters". Forward integration by textile firms into made-up clothing, household textiles or industrial products remained exceptional and the majority of producers were, therefore, at least one stage removed from the manufacture of the final consumer product.

This separation from the final market subjected manufacturers to a number of disadvantages:-

- 1) fluctuations in demand resulting from inventory adjustments of merchants and retailers
- 2) a tendency for some customers to switch to imported fabrics and to market products made from these under the same brand names as similar products made from U.K. cloths

²

W. S. Atkins and Partners: The Strategic Future of the Wool Textile Industry, NEDO 1969.

- 3) weak bargaining power in dealings with multiple retailers dominating certain parts of the consumer textile market - shirts, men's underwear and nightwear, children's wear, made-to-measure suits are some examples. Large groups could take advantage of the fragmented structure of the U.K. industries and the facility for importation
- 4) inability to use advertising and sales promotion to influence the final purchaser
- 5) inability to influence the choice between knitted and woven fabrics in the making-up of household textiles and clothing.

Conclusions on vertical integration in the 1960's

- (1) In the "cotton" industry the need for long production runs in spinning and yarn variety in many kinds of weaving meant that integration would be economic only for very large enterprises, able to combine economies of scale with variety.
- (2) The future size of the "cotton" industry depended partly upon links with the final market through forward integration. Control over both weaving and knitting capacity would be a further safeguard against fashion changes between these two types of fabric production.
- (3) In the wool industry vertical integration in woollen spinning and weaving was traditional but worsted spinning and weaving remained separate partly because of the importance of yarn sales to activities other than weaving and partly because of the need for variety of yarn in worsted weaving. The industry's needs for links with final customers was similar to that of the cotton industry though the industry was less vulnerable to imported cloths.

C. CONCENTRATION AMONG CUSTOMERS

The fragmented textile processing industries of the early 1960's were facing increasing concentration among customers. An oligopsony situation existed not only for industrial products such as tyre cord, which went to a small number of tyre producers, but also for products sold by multiple retailers. Such products include many kinds of knitwear, shirts, underwear, hosiery, men's suits and certain household textiles.

The percentages of total retail turnover in 1966 accounted for by multiples with 10 or more establishments were as follows:-

Household textiles and soft furnishings	25
Men's and boys' wear	46
Women's, girls' and infants' wear and other drapery goods	40

Source: Census of Distribution 1966

(The use of these broad categories conceals the concentration of retail sales of individual items.)

Reliance on a small number of major customers often selling under their own brand names gives certain advantages to suppliers in economies of long production runs, elimination of marketing and administrative overheads. Some alleged disadvantages have been discussed both with textile producers and with large multiple retailers:-

- (1) Some producers alleged that certain retailers are relying increasingly upon imports for the "base load" of their requirements of garments or fabrics. The majority of garments sold by the largest retailers consulted during this study appear to be made up in this country but policies on importation of cloth differ widely. There seems to be some consensus that savings in costs through use of imports are to some degree offset by difficulties of communication regarding qualities and composition (e.g. by colours) of fabrics supplied.

Some retailers have decided to buy in the United Kingdom as a matter of long term policy, others buy overseas if cost savings are significant and if the volume is sufficient to cover costs of communication with overseas suppliers. Such communication is least important in the case of less expensive products in regular demand and not subject to fashion changes (e.g. working clothes and children's playclothes). Some retailers who currently import much of their fabric expressed the view that imports are likely to represent a progressively lower proportion of cloth and garment consumption because of the devaluation of sterling, high rates of inflation in certain Far Eastern countries and the reductions in costs now (1975) being achieved in the U.K. textiles industry. The impact of quotas and implications of existing and potential import restrictions for reliability of supply are additional influences. Opposite factors include availability of cheaper fibres enjoyed by some Far Eastern producers (including polyester fibres exported at marginal cost prices by U.S. and European producers) and increasing willingness on the part of U.K. garment producers, including some within textile groups, to find overseas supplies of fabrics. This is examined again in Section V.

- (2) There was almost universal concern among manufacturers about the downward pressure on prices of knitted garments, fabrics and yarns imposed by the large customers. A number of producers agreed with the retailers' own argument that this pressure reflected competition between retailers. Those retailers with a "buy British" policy were competing with other large retailers and with independent shops where imported garments have their main outlet. One textile manufacturer bemoaned the fact that his cost reductions were passed on to the ultimate consumer, on the grounds that this threatened the long-term stability of the industry.
- (3) The policy on the part of retailers of holding minimum stock levels (warehousing is not common practice), together with the horizontal structure of much of the textile industry and consequent extension of the production period, leads to sharp variations in orders received by producers in the earlier stages of textile processing. This situation is aggravated by what the manufacturers see as deferred acceptance of agreed orders and resulting deferment of

payment. Among the large retailers consulted during the study there seemed to be some recognition of the problems which their low-inventory policy created for suppliers. (This recognition was confirmed by the suppliers themselves.) Assistance with cash flow difficulties, placing of alternative orders for immediate delivery and payment for garments and cloth ordered but not yet accepted were among policies adopted by different firms. One major retailer explained that there is a conflict of interests:- the manufacturer would like a definite order well in advance of a firm delivery date after which payment would be prompt; the retailer, especially in this fashion-influenced trade, wishes to maintain maximum flexibility. The need to establish good communications with suppliers provides some pressure towards loyalty on the part of the large retailers and towards a compromise between these conflicting objectives.

Investment in the share capital of suppliers remains exceptional and appears to be confined to only one of the large retail groups. Although the comments of both manufacturers and retailers showed that trade between them was affected by longer-term considerations, there is little doubt that the dominance of large retailers has motivated some of the changes in the structure of the textile industry since the early 1960's. When well over half of the output of a textile firm goes to one customer with whom there is no financial or other tie and when those goods represent as little as 5 per cent of the customer's supplies, bargaining must be uneven. (One large retailer insists that its purchases must not account for more than one-third of any suppliers output of the product concerned. to avoid "moral constraints" on freedom to place subsequent orders. Another firm aims to make suppliers significantly but not excessively dependent. Some dependence is regarded as necessary to ensure supplies during periods of boom, when other orders may become more profitable than contracts with retailers.)

One of the policies adopted by some large textile firms to counter the power of multiple chain-stores has been the sale of branded apparel and household textiles. The practical difficulties of developing brands while at the same time supplying similar items for sale under the retailers' labels are discussed at greater length in the comments on product groups in Section V. Important preconditions for branding are size (to achieve economies of marketing) and vertical integration (to ensure quality). Increased size and vertical integration are also important in the creation of countervailing selling power to offset reliance on large customers.

D. THE ROLE OF THE LARGE FIBRE PRODUCERS

By 1960, the production of man-made fibres in the United Kingdom was dominated by Courtaulds and I.C.I. Courtaulds was (and remains) the dominant producer of cellulosic fibres (rayon and acetate), while I.C.I. was developing polyesters as well as producing nylon in a joint venture with Courtaulds. Courtaulds was also developing acrylic fibres.

An abortive attempt by I.C.I. to take over Courtaulds in 1961-2 (described in Appendix F), led to the exchange of I.C.I.'s holding of Courtaulds' equity plus £10m. for Courtaulds' 50 per cent interest in the joint nylon subsidiary (British Nylon Spinners Ltd.) in 1964. Since that date Courtaulds has developed its own nylon production and are currently increasing output of polyesters. Approximate shares of U.K. production of major fibres in 1972 were as follows:-

		<u>Courtaulds</u>	<u>I.C.I.</u>	<u>Others</u>
Cellulosic	Rayon	100	-	-
	Acetate	80	-	20
Synthetics	Nylon	20	60	20
	Polyester	5	80	15
	Acrylics	60	-	40

The strong position of Courtaulds and I.C.I. in the U.K. market for man-made fibres could prove irrelevant if the textile industries which used those fibres were to go on contracting as a result of declining exports and increased penetration of the U.K. market by imports. The cotton industry in particular appeared very vulnerable. Fragmented, horizontally organised, having failed to take full advantage of assistance with re-equipment, the Lancashire industry faced large customers who could buy their textile fabrics at lower cost overseas.

This fear for the future of their market in Lancashire motivated both Courtaulds and I.C.I. to invest large sums of money into the spinning, weaving and knitting industries. Courtaulds' chairman explained his own company's policy in his statement to shareholders in 1965: "We wanted to ensure that there would indeed be a Lancashire industry to take our man-made fibres in the future."

The two companies acted differently in the way in which they intervened in the textile industry. Courtaulds, with long experience in silk and filament weaving, embarked upon a policy of acquisitions in the "cotton" spinning and weaving and hosiery industries: I.C.I. pursued a policy of long-term lending and purchases of limited amounts of share capital; their major acquisition (Carrington-Viyella Ltd.) was the result of short-term necessity not long-term design.

Over the period 1963-9 Courtaulds spent nearly £150m. on acquisitions leaving it with 30 per cent of all Lancashire spinning production, 22 per cent of filament weaving, 35 per cent of warp-knitting and 35 per cent of ladies' hosiery. (For further details see Appendix F). In addition, the firm invested £5m. in English Sewing Cotton Ltd. and as a result held 8 per cent of the equity of English Calico Ltd., which in 1968 was its largest competitor in Lancashire. (An investment in Carrington and Dewhurst Ltd. was sold to I.C.I. in 1968).

I.C.I. also invested money in English Sewing Cotton Ltd. (leaving it with 8 per cent of the equity of English Calico) and over the period 1963-70 invested over £20 millions in Viyella International Ltd. and Carrington and Dewhurst Ltd. When these firms experienced financial difficulties in 1970, I.C.I. arranged a merger and with further investment into the new company (Carrington-Viyella Ltd.) possessed 64 per cent of the equity. In the woollen industry during the 1960's I.C.I. acquired a 20% holding in Lister and Co. Ltd. a worsted combine with net assets of £14 millions and a 1968 turnover of £27 millions.

Following the report of the Monopolies Commission into the supply of cellulosic fibres (1968), the Government adopted a policy of active discouragement of further acquisitions by fibre producers of textile firms. I.C.I. agreed to reduce its holding of shares in Carrington-Viyella Ltd. to 35 per cent of the equity "as soon as possible" (no significant disposal had occurred by mid-1975) and meanwhile to exercise voting power equivalent to only 35 per cent. The Government's policy also prevented the execution of a bid for English Calico Ltd. which Courtaulds announced in 1969.

As a result of Government policy, fibre manufacturers did not extend their participation in textile processing between 1969 and 1973. Since most of the previous increase in concentration had been due to intervention by fibre manufacturers, this slowed down markedly the process of concentration in the cotton and hosiery sectors. In the woollen sector, fibre manufacturers have acquired less financial interest, possibly because they felt that this sector was less vulnerable to imports and was more certain to remain as a major outlet for the next few years.

Since 1973 Courtaulds Ltd. has acquired a 29 per cent holding in Highams Ltd. a vertically integrated manufacturer of cotton-type textiles especially sheets and bedding, with a 1973 turnover of £14m. This will provide Courtaulds with an outlet for polyester/cotton yarns which were developed at an earlier stage by Carrington-Viyella in collaboration with I.C.I. Government policy on such acquisitions has not changed: in June 1975 Courtaulds agreed with the Office of Fair Trading to reduce the holding to 25% and not to use it to influence policy.

Discussions with textile companies suggest that most of Courtaulds' output of synthetic fibres is used by its own subsidiaries in spinning, weaving, hosiery and knitting. Cellulosic fibres are sold by Courtaulds to its own subsidiaries and their competitors and this leads to occasional friction on transfer-pricing in times of recession and on maintenance of supply in times of boom. Friction has also occurred when major retailers have placed orders with Courtaulds' subsidiaries for commission weaving or making up from yarns or fabrics bought outside the Courtaulds' group and including competitive fibres. In spite of these allegations, the general view which appeared to emerge from discussions within the industry was that Courtaulds' more widespread participation in textile processing provides it with greater facility for production planning and control over deliveries than I.C.I.

E. GOVERNMENT POLICY

Although a negative attitude towards participation by fibre manufacturers in textile processing has been adopted since 1969, governments (of both

parties) have otherwise tended to favour amalgamations within the industry. This policy was, to some extent, implicit in the Cotton Industry Act 1959. Discussions with smaller firms within the industry revealed that the Department of Industry (or its earlier equivalents) has in recent years arranged a number of mergers with a view to elimination of excess capacity in small firms, re-equipment and reorganisation.

For the woollen and worsted industry, less affected by intervention on the part of fibre manufacturers than either the cotton or knitwear sub-sectors, the Government introduced in July 1973 the first assistance scheme under the 1972 Industry Act. The aims of this are "rationalisation of production facilities, improvement of structure and elimination of uneconomic and un-needed capacity". (7) There are three forms of assistance:-

- (1) Capital grants for re-equipment: 15 per cent of total costs for plant and machinery within existing buildings and 20 percent of total costs for combinations of plant and new buildings. (In both cases the proportions refer to costs after deduction of any regional development grants).
- (2) "Realisation grants" for companies ceasing to trade or closing down complete factories. These grants may be calculated either as 4 per cent of annual turnover or on the basis of standard payments per spindle or loom eliminated.
- (3) "Ad hoc finance" (loans or interest relief) for schemes of rationalisation or amalgamation.

By the end of 1974 applications had been received for £6.5 m. in capital grants (relating to gross expenditure of £27m. on equipment and £9m. on buildings) and for £0.3m. for "realisation payments" (equivalent to the closure of capacity with an annual turnover of £7.5m.). No applications had been received for financial assistance with schemes of rationalisation or amalgamation and this was attributed by the regional director of the Department of Industry to the fact that financial assistance was "not sufficiently generous" to encourage such changes.

SECTION IV

A STATISTICAL STUDY OF CONCENTRATION 1963-73

A. METHODOLOGY

1. Concentration and Market Forces

In this study, as throughout the series published by the Commission, concentration measurement is applied to industries delineated by raw materials and methods of production. In the earlier Cranfield report about concentration in the paper industry doubt was expressed about the relationship between such measures and market competition. Power over a market depends primarily upon the inability of customers to turn to substitute products. The manufacturer of paper bags is competing more directly with producers of plastic bags than with manufacturers of paper napkins. Because of these reservations, much of the analysis was directed towards product groups within paper manufacture and conversion.

The traditional structure of the textile industries was less specialised. Distinct product groups existed but these were divided by technical rather than end-use boundaries:- fine and coarse yarns, woollen and worsted yarns, plain and fancy fabrics, fibre-, yarn- and piece-dyeing etc. The development of vertically integrated groups and branded goods has, to some degree, limited the flexibility of a producer to enter any market for which he is technically equipped but commission processing remains important.

In textiles as a whole there are fewer elements of competition from outside the industry than in the case of paper. For certain textile products there are close non-textile substitutes but these are exceptional. Competition between sub-sectors is close for certain end-uses:- warp-knitted and woven fabrics for many purposes, (for example bed-linen and shirts); between weft-knitted and woven fabrics, (for example dress fabrics, soft furnishings); and between fabrics produced on the woollen or worsted systems and those produced by "cotton" weavers or knitters, (for example woven worsted, woven cotton/synthetic mixtures and knitted fabrics for trousers). Some specialist activities can be clearly separated from the rest of the industry (for example ladies' hosiery and finished sewing

thread) though the trends towards amalgamation and vertical integration in recent years have resulted in the predominance in these specialist areas of firms strongly represented in the rest of the industry.

For these reasons, concentration indices give a closer indication of market structure in the textile industries than in paper but the analysis is probably more meaningful when the three sub-sectors are combined than when they are treated separately.

2. Coverage and Data

The terms of reference called for an examination of concentration in three sub-sectors: wool (NICE 231), cotton (NICE 233), hosiery and other knitted goods (NICE 237). The definitions in NICE (Nomenclature Industrielle de la Communauté Européenne) are very similar to those of the U.K. Standard Industrial Classification (flax is now of minor importance):

NICE 233	{	MLH 412	Spinning and doubling on the cotton or flax systems
		MLH 413	Weaving of cotton, linen and man-made fibres
NICE 231		MLH 414	Woollen and worsted
NICE 237		MLH 417	Hosiery and other knitted goods

The Standard Industrial Classification was therefore used since establishments were classified on this basis by the Business Statistics Office.

Firms in each sector were identified by the 1968 Census Directory of Businesses, by trade directories and by reference to trade associations. Ownership of subsidiaries was checked by reference to "Who Owns Whom" and by direct examination of "annual returns of members".

(a) Enterprise Data

Because the larger textile companies were engaged in at least two of the three sub-sectors, in some cases with other activities also, it was not possible to produce data for all variables for each firm in

each sub-sector. It was decided by the Commission that enterprise data should be confined to published consolidated accounts (from which inter-subsidiary transactions are excluded). A firm would be included in the enterprise analysis if its world-wide sales in the three sub-sectors accounted for more than 50 per cent of total sales. This created one very large anomaly - the exclusion of Courtaulds Ltd. whose fibre-producing and non-textile activities exceed activities in spinning, weaving and knitting. In certain cases (for example William Baird Textiles Ltd. and Smith and Nephew Textiles Ltd.) where separate consolidated accounts are published which summarise textile activities, these were included in the enterprise analysis. The enterprise tables can therefore be used only for comparison of the concentration of the variables; the total figures do not represent the total of the industries concerned but only of the sample.

The criteria for inclusion in the enterprise sample were a turnover of at least £3 millions in the three sectors combined. The expansion of the sample, from 49 firms in 1968 to 55 in 1973 was due to inflation and amalgamations of smaller firms on the one hand, only partly offset by liquidations on the other.

Variables included in the enterprise analysis were:-

(E.E.C. Code)	01	Turnover
	04	Net Profit before Tax
	05	Cash Flow: 04 + depreciation
	06	Gross Investment (additions to fixed assets)
	07	Equity (shareholders' funds)
	08	Exports from the U.K.
(Additional Codes)	10	Net Assets = total assets - current liabilities
	11	Net Cash Flow = Cash Flow - Taxes

Concentration indices can meaningfully be applied only to positive values. In accordance with analytical principles specified by the Commission, firms making losses or experiencing negative cash flows (variables 04, 05 and 12) are omitted from the analysis of the variable concerned. This explains the discrepancies in the Tables of Concentration at the end of this report between the numbers of firms occurring in tabulations of different variables in the same year. For some purposes, the author has thought it desirable to analyse net profits before tax and losses; when

described in this report, the variable concerned is referred to as "net results" and a brief definition is repeated, in order to avoid confusion.

The level of price inflation experienced in the United Kingdom in recent years significantly distorts inter-company comparison of long-term capital. Negligible differences in the ages of fixed assets lead to substantial differences in the book value of assets (e.g. a new factory built in 1970 might have cost 40 per cent less than an identical one built in 1973). Periodic revaluations of assets may also affect capital values. The variables affected by this factor are 07 (equity), 10 (net assets) and, because of the effect on depreciation, 04 (net profit before tax).

Figures relate to those accounting periods which most closely correspond to the calendar year. For example "1968" data are taken from accounts for financial years ending any time from July 1968 to June 1969. In practice, all of the larger companies were found to report within the period October to March, most of them at the end of the calendar year.

Employment and wages bill were omitted from the analysis because most firms published data only for their U.K. operations and these could not be compared with world-wide values for other variables.

(b) Economic Activity Units

The figures used in the analysis of "economic activity units" are estimates of turnover of U.K. operations in each of the three sub-sectors and of their contributions to group profits (where a firm is engaged entirely in the U.K. and in sub-sector concerned the enterprise and economic activity unit figures will coincide). When the available breakdown of profits for diversified enterprises related to profits before interest or before central expenses, the author adjusted the figures by allocating these deductions in proportion to sales turnover. (This adjustment is necessary for comparison with other single-activity firms and for consistency with the Commission's definitions). Losses were again excluded from the analysis.

In most cases it was possible to obtain data for diversified firms on turnover and profits in each sub-sector. Some firms published the requisite breakdown in their consolidated accounts; in other cases it was possible to obtain the data by analysis of subsidiaries (with guidance from some of the firms concerned). In a few cases where published data were not available estimates were made from a wide variety of sources, including publications of other researchers (see the Bibliography).

Economic activity unit data were assembled for each of the three sub-sectors and also for the combination of the three. In the combined figures, vertically integrated finishing and making-up activities were included. The advantage of their inclusion was ability to use published rather than estimated data for all but one firm; it also avoided arbitrary assumptions about transfer pricing.

The samples of firms for inclusion in the economic activity unit tables for sub-sectors were based on two criteria:

- (a) Turnover of at least £1 million in the sub-sector concerned
- (b) Where the number of such firms exceeded 60, the first 60 in terms of turnover were included. (In 1970 for wool the sample was extended to 61 because of a discrete gap in the distribution of sales turnover after the 61st firm.)

The economic activity unit tables for combined activities ("textiles") relate to firms with turnover of at least £3 million in one or more of the three sub-sectors and vertically integrated finishing and making-up activities.

Appendix A shows a list of firms included in enterprise and economic activity unit tables for combined activities in 1968 and 1973. This listing shows turnover in all activities, and in textiles, world-wide and in the United Kingdom.

3. Definitions and Basic Properties of Concentration Indices

In this explanation of the main indices specified by the Commission and used in this analysis the following notation is used:

- N total number of firms in the industry;
- x_i the value of a variable for Firm i , when firms are ranked in descending order with respect to that variable;
- X the aggregate of the variable for the whole industry, that is,

$$\sum_{i=1}^N x_i$$

- P_i the proportion of the aggregate accounted for by Firm i , that is,

$$\frac{x_i}{X}$$

- μ the arithmetic mean value of the variable, that is, $\frac{X}{N}$

(a) Concentration Ratio

The concentration ratio for R firms within an industry is the fraction of the total value of the variable accounted for by the R largest firms ranked in descending order of that variable:-

$$\text{CR} \begin{matrix} (\%) \\ \end{matrix} = \frac{100}{X} \sum_{i=1}^R x_i$$

Concentration ratios give only limited information about the structure of an industry. With different distributions of the variable, comparison of degrees of concentration between different sectors may depend on the number of firms chosen. In industry A the top five firms may account for 40 per cent of sales and the next five 30 per cent (giving a ten-firm CR of 70 per cent). In industry B the five largest firms may account for 50 per cent of sales and the next five 18 per cent (giving a ten-firm CR of 68 per cent).

(b) Coefficient of Variation

This is the standard deviation of the distribution of values of the variable as a proportion of the mean

$$V = \frac{1}{\mu} \sqrt{\frac{\sum (x_i - \mu)^2}{N-1}}$$

(c) The Gini Coefficient

This measure is based on the Lorenz curve. The Lorenz curve plots the percentage of total industry turnover on the vertical axis against percentage of firms cumulated from the smallest on the horizontal axis. Thus the curve is concave (degenerating into a straight line when all firms are of equal size). Where a variable other than turnover is used, the percentage of firms is cumulated from the firm with the smallest value of the variable under consideration.

The Gini Coefficient is defined (see Fig. 1) as:

$$\frac{\text{Shaded Area}}{\text{Area OXY}}$$

It ranges from 0 (all firms equal in size) to 1 (all output in the hands of a single firm). The following formula provides a method of calculation when the values of the variable are ranked in ascending order (x_j ; $j+1$ to N)

$$\frac{1}{NX} \sum_{j=1}^N (j-1)F_j - jF_{j-1}$$

$$F_j = \frac{N}{\sum_{k=N-j+1}^N x_k}$$

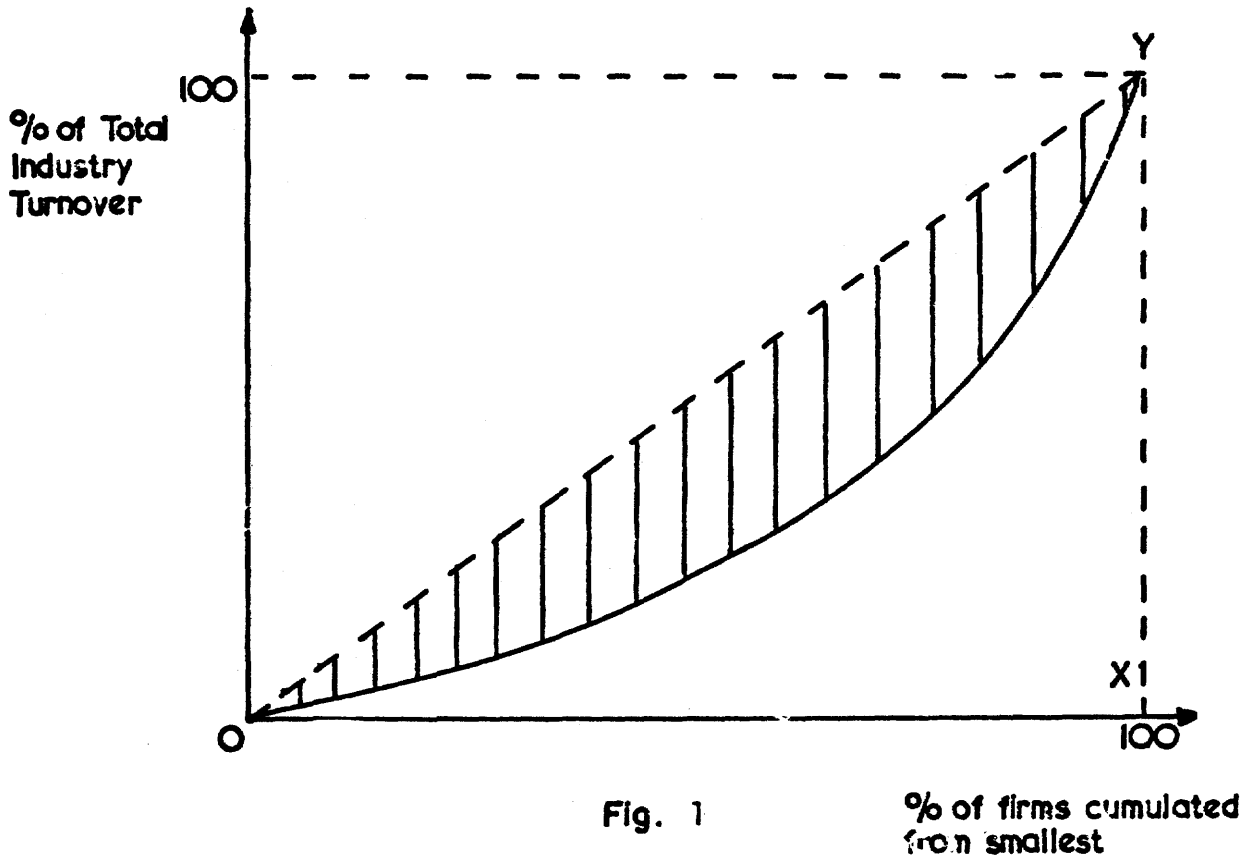


Fig. 1

% of firms cumulated
from smallest

(d) Herfindahl-Hirschmann Index

This was suggested by Herfindahl and is defined as the sum of the squares of the market shares, i.e.

$$\text{Herfindahl-Hirschmann Index} = \sum_{i=1}^N p_i^2$$

The index lies between $\frac{1}{N}$ and 1. Some authors prefer to define it as:

$$\text{H-H} = 1000 \sum_{i=1}^N p_i^2$$

i.e. to inflate its value by a multiple of 1000. This convention has been adopted by the Commission and is followed in this report.

The index is related to the coefficient of variation and in other publications by the Commission in this series has been defined accordingly:-

$$\text{H-H} = \frac{1000(V^2 + 1)}{N}$$

(e) Entropy

This is defined as:-

$$\text{Entropy Index, } E = - \sum_{i=1}^N p_i \log p_i$$

If one share is 1 and all others are 0, then $E = 0$ and the degree of concentration is maximum. If all shares are equal ($=\frac{1}{N}$) then $E = -\log N$ and the degree of concentration is minimum for that value of N .

The entropy index, explained at some length in the Cranfield report on the paper industry, has the advantage over other measures of concentration that absolute changes in its value may be compared. For example if the Gini coefficient moves from 0.3 to 0.5 in one industry and from 0.7 to 0.9 in another, it cannot be concluded that concentration has increased to the same degree. With the entropy index, such a conclusion could be drawn. (10)

(f) Linda Index

Another measure of industrial concentration is given by Linda.

$$Q_i = \frac{K - i}{i} \cdot \frac{A_i}{1 - A_i}$$

where $A_i = \frac{1}{K} \sum_{j=1}^i x_j$ and values of x are in descending order.

K may be any number of firms from 2 to N . (Thus Q_i is the average share of the market held by the top i firms divided by the average share of the market held by the other $(K-i)$ firms included in the sample).

The Linda Index is defined as:

$$\frac{1}{K(K-1)} = \frac{K-1}{\sum Q_i}$$

(i.e. the Linda Index is $\frac{1}{K}$ x the average of the Q_i 's).

The Linda index is designed to measure the degree of inequality between the values of the variable included in a sub-sample of K units.

The Linda Index may also be used to define the boundary between oligopolists within an industry and the other firms. This boundary occurs when the value of x_k is so large in relation to previous ratios that, in spite of

$$\frac{x_k}{x_{k+1}}$$

averaging, the Linda index rises. If the value of the Linda index (L) is greater for (k+1) than for (k) then an "oligopolistic arena" of k firms may be identified.

Mathematically this critical point (k_m) may be defined as where

$$\frac{dL}{dk} = 0 \quad \text{and} \quad \frac{d^2L}{dk^2} > 0$$

A measure of "synthesis" (LS) is included in the Tables of Concentration. This represents the mean value of the Linda indices from $k=2$ to $k=k_m$. LS is used in further statistical development of the analysis of concentration now being undertaken by the Commission.

The definition of k_m (N_m^* in the Tables of Concentration) on this basis differs from that used in earlier reports published by the Commission. This re-definition follows further analysis of the concepts underlying the Linda approach.

B. CHANGES IN CONCENTRATION 1963-8

Section III of this report outlined the influences towards greater concentration during this period and emphasised the importance of the two main fibre producers in the formation of vertically integrated combines in the "cotton" and knitwear sectors. Because of government discouragement of further intervention of this kind, the structure of these sub-sectors has changed much less since 1968 and an examination of the earlier evolution is necessary for an understanding of this more recent period of consolidation. Appendix Tables B (1 to 5) show a breakdown of economic activity units by size of employment according

to the 1968 Census. The most convenient method of summary comparison is use of Gini coefficients, based not on individual enterprises but on the groupings shown in the appendices. Reference will also be made to five-firm concentration ratios, which have already been described in Section II.

Table (18) shows the Gini coefficients for the three sub-sectors (cotton spinning and weaving are shown separately) and compares these with corresponding figures for textiles as a whole (including sub-sectors outside the present study) and for all manufacturing.

These coefficients show that for all three variables the degree of concentration in textiles was less than in manufacturing as a whole. There was, however, a much greater increase in concentration in textiles between 1963 and 1968 than that which occurred in total manufacturing.

Although, because classification was based on employment, the degree of concentration of the other two variables might be understated,¹ the Gini coefficients for both manufacturing and textiles are least for employment and greatest for capital expenditure. Net output was more concentrated than employment because larger firms produced greater net output per employee; this is almost certainly due to a higher capital : labour ratio. Because concentration was the greatest in capital expenditure, it appears that the relationship between size and labour productivity may have become stronger since 1968.

In textiles in 1968 the six firms with 10,000 or more employees accounted for over 42% of investment by all of the 1,871 firms employing 25 or more. The 96 largest employers were responsible for 46 per cent of employment and nearly 60 per cent of investment. Between 1963 and 1968 the concentration of capital expenditure increased substantially in textiles, whereas in all manufacturing no such tendency was apparent.

¹ This would occur if the ranking by employment were substantially different from that of the other variables. Because of the large numbers and the broad size categories, such distortion is probably slight.

TABLE 18: TABLE OF GINI COEFFICIENTS

	Employment		Net Output		Capital Expenditure	
	1963	1968	1963	1968	1963	1968
Cotton, flax, and man-made fibres - spinning	0.674	0.696	0.659	0.715	0.734	0.740
Cotton, flax, and man-made fibres - weaving	0.544	0.573	0.578	0.603	0.728	0.788
Woollen and worsted	0.616	0.634	0.622	0.650	0.703	0.655
Hosiery and Knitwear	0.650	0.698	0.644	0.706	0.654	0.740
All textile activities	0.691	0.733	0.726	0.777	0.754	0.822
All manufacturing industries	0.784	0.802	0.818	0.832	0.856	0.850

Concentration in each of the four sub-sectors currently being studied was less than in textiles as a whole. There are a number of reasons for this:-

1. Certain other sub-sectors of the textile industry are much more highly concentrated. These include the production of man-made fibres (MLH 411), which accounted for 15 per cent of net output and in which there were only five firms in 1968 and textile finishing (MLH 419), which is also dominated by large combines.
2. Analysis by sub-sectors ignores the existence of vertically integrated "textile conglomerates" with substantial interests in most sub-sectors but without dominance in any single one.
3. Vertical integration is linked with size of firm in the cotton (and allied fibres) industry. By splitting this industry into spinning and weaving, the Census results understate the importance of large vertically integrated groups.

Points (2) and (3) need to be remembered in any interpretation of the Gini coefficients for the individual sectors.

Cotton (and allied fibres) spinning was in 1963 the most concentrated of the four sub-sectors, though by 1968 hosiery and knitwear had approached a similar degree of concentration. One unusual feature of this sub-sector in 1963 was the absence of a positive relationship between net output per employee and size of employment. This is probably explained by the importance of small specialist firms working on high-value yarns; concentration is greatest in the high volume, lower value coarser yarns. By 1968 the more usual relationship of labour productivity with size had become apparent in this sub-sector, almost certainly because of the application of more advanced spinning techniques by the larger firms.

The five-firm concentration ratios for single cotton or man-made fibre yarn increased from 37.2 per cent in 1963 to 50.3 per cent in 1968. In both years there was much greater concentration in the production of finished thread, which is dominated by four companies.

Cotton (and allied fibres) weaving remained, even in 1968, much less concentrated than other textile sectors. Because of a previous absence of comparable economies of scale, the weaving industry had until recent years a much more atomistic structure than that of spinning. However, continued separation of spinning and weaving in Government statistics leads to serious understatement of the predominance in these more recent years of vertically integrated concerns.

One indication of the growing importance of the largest firms in weaving is the high concentration of capital expenditure. In 1968, 55 per cent of all capital expenditure was undertaken by only four companies: the author knows that these were vertically integrated concerns with interests in other sectors of the textile industry.

Increased concentration in weaving is also reflected in the 5-firm concentration ratios which rose from 19.3 to 31.2 per cent for cotton cloth and from 35.8 to 51.9 per cent for man-made fibre cloth. Some of the largest weavers of synthetic fabrics were wholly or partly owned by Courtaulds and Imperial Chemicals Industries Ltd. Courtaulds and Carrington & Dewhurst produced over half of fabrics woven from filament yarns. (3)

The woollen and worsted industry showed comparatively little increase in concentration between 1963 and 1968. Very large firms were less dominant, in terms of net output and capital expenditure, than in any of the other three sub-sectors:

% of variable represented by enterprises with 2,000 or more workers in 1968

	<u>Employment</u>	<u>Net Output</u>	<u>Investment</u>
Woollen and worsted	29	28	27
Cotton etc. spinning	41	39	47
Cotton etc. weaving	28	29	57
Hosiery and knitwear	35	39	47

This confirms the conclusion of Section III that fibre manufacturers became much less involved in the woollen and worsted industries than in "cotton" and hosiery and knitting.

In hosiery and knitting the main increases in concentration occurred in the production of warp-knitted fabrics (for which separate data were not at the time published) and in hosiery proper (men's and women's), for which the five-firm concentration ratio increased from 20 to 43 per cent. Both of these sections of the industry were affected by major acquisitions by the fibre manufacturers themselves or firms with their financial support.

C. CONCENTRATION OF SALES TURNOVER 1968-73

The results of the statistical analysis of samples of company accounts are shown in Appendix B (Tables of Concentration). For technical reasons these were produced at Cranfield but the contents are identical to those of the Tableaux de Concentration produced by the Commission to accompany other reports in this series.

1. Concentration in the Sub-sectors as a whole

Because of the continued existence of a very large number of small firms, it was not possible to produce complete data on the residue of the industry not included in the samples. (In any sub-sector these comprise firms with turnover of at least £1 million, subject to a maximum of 60; in the combination of sub-sectors and in the enterprise analysis the turnover criterion is £3 millions).

Some evidence is available on sales turnover of establishments engaged principally in each sub-sector from data published by the Business Statistics Office (6). For the "cotton" sub-sector the separation of spinning and weaving in official statistics results in double-counting of yarn produced by vertically integrated enterprises when sales figures are added together.

The sample turnover figures include yarn sales to weavers, other than inter-group transactions; the use of input-output tables to produce "gross output free from duplication" for spinning and weaving combined

therefore led to a cotton industry total which was less than that of the sample. Estimates of total sales to outside customers by establishments in the cotton sub-sector have been derived by the author but are less reliable than the totals for the wool and knitting sub-sectors, for which the B.S.O. publishes figures on this basis. These estimates are explained in Appendix C.

A delay in the publication of the enterprise tables for the 1970 and 1971 Censuses of Production restricts analysis to a comparison of sample totals for economic activity units with these data for establishments. The comparison is somewhat unsatisfactory, because of the existence of multi-activity establishments.

The following table shows approximate estimates of 30-firm concentration ratios in each of the sub-sectors, as well as the proportion of overall turnover represented by all firms in the samples:

TABLE 19: SHARES (%) OF OVERALL SUB-SECTOR TURNOVER

	<u>Wool</u>	<u>Cotton</u>	<u>Hosiery and knitting</u>
<u>(a) Obtained by all firms in the samples</u>			
1968	56	73	83
1969	58	74	82
1970	59	75	80
1971	65	77	87
1972	64	80	83
1973	60	82	90
<u>(b) Obtained by 30 largest firms</u>			
1968	48	68	75
1969	50	70	74
1970	50	71	72
1971	55	73	79
1972	55	76	75
1973	52	78	81

The table indicates that there was in each sub-sector a fall in the

estimated shares of total turnover being obtained by firms other than the top 30 in each sub-sector (in cotton from 32 to 22 per cent; in hosiery from 25 to 19 per cent and in wool from 52 to 48 per cent). Although these falls were moderate in view of the often-quoted economies of amalgamation and rationalisation, this comparison conceals reductions through mergers, takeovers, and cessation of trading, of the numbers of firms concerned. In the woollen and worsted sub-sector, the number of enterprises with at least 25 employees in 1968 was 538, by 1973 this number had fallen to 393. In hosiery and knitting the corresponding fall was from 548 to 370¹. Comparable figures are not available for the cotton sub-sector.

2. Oligopoly

From the Concentration tables and from the graphical representations of the Linda curves at the end of them it will be seen that in each sub-sector there is in most years a minimum (i.e. a point preceded and followed by a higher value) in the Linda index for a small number of firms. This implies that a small group exists whose shares of the market are considerably greater than that of the next largest firm. The Linda index itself measures the average degree of inequality among this group ("within the oligopolistic arena").

The table overleaf, relating to turnover in 1968, demonstrates the meaning of this concept.

Although an "oligopoly" may be said to exist in a statistical sense, this does not mean that the U.K. market is dominated by the firms concerned. For example in the cotton sub-sector although the four largest firms accounted for 58 per cent of sales by U.K. manufacturers, imports supplied more than half (by weight) of all articles made from cotton and/or man-made fibres. This intensely competitive situation needs to be borne in mind throughout the reading of this section.

¹ Business Statistics Office data, with an adjustment by the author of the 1973 figure for knitting to overcome the official separation of warp knitting from the rest of the sub-sector.

	<u>Wool</u>	<u>Cotton</u>	<u>Knitting</u>
Number of firms in group	6	4	7
Combined share of total turnover in sample (%)	48.2	56.2	67.3
Share of the smallest in the group(%)	5.0	9.3	3.8
Share of the largest firm excluded(%)	3.6	3.6	2.4
Linda index for the group	0.245	0.464	0.912

The predominance of a few firms was greatest in the cotton sub-sector where four concerns (Courtaulds, Tootal, Viyella International and Carrington and Dewhurst) together accounted for 56 per cent of the turnover of the 52 firms in the sample. In the wool sector the "oligopolists" were six in number with 48 per cent of turnover but the lower value of the Linda coefficient shows that they were more equal in size than the four cotton companies. In hosiery and knitting the oligopoly was slightly larger but within the larger group there was greater inequality.

In most studies of concentration, oligopolistic groups are associated with specialisation. In their study of the paper industries the Cranfield research team found that no oligopoly situation was indicated by the Linda curves for paper manufacture and conversion but that specialist activities tended to be dominated by small groups. This led to some doubts about the validity of application of concentration measures to paper-making and -using activities as integral industries.

In textiles there is a different situation. When distinctions between "cotton", "wool" and knitting are ignored (man-made fibres predominate throughout!) a distinct textile oligopoly remains, consisting of multi-process firms.

In 1968 there were five companies which together controlled 57.3 per cent of the total of the 50 largest figures of U.K. turnover derived from spinning, weaving or knitting of wool, cotton or man-made fibres. These five were Courtaulds, English Calico (now Tootal), Coats-Paton, Viyella International and Carrington and Dewhurst. Courtaulds' turnover in textile processing in 1968, the end of its period of most extensive

acquisitions in cotton-type spinning and weaving and in hosiery was about £228 millions whereas those of the other groups ranged from £69 millions (Carrington & Dewhurst) to £78 millions (Tootal and Coats Paton). The largest firm excluded from the "oligopolistic arena" defined by Linda index was Illingworth Morris (U.K. textile turnover of £29 millions).

The amalgamation of Carrington & Dewhurst and Viyella International at the end of 1970 reduced the oligopoly to four members with 55 per cent of sample turnover and made Carrington-Viyella the second largest firm with a textile turnover in 1971 of £142 millions, just under half that of Courtaulds. By 1973, Illingworth Morris had increased its U.K. textile sales to £82 millions and had become part of the oligopoly group. The five firms concerned together controlled 55 per cent of turnover in the sample of 58 textile companies with over £3 million annual sales; the degree of concentration had, therefore, changed negligibly since 1968.

The representation of the large combines in each of the sub-sectors is shown in Table 20, which also names other competitors in the "oligopolistic arena" within each sub-sector:

TABLE 20: OLIGOPOLY GROUPS 1973

Sub-sector	Oligopolistic Arena		Names of firms (share of sample)
	No. of Firms	Combined share of sample total (rounded)	
Wool	2	30	Illingworth Morris (16) Coats Paton (14)
Cotton (1972)*	3	52	Courtaulds (22) Carrington-Viyella (19) Tootal (formerly English Calico) (11)
Hosiery & Knitwear	8	68	Courtaulds (28) Nottingham Manufacturing (9) Coats Paton (8) Carrington-Viyella (7) Tootal (6) Corah (4) Pretty Polly (4) Dawson International (3)

* The year 1973 saw exceptional boom conditions in the Lancashire industry and firms which had rationalised production less than the big three appear to have been better able to exploit this.

In the wool sector, although two firms were distinctly larger than their competitors it cannot be argued that there was a duopoly in 1973 because they together had only 30 per cent of total sample turnover. The position of the two firms results largely from acquisitions during the period covered by the survey. These acquisitions included firms which had been among the largest in the woollen textile industry.

In cotton the situation is probably closest to oligopoly, in spite of the tendency since 1971 for the predominant position of the big three to decline somewhat. It may be recalled that I.C.I. owns 64 per cent of the equity of Carrington-Viyella and eight per cent of Tootal (it has a nominee on the board of Tootal) and that Courtaulds (eight per cent) and Illingworth Morris (two per cent) have investments in Tootal. Part-acquisition by Courtaulds of Highams Ltd. will strengthen its share of the market, though its competitive advantage may be decreased by government surveillance.

In hosiery and other knitting, the statistical approach is somewhat misleading because of market segmentation. Thus, whereas Courtaulds produces warp-knitted and weft-knitted fabrics, knitted garments and hosiery, none of the other groups is represented in all of these activities. Pretty Polly, for example, is almost entirely engaged in ladies' hosiery.

3. Summary of Changes in Concentration of Turnover 1968-73

(a) Wool

The growth of the two largest firms in the wool sub-sector has already been described. This development resulted from acquisitions within the larger enterprises in the industry, so that the percentages of total turnover in the sample represented by the top 10, 20 and 30 firms changed little (see Table 21 below). The index of entropy rose from -151.7 to -146.8, a rise of 4.9 points,¹ indicating a greater increase in concentration in this sub-sector than in either of the other two.

¹ This index is the only one of the series in the Tables of Concentration which permits comparison of absolute changes.

(b) Cotton

The main change in concentration in the cotton sector was the merging of Viyella International and Carrington & Dewhurst at the end of 1970. In 1970 (treating the two firms as separate), it is estimated that four firms accounted for 53 per cent of sample turnover; in 1971 the three firms accounted for a slightly greater percentage. Apart from this single merger, the structure of the cotton sub-sector changed little between 1968 and 1973, mainly because of Government hostility towards further extension by I.C.I. and Courtaulds. (Had the Government not intervened Courtaulds might well have acquired English Calico and this might in turn have led I.C.I. to acquire more processing capacity.) The index of entropy rose by only 4.4 points.

(c) Hosiery & Knitting

In the hosiery and knitting sub-sector overall changes in structure within the sample of the 60 largest firms were negligible with only one major merger: that between Carrington and Dewhurst and Viyella International. Concentration ratios changed very little and the entropy index fell by 2.8 points.

(d) Combination of sub-sectors (Economic Activity Units)

Among the firms with over £3 millions turnover in the three sub-sectors combined a slight fall in concentration is observed. This results merely from the entry into the sample of additional firms attaining £3 m. turnover. While this change is primarily of technical interest, it emphasises the absence during the survey period of any further growth of large textile groups established in the five years before 1968.

TABLE 21: CHANGES IN CONCENTRATION WITHIN SAMPLES 1968-73

<u>Concentration Ratios</u>		<u>Wool</u>	<u>Cotton</u>	<u>Knitting</u>	<u>Combined</u>
Four firms	1968	35.9	56.2	52.9	49.8
	1973	41.6	56.0	53.3	51.9
Ten Firms	1968	60.0	72.8	72.6	70.4
	1973	60.5	75.5	72.4	67.3
Twenty Firms	1968	75.4	86.5	84.0	83.4
	1973	76.8	88.9	82.9	80.6
Entropy Index Change 1968-73		+4.9	+4.4	-2.8	-4.3

D. CONCENTRATION OF OTHER FINANCIAL VARIABLES 1968-731. Net Profits and Net Results (Economic Activity Units)

This part of the study was restricted by the existence in the industry of overseas and/or non-textile interests which are consolidated in the accounts of major textile companies. Comparison of net profit after interest and before tax with turnover for activity units is of doubtful validity for the following reasons:

- (i) Turnover includes the value of purchased materials. A very efficient single-process firm may make a lower margin on sales than a less efficient vertically integrated firm.
- (ii) Profits before interest may be more relevant, since the comparison with sales would then be less distorted by variations in the capital structure of the firms concerned.

- (iii) For economic activity units, transfer pricing based on "group net benefit" may be reflected in misleading profit figures for any part of the vertical process. For example attention has been drawn by other researchers to low profit margins obtained by Courtaulds in its spinning and weaving activities (8) during the recession of 1970 but this policy has to be considered in relation to capacity utilisation in the company's fibre producing divisions.
- (iv) The published data often reflect exceptional items or changes in accounting policy for which detailed adjustments are impossible in a large study of this kind. (Nearly 2,000 annual company reports have been examined).
- (v) The depreciation estimates used in the calculation of net profit figures published by companies are based on historic cost of assets. In an inflationary period, comparison of net profit figures can be severely distorted by slight differences in the ages of fixed assets of different companies.
- (vi) In some cases the research team has had to make its own estimates of profits derived by companies from particular activities or to use estimates of previous analysts. Such estimates must be regarded, at best, as approximate.

Concentration of net results has been examined in two ways:

- (a) application of the statistical framework of the Commission to positive values (net profits), these being ranked independently of turnover, so that a four-firm concentration ratio (for example) would be the proportion of the total of all net profits in the sub-sector accounted for by the four firms with the largest profits;
- (b) calculation of the shares of total net results (profits and losses

included) in the sub-sector achieved by specified numbers of "largest firms" ranked in order of sales turnover.

Approach (a) gives greater opportunity for more advanced statistical analysis but resulting coefficients cannot be validly compared with those for turnover if the ranking of the two variables is substantially different. Differences in ranking were found to be too great to justify general comparison of the two sets of results though partial comparison was possible (see below)¹.

1

Ranking was checked by computation of product-moment correlation coefficients ($r_{\log T \log \pi}$) and by rank correlation coefficients.

The former were preferred because of the effects on ranking of minor differences between approximate estimates, which did not distort the correlation between logarithms of turnover (T) and profits (π). The resulting coefficients are shown at the end of Appendix D. Firms experiencing a loss were excluded from the calculation.

(a) Concentration indices for Net Profits (EAU)

The details contained in the Tables of Concentration are summarised in Table 22. The entropy index is again quoted so that absolute changes may be compared.

TABLE 22 : CONCENTRATION OF NET PROFITS (EAU) 1968-73

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
<u>Wool</u>						
C.R. for 4 firms (%)	41	46	36	35	42	45
10	60	60	61	61	66	66
20	81	85	84	82	81	82
Gini Coefficient	0.56	0.58	0.57	0.58	0.59	0.59
Entropy index	-152	-147	-149	-149	-146	-147
Average profits as % of sales	5.2	3.9	2.7	3.4	6.4	7.0
<u>Cotton</u>						
C.R. for 4 firms (%)	67	57	55	59	58	58
10	82	77	78	84	83	81
20	92	91	92	96	94	93
Gini Coefficient	0.76	0.71	0.71	0.75	0.74	0.72
Entropy index	-115	-124	-122	-115	-118	-120
Average profits as % of sales	5.6	4.8	4.4	4.2	5.3	6.4
<u>Hosiery and Knitting</u>						
C.R. for 4 firms (%)	53	58	63	60	56	57
10	75	76	77	75	71	73
20	87	88	88	87	85	86
Gini Coefficient	0.71	0.73	0.73	0.71	0.69	0.71
Entropy index	-130	-124	-117	-123	-128	-127
Average profits as % of sales	7.0	5.9	5.3	6.3	6.8	7.6
<u>Combined sub-sectors</u>						
C.R. for 4 firms (%)	48	45	53	50	44	45
10	74	68	69	68	67	69
20	86	83	84	84	82	83
Gini coefficient	0.65	0.63	0.64	0.64	0.62	0.66
Entropy index	-131	-137	-131	-134	-139	-139
Average profits as % of sales	6.2	5.1	3.9	4.9	6.6	7.6

One of the more remarkable aspects of the concentration of profits in the cotton and wool sub-sectors is that during the recession years of 1969 and 1970, when average margins on sales fell sharply, profits became less concentrated. Because of the greater strength of large firms in relation to the market, an opposite tendency might be expected and can be seen to have occurred in the hosiery sub-sector. The reasons for this are discussed at greater length in Section V. They mainly reflect the pricing policies of certain of the larger vertically integrated companies which, because of the predominance of their fixed costs, were induced by the market into "weak selling".

It is evident from the table that profits were more concentrated in the cotton and knitting sub-sectors than in wool and this is consistent with the greater concentration of turnover in these two sectors.

(b) Relationship between Net Results and Turnover

Table 23 shows the results (net profits + net losses) of firms ranked in order of turnover as percentages of the total sum of net profits and losses in each sub-sector.

TABLE 23 : PERCENTAGES OF SAMPLE TURNOVER AND NET RESULTS HELD BY 5 AND 10 LARGEST FIRMS IN TERMS OF TURNOVER

		<u>WOOL</u>		<u>COTTON</u>		<u>KNITTING</u>		<u>COMBINATION</u>	
		Turn- Over	Net Result	Turn- Over	Net Result	Turn- Over	Net Result	Turn- Over	Net Result
1968	Top 5	43	62	60	68	58	57	57	55
	10	60	62	73	77	73	74	70	71
1969	Top 5	47	47	59	57	58	62	56	47
	10	62	63	73	72	73	75	68	65
1970	Top 5	44	35	57	57	58	71	54	42
	10	61	62	69	69	72	73	66	62
1971	Top 5	46	32	61	60	60	62	58	48
	10	61	50	77	82	73	73	69	64
1972	Top 5	47	47	61	60	58	56	57	47
	10	61	60	76	81	72	68	68	65
1973	Top 5	46	49	60	61	58	57	56	54
	10	61	60	76	79	71	68	67	66

This table shows that the comparative profitability of larger firms varied considerably between sub-sectors and over time. In wool the larger companies obtained shares of industry profits fairly close to their shares of turnover with the exception of the largest groups in 1970 and 1971, which (as was remarked earlier) reduced profit margins during a period of trade recession.

In cotton before the 1969-71 recession the very largest firms achieved a disproportionate share of profits and the effect of the recession was to reduce this share to approximate equality with their share of turnover. In the recovery some evidence of greater profitability is again indicated and this is believed (on the basis of discussions within the industry) to reflect increased margins.

In knitting, the effect of recession was to give a greater share of

the reduced profits to the five largest firms in terms of turnover: this was particularly pronounced in 1970. At other times, shares of trading results and turnover were approximately equal.

When combined textile processing interests are considered, the overall share of profits achieved by the largest firms was consistently below their share of turnover. Reasons for this lower profitability are examined in Section VI.

The great variations between profit margins between firms can lead to misleading conclusions when groups of five are considered. To avoid all problems of grouping a regression analysis was carried out on individual company data to test whether profit margins varied with sales turnover. In no sub-sector and in no year did any significant correlation exist: this means that the features observed in Table 22 were the result of performance by individual companies. Over the whole sample profit margins were not influenced by size of turnover. This is not surprising in view of the comments on page 63 and is consistent with the findings of most other research studies.

(c) Turnover and Profits in Oligopoly Groups

The Linda index can be used to identify groups of firms whose shares of profits are so high in relation to the rest of the samples that they may be defined as a major profit group analogous to an oligopoly. If profits were closely related to turnover as a constant or increasing function, then this select group of profit-makers would also be the oligopolists.

The oligopoly and major profit groups were found to coincide only in the case of the cotton sub-sector in 1968 and 1969. In 1968, the same four firms accounted for 56 per cent of sample turnover and 67 per cent of profits; in 1969 the corresponding proportions were 55 and 57 per cent. For the four, the Linda index was greater for

turnover than for profits indicating less inequality of profits than of turnover. The rankings of the four firms differed for the two variables. (ABCD for turnover in 1968; BCDA for profits.)

In all other instances, the oligopoly groups defined by the application of Linda coefficients to turnover did not coincide with distinct profit groups. Table 24 shows the shares of total net results (profits - losses) in each sub-sector and in textile processing as a whole annually from 1968 to 1973:

TABLE 24: SHARES OF TURNOVER AND PROFITS (NET RESULTS) OBTAINED BY OLIGOPOLY GROUPS

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
<u>Wool</u>						
Number of firms	6	12	14	58	2	2
% share of sample turnover	48	*	*	*	31	30
% share of sample net results	49	*	*	*	26	25
<u>Cotton</u>						
Number of firms	4	4	4	2	3	16
% share of sample turnover	56	55	53	43	51	*
% share of sample net results	68	57	53	27	48	*
<u>Hosiery & Knitting</u>						
Number of firms	7	8	59	58	60	8
% share of sample turnover	67	70	*	*	*	63
% share of sample net results	67	70	*	*	*	69
<u>Combination of sub-sectors</u>						
Number of firms	5	5	5	4	5	5
% share of sample turnover	57	56	54	55	57	56
% share of sample net results	55	47	42	45	47	54

* No "oligopoly" can be said to exist when $Nm > 10$

Table 24 confirms that oligopoly groups in textile processing as a whole tended to account for lower proportions of profits than of sales and that this difference was more pronounced during the recession period than during the comparative boom years of 1968 and 1973. In hosiery, the profits of oligopoly groups represented a similar share of the sample turnover to that of total turnover. In the wool sub-sector the two largest firms in 1972 and 1973 appear to have operated with lower profit margins than the rest of the sample.

2. Enterprise Analysis

The firms included in the enterprise tables had at least £3 millions turnover in the three sub-sectors concerned in the U.K. and world-wide interests in these sub-sectors accounted for at least 50 per cent of total turnover from all activities. Figures used in the analysis were based on total (not just textile) interests and this permitted the use of consolidated accounts and consequent avoidance of distortions resulting from transfer pricing etc. Distortions resulting from inflation remain; these were discussed on page 63.

One of the least satisfactory aspects of the enterprise analysis is the exclusion of Courtaulds, the U.K.'s largest textile concern on the grounds that fibre-production and non-textile interests account for over 50 per cent of turnover. It should be re-emphasised that "shares of the sample totals" do not represent shares of textile markets but, in the case of the enterprise tables, indicate relative strengths of major companies engaged predominantly in the three sub-sectors.

(a) Turnover

The four largest firms in 1968 were Coats-Paton, English Calico, Carrington and Dewhurst and Viyella International. They represented an oligopoly group (defined by the Linda index) and together obtained 56 per cent of total turnover of the 49 firms. Following the merger into Carrington-Viyella in 1971, the oligopoly consisted of three firms and in 1973 their share of sample turnover had fallen to 50 per cent.

Over the six-year period, the overall degree of concentration of turnover among the sample of enterprises changed little.

(b) Other variables

The overall degree of concentration of other variables also remained fairly steady over the six years. Net profits, cash flow and net cash flow showed a slight increase in concentration in 1970, during the recession period but this was fairly marginal. Over the whole period, these variables remained more concentrated than turnover.

Gross investment became somewhat more concentrated than turnover throughout the period and net assets were more concentrated than equity. This may reflect the greater importance of loan capital in the larger companies with greater borrowing potential.

The least concentrated variable is exports, in contrast to the findings of the paper study. The long-established tradition of exporting in the textile industry continues to be reflected in overseas sales by smaller as well as large companies.

(c) Other variables in relation to size of turnover

The following table shows the shares of turnover and other variables accounted for by the "oligopoly group" and by the ten largest firms (in terms of sales turnover) in 1968, 1970 and 1973:

TABLE 25 : SHARES OF TURNOVER AND OTHER VARIABLES OF "OLIGOPOLY" GROUPS AND TEN LARGEST FIRMS (IN TERMS OF TURNOVER)

Variable	1968		1970		1973	
	4 firms	10 firms	4 firms	10 firms	3 firms	10 firms
Turnover	56	71	55	69	50	70
Net Profits	63	79	57	74	56	76
Cash Flow	62	77	58	73	52	73
Gross Investment	59	71	63	75	44	68
Equity	60	75	59	73	56	74
Exports	43	68	46	69	37	68
Net Assets	65	80	64	77	59	76
Net Cash Flow	60	76	56	72	55	74

This table shows that in 1968 the enterprises with the largest turnover accounted for an even greater percentage of all other variables, apart from exports. This demonstrates again the importance of exports to medium-size firms, without the branded home-market products and overseas subsidiaries of the largest groups. This was especially in the woollen industry. In 1970, a recession year, the concentration of profits, cash flow and net cash flow in the hands of the largest enterprises decreased (a result consistent with the earlier analysis of activity units) but they were responsible for a greater proportion of capital investment. By 1973 this dominance of capital expenditure by the largest groups had again receded.

(d) Size and Profitability

As in the paper study, no significant correlations were found to exist between size of enterprise and rate of profit. The following regression equations were computed; in no case did the significance level of the regression coefficient approach even 10 per cent:-

<u>Turnover</u>	v	Net assets	(to check whether larger firms achieved better utilisation of capital).
Net assets			

<u>Net profit</u>	v	Turnover
Turnover		

<u>Net Profit</u>	v	Equity
Equity		

<u>Capital expenditure</u>	v	Cash Flow
Cash Flow		

The absence of significant correlation is consistent with a number of other studies in this field. The subject is further discussed in the final section (section VI) but fuller understanding of reasons why significant relationships of this kind are seldom found must

await the conclusions of more detailed empirical research.

(e) Ranking according to different variables

One of the conditions necessary for more detailed analysis of the Linda indices is that the ranking of companies should be the same (or almost the same) for each of the variables. This was checked by rank correlation coefficients; the matrices for 1968 and 1973 are shown in Appendix D. Except an expected close correlation between rankings of net profits and cash flow the coefficients are too far from unity to permit the application of further analysis of Linda coefficients.

SECTION V

PRODUCT MARKET ANALYSIS

A. SPECIALISATION

Specialisation in the textile industries can be based either on end use (e.g. tyre cord, ladies' hosiery, hand-knitting yarns) or on technical distinctions (e.g. spinning of coarse yarns, weaving of coloured fabrics, warp-knitting). Product markets cannot be defined exclusively on either one of these criteria.

1. Degree of specialisation within each sub-sector

Traditionally the three sub-sectors were separated by geographical as well as product boundaries. The cotton industry was concentrated in Lancashire and trading was normally via the Manchester Exchange, where cloths produced by a large number of small companies was purchased by an equally large number of merchant converters, for home or export sale. The woollen and worsted industry was similarly focussed upon Bradford and the knitting industries on Leicester and Nottingham. Although the system of selling has now changed and the boundaries between products have been eroded by the widespread adoption of man-made fibres, the orientation of most of the medium-size and smaller firms remains within the old geographical limits. Trade associations, employers' federations, trade unions and technical institutions remain delineated by the cotton, woollen and worsted and hosiery and knitwear "industries".

The detailed statistical analysis in Section IV covered 150 companies in 1973 - these included the 60 largest in wool and in knitting and the 47 largest in cotton. Only two of the 150 companies were represented in the sample of largest activity units in every sub-sector (Courtaulds and Coats Paton); 13 were among the largest firms in two of the sub-sectors. Of the remaining 135 companies, represented among largest activity units in only one sub-sector; 30 had activities with less than £1 million turnover in either or both of the other two.

2. Specialisation among largest groups

Three enterprises - Courtaulds, Carrington-Viyella and Tootal supply many end-uses, having integrated forward to the final product. The structure of Courtaulds is such that its share of production diminishes at successive stages closer to the final market (greatest in spinning, less in weaving and knitting and least in finishing and making-up). There are some end products in which it is the market-leader (ladies' hosiery) and others in which its representation is negligible (sewing thread and tyre fabric). Tootal's structure is the inverse of that of Courtaulds: capacity in finishing and merchandising exceeds that in weaving and knitting which in turn use more yarn than is produced by the group's spinning mills. As a result of its merchandising activities, Tootal is able to advertise its ability to supply almost all categories of textile products (the few exceptions include tyre fabric and hose). Much of the cloth concerned is purchased outside the group. Carrington-Viyella is orientated towards a less wide range of final products but produces most of what it sells.

The other enterprises in the textile industries tend to be more specialised and some firms with annual turnover of over £15 million concentrate on only one or two products (Pretty Polly on ladies' hosiery, Sir James Hill on wool-combing, Dunlop Textiles and John Bright Group on tyre fabrics).

3. The role of small firms

One of the unexpected findings of a series of discussions with smaller firms was diversity of end-uses for which output was destined. The basis of specialisation in such undertakings is technical and the market advantage is ability to supply small quantities. Variety remains important and can be reconciled with the economic advantages of long runs on high-draft spinning frames and automatic looms through inter-company trading which is important in this, highly entrepreneurial, part of the textile industry.

B. ANALYSIS BY PRODUCTION PROCESS - INTERMEDIATE PRODUCTS

1. Preparation of Material for Worsted Spinning

One of the most capital-intensive processes in the wool sub-sector is the production of "tops" of wool which has been sorted, scoured and combed for worsted spinning. Man-made fibres have been introduced to this process: they are usually supplied in filament or tow (continuous band) and are then shredded or stretch broken for subsequent combing. Net output per employee in this activity in 1968 was more than double that for the woollen sub-sector as a whole.

In 1973, 24 enterprises were known by the Business Statistics Office to be engaged in the production of combed tops of wool and only six to be engaged in the similar processing of man-made fibres. Total sales of tops of wool, other animal hair and man-made fibres amounted to £112 millions in 1973; exports were worth £49 millions and imports only £5 millions.

Top-making is undertaken partly by large specialist firms and partly by worsted spinners. In recent years one of the largest woolcombing concerns (Woolcombers Ltd.) was gradually acquired by the large woollen and worsted combine Illingworth Morris Ltd.

About 35 per cent of the total weight of tops produced in 1973 consisted of man-made fibres and Courtaulds has built up its own worsted spinning division which accounted for over one-third of all man-made fibre tops produced in 1973. I.C.I. does not appear to have any major direct investment in this activity.

2. Woollen yarn spinning

The spinning of yarn from carded wool remains a highly fragmented sector, though there are elements of concentration within it. Table 17 showed that the share of total production achieved by the five largest firms increased from 26 per cent in 1963 to 34 per cent in 1968. This ratio conceals the existence of concentration occurring

through vertical integration by large carpet producers. The proportion of woollen yarn going to carpet manufacturers rose from 40 per cent in 1968 to nearly 50 per cent in 1974. Most of the remainder went into weaving or was exported. Exports of woollen yarn, mainly to other E.E.C. or western European countries, amounted to £16 millions in 1973, about 11 per cent of total sales. Imports were negligible.

3. Worsted yarn spinning

Over 80 firms were engaged in worsted spinning in 1973 but, because of the economies gained by long production runs, there is considerable specialisation. Yarns for machine-knitting took 38 per cent of output in 1969 and by 1973 and 1974 this had risen to 48 per cent; the proportion of output sold as hand-knitting wool remained constant at about 16 per cent. (The structure of the market for hand-knitting wools is discussed in the next sub-section of this report, B.1). Total exports of worsted yarn in 1973 amounted to about £20 millions; 65 per cent of which was hand-knitting yarn. Imports were less than half this amount. Total sales by U.K. producers were about £170 millions. (6)

4. Spinning of cotton and man-made fibres

This is another activity in which long production runs are required. Vertically integrated groups now control a dominant proportion of spinning capacity and the Business Statistics Office data indicate that only 38 firms with over 25 employees spun single cotton yarn in the U.K. in 1973 compared with 51 in 1963. Imports of yarn have recently risen as certain weaving and knitting concerns have been able to buy yarn more cheaply overseas. Allegations have been made about the "dumping" of yarns, subsidisation by foreign governments eager to obtain foreign exchange and the effects of "dumping" by fibre producers of the U.S.A. and western Europe (including the U.K.) which has led to polyester/cotton mixed yarns entering the U.K. "at less than their fibre content would cost here". Some weaving concerns attributed yarn imports to a desire for independence from reliance on U.K. spinning subsidiaries of their major competitors.

The spinning of coarser yarns from cotton and man-made fibres has been more adversely affected by fabric imports than that of finer yarns. This is because cheaper more "basic" fabrics tend to use coarser yarns. On the other hand, spinners of fine yarns have been affected by the adoption of synthetic filament and this effect has been more severe (many mills in the former mule-spinning area around Bolton have been closed in the last few years). Output and consumption of spun yarns in 1968, 1973 and 1974 were as follows:-

	<u>1968</u>	<u>1973</u>	<u>1974</u>
Production (000 tonnes)	240	208	189
Exports	9	16	14
Imports	<u>17</u>	<u>31</u>	<u>53</u>
U.K. domestic use	<u>248</u>	<u>223</u>	<u>228</u>

(Note: Figures include yarns of cotton, cotton waste or man-made fibres spun on the cotton system.)

Concentration in cotton etc. spinning increased greatly during the period 1963-8, when the five-firm concentration ratio increased from 37 to over 50 per cent. Textile Council estimates for 1968 (3) show Courtaulds with 30 per cent of output, Carrington-Viyella (then two separate firms) with nine per cent and English Calico (Total) with eight per cent. More recent estimates are not available but these proportions are believed to have increased slightly.

The continued existence of the small firm in spinning appears, from discussions with such firms, to be due to the ability to exploit the advantages of smallness. Technical economies require long production runs and such firms normally specialise on urgent commission work or specialist orders. The ability of the proprietor or single manager to consider both production and marketing factors is reflected in price discrimination (recovery of the costs of urgent orders from the urgent customer and disposal of the balance of production on a marginal-cost basis) and in finely judged inventory policies.

5. Warp-knitting

In 1973 423 million m² of fabrics warp-knitted from synthetic filament yarn were sold by U.K. producers, 383 million m² to the home market. Imports were negligible. Of this volume, about 42 per cent was used in women's dresses and lingerie, about 20 per cent in other apparel and 31 in household textiles. Parts of this market, for example men's shirts and sheets have dwindled since 1973 because of competition from woven polyester/cotton mixtures. To this fashion trend has been added an increase in imports of warp-knitted synthetic-fibre garments. The slower growth and then the decline of U.K. demand for warp-knitted fabrics followed a boom in the late 1960's and has left this section of the industry with considerable excess capacity. Prices are low and the main pressure for lower prices has come from vertically integrated fibre producers eager to contribute to heavy fixed expenses not only in the capital-intensive warp-knitting section but also in their fibre-manufacturing facilities.

Of the 36 firms engaged in warp-knitting in 1973, by far the largest were subsidiaries of Courtaulds and Carrington-Viyella. In 1968 Courtaulds' share of warp-knitting output was estimated (3) at 35 per cent and this has probably increased; the combined share of Viyella International and Carrington and Dewhurst was 25 per cent but in more recent years Carrington-Viyella has rationalised its warp-knitting capacity and its current share of the market may be slightly lower. Discussions within the industry lead the author to believe that dominance by Courtaulds and I.C.I. (via Carrington-Viyella) is likely to increase and that prices will be such as to discourage new entrants and further growth of imports.

C. ANALYSIS OF SELECTED END USES

The variety of end uses of textile products make it necessary to confine this analysis to a number of examples which demonstrate the different competitive conditions. These are hand-knitting wool, coloured woven

woollen dress fabrics, sewing thread, shirts, bedding and ladies' hosiery. Among aspects examined are the degree of vertical integration to the consumer product, the importance of branded and unbranded items and the impact of foreign trade.

An attempt has been made in a number of cases to assess the shares of the market obtained by individual companies. This measurement is complicated (i) by the significant proportion of sales of many textile products achieved by major retail groups selling under their own brand labels and (ii) by the practice on the part of some textile firms of buying intermediate or even finished products from other U.K. companies or from overseas.

1. Hand-knitting yarn

This product has declined in the last few years with increasing efficiency and lower costs in the knitwear industry. In 1969 U.K. sales of hand-knitting yarn amounted to 16.3 million kg. and by 1974 had fallen to 13.1 million kg. This remains a large market with consumer sales value of about £55 millions.

Exports of hand-knitting yarns are about ten per cent of industry sales; imports are negligible. About 50 per cent of the fibre content of this yarn is now man-made fibre, especially acrylic and nylon, I.C.I. and Courtaulds direct advertising of such fibres to the hand-knitting consumer but are not themselves engaged in the production of hand-knitting yarns. Competitive advertising by the International Wool Secretariat emphasises the advantages of the natural fibre and a 1972 market research survey (12) reported some "basic preference" for wool.

Just under half of total sales of hand-knitting yarns are via specialist wool shops. Some of these (e.g. Bellmans and Scotch Wool Shops) are owned by the spinning companies (in that case Coats Paton). Variety of yarns on offer is a major competitive strategy by such shops and this means low retail stocks of any one product line. Conversely, the manufacturer is expected to hold large stocks as retail outlets advertise

their ability to obtain yarn quickly. One solution to the inventory problem, convenient to all parties, is the arrangement whereby the retailers "lay by" wool for the customers to purchase while they are knitting a garment. Provided delivery by the manufacturer is reliable, this need not tie up much of the retailer's stock. Since 1969 there has been some decline in the number of specialist wool shops and Coats Paton have closed some of their retail outlets. The major alternatives are department stores and chain stores; the latter sell "wool" under their own brand labels and usually concentrate on a narrow range with more rapid stock-turnover.

The 1972 Mintel research survey (14) showed that 15 companies accounted for 86 per cent of total sales and in 1973 some of these were merged through acquisitions. The following table uses Mintel's estimates of market shares:-

	<u>per cent</u>
Coats-Paton (including Bellmans)	33
Sirdar (including Hayfields, acquired 1973)	16
Robert Glew Ltd. (including Emu, acquired 1973)	10
Lister Brothers	5
Other firms	36
	<hr style="width: 100%; border: 0.5px solid black; margin: 0;"/> 100 <hr style="width: 100%; border: 0.5px solid black; margin: 0;"/>

As with many other textile products, brands of hand-knitting yarns are not heavily advertised by manufacturers and brand-awareness appears to be low. Advertising was estimated by Mintel to represent only about one per cent of sales (this figure does not include advertising by fibre manufacturers or the I.W.S.)

2. Coloured woven woollen tweeds

This specialisation is concerned mainly with heavier fabrics woven from dyed yarn and used for men's jackets and overcoats and women's coats, suits and skirts. This is traditionally a fairly fragmented sector and independent producers remain numerous. Vertically

integrated woollen mills produce most of this cloth, encompassing spinning, yarn dyeing, weaving and finishing but the dyeing and finishing processes are sub-contracted by some of the smaller firms to the larger enterprises possessing those facilities.

The market for this kind of fabric has contracted with the fashion trend towards lighter clothing, especially among men. The trade in tweeds has also been adversely affected by imports of finished garments by retailers and more recently of fabrics, especially from Italy.

The fabric manufacturers sell their product to the clothing producers: vertical integration to making-up does not occur in this specialist sector. Much of the output of the clothiers is then sold by larger retail groups (men's and women's clothing is sold predominantly through multiple retail outlets: chains of clothing shops and of department stores). Overseas sales are made via agents to clothing manufacturers, mainly to Europe and North America. Two stages removed from the final consumer, tweed manufacturers have always been subject to wide variations in orders resulting from inventory adjustments on the part of customers. It was alleged in discussions that these variations have been aggravated by the practice of certain large retailing groups of buying the "base load" of some of their product lines overseas and using U.K. suppliers as a "tap" to meet the fluctuating element of demand. The adverse trading conditions now prevalent in the industry (1975) have led to greater competition for business, partly on price but also (in this essentially fashion-influenced trade) on cloth design and quality.

This specialisation is an example of several in the textile industry where growth beyond a certain size might reduce flexibility and ability to respond to different trading conditions and opportunities. Production economies, beyond a certain scale are not great and, because of the importance of variety, design and price, close links between production and marketing are necessary. In most cases these links are through one or two men at the head of the firm. The resulting fragmented structure of the manufacturing sector weakens its position in relation to that of its customers and, in this case, the ultimate

large buyers. The response of the manufacturers to current trends - new designs, improvements in production methods etc. - is likely to prevent an accelerating flow of imports. Discussions with retailers suggested that the difference in prices between imported and home-produced clothing was becoming too small to justify the sacrifice of easy communication with fabric designers and producers, of great importance in the fashion trades.

3. Sewing thread

This has for many years been one of the most concentrated sections of the cotton industry dominated by two companies, J.P. Coats (now part of Coats-Paton) and English Sewing Cotton (now part of Tootal). Although official statistics (6) show that 22 firms were engaged in the production of finished cotton thread for sewing and embroidery and 15 firms in the production of man-made fibre thread, in 1968, the five-firm concentration ratio was 88 per cent and the largest producers now share approximately equally about 75 per cent of total production.

The demand for sewing thread consists of industrial demand, mainly of spun synthetic fibres and of domestic purchases in which adherence to cotton has continued despite manufacturers' attempts to develop sales of synthetics with the more stable raw material price. J. P. Coats' share of each market is estimated, from a variety of sources including references (6) and (8) and company accounts, to be about 38 per cent. Tootal is stronger in the domestic thread market with about 50 per cent of sales but in the industrial market its share is closer to 25 per cent.

Earlier in this century, common marketing arrangements for thread on a world-wide basis were established and were dominated by Coats. Only by virtue of its size was English Sewing Cotton able to break away from this arrangement. Distributive links and branding are strong and, although profit margins are high, entry into this specialisation is not easy.

Imports of sewing thread for retail sale are negligible (200 tonnes in 1973) and exports (1,100 tonnes) represent only about 15 per cent of output. In part, this absence of trade is due to the international operations of Coats-Paton and to a lesser extent Tootal. These companies are described in greater detail in Appendix F.

The main reasons for dominance of the market by the two firms appear to be:

- (a) economies of scale in production, but more important
- (b) cumulative effects of long periods of leadership in marketing.

4. Men's and boy's shirts

Comprehensive data on sales of cotton and man-made fibre shirts are available only from 1971. The following table shows U.K. production, exports and imports in 1972 and 1973:-

	<u>1972</u>		<u>1973</u>	
	<u>Millions</u>	<u>£millions</u>	<u>Millions</u>	<u>£millions</u>
<u>Made-up from woven cloth</u>				
U.K. manufacturers	29.2	45.3	31.7	54.4
Exports	2.4	3.0	2.5	3.2
Imports	24.1	15.1	27.9	21.8
	—	—	—	—
Estimated U.K. market	50.9	57.4	57.1	73.0
	—	—	—	—
<u>Knitted or made-up from knitted fabric</u>				
U.K. Manufacturers	16.3	18.6	13.4	17.7
Exports	2.1	2.3	1.4	1.8
Imports	34.2	11.8	31.5	12.5
	—	—	—	—
Estimated U.K. market	48.4	28.1	43.5	28.4
	—	—	—	—

Sources: Business Monitor and Overseas Trade Accounts.

The data show that imports accounted for nearly 59 per cent of all shirts sold (by volume) in both 1972 and 1973. The volume figures are distorted by the inclusion of boys' knitted shirts and other low-value shirts in which imports predominate. In value terms the U.K. share of the domestic market was (after the addition of U.K. importers' margins) between 65 and 70 per cent.

The share of the market taken by knitted shirts has decreased considerably in recent years. In 1971 shirts knitted in the piece or made-up from knitted fabric accounted for 42 per cent of U.K. manufacturers' volume and 58 per cent of imports; by 1974 these percentages had fallen to 25 and 45.

Many of the major suppliers of shirts were acquired by textile manufacturing groups during the period of vertical integration between 1963 and 1968. The largest producer is now probably Carrington-Viyella with a wide range of cotton, cotton/wool and polyester/cotton woven shirts as well as warp-knitted nylon shirts. This company covers the complete range of the market from the least expensive to the "quality" end of the market selling under different brand-names associated with subsidiaries acquired by Viyella International and Carrington & Dewhurst during the 1960's. Tootal is also strongly represented in this market, with a variety of woven and knitted shirts but with a greater emphasis on the more expensive part of the market.

Certain of the shirt manufacturers, although operating their own U.K. spinning and weaving activities, import some of their shirts. These imports occur mainly when prices quoted by foreign producers are below marginal costs of production in the United Kingdom. This discrepancy occurs for a number of reasons, including the "dumping" of synthetic and natural fibres in some oriental markets as well as lower wage rates and (in the view of some observers) greater efficiency on the part of overseas producers. For this reason, U.K. brand names do not always imply production within the United Kingdom.

Another factor which hinders estimation of market shares by manufacturing

units is the significant role in this market of multiple retailers, handling about 30 per cent of shirts sold in 1972 (12). Major producers of shirts supply these customers with shirts usually with less variety of design or range of sizes and colours. This trade is very price-competitive: both the large retailers and their ultimate customers tending to be price-conscious. The relative importance of branded and unbranded shirts and the possible effects on the branded market of supply of quality shirts at low price to major retailers are constantly studied by the firms concerned.

From a market survey in 1972 (12) the major firms in the shirt market emerged as follows:-

	<u>per cent</u>
Marks and Spencer	15
Other "own label" retailers	15
Van-Heusen (Carrington-Viyella)	7
Rael Brook (Tootal)	5
Buckingham (William Baird)	4
Others	54

This information is slightly misleading because "others" include smaller subsidiaries of Carrington-Viyella and Tootal and because the major firms all supply the "own label" retailers. The shirt-making industry remains highly fragmented but Carrington-Viyella probably achieve between 12 and 15 per cent of market sales (12) and Carrington-Viyella, Tootal, Courtaulds and Baird probably together account for between 30 and 35 per cent of the market.

Despite the importance of branding for some of the major companies, advertising is low in relation to sales - only 0.2 per cent in 1971. This supports the view put forward by certain retailers during our survey that shirts were becoming a "commodity item".

5. Sheets and bedding

This is another product group which was affected by the changes in the structure of the textile industry in the 1960's. In that period

warp-knitted synthetic fabrics took an increasing share of this market and some of the major groups (especially Carrington & Dewhurst and Courtaulds) extended considerably their warp-knitting capacity.

The development, initially by Carrington-Viyella, of mixed polyester/cotton yarns and their use in woven sheets reversed the trend towards warp-knitted filament, because the new fabrics combined the comfortable feel of staple fibre with non-iron properties. The total output of sheets rose from 16.2 millions in 1972 to 21.2 millions in 1973 and 21.5 millions in 1974 but output of warp-knitted sheeting in 1974 was over 20 per cent below the 1972 level.

The market lead obtained by branded sheets developed by Carrington-Viyella, Tootal and a number of smaller specialist firms is threatened by imports. Imports of made-up woven sheets rose by only 9 per cent between 1972 and 1974 but imports of polyester/cotton fabric rose by 28 per cent in the same period. One of the factors appears to be the lower overseas price of polyester fibres. The importance of branding in bed linen is probably not great: the demand for "seconds" (imperfect fabrics) has always been substantial at sheeting mills. This means that continued growth of sales of this product can be achieved only by cost reductions reflected in lower prices.

The partial takeover by Courtaulds of Highams, one of the larger of the producers of bedding after Carrington-Viyella and Tootal may be regarded as a further example of vertical integration as a means of securing an outlet for synthetic fibre. (Courtaulds is developing its polyester production.) This specialisation provides an archetype of the struggle for survival of the Lancashire textile industry and of the complex role in that struggle of the main fibre producers.

6. Women's hose (stockings and tights)

The structure of this activity has been changing rapidly with developments in technology. In 1963 there were 157 enterprises engaged in the production of women's hose; in 1973, 54. Changes which have taken place in design and technology include the moves to seamless stockings and, with the introduction of stretch nylon, to simple tubular construction (no fashioning, shaping or sizes) and then to

the sewing together of the nylon tubes into "tights". A further reduction in production costs is likely to result from the gradual adoption of a technique of producing tights in one piece, to eliminate the current practice of sewing the two tubular stockings together.

A number of factors have tended to reduce profit margins:-

- (a) Intense competition between major companies, including subsidiaries of Courtaulds which now undertake about 35 per cent of U.K. production. (The second largest firm, Pretty Polly, a member of the Thomas Tilling group, accounts for about 25 per cent).
- (b) A tendency for tights to be sold as a "commodity item". Four chain stores (Marks and Spencer, British Home Stores, Littlewoods and Woolworth) accounted for 25 per cent of sales in 1974, multiple food shops and co-operatives another 20 per cent and market stalls seven per cent (12). Both the chain stores and some of the multiple food shops sell tights under their own brand-names and, when sales via market stalls, garages and similar outlets are considered, it is probable that less than 40 per cent of tights are sold under the manufacturers' own brand name.
- (c) A tendency for the total market to become static, in spite of lower prices. The total output of women's tights and full-length stockings (in millions of pairs) fell from 582 in 1972 to 568 in 1973 and rose in 1974 only to 580. This failure of the market to expand may be explained by the adoption by women of longer skirt lengths and of trousers.

Although imports of hose appear to be significant, a large proportion of these imports represents supplies from branch factories of British companies, especially Pretty Polly in the Irish Republic. About 20 per cent of U.K. output was exported in 1973 mostly to other E.E.C. countries.

Over the next few years, the supply of ladies hose is likely to become more concentrated as technological developments are associated with economies of scale. A major feature of the market is likely

to be an attempt by manufacturers to re-establish brand concepts in order to give them greater control over sales in what has become a market dominated by their major customers (a typical oligopsony). Sandwiched between large suppliers of filament yarn on the one hand and large customers on the other, producers of hose see a need to increase their own bargaining power.

SECTION VI

CONCENTRATION AND COMPETITION - SOME CONCLUDING COMMENTS

A. INTRODUCTION

The statistical analysis of the U.K. textile companies showed the existence of a small group of multi-fibre, multi-process companies accounting for over half of total sales. Analysis of financial links between companies, referred to in Sections III and IV and collated in Appendix E, reveals a further departure from the competitive structure which existed in these industries fifteen years ago.

The implications of this concentration for competition and particularly for pricing policies need to be considered against the background of competition between rival textile processes and, even more significant, the high level of imports. When account is taken of the fabric content of imported made-up textiles, the U.K. receives 57 per cent of its supply of cotton and man-made fibre fabrics from overseas. Although three firms control nearly half of output in this sector, their home sales represent under 20 per cent of the U.K. market. "Oligopoly" as defined in Section IV of this report is not the equivalent of the economist's concept of dominance by the few. Rather is it the result of a defensive reaction against imports on the one hand and concentration of customers on the other. The development of this concentration through vertical integration is due to the declared desire of fibre producers and of other textile firms to safeguard outlets for their products.

B. THE IMPACT ON COMPETITION OF VERTICAL INTEGRATION

The effects of vertical integration on company organisation and policy differ widely between enterprises. At one end of a spectrum, one group is reported by most observers to apply a fairly rigorous policy of "group net benefit" which means that group companies are expected to buy from each other rather than elsewhere and that transfer prices are based on the objectives of group sales growth and profitability. At the other extreme, another of the largest companies operates a principle of divisional autonomy, in the belief that the resulting incentive to profit centres provides greater advantages than attempts at central planning.

One of the features of the textile industry which emerged clearly from discussions was willingness of companies to market products purchased from competitors. Ability to offer complete ranges of products is regarded as a major marketing advantage but the economies of scale in production are increasing. Long production runs result in greater utilisation of machinery and if production is standardised, continuous shifts can be operated without duplication of senior management and technical personnel. Especially in the excess capacity situation in 1974 and 1975, this situation sometimes leads to fierce price competition: supply of a woven fabric to a competitor for finishing and making-up may be followed by a cut in the transfer price of that fabric and a competitive bid for the ultimate business.

The growth of vertical integration has caused some friction between the textile firms concerned and major customers used to placing orders in accordance with the industry's horizontal structure - negotiating with spinners, then with weavers and knitters and then with makers-up. The relative strength of the textile group and the retailer appears to depend upon the availability of substitutes. In the case of processing of acetate yarns for example, Courtaulds would be in a stronger position than with polyesters or nylon.

There are several indications that the competitive advantages of vertical integration have not yet been fully exploited by the undertakings concerned. In the competitive environment which is expected to continue over the next few years, the power of vertically integrated groups may be expected to increase. This is likely to lead to further growth of concentration as other firms combine to compete on more equal terms with existing groups on the one hand and imports on the other. Recent developments (e.g. the Spirella-Vantona merger) confirm this expectation.

C. THE ROLE OF IMPORTS

The future level of imports depends upon many factors, including trade restrictions, comparative exchange rates and relative inflation.

In the cotton sub-sector vertical integration is less important protection against imports as vertically integrated concerns are forced, by price competition, to import fabric at prices well below production costs in their own mills. The reasons for the relative price differential are complex:- U.K. mills no longer suffer from relative under-mechanisation; payments to labour are becoming a progressively smaller element of total costs. Major factors appear to be lower fibre prices in overseas countries, ability to achieve longer production runs by more narrow specialisation and heavy reliance on exports and, it is alleged, government subsidies to encourage earning of foreign exchange.

The short analysis of trading restrictions in Section II described how the 1973 multifibre agreement of GATT severely limits imposition of additional import quotas, especially those affecting developing countries. Recent proposals by the European Economic Commission would transfer most of the growth of textile imports to other member countries over the next few years but, in the longer term, import quotas are likely to provide decreasing protection.

Discussions with retailers indicated that they expected less growth of textile imports as price differentials narrowed. Communication with U.K. suppliers was sufficiently important to justify some differential on price. U.K. producers can respond more quickly to local fashion changes and with the reorganisation and increased efficiency which has been achieved are now becoming able to offset any price disadvantage. With certain more basic items of clothing, in which fashion is less important, growth of imports would in the absence of restrictions continue unless price differentials were to be narrowed appreciably.

D. THE FUTURE OF COMPETITION

In view of world excess capacity in textiles, the existence of access to overseas supplies is bound to limit prices in the United Kingdom textile industry in the immediate future. This excess capacity is particularly prevalent in warp-knitting, weaving of "grey" fabrics from cotton and man-made fibres and in fibre production. Competition between fibre producers may well lead to further acquisition or intervention in the processing sector, if Government policy allows this.

In this competitive environment, it is likely that the largest concerns, especially those financially linked with fibre producers will adopt aggressive pricing policies. The reductions of profit margins by the largest groups during the 1969/71 recession were greater than those of smaller firms (See Section IV). In the case of Courtaulds, which appears to have led this price-cutting, this has been attributed to an attempt to increase its share of the market. While this interpretation may explain part of the policy there are other reasons why fibre producers and textile groups which they control may decide to cut prices sharply during recession periods:-

- (1) They tend to operate the most capital-intensive units in textile processing and have a predominance of fixed expenses.
- (2) A long-term concern is the preservation of textile processing in this country, which means that imports must be countered during periods of world excess capacity.
- (3) The economics of fibre production may justify under-recovery even of marginal costs in textile processing if the overall contribution to overheads in fibre production and processing is positive.

For these reasons the author expects the current (1974/5) period of intense competition (especially on price) to continue. This is likely to undermine the stability of the present structure of the textile industries and in all three sub-sectors is likely to lead to further pressure towards increased concentration.

A P P E N D I C E S

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APPENDIX A: PART 1

LIST OF ENTERPRISES SHOWING TEXTILE AND NON-TEXTILE ACTIVITIES 1968

£m Name of Company	TOTAL TURNOVER		Published or est. TEXTILE TURNOVER		Published or est. NET PROFITS	
	World- wide	U.K.	Worldwide	U.K.	World- wide	U.K. Textiles
Courtaulds (N.E.)	577	452	265 (e)	228(e)	51.0(e)	12.0(e)
Tootal	151	108	121	78	9.6	4.5
Coats Paton	210	85	171	78	23.3	3.5
Viyella International	70.2			70.2	5.7	5.7
Carrington & Dewhurst	68.6			68.6	5.5	5.5
Illingworth Morris	29.9			29.9	1.4	1.4
Lister & Company	27.1			27.1	1.4	1.4
Woolcombers	23.4			23.4	0.2	0.2
Nottingham Manufacturing Co.	19.9			19.9	4.3	4.3
Corah	18.5			18.5	1.6	1.6
Joseph Dawson	16.9			16.9	2.5	2.5
William Baird Group ⁺	31.4	24.6	16.2	16.2	3.4	1.0
Rexmore	13.6	13.6	10.4	10.4	0.93	0.77
John Bright Group	12.5			12.5	0.49	0.49
Vantona	11.5			11.5	0.83	0.83
Sir James Hill & Sons	11.3			11.3	0.22	0.22
Bulmer & Lumb (Hdgs)	10.7			10.7	0.55	0.55
Readson	10.6	10.6	10.0	10.0	0.38	0.37
Parkland Textiles	9.7			9.7	0.67	0.67
Thomas Tilling/ Pretty Polly ⁺	190	n.a.	n.a.	8.8	8.63	1.03
Dunlop ⁺	450	n.a.	n.a.	7.8	27.7	0.24
Allied Textiles	7.6			7.6	0.57	0.57
David Whitehead & Sons	7.4			7.4	0.34	0.34
Highams	6.9			6.9	0.45	0.45
Spirella	6.9			6.9	0.48	0.48

£m	TOTAL TURNOVER		Published or est. TEXTILE TURNOVER		Published or est. NET PROFITS	
	World-wide	U.K.	Worldwide	U.K.	World-wide	U.K. Textiles
Troydale Industries	6.9	6.9	4.7	4.7	0.32	0.25
W. & J. Whitehead	6.0			6.0	0.31	0.31
Smith & Nephew ⁺	34.4	25.7	n.a.	5.9	5.59	0.55
Reed International (N.E.)	250	176	n.a.	5.7	14.2	0.40
Sirdar	5.5	5.5	4.0	4.0	0.57	0.34
Nova (Jersey) Knit (N.A.)	5.5			2.2	0.70	not estd. (N.A.)
John Foster & Son	5.4			4.2	0.28	0.22
John Beales Assocn.	5.3			5.3	0.36	0.36
Charnos	5.0			5.0	0.62	0.62
John Hawkins	9.2			9.2	0.04	0.04
John Emsley	5.0			5.0	0.09	0.09
Wormalds, Walker & Atkinson	4.9			4.9	0.28	0.28
John Crowther Group	4.8			4.8	0.21	0.21
George Spencer Group	4.6			4.6	0.41	0.41
Hicking Pentecost	4.3			4.3	0.30	0.30
Bear Brand	4.1			4.1	-0.28	-0.28
Stenhouse (Textiles)	4.1			4.1	0.31	0.31
India Mills (Darwen)	3.9			3.9	-0.13	-0.13
Scottish Worsted & Woollens	3.9			3.9	-0.21	-0.21
Albert Martin	3.9			3.9	0.33	0.33
Slater Walker Securities ⁺	-	-	-	3.8	4.87	0.10
British Mohair Spinners	3.8			3.8	0.40	0.40
John Haggas	3.7			3.7	0.36	0.36
Harold Laycock	3.7			3.7	0.26	0.26
Atkins Brothers	3.6			3.6	0.27	0.27
Hield Brothers	3.6			3.6	0.33	0.33

NOTES

- N.E. = This company was not included in the enterprise analysis because turnover in textile processing accounted for less than 50% of company turnover.
- N.A. = Not included in activity unit analysis.
- + = These companies published separate consolidated accounts summarising U.K. textile activities. In the enterprise analysis these textile accounts were used because of the greater relevance of the data. World-wide data for the whole group are included here to make possible comparisons in this Appendix.

Where overseas activities are very small (less than £500,000 turnover) they have been ignored in this table.

APPENDIX A: PART 2

LIST OF ENTERPRISES, SHOWING TEXTILE AND NON-TEXTILE ACTIVITIES 1973

£m Name of Company	TOTAL TURNOVER		Published or est. TEXTILE TURNOVER		Published or est. NET PROFITS	
	World- wide	U.K.	Worldwide	U.K.	World- wide	U.K. Textiles
Courtaulds (N.E.)	956	717	440(e)	385(e)	116.3	20.8(e)
Carrington-Viyella	184	154	184	154	12.1	10.1
Coats Pator	415	136	358	136	54.1	10.6
Tootal	215	118	192	94.7	18.3	7.96
Illingworth Morris	85.6	82.9	85.6	82.9	4.47	4.40
Nottingham Manufacturing Co.	63.3	63.3	48.2	48.2	10.21	9.47
Joseph Dawson(Hdgs)	37.3			37.3	5.41	5.41
William Baird Group ⁺	53.1	43.1	29.7	29.7	2.94	1.17
Vantona	38.3	35(e)	38.3	35(e)	3.60	3.0(e)
Spirella	25.8			25.8	1.71	1.71
Readson	21.5	21.5	21.0	21.0	1.56	1.48
Rexmore	37.3	37.3	28.2	28.2	2.65	1.94
Lister & Co.	26.6			26.6	1.44	1.44
Corah	22.3			22.3	1.61	1.61
Thomas Tilling/ Pretty Polly ⁺	510.9	n.a.	n.a.	21.8	34.4	1.22
Sir James Hill & Sons	17.9			17.9	0.19	0.19
Bulmer & Lumb (Hdgs)	13.1			13.1	0.52	0.52
Parkland Textiles	18.1			18.1	1.01	1.01
John Bright Group	14.0			14.0	0.88	0.88
Dunlop ⁺	750	286	n.a.	9.0	11.7	0.28
Allied Textiles	21.9			21.9	2.17	2.17
Lonrho ⁺	27.4	25(e)	23.4	20.0	29.4	3.43
Highams	13.9			13.9	0.72	0.72
Bodycote International	19.1	15.4	18.9	15.2	1.42	1.10
Troydale Industries	7.3	7.34	5.83	5.8	0.31	0.33

£m	TOTAL TURNOVER		Published or est. TEXTILE TURNOVER		Published or est. NET PROFITS	
	World-wide	U.K.	Worldwide	U.K.	World-wide	U.K. Textiles
W. & J. Whitehead	12.0			12.0	0.72	0.72
Smith & Nephew [†]	84.1	n.a.	15.5	9.4	10.4	0.76
Reed International (N.E.)	598	534	n.a.	9.5	42.6	0.55
Sirdar	10.5	8.3	10.5	8.3	0.61	0.51
Nova (Jersey) Knit	8.5	7.6	8.5	7.6	0.08	0.44
John Foster & Son	9.6	8.7	7.9	6.8	0.96	0.72
John Beales Assocn.	8.1			8.1	0.64	0.64
Charnos	10.4			10.4	0.43	0.43
John Hawkins & Son (Hdgs)	8.6			8.6	0.51	0.51
Wormalds, Walker & Atkinson	5.8			5.8	0.26	0.26
John Crowther Group	3.7			3.7	0.53	0.53
George Spencer Group	8.6			8.6	0.62	0.62
Hicking Pentecost	5.3			5.3	0.44	0.44
Bear Brand	1.6			1.6	0.10	0.10
Stenhouse (Textiles)	3.4			3.4	0.07	0.07
Scottish Worsted & Woollens	5.6			5.6	0.44	0.44
Albert Martin	7.0			7.0	0.50	0.50
British Mohair Spinners	12.4			12.4	1.71	1.71
John Haggas	12.7			12.7	1.68	1.68
Harold Laycock	7.1			7.1	0.56	0.56
Atkins Erothers	5.3			5.3	0.40	0.40
Hield Brothers	6.8			6.8	0.72	0.72
Richard Roberts	7.9			7.9	0.48	0.48
Richards	5.9			5.9	0.50	0.50
Carpets International (N.E.)	73.5	51.8	n.a.	12.4	7.91	0.25

£m Name of Company	TOTAL TURNOVER		Published or est. TEXTILE TURNOVER		Published or est. NET PROFITS	
	World- wide	U.K.	Worldwide	U.K.	World- wide	U.K. Textiles
House of Lerosé	7.8	5.1	7.8	5.1	1.20	0.78
R. & J. Pullman	7.7	7.7	7.3	7.3	0.94	0.01
RKT Textiles	7.8			7.8	0.69	0.69
T. W. Kempton	4.6			4.6	0.31	0.31
S. Lyles & Co.	8.0			8.0	1.28	1.28
Scottish, English & European Textiles	5.7			5.7	0.30	0.30
Stroud, Riley Drummond	6.8			6.8	0.50	0.50
U U Textiles	6.6			6.6	0.22	0.22

Notes as for Part 1.

TABLES OF CONCENTRATION

ENTERPRISES

SECTOR TEXTILES (NICE 23) U.K.

Prepared at the Cranfield Institute of Technology, Bedford

TABLE 1: SUM TOTAL VALUES 1968-73 (SAMPLE OF ENTERPRISES) (N* = number of positive values)

	N*	£ 000	1968=100		N*	£ 000	1968=100
VARIABLE 01: TURNOVER				VARIABLE 04: NET PROFIT			
1968	49	896,819	100	1968	46	70,866	100
1969	52	1,044,744	116	1969	49	62,808	89
1970	52	1,084,407	121	1970	45	57,387	81
1971	52	1,143,921	128	1971	48	73,859	104
1972	53	1,316,186	147	1972	50	105,854	149
1973	55	1,612,905	180	1973	55	149,847	211
VARIABLE 05: CASH FLOW				VARIABLE 06: GROSS INVESTMENT			
1968	46	95,213	100	1968	49	42,698	100
1969	49	88,769	93	1969	52	69,781	163
1970	50	83,973	88	1970	52	60,720	142
1971	49	105,006	110	1971	52	43,197	101
1972	52	140,304	147	1972	53	49,666	116
1973	55	188,981	198	1973	55	70,771	166
VARIABLE 07: EQUITY				VARIABLE 08: EXPORTS			
1968	49	381,078	100	1968	46	100,612	100
1969	52	401,680	105	1969	50	125,770	125
1970	52	422,588	111	1970	50	126,734	126
1971	52	428,738	112	1971	51	137,642	137
1972	52	472,925	124	1972	51	157,661	157
1973	55	539,739	141	1973	53	218,857	218
VARIABLE 10: NET ASSETS				VARIABLE 11: NET CASH FLOW			
1968	49	511,531	100	1968	46	64,389	100
1969	52	571,028	111	1969	49	61,639	95
1970	52	611,685	119	1970	50	61,306	95
1971	52	620,575	121	1971	49	69,763	108
1972	53	672,312	131	1972	51	91,891	142
1973	55	782,733	153	1973	55	123,533	191

TABLE 2: MEASURES OF CONCENTRATION (SAMPLE OF ENTERPRISES)

	N*	MEAN	V	GINI	H-H	ENTROP
1968						
01 Turnover	49	18,302	1.997	0.6321	101.8	-129.7
04 Net Profit	46	1,541	2.400	0.7141	147.0	-115.4
05 Cash Flow	46	2,070	2.309	0.6959	137.7	-118.1
06 Gross Investment	49	877	2.117	0.7239	111.9	-121.4
07 Equity	49	7,777	2.375	0.7072	135.5	-119.7
08 Exports	46	2,187	1.608	0.6599	78.0	-130.7
10 Net Assets	49	10,439	2.536	0.7379	151.6	-113.7
11 Net Cash Flow	46	1,400	2.215	0.6810	128.4	-120.8
1969						
01 Turnover	52	20,091	2.099	0.6423	104.0	-131.0
04 Net Profit	49	1,282	2.392	0.6994	137.1	-120.6
05 Cash Flow	49	1,812	2.369	0.6895	135.0	-121.1
06 Gross Investment	52	1,342	3.286	0.8046	226.9	-100.8
07 Equity	52	7,725	2.370	0.6911	127.2	-123.9
08 Exports	50	2,515	1.835	0.6636	87.3	-131.4
10 Net Assets	52	10,891	2.660	0.7324	155.3	-115.5
11 Net Cash Flow	49	1,258	2.374	0.6839	135.4	-121.4
1970						
01 Turnover	52	20,854	2.187	0.6422	111.2	-129.9
04 Net Profit	45	1,275	2.593	0.7267	171.6	-110.5
05 Cash Flow	50	1,679	2.665	0.7118	162.1	-115.3
06 Gross Investment	52	1,168	3.144	0.7711	209.3	-107.5
07 Equity	52	8,127	2.403	0.6911	130.3	-123.4
08 Exports	50	2,535	1.8670	0.6610	89.7	-131.5
10 Net Assets	52	11,763	2.7825	0.7307	168.1	-114.6
11 Net Cash Flow	50	1,226	2.5103	0.6894	146.0	-119.3

Note: The mean figures are in thousands of pounds; definitions of the four concentration measures are given on page

TABLE 2: MEASURES OF CONCENTRATION (SAMPLE OF ENTERPRISES) (Cont'd)

	N*	MEAN	V	GINI	H-H	ENTROPY
1971						
01 Turnover	52	21,998	2.235	0.6553	115.3	-127.2
04 Net Profit	48	1,539	2.637	0.7291	165.7	-113.2
05 Cash Flow	49	2,143	2.578	0.7135	156.1	-115.8
06 Gross Investment	52	831	2.038	0.6776	99.1	-128.1
07 Equity	52	8,245	2.443	0.6990	134.0	-121.0
08 Exports	51	2,699	1.888	0.6982	89.5	-127.8
10 Net Assets	52	11,934	2.771	0.7334	166.9	-113.2
11 Net Cash Flow	49	1,424	2.435	0.6828	146.5	-120.3
1972						
01 Turnover	53	24,834	2.224	0.6548	112.2	-128.5
04 Net Profit	50	2,117	2.588	0.7108	153.9	-118.0
05 Cash Flow	52	2,698	2.567	0.7065	146.0	-120.0
06 Gross Investment	53	937	2.104	0.7056	102.4	-125.8
07 Equity	52	9,095	2.431	0.7063	132.9	-120.8
08 Exports	51	3,091	1.820	0.6790	84.6	-130.1
10 Net Assets	53	12,685	2.725	0.7280	159.0	-114.7
11 Net Cash Flow	51	1,801	2.433	0.6786	135.6	-123.6
1973						
01 Turnover	55	29,326	2.197	0.6562	106.0	-130.6
04 Net Profit	55	2,724	2.815	0.7431	162.2	-116.0
05 Cash Flow	55	3,436	2.699	0.7209	150.7	-119.0
06 Gross Investment	55	1,287	1.958	0.6972	87.9	-129.9
07 Equity	55	9,807	2.488	0.7163	130.7	-121.7
08 Exports	55	4,129	1.867	0.683	84.7	-131.1
10 Net Assets	55	14,232	2.690	0.7289	149.8	-116.9
11 Net Cash Flow	55	2,246	2.613	0.7105	142.3	-120.9

Note: The mean figures are in thousands of pounds; definitions of the four concentration measures are given on page

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 01: TURNOVER

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.573 55.7	0.669 54.1	0.716 55.3	0.889 57.4	0.683 57.6	0.673 55.7
8	L CR	0.545 66.9	0.544 65.5	0.593 65.5	0.662 66.8	0.663 66.7	0.580 66.6
10	L CR	0.475 70.8	0.461 69.8	0.514 69.2	0.539 70.7	0.539 70.6	0.521 70.1
12	L CR	0.422 74.2	0.388 73.8	0.446 72.5	0.457 74.2	0.475 73.6	0.464 73.1
20	L CR	0.297 83.6	0.290 83.1	0.285 82.9	0.319 83.6	0.317 82.9	0.306 82.7
30	L CR	0.948 90.9	0.224 90.7	0.219 90.7	0.240 90.7	0.233 90.5	0.234 89.9
40	L CR	0.983 96.2	0.190 95.6	0.186 95.8	0.194 96.0	0.192 95.8	0.191 95.0

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.7462 48.06 3	0.8808 40.28 2	0.9820 41.57 2	0.9309 40.76 2	0.9565 40.45 2	0.9638 39.03 2
Overall Maximum L CR N*H	0.7462 48.06 3	0.8808 40.28 2	0.9820 41.57 2	0.9309 40.76 2	0.9565 40.45 2	0.9638 39.03 2
1st Minimum L CR N*M LS	0.5731 55.71 4 0.673	0.6694 54.11 4 0.802	0.7158 55.27 4 0.866	0.5731 54.16 3 0.752	0.6314 52.28 3 0.794	0.6325 50.41 3 0.798

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 04: NET PROFIT BEFORE TAX

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.721 62.3	0.774 58.6	0.814 67.1	0.763 65.4	0.865 60.4	0.834 63.3
8	L CR	0.626 76.1	0.604 71.7	0.855 75.5	0.793 74.2	0.634 72.7	0.664 74.8
10	L CR	0.581 79.5	0.531 75.5	0.724 78.6	0.678 77.5	0.577 76.3	0.622 78.1
12	L CR	0.532 82.2	0.476 78.6	0.606 81.6	0.580 80.4	0.523 79.2	0.580 80.5
20	L CR	0.418 89.2	0.335 87.5	0.410 89.8	0.371 89.6	0.354 87.8	0.404 88.2
30	L CR	0.321 94.8	0.265 94.2	0.308 96.1	0.300 95.6	0.281 94.1	0.325 93.7
40	L CR	0.259 98.9	0.224 98.7	0.292 99.7	0.271 99.0	0.244 98.1	0.275 97.3

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	1.2180 46.43 2	1.4254 43.87 2	1.2822 43.87 2	1.3945 49.18 2	1.5432 46.79 2	1.4765 48.37 2
Overall Maximum L CR N*H	1.2180 46.43 2	1.4254 43.87 2	1.2822 43.87 2	1.3945 49.18 2	1.5432 46.79 2	1.4765 48.37 2
1st Minimum L CR N*M LS	0.6037 71.84 6 0.827	0.2228 98.98 41 0.412	0.8144 67.08 4 0.012	0.7634 65.45 4 1.071	0.2405 98.77 43 0.440	0.2604 98.15 44 0.469

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 05: CASH FLOW (BEFORE TAX)

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.690 61.4	0.761 58.7	0.810 65.1	0.732 65.1	0.821 60.7	0.787 62.6
8	L CR	0.621 74.4	0.625 72.0	0.876 72.8	0.811 73.4	0.667 72.0	0.670 73.5
10	L CR	0.572 77.7	0.579 75.1	0.762 75.6	0.689 76.5	0.608 75.3	0.635 76.5
12	L CR	0.514 80.6	0.520 77.9	0.646 78.2	0.591 79.3	0.557 77.8	0.582 79.0
20	L CR	0.388 88.2	0.346 86.7	0.401 86.4	0.378 87.9	0.358 86.4	0.399 86.6
30	L CR	0.299 94.1	0.267 93.4	0.277 93.8	0.296 94.3	0.271 93.3	0.311 92.4
40	L CR	0.239 98.6	0.222 98.0	0.232 98.6	0.254 98.2	0.235 97.4	0.258 96.3

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	1.0696 45.68 2	1.2285 44.6 2	1.2068 50.1 2	1.3023 47.7 2	1.3904 45.9 2	1.3489 46.8 2
Overall Maximum L CR N*H	1.0696 45.68 2	1.2285 44.6 2	1.2068 50.1 2	1.3023 47.7 2	1.3904 45.9 2	1.3489 46.8 2
1st Minimum L CR N*M LS	0.6138 66.82 5 0.829	0.6137 64.70 5 0.911	0.8103 65.1 4 1.017	0.7317 65.1 4 0.972	0.2240 98.5 46 0.419	0.7869 62.6 4 1.026

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 06: GROSS INVESTMENT

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.565 58.7	1.060 70.9	1.295 63.4	0.602 56.2	0.524 57.9	0.337 55.2
8	L CR	0.462 73.5	0.867 80.7	0.731 76.0	0.516 68.0	0.495 70.5	0.418 70.1
10	L CR	0.434 77.7	0.717 84.3	0.603 80.3	0.453 72.2	0.432 74.8	0.421 73.8
12	L CR	0.401 81.3	0.645 87.1	0.530 83.7	0.401 75.6	0.418 77.8	0.390 76.9
20	L CR	0.314 90.6	0.539 93.1	0.438 91.2	0.294 85.1	0.302 87.0	0.290 86.2
30	L CR	0.294 95.9	0.473 96.7	0.350 96.2	0.217 92.9	0.234 94.3	0.235 93.1
40	L CR	0.279 98.9	0.434 98.9	0.332 98.9	0.188 98.1	0.227 98.1	0.201 97.6

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.7773 40.39 2	1.9392 55.92 2	2.1878 53.20 2	0.5251 36.74 2	0.5082 35.95 2	0.5917 31.46 2
Overall Maximum L CR N*H	0.7773 40.39 2	1.9392 55.92 2	2.1878 53.20 2	0.6019 56.19 4	0.5536 61.93 5	0.5917 31.46 2
1st Minimum L CR N*M LS	0.3044 92.08 22 0.4319	0.5927 89.25 14 0.9306	0.3413 96.60 31 0.6340	0.3956 51.67 3 0.460	0.3556 52.57 3 0.432	0.3366 55.2 4 0.446

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 07: EQUITY

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.776 60.5	0.753 58.2	0.755 58.6	0.760 62.2	0.719 62.0	0.732 61.2
8	L CR	0.610 71.5	0.597 69.5	0.623 70.2	0.709 71.3	0.681 71.9	0.656 72.1
10	L CR	0.501 76.0	0.502 73.8	0.534 74.1	0.613 74.7	0.592 75.4	0.557 75.8
12	L CR	0.443 79.6	0.454 77.0	0.501 76.8	0.557 77.3	0.532 78.2	0.504 78.8
20	L CR	0.349 88.4	0.324 86.1	0.336 85.6	0.360 86.0	0.360 86.6	0.383 86.3
30	L CR	0.282 94.4	0.258 92.7	0.259 92.6	0.274 92.6	0.280 93.0	0.290 92.5
40	L CR	0.247 98.3	0.215 97.3	0.217 97.2	0.225 97.2	0.230 97.5	0.237 96.7

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.9603 54.1 3	1.0427 44.5 2	1.1165 44.6 2	1.0623 43.9 2	1.0955 43.5 2	1.0657 43.4 2
Overall Maximum L CR N*H	0.9603 54.1 3	1.0427 44.5 2	1.1165 44.6 2	1.0623 43.9 2	1.0955 43.5 2	1.0657 43.4 2
1st Minimum L CR N*M LS	0.9503 46.7 2 -	0.7534 58.2 4 0.931	0.6977 63.0 5 0.891	0.6355 57.3 3 0.849	0.6470 56.6 3 0.871	0.6660 55.9 3 0.866

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 08: EXPORTS FROM THE U.K.

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.519 45.9	0.585 48.6	0.623 49.0	0.453 52.2	0.372 52.6	0.412 52.0
8	L CR	0.318 66.4	0.386 66.9	0.368 66.8	0.392 71.0	0.411 69.4	0.451 67.4
10	L CR	0.294 71.7	0.365 71.3	0.347 71.6	0.371 75.5	0.376 73.7	0.414 71.3
12	L CR	0.267 76.4	0.342 74.9	0.334 75.2	0.356 78.9	0.357 77.1	0.364 74.9
20	L CR	0.207 89.7	0.243 85.8	0.250 85.9	0.295 87.8	0.277 86.3	0.251 85.9
30	L CR	0.210 96.8	0.197 94.4	0.202 94.0	0.230 94.9	0.220 93.8	0.201 94.1
40	L CR	0.250 99.4	0.203 98.5	0.204 98.1	0.225 98.6	0.201 98.3	0.202 98.0

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.6178 31.85 2	0.8497 34.74 2	0.9077 35.5 2	0.7160 33.3 2	0.5542 31.3 2	0.6070 35.6 2
Overall Maximum L CR N*H	0.6178 31.35 2	0.8497 34.74 2	0.9077 35.5 2	2.215 100 51	0.657 100 51	0.6438 100 53
1st Minimum L CR N*M LS	0.2954 63.64 7 0.469	0.3591 64.64 7 0.574	0.1946 95.7 33 0.328	0.3317 65.9 6 0.480	0.4089 67.0 7 0.406	0.3460 59.8 4 0.462

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 1.1: NET ASSETS

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.730 64.9	0.742 64.3	0.901 63.9	0.892 66.7	0.913 66.4	0.657 65.9
8	L CR	0.689 77.1	0.700 76.0	0.734 75.3	0.834 75.5	0.854 74.8	0.758 75.2
10	L CR	0.602 80.6	0.629 79.2	0.664 78.4	0.728 78.5	0.720 77.9	0.671 78.3
12	L CR	0.565 83.1	0.591 81.6	0.622 80.7	0.656 80.9	0.653 80.3	0.637 80.5
20	L CR	0.451 89.5	0.448 88.3	0.426 88.2	0.446 88.2	0.450 87.3	0.453 87.0
30	L CR	0.351 94.6	0.350 93.4	0.339 93.4	0.349 93.4	0.337 92.8	0.347 92.1
40	L CR	0.284 98.3	0.283 97.1	0.279 97.1	0.284 97.1	0.263 96.8	0.266 96.3

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.9754 48.98 2	1.1931 48.42 2	1.3618 50.22 2	1.2836 49.1 2	1.0587 49.2 2	1.2444 45.8 2
Overall Maximum L CR N*H	0.9754 48.98 2	1.1931 48.42 2	1.3618 50.22 2	1.2836 49.1 2	1.0587 49.2 2	1.2444 45.8 2
1st Minimum L CR N*M LS	0.6475 70.31 5 0.810	0.6888 69.13 5 0.905	0.2462 99.80 50 0.458	0.7537 62.2 3 1.019	0.6986 62.2 3 -	0.6568 65.9 4 0.873

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 12: CASH FLOW AFTER TAX

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.659 59.7	0.787 58.3	0.726 62.9	0.781 61.0	0.432 43.7	0.713 62.1
8	L CR	0.588 72.6	0.620 72.0	0.812 70.9	0.744 70.0	0.362 57.8	0.661 72.7
10	L CR	0.522 76.4	0.581 75.1	0.701 73.9	0.622 73.5	0.321 62.5	0.624 75.7
12	L CR	0.477 79.4	0.530 77.7	0.614 76.4	0.532 76.6	0.288 66.5	0.556 78.3
20	L CR	0.360 87.3	0.355 86.2	0.371 85.2	0.340 85.9	0.193 79.3	0.392 86.0
30	L CR	0.274 93.9	0.269 92.9	0.257 92.9	0.257 93.3	0.150 89.6	0.302 91.9
40	L CR	0.225 98.4	0.221 97.6	0.210 98.1	0.220 97.8	0.131 96.0	0.244 96.1

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	1.0667 43.77 2	1.2759 44.37 2	1.1979 47.0 2	1.4038 46.1 2	1.6202 42.9 2	1.3748 44.6 2
Overall Maximum L CR N*H	1.0667 43.77 2	1.2759 44.37 2	1.1979 47.0 2	1.4038 46.1 2	1.6202 42.9 2	1.3748 44.6 2
1st Minimum L CR N*M LS	0.6041 68.84 5 0.809	0.6056 64.70 5 0.926	0.7262 62.9 4 0.962	0.7809 61.0 4 1.086	0.1987 97.9 48 0.386	0.7131 62.1 4 0.976

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1968

	TURNOVER	NET PROFIT	CASH FLOW	GROSS INVESTMENT
N*				
2	0.6982	1.2180	1.0696	0.7773
3	0.7462	0.9861	0.9409	0.5986
4	0.5731	0.7207	0.6902	0.5687
5	0.6467	0.6066	0.6138	0.5567
6	0.6149	0.6037	0.6244	0.5317
7	0.5767	0.6338	0.6308	0.5060
8	0.5446	0.6260	0.6207	0.4617
9	0.5072	0.5856	0.5938	0.4583
10	0.4745	0.5805	0.5721	0.4342
11	0.4407	0.5567	0.5367	0.4091
12	0.4219	0.5315	0.5135	0.4012
13	0.4035	0.5126	0.5008	0.3840
14	0.3868	0.5020	0.4845	0.3637
15	0.3682	0.4868	0.4694	0.3566
16	0.3514	0.4723	0.4497	0.3477
17	0.3341	0.4598	0.4296	0.3369
18	0.3205	0.4455	0.4124	0.3309
19	0.3083	0.4287	0.4012	0.3224
20	0.2971	0.4175	0.3883	0.3141
21	0.2892	0.4041	0.3753	0.3066
22	0.2808	0.3935	0.3666	0.3044
23	0.2721	0.3849	0.3565	0.3051
24	0.2650	0.3756	0.3461	0.3071
25	0.2569	0.3652	0.3372	0.3079
26	0.2493	0.3555	0.3284	0.3059
27	0.2441	0.3465	0.3204	0.3026
28	0.2383	0.3372	0.3133	0.2980
29	0.2337	0.3280	0.3061	0.2941
30	0.2282	0.3208	0.2990	0.2939
31	0.2229	0.3127	0.2914	0.2917
32	0.2176	0.3044	0.2838	0.2883
33	0.2133	0.2978	0.2765	0.2860
34	0.2086	0.2910	0.2696	0.2832
35	0.2041	0.2841	0.2634	0.2797
36	0.1996	0.2785	0.2571	0.2757
37	0.1957	0.2728	0.2521	0.2781
38	0.1926	0.2674	0.2469	0.2798
39	0.1897	0.2628	0.2418	0.2798
40	0.1866	0.2592	0.2390	0.2787
41	0.1838	0.2562	0.2357	0.2770
42	0.1807	0.2541	0.2355	0.2755
43	0.1775	0.2558	0.2344	0.2753
44	0.1745	0.2646	0.2390	0.2824
45	0.1715	0.2715	0.2429	0.2936
46	0.1684	0.2985	0.2464	0.3151
47	0.1656	0.0000	0.0000	0.3465
48	0.1629	0.0000	0.0000	0.3799
49	0.1601	0.0000	0.0000	0.4103

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1968 (Cont'd)

	EQUITY	EXPORTS	NET ASSETS	NET CASH FLOW
N*				
2	0.9503	0.6178	0.9754	1.0667
3	0.9603	0.6120	0.8877	0.9048
4	0.7763	0.5192	0.7303	0.6594
5	0.8630	0.4164	0.6475	0.6041
6	0.7833	0.3502	0.7086	0.6158
7	0.6908	0.2954	0.6993	0.6069
8	0.6104	0.3181	0.6887	0.5881
9	0.5550	0.3109	0.6510	0.5489
10	0.5006	0.2935	0.6022	0.5219
11	0.4680	0.2804	0.5877	0.4874
12	0.4432	0.2665	0.5652	0.4774
13	0.4154	0.2565	0.5614	0.4668
14	0.4010	0.2442	0.5469	0.4554
15	0.3933	0.2312	0.5323	0.4407
16	0.3792	0.2181	0.5174	0.4230
17	0.3669	0.2161	0.4986	0.4049
18	0.3651	0.2125	0.4808	0.3881
19	0.3575	0.2085	0.4656	0.3751
20	0.3487	0.2069	0.4514	0.3603
21	0.3380	0.2065	0.4416	0.3454
22	0.3270	0.2048	0.4300	0.3306
23	0.3230	0.2029	0.4166	0.3217
24	0.3164	0.2055	0.4047	0.3122
25	0.3093	0.2052	0.3929	0.3045
26	0.3036	0.2066	0.3858	0.2975
27	0.2990	0.2059	0.3775	0.2920
28	0.2934	0.2043	0.3681	0.2865
29	0.2881	0.2040	0.3589	0.2804
30	0.2823	0.2103	0.3503	0.2737
31	0.2760	0.2155	0.3426	0.2681
32	0.2699	0.2192	0.3339	0.2627
33	0.2647	0.2210	0.3266	0.2571
34	0.2595	0.2244	0.3207	0.2518
35	0.2575	0.2259	0.3143	0.2466
36	0.2553	0.2288	0.3080	0.2419
37	0.2528	0.2317	0.3019	0.2371
38	0.2496	0.2397	0.2957	0.2328
39	0.2483	0.2451	0.2894	0.2288
40	0.2466	0.2496	0.2840	0.2249
41	0.2461	0.2527	0.2794	0.2210
42	0.2454	0.2575	0.2750	0.2217
43	0.2445	0.2799	0.2717	0.2226
44	0.2435	0.2995	0.2707	0.2225
45	0.2434	0.3347	0.2709	0.2240
46	0.2461	0.3853	0.2700	0.2276
47	0.2512	0.0000	0.2869	0.0000
48	0.2649	0.0000	0.3226	0.0000
49	0.2903	0.0000	0.3553	0.0000

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1969

	TURNOVER	NET PROFIT	CASH FLOW	GROSS INVESTMENT
N#				
2	0.8808	1.4254	1.2285	1.9392
3	0.8559	1.0085	1.0427	1.2074
4	0.6694	0.7743	0.7608	1.0604
5	0.6944	0.6643	0.6137	1.0540
6	0.6524	0.6364	0.6220	0.9980
7	0.5963	0.6190	0.6549	0.9434
8	0.5438	0.6044	0.6249	0.8665
9	0.4950	0.5711	0.6072	0.7932
10	0.4609	0.5310	0.5790	0.7170
11	0.4236	0.5057	0.5450	0.6665
12	0.3877	0.4762	0.5200	0.6447
13	0.3810	0.4622	0.4957	0.6147
14	0.3712	0.4403	0.4684	0.5927
15	0.3560	0.4203	0.4404	0.5943
16	0.3401	0.4003	0.4156	0.5816
17	0.3273	0.3800	0.3957	0.5710
18	0.3140	0.3652	0.3767	0.5585
19	0.3020	0.3492	0.3580	0.5473
20	0.2901	0.3350	0.3464	0.5389
21	0.2796	0.3254	0.3367	0.5310
22	0.2703	0.3141	0.3253	0.5244
23	0.2604	0.3088	0.3166	0.5145
24	0.2528	0.3020	0.3090	0.5077
25	0.2455	0.2940	0.3011	0.5047
26	0.2399	0.2860	0.2931	0.4980
27	0.2337	0.2786	0.2865	0.4918
28	0.2309	0.2745	0.2798	0.4874
29	0.2277	0.2700	0.2732	0.4803
30	0.2241	0.2646	0.2674	0.4729
31	0.2206	0.2592	0.2617	0.4662
32	0.2165	0.2538	0.2547	0.4593
33	0.2121	0.2484	0.2492	0.4532
34	0.2089	0.2426	0.2435	0.4482
35	0.2052	0.2375	0.2396	0.4430
36	0.2021	0.2346	0.2358	0.4397
37	0.1993	0.2311	0.2318	0.4372
38	0.1961	0.2284	0.2276	0.4345
39	0.1927	0.2259	0.2247	0.4357
40	0.1897	0.2241	0.2220	0.4343
41	0.1869	0.2228	0.2193	0.4318
42	0.1845	0.2289	0.2183	0.4310
43	0.1820	0.2353	0.2194	0.4286
44	0.1792	0.2405	0.2196	0.4281
45	0.1767	0.2455	0.2201	0.4278
46	0.1742	0.2511	0.2221	0.4294
47	0.1718	0.2588	0.2245	0.4359
48	0.1694	0.2725	0.2281	0.4476
49	0.1671	0.2971	0.2378	0.4570
50	0.1648	0.0000	0.0000	0.4668
51	0.1628	0.0000	0.0000	0.5015
52	0.1606	0.0000	0.0000	0.5665

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1969 (Cont'd)

N*	EQUITY	EXPORTS	NET ASSETS	NET CASH FLOW
2	1.0427	0.8497	1.1931	1.2759
3	0.9955	0.7759	0.9941	1.0375
4	0.7534	0.5854	0.7420	0.7865
5	0.7564	0.4753	0.6888	0.6056
6	0.7394	0.3984	0.7277	0.6206
7	0.6668	0.3591	0.7044	0.6488
8	0.5973	0.3862	0.7003	0.6201
9	0.5438	0.3827	0.6621	0.6032
10	0.5015	0.3647	0.6289	0.5810
11	0.4794	0.3469	0.6167	0.5501
12	0.4544	0.3415	0.5909	0.5304
13	0.4349	0.3277	0.5619	0.5059
14	0.4142	0.3107	0.5327	0.4773
15	0.3916	0.3003	0.5202	0.4516
16	0.3802	0.2889	0.5044	0.4270
17	0.3657	0.2765	0.4870	0.4092
18	0.3509	0.2641	0.4748	0.3901
19	0.3359	0.2530	0.4628	0.3714
20	0.3235	0.2427	0.4484	0.3548
21	0.3180	0.2327	0.4382	0.3388
22	0.3097	0.2244	0.4269	0.3291
23	0.3014	0.2192	0.4153	0.3185
24	0.2965	0.2129	0.4030	0.3086
25	0.2893	0.2070	0.3917	0.3004
26	0.2842	0.2040	0.3818	0.2942
27	0.2780	0.2032	0.3731	0.2887
28	0.2711	0.2021	0.3658	0.2820
29	0.2644	0.2000	0.3579	0.2758
30	0.2579	0.1969	0.3500	0.2692
31	0.2536	0.1938	0.3420	0.2635
32	0.2487	0.1903	0.3338	0.2580
33	0.2438	0.1899	0.3253	0.2521
34	0.2386	0.1907	0.3171	0.2461
35	0.2333	0.1917	0.3109	0.2405
36	0.2283	0.1941	0.3046	0.2364
37	0.2238	0.1960	0.2981	0.2321
38	0.2198	0.1966	0.2931	0.2280
39	0.2160	0.2008	0.2883	0.2247
40	0.2153	0.2034	0.2831	0.2211
41	0.2138	0.2053	0.2783	0.2173
42	0.2125	0.2096	0.2734	0.2146
43	0.2116	0.2127	0.2686	0.2117
44	0.2099	0.2156	0.2640	0.2110
45	0.2102	0.2215	0.2592	0.2100
46	0.2099	0.2261	0.2545	0.2111
47	0.2096	0.2309	0.2509	0.2114
48	0.2092	0.2362	0.2483	0.2116
49	0.2141	0.2482	0.2457	0.2254
50	0.2178	0.2677	0.2469	0.0000
51	0.2231	0.0000	0.2522	0.0000
52	0.2361	0.0000	0.2654	0.0000

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1970

	TURNOVER	NET PROFIT	CASH FLOW	GROSS INVESTMENT
N*				
2	0.9820	1.2822	1.2068	2.1878
3	0.9000	0.9382	1.0349	1.8344
4	0.7158	0.8144	0.8103	1.2052
5	0.8047	0.9547	0.9545	1.0250
6	0.7401	0.9356	1.0129	0.8790
7	0.6612	0.9083	0.9604	0.7979
8	0.5929	0.8546	0.8758	0.7306
9	0.5578	0.7865	0.8236	0.6564
10	0.5141	0.7240	0.7619	0.6031
11	0.4778	0.6608	0.7033	0.5603
12	0.4462	0.6055	0.6455	0.5299
13	0.4162	0.5627	0.5993	0.5018
14	0.3948	0.5358	0.5575	0.4794
15	0.3743	0.5083	0.5219	0.4551
16	0.3529	0.4798	0.4942	0.4530
17	0.3331	0.4630	0.4670	0.4521
18	0.3166	0.4428	0.4422	0.4515
19	0.3001	0.4241	0.4192	0.4447
20	0.2845	0.4097	0.4006	0.4379
21	0.2774	0.3961	0.3836	0.4285
22	0.2693	0.3815	0.3671	0.4220
23	0.2614	0.3666	0.3509	0.4136
24	0.2534	0.3528	0.3355	0.4057
25	0.2450	0.3441	0.3214	0.3962
26	0.2386	0.3367	0.3114	0.3861
27	0.2337	0.3309	0.3010	0.3764
28	0.2288	0.3238	0.2922	0.3676
29	0.2238	0.3160	0.2844	0.3588
30	0.2194	0.3080	0.2765	0.3501
31	0.2150	0.2998	0.2688	0.3413
32	0.2112	0.2917	0.2625	0.3431
33	0.2072	0.2852	0.2559	0.3420
34	0.2042	0.2792	0.2504	0.3400
35	0.2008	0.2739	0.2447	0.3370
36	0.1971	0.2698	0.2392	0.3335
37	0.1939	0.2721	0.2346	0.3309
38	0.1909	0.2722	0.2330	0.3285
39	0.1887	0.2806	0.2311	0.3306
40	0.1861	0.2922	0.2319	0.3315
41	0.1834	0.3024	0.2320	0.3322
42	0.1817	0.3244	0.2320	0.3329
43	0.1797	0.3682	0.2330	0.3413
44	0.1775	0.4850	0.2379	0.3489
45	0.1752	0.6249	0.2458	0.3586
46	0.1731	0.0000	0.2574	0.3656
47	0.1708	0.0000	0.2684	0.3736
48	0.1691	0.0000	0.2879	0.3855
49	0.1672	0.0000	0.3042	0.4062
50	0.1652	0.0000	0.3428	0.4293
51	0.1639	0.0000	0.0000	0.4764
52	0.1645	0.0000	0.0000	0.5241

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1970 (Cont'd)

N*	EQUITY	EXPORTS	NET ASSETS	NET CASH FLOW
2	1.1165	0.9077	1.3618	1.1979
3	0.9956	0.7916	1.1426	0.9604
4	0.7550	0.6228	0.9007	0.7262
5	0.6977	0.5033	0.8206	0.8699
6	0.7201	0.4561	0.7612	0.9379
7	0.6741	0.4033	0.7549	0.8912
8	0.6228	0.3683	0.7337	0.8115
9	0.5653	0.3650	0.7103	0.7337
10	0.5337	0.3474	0.6638	0.7013
11	0.5179	0.3457	0.6509	0.6562
12	0.5014	0.3337	0.6221	0.6137
13	0.4756	0.3170	0.5906	0.5705
14	0.4536	0.3079	0.5571	0.5304
15	0.4295	0.2944	0.5231	0.4928
16	0.4067	0.2830	0.4946	0.4591
17	0.3895	0.2733	0.4675	0.4285
18	0.3709	0.2650	0.4538	0.4037
19	0.3520	0.2582	0.4378	0.3878
20	0.3361	0.2500	0.4250	0.3705
21	0.3204	0.2419	0.4134	0.3541
22	0.3103	0.2357	0.4056	0.3385
23	0.3030	0.2294	0.3952	0.3239
24	0.2947	0.2233	0.3857	0.3119
25	0.2867	0.2212	0.3774	0.2998
26	0.2790	0.2178	0.3699	0.2880
27	0.2752	0.2141	0.3632	0.2781
28	0.2707	0.2099	0.3550	0.2717
29	0.2651	0.2063	0.3461	0.2646
30	0.2590	0.2024	0.3386	0.2572
31	0.2526	0.1980	0.3308	0.2505
32	0.2477	0.1962	0.3236	0.2439
33	0.2428	0.1946	0.3169	0.2373
34	0.2383	0.1964	0.3096	0.2315
35	0.2334	0.1970	0.3032	0.2263
36	0.2293	0.1987	0.2973	0.2214
37	0.2249	0.1999	0.2933	0.2180
38	0.2222	0.1999	0.2888	0.2143
39	0.2189	0.2020	0.2839	0.2120
40	0.2173	0.2038	0.2788	0.2101
41	0.2157	0.2045	0.2743	0.2076
42	0.2143	0.2058	0.2708	0.2056
43	0.2122	0.2077	0.2670	0.2066
44	0.2100	0.2085	0.2632	0.2074
45	0.2080	0.2090	0.2594	0.2127
46	0.2075	0.2112	0.2556	0.2181
47	0.2069	0.2129	0.2520	0.2271
48	0.2078	0.2146	0.2483	0.2391
49	0.2093	0.2187	0.2475	0.2623
50	0.2163	0.2274	0.2462	0.2880
51	0.2239	0.0000	0.2490	0.0000
52	0.2365	0.0000	0.2631	0.0000

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1971

N*	TURNOVER	NET PROFIT	CASH FLOW	GROSS INVESTMENT
2	0.9309	1.3945	1.3023	0.5251
3	0.5731	1.0564	0.8830	0.3956
4	0.8892	0.7634	0.7317	0.6019
5	0.8561	0.8919	0.9131	0.5748
6	0.8308	0.9157	0.9093	0.6082
7	0.7494	0.8468	0.8650	0.5702
8	0.6620	0.7927	0.8114	0.5162
9	0.5982	0.7389	0.7530	0.4702
10	0.5385	0.6775	0.6893	0.4525
11	0.4963	0.6237	0.6328	0.4232
12	0.4568	0.5802	0.5909	0.4013
13	0.4254	0.5434	0.5585	0.3779
14	0.4008	0.5063	0.5256	0.3700
15	0.3785	0.4736	0.4930	0.3552
16	0.3656	0.4452	0.4661	0.3425
17	0.3506	0.4181	0.4398	0.3276
18	0.3381	0.3944	0.4149	0.3127
19	0.3296	0.3829	0.3935	0.3011
20	0.3194	0.3711	0.3781	0.2943
21	0.3083	0.3579	0.3647	0.2866
22	0.2998	0.3486	0.3531	0.2783
23	0.2910	0.3435	0.3414	0.2694
24	0.2831	0.3375	0.3297	0.2607
25	0.2758	0.3298	0.3179	0.2520
26	0.2679	0.3246	0.3146	0.2445
27	0.2600	0.3184	0.3088	0.2370
28	0.2527	0.3119	0.3054	0.2295
29	0.2464	0.3047	0.3010	0.2232
30	0.2401	0.2996	0.2960	0.2166
31	0.2341	0.2945	0.2903	0.2110
32	0.2278	0.2900	0.2848	0.2064
33	0.2219	0.2867	0.2802	0.2029
34	0.2162	0.2844	0.2753	0.1996
35	0.2126	0.2817	0.2699	0.1965
36	0.2086	0.2820	0.2658	0.1935
37	0.2045	0.2807	0.2620	0.1913
38	0.2010	0.2796	0.2586	0.1895
39	0.1974	0.2780	0.2569	0.1875
40	0.1942	0.2785	0.2544	0.1882
41	0.1919	0.2788	0.2548	0.1895
42	0.1892	0.2831	0.2549	0.1921
43	0.1869	0.2890	0.2545	0.1935
44	0.1843	0.2987	0.2531	0.1966
45	0.1819	0.3055	0.2531	0.2008
46	0.1797	0.3113	0.2539	0.2067
47	0.1776	0.3298	0.2554	0.2128
48	0.1758	0.3473	0.2584	0.2189
49	0.1751	0.0000	0.2609	0.2292
50	0.1743	0.0000	0.0000	0.2373
51	0.1737	0.0000	0.0000	0.2491
52	0.1729	0.0000	0.0000	0.2939

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1971 (Cont'd)

	EQUITY	EXPORTS	NET ASSETS	NET CASH FLOW
N*				
2	1.0623	0.7160	1.2836	1.4038
3	0.6355	0.5119	0.7537	1.0728
4	0.7598	0.4534	0.8923	0.7809
5	0.8642	0.3856	0.9426	0.9112
6	0.8670	0.3317	0.9479	0.8438
7	0.7878	0.3893	0.9059	0.7824
8	0.7089	0.3922	0.8336	0.7437
9	0.6469	0.3783	0.7857	0.6802
10	0.6132	0.3713	0.7282	0.6224
11	0.5911	0.3679	0.6807	0.5679
12	0.5572	0.3560	0.6555	0.5316
13	0.5204	0.3499	0.6207	0.4945
14	0.4850	0.3390	0.5845	0.4664
15	0.4579	0.3304	0.5534	0.4414
16	0.4353	0.3179	0.5234	0.4160
17	0.4126	0.3094	0.4957	0.3960
18	0.3910	0.3037	0.4745	0.3761
19	0.3757	0.3010	0.4551	0.3574
20	0.3599	0.2953	0.4461	0.3398
21	0.3449	0.2900	0.4339	0.3240
22	0.3346	0.2833	0.4232	0.3094
23	0.3235	0.2753	0.4106	0.2980
24	0.3146	0.2679	0.3980	0.2865
25	0.3058	0.2604	0.3877	0.2807
26	0.2982	0.2533	0.3768	0.2784
27	0.2929	0.2458	0.3701	0.2744
28	0.2870	0.2391	0.3630	0.2690
29	0.2802	0.2336	0.3556	0.2631
30	0.2742	0.2303	0.3488	0.2570
31	0.2677	0.2292	0.3413	0.2526
32	0.2615	0.2286	0.3341	0.2489
33	0.2550	0.2270	0.3265	0.2446
34	0.2508	0.2251	0.3189	0.2403
35	0.2462	0.2266	0.3122	0.2360
36	0.2413	0.2277	0.3067	0.2319
37	0.2369	0.2276	0.3007	0.2277
38	0.2328	0.2272	0.2952	0.2237
39	0.2285	0.2262	0.2894	0.2202
40	0.2245	0.2248	0.2835	0.2201
41	0.2208	0.2245	0.2775	0.2188
42	0.2183	0.2265	0.2723	0.2168
43	0.2157	0.2279	0.2683	0.2151
44	0.2128	0.2283	0.2638	0.2136
45	0.2105	0.2330	0.2597	0.2126
46	0.2088	0.2398	0.2555	0.2124
47	0.2079	0.2483	0.2511	0.2133
48	0.2113	0.2752	0.2468	0.2182
49	0.2194	0.3155	0.2437	0.2334
50	0.2259	0.9338	0.2495	0.0000
51	0.2398	2.2152	0.2587	0.0000
52	0.2522	0.0000	0.2685	0.0000

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1972

	TURNOVER	NET PROFIT	CASH FLOW	GROSS INVESTMENT
N*				
2	0.9565	1.5432	1.3904	0.5082
3	0.6314	1.1912	0.9743	0.3556
4	0.6826	0.8653	0.8214	0.5235
5	0.7751	0.7702	0.7721	0.5536
6	0.7940	0.7442	0.7511	0.5462
7	0.7362	0.6804	0.7028	0.5029
8	0.6631	0.6337	0.6671	0.4948
9	0.5964	0.5892	0.6379	0.4608
10	0.5394	0.5765	0.6083	0.4323
11	0.5084	0.5472	0.5753	0.4246
12	0.4753	0.5231	0.5572	0.4178
13	0.4443	0.5042	0.5295	0.4025
14	0.4186	0.4842	0.5000	0.3880
15	0.3999	0.4597	0.4704	0.3702
16	0.3790	0.4348	0.4437	0.3511
17	0.3579	0.4122	0.4211	0.3341
18	0.3436	0.3918	0.3991	0.3228
19	0.3294	0.3715	0.3777	0.3103
20	0.3165	0.3535	0.3583	0.3021
21	0.3054	0.3442	0.3468	0.2927
22	0.2941	0.3335	0.3351	0.2830
23	0.2853	0.3265	0.3257	0.2764
24	0.2764	0.3210	0.3156	0.2694
25	0.2672	0.3148	0.3057	0.2647
26	0.2600	0.3080	0.2971	0.2588
27	0.2525	0.3009	0.2880	0.2525
28	0.2452	0.2934	0.2814	0.2459
29	0.2391	0.2855	0.2766	0.2397
30	0.2329	0.2811	0.2714	0.2336
31	0.2266	0.2758	0.2665	0.2282
32	0.2225	0.2703	0.2617	0.2256
33	0.2182	0.2659	0.2563	0.2255
34	0.2142	0.2621	0.2528	0.2269
35	0.2100	0.2577	0.2502	0.2267
36	0.2056	0.2548	0.2470	0.2272
37	0.2017	0.2522	0.2444	0.2268
38	0.1978	0.2489	0.2413	0.2268
39	0.1943	0.2463	0.2378	0.2273
40	0.1916	0.2444	0.2349	0.2268
41	0.1886	0.2418	0.2321	0.2262
42	0.1855	0.2417	0.2290	0.2252
43	0.1829	0.2405	0.2265	0.2258
44	0.1806	0.2408	0.2253	0.2257
45	0.1784	0.2406	0.2242	0.2306
46	0.1765	0.2411	0.2240	0.2337
47	0.1743	0.2445	0.2241	0.2372
48	0.1720	0.2479	0.2261	0.2422
49	0.1703	0.2599	0.2287	0.2458
50	0.1693	0.4975	0.2311	0.2572
51	0.1682	0.0000	0.2498	0.2749
52	0.1687	0.0000	0.2654	0.3215
53	0.1759	0.0000	0.0000	0.3599

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1972 (Cont'd)

N*	EQUITY	EXPORTS	NET ASSETS	NET CASH FLOW
2	1.0955	0.5542	1.0587	1.6202
3	0.6479	0.4158	0.6986	1.0062
4	0.7191	0.3718	0.9128	0.7934
5	0.7813	0.3297	0.9688	0.7117
6	0.7953	0.3576	0.9875	0.6788
7	0.7277	0.4039	0.9067	0.6498
8	0.6805	0.4111	0.8540	0.6177
9	0.6235	0.3916	0.7802	0.5882
10	0.5921	0.3760	0.7200	0.5620
11	0.5542	0.3658	0.6727	0.5253
12	0.5322	0.3571	0.6528	0.4957
13	0.5073	0.3491	0.6230	0.4740
14	0.4819	0.3389	0.5885	0.4515
15	0.4572	0.3309	0.5606	0.4281
16	0.4323	0.3219	0.5337	0.4039
17	0.4081	0.3108	0.5062	0.3811
18	0.3863	0.2983	0.4833	0.3633
19	0.3708	0.2885	0.4638	0.3458
20	0.3603	0.2771	0.4502	0.3305
21	0.3488	0.2683	0.4377	0.3210
22	0.3381	0.2591	0.4256	0.3115
23	0.3278	0.2529	0.4121	0.3016
24	0.3178	0.2458	0.3991	0.2923
25	0.3107	0.2414	0.3864	0.2829
26	0.3025	0.2375	0.3735	0.2739
27	0.2979	0.2329	0.3621	0.2651
28	0.2915	0.2283	0.3522	0.2599
29	0.2854	0.2237	0.3436	0.2557
30	0.2800	0.2205	0.3369	0.2505
31	0.2746	0.2164	0.3292	0.2450
32	0.2689	0.2128	0.3212	0.2408
33	0.2628	0.2092	0.3130	0.2361
34	0.2566	0.2060	0.3059	0.2334
35	0.2511	0.2038	0.2979	0.2309
36	0.2462	0.2026	0.2906	0.2279
37	0.2420	0.2018	0.2844	0.2247
38	0.2379	0.2006	0.2782	0.2215
39	0.2339	0.1993	0.2724	0.2183
40	0.2296	0.2014	0.2674	0.2148
41	0.2266	0.2029	0.2624	0.2113
42	0.2231	0.2037	0.2575	0.2078
43	0.2220	0.2036	0.2533	0.2050
44	0.2202	0.2034	0.2498	0.2032
45	0.2189	0.2050	0.2461	0.2017
46	0.2159	0.2071	0.2427	0.1996
47	0.2200	0.2163	0.2392	0.1995
48	0.2264	0.2305	0.2366	0.1987
49	0.2343	0.2615	0.2338	0.1992
50	0.2417	0.3035	0.2316	0.2013
51	0.2486	0.6574	0.2426	0.2135
52	0.2634	0.0000	0.2537	0.0000
53	0.0000	0.0000	0.2630	0.0000

TABLE 4, COMPLETE LISTING OF LINDA CURVES FOR 1973

	TURNOVER	NET PROFIT	CASH FLOW	GROSS INVESTMENT
N*				
2	0.9638	1.4765	1.3489	0.5917
3	0.6325	1.0918	0.9406	0.4097
4	0.6723	0.8336	0.7869	0.3366
5	0.6530	0.8308	0.8147	0.3459
6	0.6908	0.7516	0.7456	0.4237
7	0.6450	0.7220	0.7268	0.4377
8	0.5800	0.6637	0.6700	0.4180
9	0.5504	0.6387	0.6518	0.4251
10	0.5214	0.6222	0.6352	0.4206
11	0.4870	0.5966	0.6016	0.4009
12	0.4642	0.5802	0.5815	0.3895
13	0.4373	0.5519	0.5556	0.3739
14	0.4095	0.5216	0.5302	0.3607
15	0.3831	0.4966	0.5038	0.3448
16	0.3625	0.4756	0.4794	0.3286
17	0.3438	0.4534	0.4561	0.3154
18	0.3277	0.4370	0.4341	0.3035
19	0.3116	0.4209	0.4148	0.2932
20	0.3055	0.4041	0.3991	0.2897
21	0.2964	0.3883	0.3856	0.2831
22	0.2884	0.3785	0.3723	0.2765
23	0.2801	0.3689	0.3634	0.2697
24	0.2718	0.3610	0.3542	0.2626
25	0.2630	0.3568	0.3472	0.2564
26	0.2548	0.3518	0.3397	0.2506
27	0.2499	0.3453	0.3330	0.2473
28	0.2440	0.3375	0.3260	0.2437
29	0.2395	0.3305	0.3185	0.2391
30	0.2345	0.3248	0.3107	0.2351
31	0.2299	0.3191	0.3027	0.2315
32	0.2256	0.3129	0.2951	0.2278
33	0.2210	0.3087	0.2896	0.2236
34	0.2162	0.3048	0.2836	0.2195
35	0.2121	0.3000	0.2787	0.2151
36	0.2078	0.2953	0.2752	0.2120
37	0.2035	0.2903	0.2710	0.2093
38	0.1993	0.2852	0.2663	0.2062
39	0.1949	0.2799	0.2620	0.2030
40	0.1914	0.2749	0.2581	0.2005
41	0.1881	0.2714	0.2537	0.2050
42	0.1847	0.2674	0.2492	0.2077
43	0.1817	0.2636	0.2448	0.2095
44	0.1784	0.2604	0.2410	0.2112
45	0.1754	0.2614	0.2386	0.2135
46	0.1734	0.2609	0.2371	0.2168
47	0.1713	0.2600	0.2349	0.2192
48	0.1691	0.2598	0.2335	0.2236
49	0.1669	0.2599	0.2319	0.2264
50	0.1651	0.2598	0.2308	0.2297
51	0.1631	0.2608	0.2296	0.2330
52	0.1624	0.2637	0.2292	0.2395
53	0.1630	0.2759	0.2283	0.2447
54	0.1638	0.2910	0.2280	0.2488
55	0.1716	0.3065	0.2274	0.2522

TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1973 (Cont'd)

N*	EQUITY	EXPORTS	NET ASSETS	NET CASH FLOW
2	1.0657	0.6070	1.2444	1.3748
3	0.6660	0.4830	0.7164	0.8408
4	0.7317	0.4122	0.6568	0.7131
5	0.6873	0.3460	0.7481	0.7900
6	0.7518	0.4412	0.8151	0.7297
7	0.7051	0.4424	0.8165	0.7026
8	0.6559	0.4513	0.7582	0.6610
9	0.6040	0.4383	0.7081	0.6414
10	0.5567	0.4136	0.6707	0.6244
11	0.5286	0.3890	0.6455	0.5932
12	0.5041	0.3641	0.6372	0.5564
13	0.4911	0.3413	0.6182	0.5221
14	0.4709	0.3234	0.5934	0.5034
15	0.4494	0.3047	0.5641	0.4807
16	0.4314	0.2920	0.5370	0.4574
17	0.4180	0.2784	0.5139	0.4427
18	0.4094	0.2707	0.4902	0.4266
19	0.3969	0.2613	0.4707	0.4094
20	0.3834	0.2511	0.4526	0.3922
21	0.3701	0.2423	0.4392	0.3754
22	0.3593	0.2341	0.4307	0.3646
23	0.3474	0.2288	0.4214	0.3557
24	0.3375	0.2237	0.4110	0.3495
25	0.3279	0.2215	0.4001	0.3420
26	0.3198	0.2180	0.3891	0.3333
27	0.3108	0.2136	0.3787	0.3245
28	0.3030	0.2088	0.3678	0.3169
29	0.2961	0.2052	0.3573	0.3092
30	0.2895	0.2010	0.3475	0.3016
31	0.2824	0.1985	0.3369	0.2937
32	0.2769	0.1988	0.3280	0.2861
33	0.2708	0.2011	0.3190	0.2799
34	0.2651	0.2023	0.3102	0.2735
35	0.2612	0.2027	0.3015	0.2680
36	0.2566	0.2028	0.2930	0.2631
37	0.2518	0.2032	0.2859	0.2580
38	0.2468	0.2028	0.2790	0.2527
39	0.2421	0.2023	0.2724	0.2483
40	0.2373	0.2020	0.2659	0.2435
41	0.2324	0.2025	0.2608	0.2398
42	0.2293	0.2022	0.2570	0.2369
43	0.2278	0.2026	0.2526	0.2341
44	0.2258	0.2033	0.2490	0.2315
45	0.2244	0.2049	0.2452	0.2291
46	0.2230	0.2071	0.2414	0.2268
47	0.2213	0.2120	0.2381	0.2242
48	0.2192	0.2169	0.2345	0.2215
49	0.2198	0.2312	0.2317	0.2190
50	0.2199	0.2453	0.2301	0.2175
51	0.2237	0.2687	0.2285	0.2160
52	0.2261	0.3362	0.2272	0.2141
53	0.2349	0.6438	0.2305	0.2136
54	0.2420	0.0000	0.2351	0.2125
55	0.2568	0.0000	0.2478	0.2138

TABLES OF CONCENTRATION
ECONOMIC ACTIVITY UNITS

T E X T I L E S (parts)

Data relate to firms of combined activities
in the following sub-sectors

WOOL (NICE 231)

COTTON (NICE 232)

HOSIERY AND OTHER KNITTED GOODS (NICE 233)

together with vertically integrated
finishing activities.

TABLE 1: TOTAL VALUES OF THE SAMPLE 1968-73 (N* = number of positive values)

	VARIABLE 01: TURNOVER			VARIABLE 04: NET PROFIT BEFORE TAX		
	N*	£000	1968=100	N*	£000	1968=100
1968	50	911,604	100	48	57,266	100
1969	54	1,030,811	113	52	52,667	92
1970	54	1,034,288	113	48	43,602	76
1971	55	1,151,726	127	51	57,864	101
1972	56	1,269,044	140	53	84,383	147
1973	58	1,543,646	163	58	111,393	195

TABLE 2: MEASURES OF CONCENTRATION

	N*	MEAN	V	GINI	H-H	ENTROPY
VARIABLE 01: TURNOVER						
1968	50	18,232	1.937	0.6266	95.0	-132.5
1969	54	19,089	1.947	0.6299	88.7	-135.8
1970	54	19,153	1.843	0.616	81.5	-138.0
1971	55	20,941	2.145	0.6533	101.8	-131.9
1972	56	22,662	2.061	0.6357	93.7	-135.3
1973	58	26,607	2,089	0.6365	92.5	-136.8
VARIABLE 04: NET PROFIT BEFORE TAX						
1968	47	1,218	1.729	0.6458	84.9	-130.8
1969	52	1,013	1.727	0.6306	76.6	-137.1
1970	48	908	1.816	0.6358	89.6	-131.4
1971	51	1,135	1.808	0.6397	83.7	-134.4
1972	53	1,592	1.651	0.6226	70.3	-139.3
1973	58	1,921	1.790	0.6578	72.5	-138.6

Note: The mean figures are in thousands of pounds; definitions of the four concentration measures are given on page

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 01: TURNOVER

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.576 49.8	0.587 48.9	0.550 47.6	0.590 54.9	0.597 51.4	0.643 49.4
8	L CR	0.436 66.2	0.456 63.7	0.428 62.5	0.574 65.3	0.527 63.9	0.490 63.2
10	L CR	0.400 70.4	0.401 68.0	0.404 66.3	0.487 69.2	0.452 67.9	0.445 67.0
12	L CR	0.359 74.0	0.344 72.0	0.360 69.8	0.420 72.6	0.403 71.1	0.390 70.4
20	L CR	0.275 83.4	0.261 81.8	0.238 80.9	0.291 82.7	0.278 81.1	0.266 80.6
30	L CR	0.218 90.9	0.201 90.1	0.183 89.7	0.224 90.1	0.209 89.0	0.207 89.6
40	L CR	0.183 95.9	0.179 94.9	0.165 94.9	0.188 95.2	0.175 94.3	0.174 93.8

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	1.461 33.6 2	1.119 34.2 2	1.009 32.7 2	1.032 37.9 2	1.167 35.2 2	1.249 34.6 2
Overall Maximum L CR N*H						
1st Minimum L CR N*M LS	0.436 57.3 5 0.822	0.460 55.6 5 0.749	0.435 54.2 5 0.585	0.590 54.9 4 0.773	0.525 56.6 5 0.752	0.537 55.2 5 0.800

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 04: NET PROFIT

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.482 48.4	0.567 44.5	0.483 52.9	0.463 50.4	0.453 44.3	0.452 45.0
8	L CR	0.338 69.2	0.335 63.6	0.475 65.1	0.448 63.5	0.318 62.5	0.318 64.1
10	L CR	0.324 74.0	0.320 68.3	0.414 69.4	0.391 67.8	0.314 67.3	0.310 69.2
12	L CR	0.319 77.6	0.300 72.1	0.357 73.3	0.338 71.8	0.314 71.1	0.300 72.7
20	L CR	0.282 86.4	0.229 83.1	0.255 84.2	0.230 83.9	0.217 82.3	0.235 83.2
30	L CR	0.228 93.2	0.185 91.5	0.195 92.9	0.185 92.7	0.177 90.9	0.201 90.5
40	L CR	0.189 98.2	0.159 97.1	0.164 99.0	0.172 97.7	0.156 96.5	0.173 95.4

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	1.047 31.0 2	1.074 30.3 2	0.854 34.9 2	1.013 32.3 2	0.981 28.1 2	0.981 27.8 2
Overall Maximum L CR N*H						
1st Minimum L CR N*M LS	0.322 66.4 7 0.532	0.154 98.0 44 0.276	0.483 52.9 4 0.658	0.463 50.4 4 0.711	0.304 65.4 9 0.470	0.299 67.5 9 0.460

EAU TEXTILES
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1968

	TURNOVER	NET PROFITS
N*		
2	1.4614	1.0466
3	0.8141	0.6262
4	0.5762	0.4020
5	0.4357	0.3826
6	0.4639	0.3351
7	0.4543	0.3222
8	0.4360	0.3380
9	0.4204	0.3391
10	0.3995	0.3235
11	0.3803	0.3265
12	0.3588	0.3186
13	0.3537	0.3173
14	0.3455	0.3117
15	0.3333	0.3098
16	0.3214	0.3053
17	0.3087	0.3018
18	0.2906	0.2956
19	0.2849	0.2869
20	0.2748	0.2817
21	0.2657	0.2745
22	0.2594	0.2691
23	0.2528	0.2649
24	0.2457	0.2599
25	0.2400	0.2538
26	0.2334	0.2486
27	0.2297	0.2434
28	0.2252	0.2379
29	0.2210	0.2332
30	0.2175	0.2280
31	0.2144	0.2223
32	0.2100	0.2173
33	0.2069	0.2130
34	0.2029	0.2086
35	0.1992	0.2040
36	0.1954	0.2004
37	0.1926	0.1971
38	0.1895	0.1943
39	0.1865	0.1917
40	0.1834	0.1892
41	0.1804	0.1873
42	0.1774	0.1852
43	0.1743	0.1836
44	0.1711	0.1850
45	0.1682	0.1920
46	0.1653	0.1975
47	0.1623	0.2183
48	0.1596	0.0000
49	0.1570	0.0000
50	0.1543	0.0000

EAU TEXTILES
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1969

	TURNOVER	NET PROFITS
N*		
2	1.1193	1.0741
3	0.8293	0.7094
4	0.5874	0.5671
5	0.4596	0.4462
6	0.4981	0.3633
7	0.4835	0.3423
8	0.4560	0.3353
9	0.4241	0.3326
10	0.4011	0.3204
11	0.3726	0.3133
12	0.3439	0.2990
13	0.3400	0.2853
14	0.3284	0.2802
15	0.3182	0.2728
16	0.3050	0.2636
17	0.2916	0.2530
18	0.2812	0.2457
19	0.2704	0.2369
20	0.2608	0.2287
21	0.2530	0.2201
22	0.2441	0.2143
23	0.2363	0.2103
24	0.2282	0.2075
25	0.2206	0.2036
26	0.2142	0.1989
27	0.2082	0.1942
28	0.2037	0.1899
29	0.2026	0.1879
30	0.2005	0.1849
31	0.1985	0.1819
32	0.1959	0.1786
33	0.1941	0.1752
34	0.1915	0.1719
35	0.1902	0.1686
36	0.1880	0.1656
37	0.1861	0.1642
38	0.1838	0.1623
39	0.1812	0.1609
40	0.1787	0.1590
41	0.1766	0.1575
42	0.1744	0.1558
43	0.1719	0.1544
44	0.1694	0.1536
45	0.1670	0.1580
46	0.1646	0.1626
47	0.1622	0.1664
48	0.1598	0.1702
49	0.1575	0.1744
50	0.1555	0.1826
51	0.1532	0.1929
52	0.1513	0.2094
53	0.1493	0.0000
54	0.1477	0.0000

EAU TEXTILES
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1970

	TURNOVER	NET PROFITS
N*		
2	1.0089	0.8541
3	0.7456	0.6385
4	0.5504	0.4825
5	0.4353	0.5486
6	0.4834	0.5132
7	0.4616	0.5038
8	0.4277	0.4747
9	0.4237	0.4461
10	0.4041	0.4138
11	0.3809	0.3853
12	0.3601	0.3566
13	0.3392	0.3353
14	0.3192	0.3203
15	0.3039	0.3049
16	0.2897	0.2905
17	0.2757	0.2831
18	0.2620	0.2727
19	0.2501	0.2628
20	0.2382	0.2545
21	0.2268	0.2477
22	0.2222	0.2398
23	0.2166	0.2314
24	0.2112	0.2236
25	0.2056	0.2176
26	0.1994	0.2124
27	0.1950	0.2070
28	0.1914	0.2024
29	0.1873	0.1991
30	0.1835	0.1951
31	0.1812	0.1908
32	0.1790	0.1863
33	0.1765	0.1818
34	0.1749	0.1773
35	0.1734	0.1738
36	0.1716	0.1705
37	0.1705	0.1673
38	0.1688	0.1643
39	0.1668	0.1622
40	0.1646	0.1639
41	0.1635	0.1659
42	0.1619	0.1711
43	0.1601	0.1785
44	0.1582	0.1851
45	0.1562	0.1991
46	0.1542	0.2267
47	0.1522	0.2998
48	0.1502	0.3879
49	0.1481	0.0000
50	0.1465	0.0000
51	0.1448	0.0000
52	0.1430	0.0000
53	0.1419	0.0000
54	0.1424	0.0000

EAU TEXTILES
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1971

	TURNOVER	NET PROFITS
N*		
2	1.0323	1.0131
3	0.6970	0.6568
4	0.5900	0.4632
5	0.6748	0.4875
6	0.6384	0.4715
7	0.6227	0.4574
8	0.5740	0.4476
9	0.5321	0.4165
10	0.4866	0.3912
11	0.4540	0.3629
12	0.4193	0.3381
13	0.3882	0.3196
14	0.3636	0.3012
15	0.3463	0.2833
16	0.3283	0.2673
17	0.3183	0.2545
18	0.3066	0.2423
19	0.2969	0.2368
20	0.2905	0.2299
21	0.2825	0.2221
22	0.2737	0.2155
23	0.2671	0.2095
24	0.2601	0.2043
25	0.2537	0.2019
26	0.2479	0.1989
27	0.2415	0.1950
28	0.2350	0.1907
29	0.2295	0.1880
30	0.2236	0.1849
31	0.2180	0.1817
32	0.2126	0.1794
33	0.2079	0.1773
34	0.2034	0.1755
35	0.2028	0.1743
36	0.2001	0.1738
37	0.1972	0.1729
38	0.1941	0.1718
39	0.1909	0.1722
40	0.1877	0.1717
41	0.1855	0.1714
42	0.1828	0.1709
43	0.1800	0.1716
44	0.1776	0.1723
45	0.1751	0.1755
46	0.1724	0.1793
47	0.1700	0.1822
48	0.1677	0.1882
49	0.1657	0.1929
50	0.1640	0.2056
51	0.1633	0.2176
52	0.1625	0.0000
53	0.1620	0.0000
54	0.1612	0.0000
55	0.1782	0.0000

EAU TEXTILES
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1972

	TURNOVER	NET PROFITS
N*		
2	1.1672	0.9813
3	0.7211	0.6326
4	0.5965	0.4527
5	0.5253	0.3318
6	0.5470	0.3523
7	0.5553	0.3399
8	0.5273	0.3179
9	0.4884	0.3040
10	0.4523	0.3135
11	0.4298	0.3051
12	0.4029	0.2919
13	0.3778	0.2847
14	0.3569	0.2756
15	0.3375	0.2647
16	0.3239	0.2553
17	0.3086	0.2444
18	0.2934	0.2355
19	0.2876	0.2257
20	0.2776	0.2167
21	0.2673	0.2120
22	0.2582	0.2069
23	0.2516	0.2013
24	0.2446	0.1975
25	0.2372	0.1933
26	0.2315	0.1905
27	0.2254	0.1874
28	0.2192	0.1845
29	0.2142	0.1811
30	0.2091	0.1772
31	0.2037	0.1731
32	0.2001	0.1703
33	0.1962	0.1677
34	0.1933	0.1648
35	0.1905	0.1639
36	0.1872	0.1622
37	0.1833	0.1603
38	0.1803	0.1589
39	0.1772	0.1579
40	0.1748	0.1564
41	0.1722	0.1550
42	0.1695	0.1535
43	0.1667	0.1526
44	0.1643	0.1513
45	0.1622	0.1510
46	0.1603	0.1512
47	0.1583	0.1522
48	0.1562	0.1534
49	0.1542	0.1546
50	0.1520	0.1569
51	0.1499	0.1595
52	0.1483	0.1678
53	0.1473	0.3269
54	0.1462	0.0000
55	0.1460	0.0000
56	0.1525	0.0000

EAU TEXTILES
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1973

	TURNOVER	LET PROFIT
N*		
2	1.2491	0.9311
3	0.7727	0.5940
4	0.6426	0.4517
5	0.6797	0.3624
6	0.6042	0.3436
7	0.6019	0.3284
8	0.5711	0.3182
9	0.5292	0.2989
10	0.4897	0.3104
11	0.4508	0.3091
12	0.4255	0.3001
13	0.3935	0.2943
14	0.3717	0.2823
15	0.3476	0.2702
16	0.3275	0.2624
17	0.3124	0.2532
18	0.2966	0.2475
19	0.2877	0.2411
20	0.2795	0.2347
21	0.2706	0.2288
22	0.2616	0.2244
23	0.2535	0.2224
24	0.2455	0.2216
25	0.2371	0.2194
26	0.2295	0.2170
27	0.2237	0.2136
28	0.2185	0.2094
29	0.2145	0.2047
30	0.2110	0.2007
31	0.2075	0.1974
32	0.2038	0.1937
33	0.1998	0.1902
34	0.1958	0.1863
35	0.1918	0.1865
36	0.1869	0.1841
37	0.1830	0.1816
38	0.1790	0.1783
39	0.1759	0.1759
40	0.1729	0.1731
41	0.1698	0.1706
42	0.1666	0.1673
43	0.1637	0.1654
44	0.1607	0.1633
45	0.1578	0.1612
46	0.1560	0.1596
47	0.1540	0.1600
48	0.1518	0.1602
49	0.1496	0.1601
50	0.1476	0.1605
51	0.1456	0.1610
52	0.1440	0.1613
53	0.1424	0.1624
54	0.1411	0.1646
55	0.1395	0.1731
56	0.1491	0.1837
57	0.1695	0.1940
58	0.1464	0.3584

TABLES OF CONCENTRATION
ECONOMIC ACTIVITY UNITS

SUB-SECTOR: WOOL (NICE 232) U.K.

TABLE 1: TOTAL VALUES OF THE SAMPLE 1968-73 (N* = number of positive values)

	VARIABLE 01: TURNOVER			VARIABLE 04: NET PROFIT BEFORE TAX		
	N*	£000	1968=100	N*	£000	1968=100
1968	60	315,306	100	56	16,911	100
1969	60	340,965	108	56	13,653	81
1970	60	333,823	106	50	10,181	60
1971	61	346,195	110	55	12,792	76
1972	60	398,170	126	59	25,656	151
1973	60	499,724	158	59	34,927	207

TABLE 2: MEASURES OF CONCENTRATION

	N*	MEAN	V	GINI	H-H	ENTROPY
VARIABLE 01: TURNOVER						
1968	60	5,255	1.378	0.5600	48.31	-151.7
1969	60	5,683	1.654	0.5818	62.25	-147.4
1970	60	5,564	1.609	0.5725	59.84	-148.7
1971	61	5,675	1.607	0.5829	58.74	-148.7
1972	60	6,636	1.716	0.5947	65.74	-145.9
1973	60	8,329	1.654	0.5942	62.26	-146.8
VARIABLE 04: NET PROFIT BEFORE TAX						
1968	56	243.8	1.703	0.6570	69.64	-138.4
1969	50	203.6	1.242	0.5867	50.87	-143.9
1970	55	232.6	1.361	0.6031	51.84	-145.8
1972	59	434.8	1.653	0.6388	63.23	-142.7
1973	59	592.0	1.694	0.6413	65.61	-141.9

Note: The mean figures are in thousands of pounds; definitions of the four concentration measures are given on page

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 01: TURNOVER

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.302 35.9	0.483 41.0	0.541 39.2	0.454 40.6	0.525 43.5	0.554 41.6
8	L CR	0.250 54.9	0.340 56.7	0.319 55.1	0.334 55.8	0.393 56.6	0.375 55.6
10	L CR	0.238 60.0	0.298 62.0	0.272 60.9	0.294 61.0	0.334 61.4	0.318 60.5
12	L CR	0.225 64.2	0.276 66.0	0.243 65.6	0.263 65.2	0.296 65.5	0.268 65.2
20	L CR	0.183 75.4	0.218 75.1	0.212 75.6	0.206 75.8	0.213 76.8	0.199 76.8
30	L CR	0.145 84.8	0.161 85.4	0.155 85.1	0.154 85.3	0.159 86.4	0.151 86.9
40	L CR	0.122 91.4	0.133 91.9	0.131 91.7	0.113 92.0	0.136 92.8	0.133 93.2

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.628 19.4 2	1.119 26.3 2	1.097 26.1 2	0.904 26.0 2	0.664 37.4 3	0.640 36.2 3
Overall Maximum L CR N*H						
1st Minimum L CR N*M LS	0.245 48.2 6 0.365	0.276 66.0 12 0.455	0.242 68.7 14 0.387	0.113 99.5 58 0.206	0.532 31.1 2 -	0.590 29.7 2 -

WOOL (FAU) (Cont'd)

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE J4: NET PROFIT BEFORE TAX

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.348 41.4	0.442 46.0	0.293 35.9	0.461 35.4	0.504 41.7	0.399 45.1
8	L CR	0.285 60.0	0.382 60.4	0.237 54.5	0.254 53.1	0.289 59.5	0.332 60.7
10	L CR	0.293 64.3	0.328 65.4	0.204 61.2	0.205 60.7	0.261 65.8	0.308 65.6
12	L CR	0.273 68.2	0.281 70.0	0.176 67.5	0.185 66.5	0.255 70.0	0.277 69.7
20	L CR	0.188 80.9	0.178 85.3	0.146 83.8	0.150 82.3	0.207 80.8	0.207 81.6
30	L CR	0.148 91.3	0.182 92.6	0.138 93.4	0.144 91.6	0.162 90.2	0.175 90.0
40	L CR	0.147 96.6	0.167 97.3	0.147 98.2	0.142 96.7	0.146 95.8	0.155 95.3

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.564 24.6 2	0.692 29.0 2	0.577 19.3 2	0.704 22.6 2	0.742 26.6 2	0.542 26.3 2
Overall Maximum L CR N*H						
1st Minimum L CR N*M LS	0.281 49.2 5 0.142	0.178 85.3 20 0.327	0.252 42.8 5 0.378	0.142 89.5 27 0.231	0.473 36.7 3 0.608	0.355 38.9 3 0.449

EAU WOOL
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1968

	TURNOVER	NET PROFITS
N*		
2	0.6277	0.5635
3	0.4005	0.4544
4	0.3022	0.3483
5	0.2480	0.2814
6	0.2448	0.3083
7	0.2521	0.3025
8	0.2500	0.2852
9	0.2436	0.2919
10	0.2384	0.2932
11	0.2289	0.2833
12	0.2254	0.2727
13	0.2260	0.2588
14	0.2211	0.2463
15	0.2134	0.2341
16	0.2055	0.2238
17	0.2002	0.2128
18	0.1951	0.2029
19	0.1889	0.1943
20	0.1830	0.1883
21	0.1772	0.1820
22	0.1714	0.1757
23	0.1673	0.1700
24	0.1633	0.1643
25	0.1596	0.1588
26	0.1554	0.1575
27	0.1531	0.1556
28	0.1507	0.1529
29	0.1479	0.1497
30	0.1451	0.1480
31	0.1430	0.1461
32	0.1408	0.1451
33	0.1384	0.1449
34	0.1357	0.1447
35	0.1329	0.1445
36	0.1306	0.1442
37	0.1283	0.1450
38	0.1260	0.1465
39	0.1239	0.1471
40	0.1216	0.1470
41	0.1196	0.1470
42	0.1178	0.1464
43	0.1160	0.1455
44	0.1145	0.1445
45	0.1130	0.1438
46	0.1115	0.1442
47	0.1099	0.1464
48	0.1083	0.1481
49	0.1071	0.1510
50	0.1059	0.1590
51	0.1047	0.1656
52	0.1034	0.1716
53	0.1033	0.1762
54	0.1030	0.1853
55	0.1031	0.2106
56	0.1032	0.0000
57	0.1031	0.0000
58	0.1030	0.0000
59	0.1037	0.0000
60	0.1041	0.0000

EAU WOOL
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1969

	TURNOVER	NET PROFITS
N*		
2	1.1186	0.6924
3	0.6686	0.4975
4	0.4839	0.4417
5	0.4042	0.4149
6	0.3893	0.4144
7	0.3640	0.3941
8	0.3404	0.3817
9	0.3102	0.3529
10	0.2931	0.3280
11	0.2802	0.3031
12	0.2737	0.2811
13	0.2723	0.2597
14	0.2704	0.2403
15	0.2622	0.2269
16	0.2519	0.2172
17	0.2408	0.2065
18	0.2340	0.1957
19	0.2262	0.1868
20	0.2181	0.1783
21	0.2106	0.1847
22	0.2028	0.1872
23	0.1961	0.1877
24	0.1891	0.1886
25	0.1822	0.1874
26	0.1764	0.1859
27	0.1728	0.1835
28	0.1688	0.1830
29	0.1651	0.1823
30	0.1611	0.1815
31	0.1573	0.1801
32	0.1542	0.1790
33	0.1505	0.1776
34	0.1470	0.1754
35	0.1448	0.1731
36	0.1427	0.1719
37	0.1405	0.1708
38	0.1382	0.1695
39	0.1359	0.1677
40	0.1334	0.1669
41	0.1309	0.1666
42	0.1286	0.1656
43	0.1274	0.1691
44	0.1261	0.1723
45	0.1248	0.1742
46	0.1233	0.1758
47	0.1217	0.1782
48	0.1200	0.1795
49	0.1183	0.1820
50	0.1166	0.1862
51	0.1154	0.1898
52	0.1144	0.2032
53	0.1137	0.2252
54	0.1130	0.2485
55	0.1130	0.2883
56	0.1130	0.3985
57	0.1131	0.0000
58	0.1128	0.0000
59	0.1133	0.0000
60	0.1133	0.0000

EAU WOOL
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1970

	TURNOVER	NET PROFIT
N*		
2	1.0972	0.5773
3	0.6867	0.3882
4	0.5408	0.2930
5	0.4567	0.2524
6	0.4092	0.2628
7	0.3541	0.2507
8	0.3189	0.2368
9	0.2928	0.2189
10	0.2722	0.2040
11	0.2577	0.1891
12	0.2426	0.1756
13	0.2419	0.1640
14	0.2414	0.1565
15	0.2434	0.1535
16	0.2395	0.1477
17	0.2332	0.1463
18	0.2261	0.1461
19	0.2185	0.1470
20	0.2115	0.1456
21	0.2039	0.1441
22	0.1964	0.1420
23	0.1891	0.1423
24	0.1832	0.1423
25	0.1774	0.1427
26	0.1726	0.1416
27	0.1679	0.1416
28	0.1637	0.1402
29	0.1594	0.1383
30	0.1554	0.1378
31	0.1512	0.1371
32	0.1477	0.1377
33	0.1440	0.1391
34	0.1418	0.1395
35	0.1394	0.1410
36	0.1373	0.1425
37	0.1359	0.1433
38	0.1344	0.1437
39	0.1329	0.1452
40	0.1314	0.1465
41	0.1300	0.1492
42	0.1283	0.1511
43	0.1265	0.1550
44	0.1245	0.1580
45	0.1226	0.1647
46	0.1207	0.1705
47	0.1191	0.1771
48	0.1175	0.1834
49	0.1159	0.1980
50	0.1142	0.2165
51	0.1125	0.0000
52	0.1110	0.0000
53	0.1099	0.0000
54	0.1091	0.0000
55	0.1093	0.0000
56	0.1091	0.0000
57	0.1089	0.0000
58	0.1085	0.0000
59	0.1083	0.0000
60	0.1086	0.0000

EAU WOOD
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1971

	TURNOVER	NET PROFITS
N*		
2	0.9035	0.7044
3	0.6302	0.5028
4	0.4545	0.4607
5	0.3969	0.3846
6	0.3901	0.3253
7	0.3586	0.2893
8	0.3339	0.2544
9	0.3056	0.2265
10	0.2938	0.2047
11	0.2758	0.1948
12	0.2631	0.1854
13	0.2593	0.1759
14	0.2584	0.1707
15	0.2513	0.1636
16	0.2416	0.1570
17	0.2319	0.1523
18	0.2226	0.1490
19	0.2141	0.1512
20	0.2062	0.1501
21	0.1993	0.1483
22	0.1928	0.1469
23	0.1874	0.1456
24	0.1825	0.1451
25	0.1773	0.1433
26	0.1719	0.1430
27	0.1680	0.1422
28	0.1635	0.1425
29	0.1589	0.1436
30	0.1564	0.1437
31	0.1500	0.1435
32	0.1459	0.1424
33	0.1428	0.1410
34	0.1397	0.1398
35	0.1387	0.1395
36	0.1371	0.1404
37	0.1354	0.1405
38	0.1337	0.1414
39	0.1313	0.1416
40	0.1300	0.1421
41	0.1283	0.1421
42	0.1268	0.1421
43	0.1255	0.1434
44	0.1241	0.1442
45	0.1228	0.1446
46	0.1215	0.1448
47	0.1201	0.1449
48	0.1183	0.1464
49	0.1174	0.1479
50	0.1167	0.1560
51	0.1159	0.1640
52	0.1155	0.1728
53	0.1152	0.1813
54	0.1148	0.1880
55	0.1142	0.1955
56	0.1134	0.0000
57	0.1130	0.0000
58	0.1127	0.0000
59	0.1130	0.0000
60	0.1131	0.0000
61	0.1132	0.0000

	TURNOVER	NET PROFITS
N*		
2	0.5321	0.7421
3	0.6640	0.4729
4	0.5249	0.5042
5	0.5081	0.4343
6	0.4652	0.3740
7	0.4187	0.3280
8	0.3926	0.2885
9	0.3621	0.2564
10	0.3336	0.2607
11	0.3078	0.2526
12	0.2958	0.2548
13	0.2822	0.2545
14	0.2692	0.2510
15	0.2548	0.2446
16	0.2461	0.2367
17	0.2373	0.2298
18	0.2285	0.2219
19	0.2207	0.2138
20	0.2130	0.2068
21	0.2050	0.2014
22	0.1968	0.1950
23	0.1911	0.1886
24	0.1860	0.1827
25	0.1809	0.1777
26	0.1755	0.1743
27	0.1700	0.1713
28	0.1659	0.1682
29	0.1625	0.1650
30	0.1589	0.1624
31	0.1555	0.1608
32	0.1520	0.1595
33	0.1483	0.1575
34	0.1462	0.1554
35	0.1438	0.1529
36	0.1428	0.1510
37	0.1414	0.1496
38	0.1396	0.1479
39	0.1377	0.1461
40	0.1357	0.1461
41	0.1337	0.1453
42	0.1317	0.1448
43	0.1297	0.1443
44	0.1282	0.1450
45	0.1269	0.1452
46	0.1256	0.1459
47	0.1246	0.1475
48	0.1236	0.1485
49	0.1226	0.1493
50	0.1223	0.1510
51	0.1221	0.1528
52	0.1221	0.1554
53	0.1220	0.1579
54	0.1216	0.1602
55	0.1213	0.1639
56	0.1216	0.1695
57	0.1216	0.1807
58	0.1219	0.2126
59	0.1221	0.2714
60	0.1242	0.0000

EAU WOOL
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1973

	TURNOVER	NET PROFITS
N*		
2	0.5897	0.5424
3	0.6399	0.3546
4	0.5542	0.3985
5	0.4868	0.3905
6	0.4410	0.3684
7	0.3847	0.3427
8	0.3745	0.3323
9	0.3467	0.3075
10	0.3183	0.3079
11	0.2908	0.2947
12	0.2684	0.2772
13	0.2632	0.2681
14	0.2538	0.2559
15	0.2419	0.2458
16	0.2341	0.2364
17	0.2249	0.2266
18	0.2156	0.2172
19	0.2063	0.2113
20	0.1994	0.2066
21	0.1931	0.2016
22	0.1863	0.1959
23	0.1796	0.1932
24	0.1732	0.1909
25	0.1679	0.1872
26	0.1643	0.1845
27	0.1608	0.1823
28	0.1569	0.1798
29	0.1539	0.1776
30	0.1506	0.1750
31	0.1474	0.1723
32	0.1449	0.1703
33	0.1426	0.1677
34	0.1409	0.1658
35	0.1389	0.1638
36	0.1370	0.1617
37	0.1365	0.1595
38	0.1353	0.1577
39	0.1349	0.1567
40	0.1327	0.1551
41	0.1313	0.1534
42	0.1297	0.1516
43	0.1281	0.1503
44	0.1263	0.1505
45	0.1246	0.1510
46	0.1253	0.1522
47	0.1255	0.1534
48	0.1252	0.1544
49	0.1251	0.1554
50	0.1247	0.1554
51	0.1243	0.1563
52	0.1239	0.1565
53	0.1235	0.1570
54	0.1233	0.1571
55	0.1233	0.1569
56	0.1236	0.1574
57	0.1236	0.1602
58	0.1236	0.1684
59	0.1248	0.1794
60	0.1267	0.0000

TABLES OF CONCENTRATION
ECONOMIC ACTIVITY UNITS

SUB-SECTOR: COTTON (NICE 233) U.K.

TABLE 1: TOTAL VALUES OF THE SAMPLE 1968-73 (N* = number of positive values)

	VARIABLE 01: TURNOVER			VARIABLE 04: NET PROFIT BEFORE TAX		
	N*	£000	1968=100	N*	£000	1968=100
1968	52	386,080	100	50	21,939	100
1969	50	414,989	107	48	20,002	91
1970	49	425,787	110	46	19,041	87
1971	48	457,806	119	44	19,588	89
1972	47	501,179	130	45	26,644	121
1973	47	590,237	153	45	37,576	171

TABLE 2: MEASURES OF CONCENTRATION

	N*	MEAN	V	GINI	H-H	ENTROPY
VARIABLE 01: TURNOVER						
1968						
1969	50	8,300	1.886	0.6789	91.1	-128.9
1970	49	8,689	1.799	0.6633	86.4	-130.8
1971	48	9,538	2.115	0.7070	114.0	-121.7
1972	47	10,663	1.999	0.6892	106.3	-124.0
1973	47	12,558	1.966	0.6836	103.5	-125.1
VARIABLE 04: NET PROFIT BEFORE TAX						
1968						
1969	48	416.7	1.872	0.7112	93.9	-124.2
1970	46	413.9	1.939	0.7095	103.5	-122.3
1971	44	445.2	1.924	0.7535	106.9	-115.4
1972	45	592.1	1.911	0.7399	103.4	-117.7
1973	45	835.0	1.897	0.7226	102.2	-119.5

Note: The mean figures are in thousands of pounds;
 definitions of the four concentration measures
 are given on page

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 01: TURNOVER

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.399 56.2	0.428 55.0	0.450 52.6	0.740 57.9	0.639 56.6	0.587 56.0
8	L CR	0.464 68.4	0.434 68.0	0.411 66.3	0.495 71.3	0.461 70.6	0.433 70.8
10	L CR	0.411 72.8	0.377 73.0	0.356 71.4	0.407 76.6	0.393 75.8	0.396 75.5
12	L CR	0.359 76.6	0.329 77.3	0.306 76.1	0.365 80.7	0.362 79.7	0.361 79.3
20	L CR	0.283 86.5	0.272 87.8	0.254 87.4	0.320 90.1	0.308 89.5	0.304 88.9
30	L CR	0.236 93.2	0.244 94.0	0.223 94.1	0.294 95.3	0.280 94.8	0.270 94.6
40	L CR	0.218 97.0	0.224 97.7	0.210 98.0	0.264 98.5	0.246 98.4	0.234 98.4

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.531 35.2 2	0.578 35.5 2	0.732 33.6 2	0.740 57.9 4	0.585 40.7 2	0.681 39.7 2
Overall Maximum L CR N*H						
1st Minimum L CR N*M LS	0.399 56.2 4 0.464	0.428 55.0 4 0.506	0.450 52.6 4 0.571	0.537 43.0 2 -	0.570 51.3 3 0.577	0.303 85.5 16 0.453

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 04: NET PROFITS

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.334 67.2	0.356 56.8	0.541 55.3	0.403 58.5	0.371 58.1	0.375 58.0
8	L CR	0.582 77.8	0.382 72.2	0.378 73.1	0.361 77.3	0.373 77.6	0.426 76.2
10	L CR	0.515 81.6	0.353 77.4	0.369 77.8	0.305 84.2	0.348 82.9	0.401 80.6
12	L CR	0.468 84.7	0.321 81.5	0.340 81.8	0.293 88.9	0.343 86.6	0.373 84.2
20	L CR	0.389 92.4	0.298 91.0	0.300 91.5	0.388 95.7	0.376 94.1	0.337 92.6
30	L CR	0.363 96.7	0.281 96.2	0.281 96.8	0.456 98.7	0.383 97.6	0.330 97.0
40	L CR	0.361 98.9	0.269 99.3	0.302 99.4	0.570 99.9	0.384 99.6	0.330 99.5

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.530 39.0 2	0.500 33.0 2	0.655 48.0 3	0.827 35.2 2	0.607 34.9 2	0.532 34.6 2
Overall Maximum L CR N*H	0.6096 75.7 7			0.9645 100.0 44	0.6604 100.0 45	0.5513 100.0 45
1st Minimum L CR N*M LS	0.335 67.2 4 0.426	0.356 56.8 4 0.409	0.503 40.0 2 -	0.390 65.3 5 0.533	0.320 67.1 5 0.440	0.318 67.1 5 0.407

FAU COTTON
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1968

	TURNOVER	NET PROFITS
N*		
2	0.5311	0.5301
3	0.4621	0.4128
4	0.3985	0.3347
5	0.5086	0.4092
6	0.5075	0.5091
7	0.4767	0.6696
8	0.4638	0.5318
9	0.4317	0.5450
10	0.4105	0.5147
11	0.3851	0.4966
12	0.3583	0.4683
13	0.3412	0.4551
14	0.3270	0.4415
15	0.3123	0.4243
16	0.3055	0.4068
17	0.3011	0.4022
18	0.2943	0.3956
19	0.2900	0.3923
20	0.2825	0.3887
21	0.2761	0.3856
22	0.2693	0.3871
23	0.2655	0.3862
24	0.2611	0.3839
25	0.2561	0.3794
26	0.2509	0.3741
27	0.2457	0.3671
28	0.2418	0.3652
29	0.2377	0.3626
30	0.2361	0.3632
31	0.2356	0.3626
32	0.2337	0.3615
33	0.2335	0.3597
34	0.2321	0.3568
35	0.2302	0.3592
36	0.2285	0.3595
37	0.2267	0.3587
38	0.2243	0.3595
39	0.2215	0.3607
40	0.2183	0.3609
41	0.2150	0.3605
42	0.2115	0.3633
43	0.2084	0.3640
44	0.2053	0.3643
45	0.2035	0.3643
46	0.2032	0.3675
47	0.2023	0.3752
48	0.2025	0.3815
49	0.2029	0.3855
50	0.2049	0.5469
51	0.2092	0.0000
52	0.2142	0.0000

EAU COTTON
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1969

	TURNOVER	NET PROFITS
N*		
2	0.5775	0.5000
3	0.5134	0.3707
4	0.4275	0.3562
5	0.5243	0.4112
6	0.5036	0.4329
7	0.4671	0.4065
8	0.4341	0.3816
9	0.3996	0.3529
10	0.3770	0.3529
11	0.3514	0.3394
12	0.3265	0.3206
13	0.3067	0.3094
14	0.2879	0.3001
15	0.2804	0.2973
16	0.2850	0.2897
17	0.2851	0.2889
18	0.2822	0.2925
19	0.2774	0.2962
20	0.2716	0.2977
21	0.2710	0.2954
22	0.2675	0.2940
23	0.2623	0.2969
24	0.2585	0.2962
25	0.2559	0.2973
26	0.2537	0.2964
27	0.2502	0.2937
28	0.2472	0.2899
29	0.2453	0.2853
30	0.2439	0.2807
31	0.2418	0.2756
32	0.2391	0.2725
33	0.2376	0.2703
34	0.2358	0.2688
35	0.2346	0.2678
36	0.2334	0.2681
37	0.2313	0.2676
38	0.2292	0.2682
39	0.2267	0.2694
40	0.2243	0.2690
41	0.2217	0.2747
42	0.2192	0.2793
43	0.2171	0.2871
44	0.2162	0.3094
45	0.2147	0.3288
46	0.2163	0.3430
47	0.2170	0.3592
48	0.2203	0.5795
49	0.2241	0.0000
50	0.2274	0.0000

EAU COTTON
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1970

	TURNOVER	NET PROFITS
N*		
2	0.7315	0.5026
3	0.5314	0.6552
4	0.4501	0.5405
5	0.5098	0.5033
6	0.4874	0.4463
7	0.4490	0.4080
8	0.4112	0.3780
9	0.3864	0.3764
10	0.3557	0.3688
11	0.3298	0.3560
12	0.3050	0.3399
13	0.2846	0.3270
14	0.2740	0.3160
15	0.2662	0.3026
16	0.2567	0.2993
17	0.2567	0.2974
18	0.2542	0.2993
19	0.2561	0.2985
20	0.2538	0.3000
21	0.2501	0.2977
22	0.2462	0.2962
23	0.2434	0.2933
24	0.2392	0.2908
25	0.2356	0.2918
26	0.2321	0.2919
27	0.2312	0.2897
28	0.2286	0.2859
29	0.2256	0.2821
30	0.2234	0.2807
31	0.2233	0.2821
32	0.2235	0.2815
33	0.2222	0.2816
34	0.2208	0.2810
35	0.2186	0.2809
36	0.2170	0.2798
37	0.2168	0.2803
38	0.2136	0.2881
39	0.2116	0.2960
40	0.2101	0.3019
41	0.2039	0.3055
42	0.2073	0.3144
43	0.2073	0.3230
44	0.2065	0.3338
45	0.2078	0.3454
46	0.2106	0.5413
47	0.2135	0.0000
48	0.2167	0.0000
49	0.2195	0.0000

EAU COTTON
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1971

	TURNOVER	NET PROFITS
N*		
2	0.5368	0.8269
3	0.5798	0.5110
4	0.7403	0.4029
5	0.7201	0.3901
6	0.6268	0.4080
7	0.5386	0.3916
8	0.4940	0.3608
9	0.4468	0.3325
10	0.4072	0.3051
11	0.3854	0.3045
12	0.3653	0.2928
13	0.3552	0.2994
14	0.3401	0.3254
15	0.3226	0.3361
16	0.3180	0.3430
17	0.3127	0.3587
18	0.3191	0.3732
19	0.3207	0.3821
20	0.3196	0.3883
21	0.3190	0.3973
22	0.3158	0.4050
23	0.3106	0.4121
24	0.3057	0.4176
25	0.3050	0.4235
26	0.3033	0.4283
27	0.2995	0.4415
28	0.2945	0.4486
29	0.2943	0.4508
30	0.2936	0.4555
31	0.2910	0.4691
32	0.2877	0.4759
33	0.2835	0.4805
34	0.2787	0.4836
35	0.2754	0.4877
36	0.2734	0.4925
37	0.2710	0.5059
38	0.2687	0.5336
39	0.2657	0.5524
40	0.2640	0.5704
41	0.2633	0.6162
42	0.2628	0.6495
43	0.2618	0.6864
44	0.2600	0.9645
45	0.2616	0.0000
46	0.2643	0.0000
47	0.2698	0.0000
48	0.2892	0.0000

EAU COTTON
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1972

	TURNOVER	NET PROFITS
N*		
2	0.5845	0.6071
3	0.5702	0.4615
4	0.6393	0.3707
5	0.6190	0.3201
6	0.5792	0.3954
7	0.5119	0.3395
8	0.4608	0.3731
9	0.4283	0.3620
10	0.3930	0.3478
11	0.3816	0.3424
12	0.3622	0.3425
13	0.3464	0.3522
14	0.3283	0.3509
15	0.3095	0.3482
16	0.3029	0.3392
17	0.2979	0.3400
18	0.3073	0.3441
19	0.3094	0.3612
20	0.3076	0.3764
21	0.3067	0.3890
22	0.3033	0.3930
23	0.3003	0.3988
24	0.2965	0.3996
25	0.2943	0.4010
26	0.2933	0.4003
27	0.2902	0.3978
28	0.2859	0.3936
29	0.2829	0.3882
30	0.2803	0.3827
31	0.2773	0.3759
32	0.2740	0.3711
33	0.2699	0.3763
34	0.2655	0.3810
35	0.2610	0.3831
36	0.2538	0.3851
37	0.2563	0.3848
38	0.2535	0.3846
39	0.2501	0.3851
40	0.2464	0.3833
41	0.2442	0.3905
42	0.2421	0.3983
43	0.2400	0.4139
44	0.2400	0.4526
45	0.2399	0.6604
46	0.2411	0.0000
47	0.2450	0.0000

EAU COTTON
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1973

N*	TURNOVER	NET PROFITS
2	0.6811	0.5317
3	0.6228	0.4025
4	0.5871	0.3747
5	0.5882	0.3180
6	0.5387	0.3795
7	0.4885	0.4316
8	0.4328	0.4257
9	0.4210	0.4114
10	0.3962	0.4009
11	0.3794	0.3875
12	0.3614	0.3727
13	0.3509	0.3716
14	0.3352	0.3618
15	0.3174	0.3491
16	0.3029	0.3363
17	0.3047	0.3237
18	0.3083	0.3336
19	0.3069	0.3371
20	0.3036	0.3372
21	0.3001	0.3350
22	0.2972	0.3320
23	0.2917	0.3353
24	0.2850	0.3415
25	0.2855	0.3419
26	0.2857	0.3399
27	0.2801	0.3399
28	0.2769	0.3373
29	0.2741	0.3335
30	0.2709	0.3295
31	0.2660	0.3285
32	0.2627	0.3278
33	0.2588	0.3267
34	0.2550	0.3251
35	0.2507	0.3237
36	0.2466	0.3235
37	0.2429	0.3249
38	0.2387	0.3260
39	0.2358	0.3277
40	0.2336	0.3301
41	0.2321	0.3366
42	0.2320	0.3401
43	0.2343	0.3418
44	0.2354	0.3502
45	0.2372	0.5593
46	0.2380	0.0000
47	0.2379	0.0000

TABLES OF CONCENTRATION
ECONOMIC ACTIVITY UNITS

SUB-SECTOR: HOSIERY & OTHER KNITTED GOODS (NICE 237) U.K.

Prepared at the Cranfield Institute of Technology, Bedford.

TABLE 1: TOTAL VALUES OF THE SAMPLE 1968-73 (N^* = number of positive values)

	VARIABLE 01: TURNOVER			VARIABLE 04: NET PROFIT BEFORE TAX		
	N^*	£000	1968=100	N^*	£000	1968=100
1968	60	364,691	100	57	25,904	100
1969	60	392,215	108	56	23,539	91
1970	60	431,175	118	51	25,399	98
1971	60	461,597	127	52	29,692	115
1972	60	483,018	132	56	33,314	129
1973	60	583,750	160	57	42,193	163

TABLE 2: MEASURES OF CONCENTRATION

	N^*	MEAN	V	GINI	H-H	ENTROPY
VARIABLE 01: TURNOVER						
1968	60	6,078	2.535	0.6937	123.8	-128.4
1969	60	6,537	2.530	0.6903	123.3	-128.9
1970	60	7,186	2.583	0.6899	127.9	-128.5
1971	60	7,693	2.608	0.6983	130.1	-127.1
1972	60	8,050	2.496	0.6869	120.5	-129.5
1973	60	9,729	2.389	0.6841	111.8	-131.0
VARIABLE 04: NET PROFIT BEFORE TAX						
1968	57	454.5	2.065	0.7127	92.3	-129.6
1969	56	420.3	2.318	0.7329	113.8	-123.6
1970	51	498.0	2.473	0.7305	139.6	-117.1
1971	52	571.0	2.248	0.7080	116.4	-122.9
1972	56	594.9	2.185	0.6940	103.1	-128.4
1973	57	740.2	2.263	0.7133	107.4	-126.8

Note: The mean figures are in thousands of pounds; definitions of the four concentration measures are given on page

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 01: TURNOVER

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.833 52.9	0.831 52.3	0.877 53.5	0.829 54.6	0.763 53.8	0.709 52.1
8	L CR	0.478 69.7	0.444 69.5	0.498 68.3	0.521 69.9	0.488 68.7	0.449 68.4
10	L CR	0.504 72.6	0.474 72.7	0.462 72.4	0.506 73.3	0.483 72.1	0.468 71.7
12	L CR	0.462 75.4	0.445 75.5	0.439 75.3	0.476 76.0	0.448 75.0	0.440 74.4
20	L CR	0.327 84.0	0.326 83.6	0.330 83.4	0.346 84.0	0.329 83.4	0.324 82.9
30	L CR	0.253 90.5	0.249 90.4	0.252 90.2	0.267 90.3	0.253 89.9	0.238 90.1
40	L CR	0.215 94.9	0.216 94.8	0.210 94.8	0.220 94.9	0.209 94.6	0.202 94.8

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	1.900 39.5 2	1.922 39.5 2	1.878 40.8 2	1.871 41.2 2	1.721 39.5 2	1.752 37.2 2
Overall Maximum L CR N*H						
1st Minimum L CR N*M LS	0.478 67.3 7 0.912	0.444 69.5 8 0.872	0.180 99.8 59 0.339	0.184 99.8 58 0.350	0.175 100 60 0.326	0.449 68.4 8 0.776

TABLE 3: LINDA INDICES (L) AND CONCENTRATION RATIOS (CR)

VARIABLE 04: NET PROFITS

N*		1968	1969	1970	1971	1972	1973
4	L CR	0.550 52.8	0.612 58.1	0.856 62.7	0.622 60.2	0.650 56.1	0.632 56.9
8	L CR	0.374 69.7	0.523 71.4	0.734 73.4	0.616 71.4	0.585 67.7	0.508 70.0
10	L CR	0.341 75.1	0.461 75.6	0.766 76.6	0.556 74.8	0.505 71.4	0.496 73.4
12	L CR	0.332 78.9	0.422 79.0	0.792 79.3	0.486 77.8	0.431 74.8	0.442 76.5
20	L CR	0.308 87.3	0.317 88.2	0.884 88.4	0.329 87.0	0.294 84.5	0.303 86.1
30	L CR	0.256 93.1	0.266 94.4	0.953 95.3	0.251 93.9	0.220 92.6	0.239 93.3
40	L CR	0.230 97.0	0.251 97.9	0.989 98.9	0.224 98.2	0.201 97.2	0.223 97.2

SUMMARY COEFFICIENTS OF LINDA CURVES

1st Maximum L CR N*H<	0.609 36.6 2	0.728 51.3 3	0.856 62.7 4	0.655 64.0 5	0.650 56.1 4	0.632 56.9 4
Overall Maximum L CR N*H						
1st Minimum L CR N*M LS	0.332 78.9 12 0.438	0.512 43.6 2 -	0.623 49.7 2 -	0.551 43.7 2 -	0.506 40.5 2 -	0.506 42.0 2 -

EAU HOSIERY
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1968

	TURNOVER	NET PROFITS
N*		
2	1.9000	0.6086
3	1.0337	0.5558
4	0.8332	0.5502
5	0.6682	0.5055
6	0.5284	0.4615
7	0.4780	0.4122
8	0.4786	0.3736
9	0.5093	0.3507
10	0.5033	0.3414
11	0.4865	0.3278
12	0.4616	0.3318
13	0.4414	0.3330
14	0.4229	0.3294
15	0.4042	0.3244
16	0.3842	0.3147
17	0.3654	0.3083
18	0.3471	0.3042
19	0.3330	0.3032
20	0.3266	0.3077
21	0.3211	0.3060
22	0.3149	0.3041
23	0.3071	0.2994
24	0.2989	0.2936
25	0.2912	0.2866
26	0.2856	0.2792
27	0.2761	0.2733
28	0.2683	0.2672
29	0.2605	0.2611
30	0.2529	0.2555
31	0.2466	0.2503
32	0.2418	0.2454
33	0.2376	0.2423
34	0.2350	0.2388
35	0.2329	0.2350
36	0.2287	0.2309
37	0.2252	0.2292
38	0.2220	0.2284
39	0.2187	0.2301
40	0.2154	0.2304
41	0.2122	0.2300
42	0.2088	0.2302
43	0.2055	0.2300
44	0.2036	0.2293
45	0.2018	0.2280
46	0.2014	0.2265
47	0.2003	0.2258
48	0.1997	0.2247
49	0.1982	0.2232
50	0.1967	0.2219
51	0.1955	0.2224
52	0.1941	0.2234
53	0.1926	0.2278
54	0.1906	0.2342
55	0.1890	0.2426
56	0.1876	0.2664
57	0.1862	0.2854
58	0.1847	0.0000
59	0.1834	0.0000
60	0.1820	0.0000

EAD HOSTERY
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1969

	TURNOVER	NET PROFITS
N+		
2	1.9219	0.5124
3	1.2255	0.7278
4	0.8308	0.6126
5	0.6588	0.5596
6	0.5416	0.5953
7	0.4843	0.5670
8	0.4437	0.5226
9	0.4662	0.4880
10	0.4741	0.4607
11	0.4597	0.4328
12	0.4445	0.4222
13	0.4349	0.4045
14	0.4266	0.3833
15	0.4197	0.3638
16	0.3928	0.3443
17	0.3753	0.3421
18	0.3583	0.3340
19	0.3417	0.3251
20	0.3259	0.3174
21	0.3123	0.3126
22	0.3027	0.3054
23	0.2948	0.2992
24	0.2889	0.2914
25	0.2818	0.2883
26	0.2740	0.2832
27	0.2675	0.2792
28	0.2603	0.2751
29	0.2540	0.2703
30	0.2487	0.2661
31	0.2431	0.2621
32	0.2395	0.2589
33	0.2351	0.2549
34	0.2307	0.2512
35	0.2269	0.2499
36	0.2254	0.2487
37	0.2229	0.2471
38	0.2203	0.2491
39	0.2180	0.2506
40	0.2155	0.2510
41	0.2126	0.2519
42	0.2094	0.2523
43	0.2079	0.2518
44	0.2057	0.2509
45	0.2035	0.2515
46	0.2012	0.2548
47	0.1991	0.2620
48	0.1968	0.2684
49	0.1945	0.2728
50	0.1924	0.2768
51	0.1913	0.2805
52	0.1899	0.2850
53	0.1881	0.2956
54	0.1862	0.3069
55	0.1842	0.3223
56	0.1829	0.3551
57	0.1822	0.0000
58	0.1811	0.0000
59	0.1799	0.0000
60	0.1791	0.0000

	TURNOVER	NET PROFITS
N*		
2	1.8784	0.6228
3	1.1936	0.8030
4	0.8771	0.8556
5	0.7478	0.8185
6	0.6192	0.7890
7	0.5483	0.7122
8	0.4977	0.6946
9	0.4654	0.6579
10	0.4620	0.6275
11	0.4567	0.5930
12	0.4391	0.5576
13	0.4305	0.5197
14	0.4204	0.4908
15	0.4048	0.4614
16	0.3930	0.4327
17	0.3775	0.4088
18	0.3615	0.3872
19	0.3452	0.3681
20	0.3304	0.3517
21	0.3167	0.3352
22	0.3092	0.3226
23	0.2998	0.3127
24	0.2915	0.3056
25	0.2835	0.3005
26	0.2770	0.2959
27	0.2696	0.2899
28	0.2641	0.2844
29	0.2582	0.2782
30	0.2521	0.2716
31	0.2453	0.2675
32	0.2398	0.2638
33	0.2336	0.2592
34	0.2301	0.2542
35	0.2268	0.2513
36	0.2229	0.2535
37	0.2190	0.2561
38	0.2156	0.2570
39	0.2125	0.2591
40	0.2103	0.2599
41	0.2075	0.2614
42	0.2045	0.2651
43	0.2020	0.2736
44	0.2000	0.2814
45	0.1993	0.2868
46	0.1979	0.2922
47	0.1962	0.3047
48	0.1945	0.3414
49	0.1928	0.3766
50	0.1915	0.4224
51	0.1893	0.5159
52	0.1886	0.0000
53	0.1872	0.0000
54	0.1859	0.0000
55	0.1842	0.0000
56	0.1824	0.0000
57	0.1810	0.0000
58	0.1807	0.0000
59	0.1801	0.0000
60	0.1811	0.0000

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 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1971

	TURNOVER	NET PROFITS
N*		
2	1.8171	0.5511
3	1.1453	0.5932
4	0.8290	0.6221
5	0.6466	0.6549
6	0.5896	0.6156
7	0.5355	0.6259
8	0.5214	0.6160
9	0.5186	0.5769
10	0.5055	0.5563
11	0.4883	0.5218
12	0.4757	0.4861
13	0.4606	0.4584
14	0.4403	0.4306
15	0.4192	0.4078
16	0.4080	0.3857
17	0.3921	0.3673
18	0.3754	0.3488
19	0.3593	0.3393
20	0.3462	0.3288
21	0.3403	0.3178
22	0.3323	0.3137
23	0.3233	0.3070
24	0.3153	0.2990
25	0.3061	0.2904
26	0.2967	0.2815
27	0.2872	0.2733
28	0.2806	0.2651
29	0.2742	0.2583
30	0.2674	0.2513
31	0.2603	0.2456
32	0.2532	0.2401
33	0.2461	0.2374
34	0.2418	0.2335
35	0.2368	0.2314
36	0.2332	0.2302
37	0.2297	0.2291
38	0.2258	0.2275
39	0.2224	0.2258
40	0.2196	0.2240
41	0.2164	0.2237
42	0.2134	0.2223
43	0.2101	0.2253
44	0.2085	0.2276
45	0.2066	0.2346
46	0.2043	0.2401
47	0.2010	0.2454
48	0.1993	0.2515
49	0.1973	0.2627
50	0.1951	0.2719
51	0.1933	0.2813
52	0.1918	0.3310
53	0.1901	0.0000
54	0.1888	0.0000
55	0.1873	0.0000
56	0.1865	0.0000
57	0.1854	0.0000
58	0.1843	0.0000
59	0.1849	0.0000
60	0.1866	0.0000

EAH HOSIERY
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1972

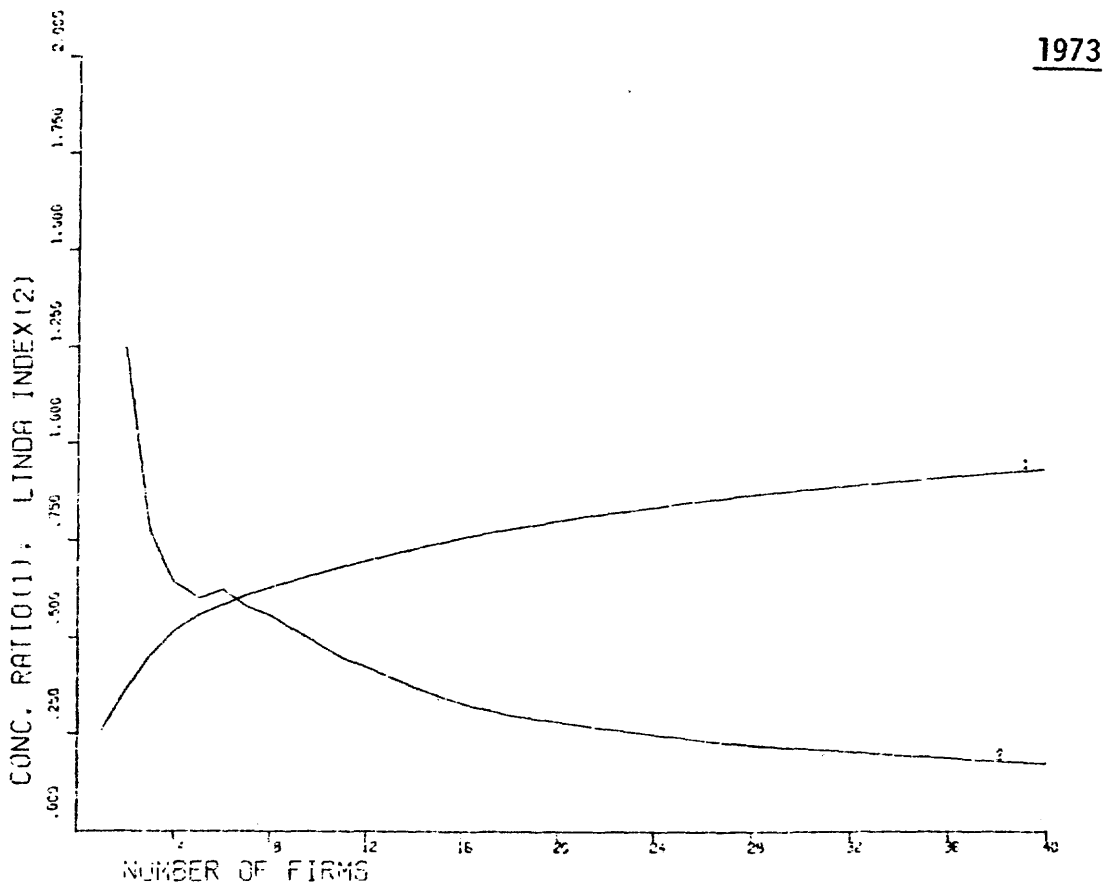
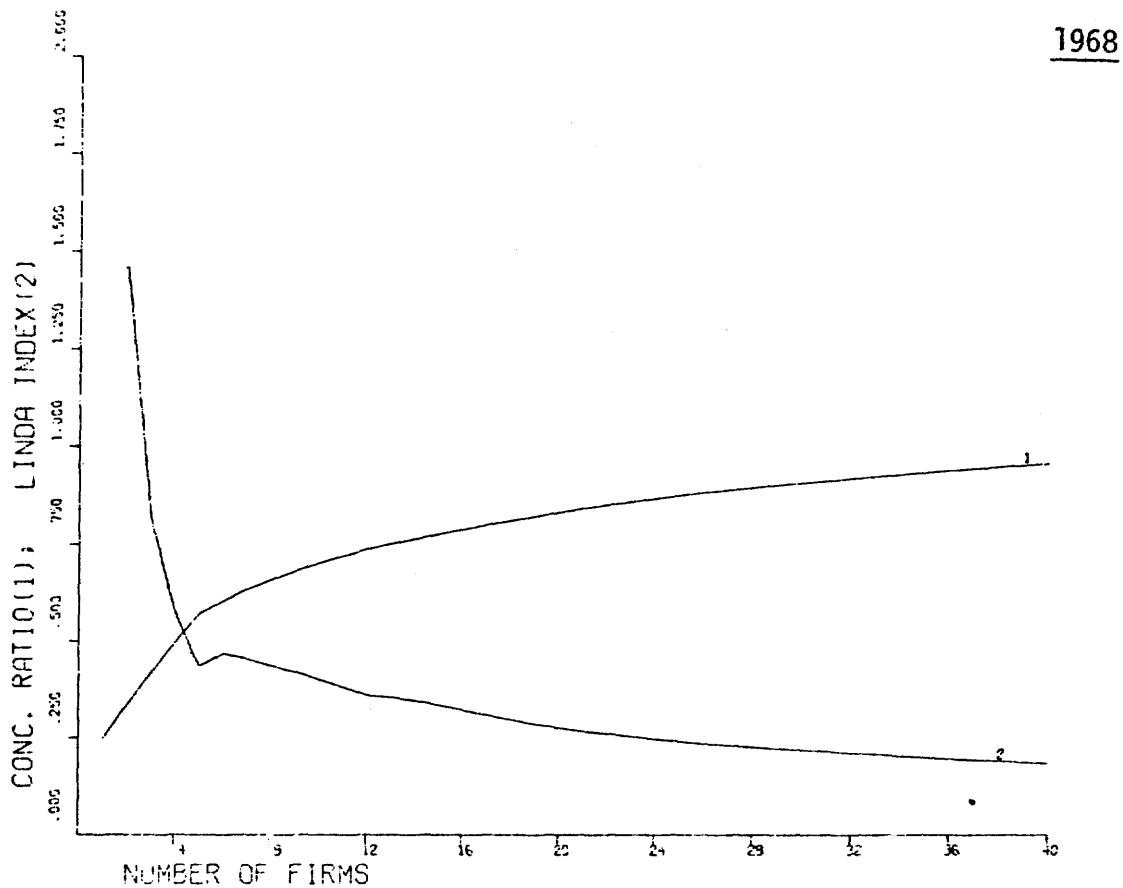
	TURNOVER	NET PROFITS
N*		
2	1.7209	0.5057
3	1.0388	0.5312
4	0.7630	0.6500
5	0.6686	0.5713
6	0.5795	0.6187
7	0.5110	0.6040
8	0.4884	0.5845
9	0.4866	0.5479
10	0.4832	0.5046
11	0.4627	0.4663
12	0.4473	0.4314
13	0.4296	0.4024
14	0.4137	0.3852
15	0.3944	0.3659
16	0.3824	0.3534
17	0.3680	0.3390
18	0.3541	0.3235
19	0.3421	0.3086
20	0.3289	0.2938
21	0.3230	0.2814
22	0.3148	0.2694
23	0.3053	0.2580
24	0.2958	0.2523
25	0.2887	0.2485
26	0.2809	0.2431
27	0.2730	0.2376
28	0.2665	0.2320
29	0.2595	0.2261
30	0.2529	0.2204
31	0.2464	0.2151
32	0.2399	0.2099
33	0.2338	0.2072
34	0.2306	0.2042
35	0.2269	0.2020
36	0.2227	0.2019
37	0.2192	0.2009
38	0.2157	0.2018
39	0.2126	0.2019
40	0.2092	0.2013
41	0.2074	0.2006
42	0.2058	0.2005
43	0.2038	0.2004
44	0.2019	0.2001
45	0.1997	0.1992
46	0.1973	0.1991
47	0.1950	0.2002
48	0.1926	0.2024
49	0.1901	0.2036
50	0.1878	0.2078
51	0.1853	0.2121
52	0.1833	0.2151
53	0.1826	0.2212
54	0.1816	0.2336
55	0.1803	0.3000
56	0.1790	0.4265
57	0.1777	0.0000
58	0.1765	0.0000
59	0.1758	0.0000
60	0.1751	0.0000

EAU HOSIERY
 TABLE 4: COMPLETE LISTING OF LINDA CURVES FOR 1973

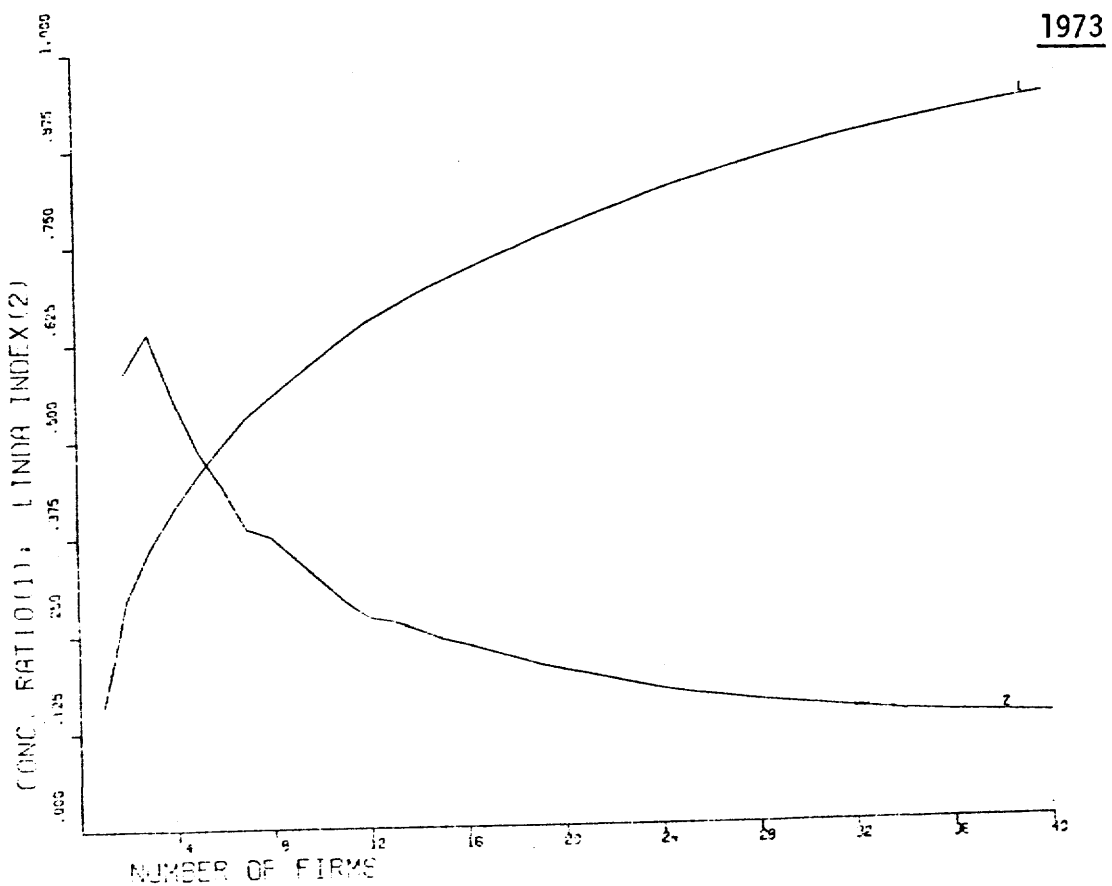
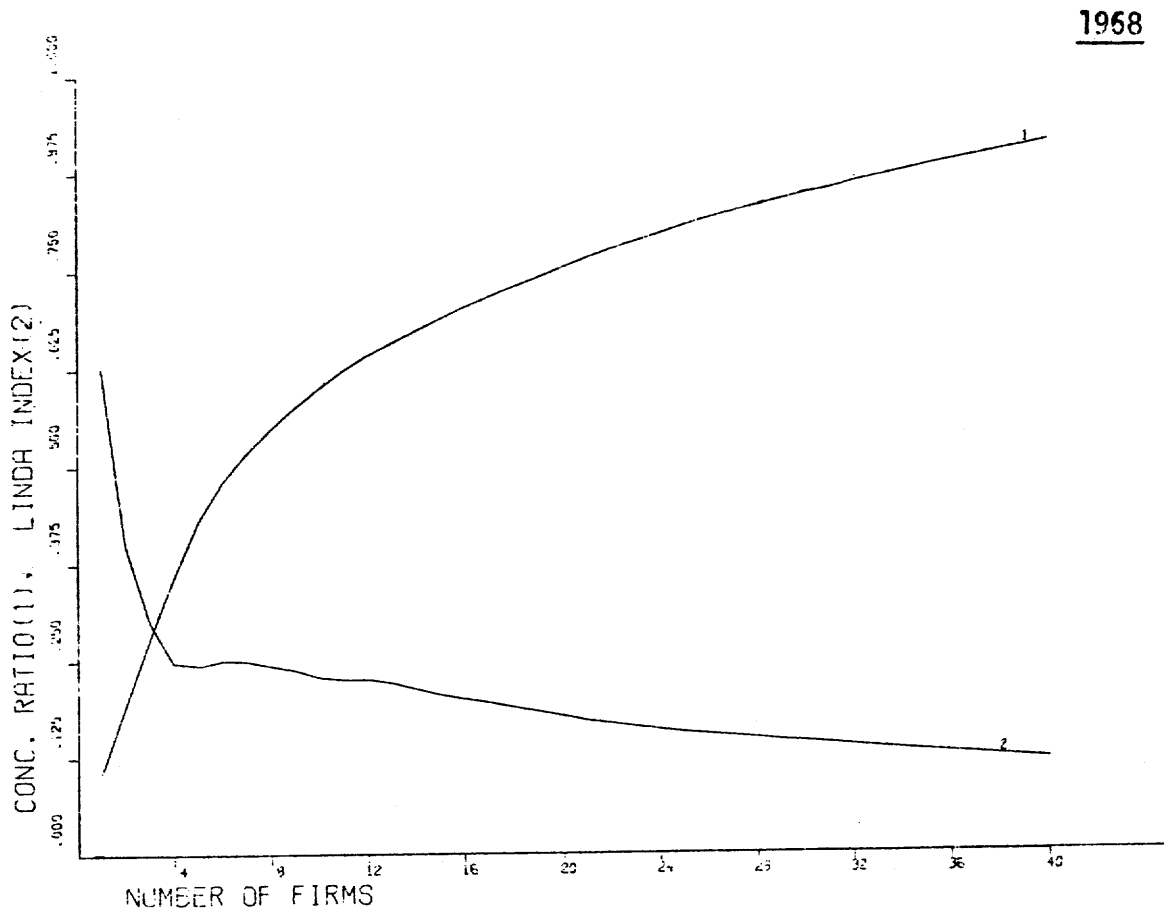
	TURNOVER	NET PROFITS
N*		
2	1.7519	0.5059
3	0.9625	0.6119
4	0.7094	0.6316
5	0.5602	0.5763
6	0.5280	0.5982
7	0.4694	0.5520
8	0.4487	0.5078
9	0.4630	0.5127
10	0.4683	0.4959
11	0.4589	0.4699
12	0.4403	0.4424
13	0.4170	0.4141
14	0.3924	0.3874
15	0.3753	0.3749
16	0.3593	0.3601
17	0.3530	0.3437
18	0.3433	0.3294
19	0.3342	0.3155
20	0.3244	0.3028
21	0.3132	0.2917
22	0.3020	0.2823
23	0.2912	0.2780
24	0.2805	0.2721
25	0.2719	0.2651
26	0.2616	0.2579
27	0.2553	0.2504
28	0.2483	0.2436
29	0.2435	0.2415
30	0.2382	0.2389
31	0.2329	0.2355
32	0.2277	0.2332
33	0.2229	0.2299
34	0.2180	0.2266
35	0.2135	0.2265
36	0.2116	0.2242
37	0.2096	0.2252
38	0.2072	0.2252
39	0.2046	0.2243
40	0.2024	0.2234
41	0.1998	0.2223
42	0.1979	0.2232
43	0.1962	0.2231
44	0.1946	0.2255
45	0.1926	0.2273
46	0.1913	0.2282
47	0.1896	0.2288
48	0.1880	0.2286
49	0.1864	0.2290
50	0.1846	0.2294
51	0.1829	0.2328
52	0.1817	0.2371
53	0.1807	0.2403
54	0.1800	0.2436
55	0.1792	0.2462
56	0.1782	0.2551
57	0.1787	0.2683
58	0.1786	0.0000
59	0.1781	0.0000
60	0.1776	0.0000

CONCENTRATION RATIOS & LINDA INDICES FOR TURNOVER IN 1968 & 1973

ECONOMIC ACTIVITY UNITS: TEXTILES

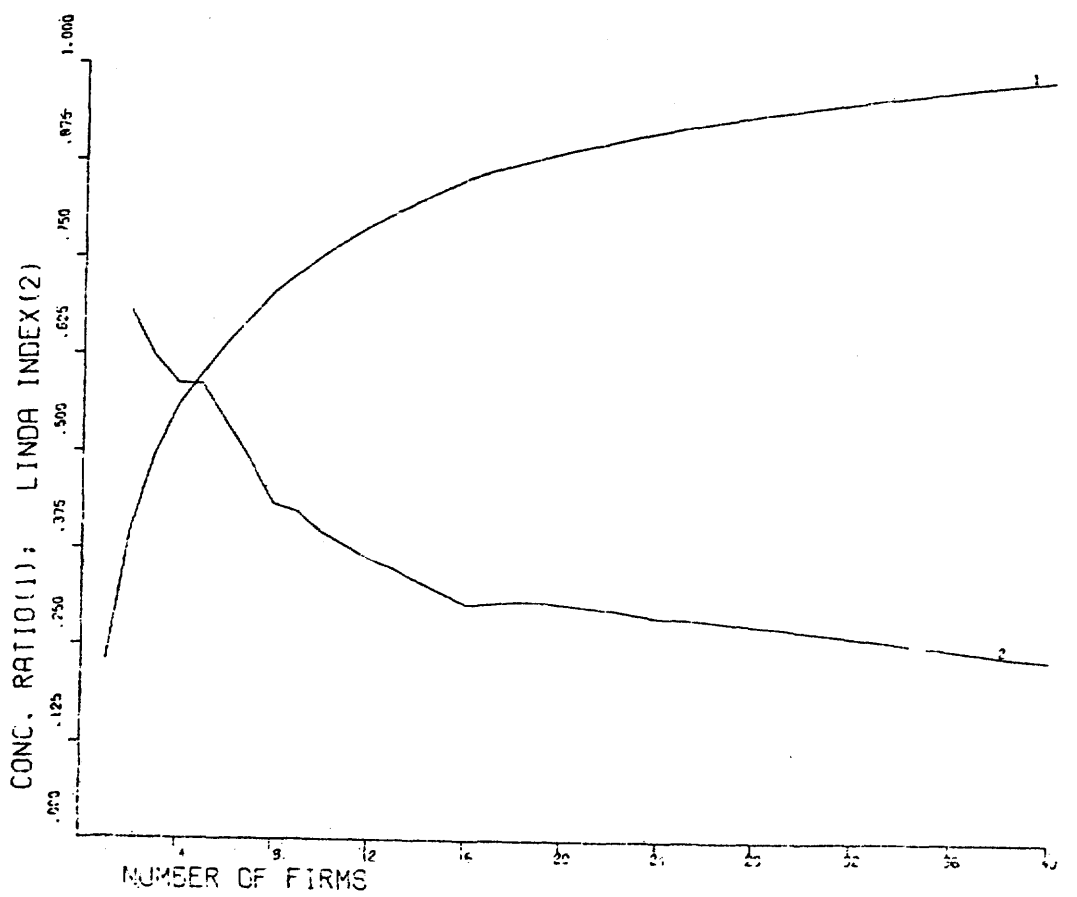
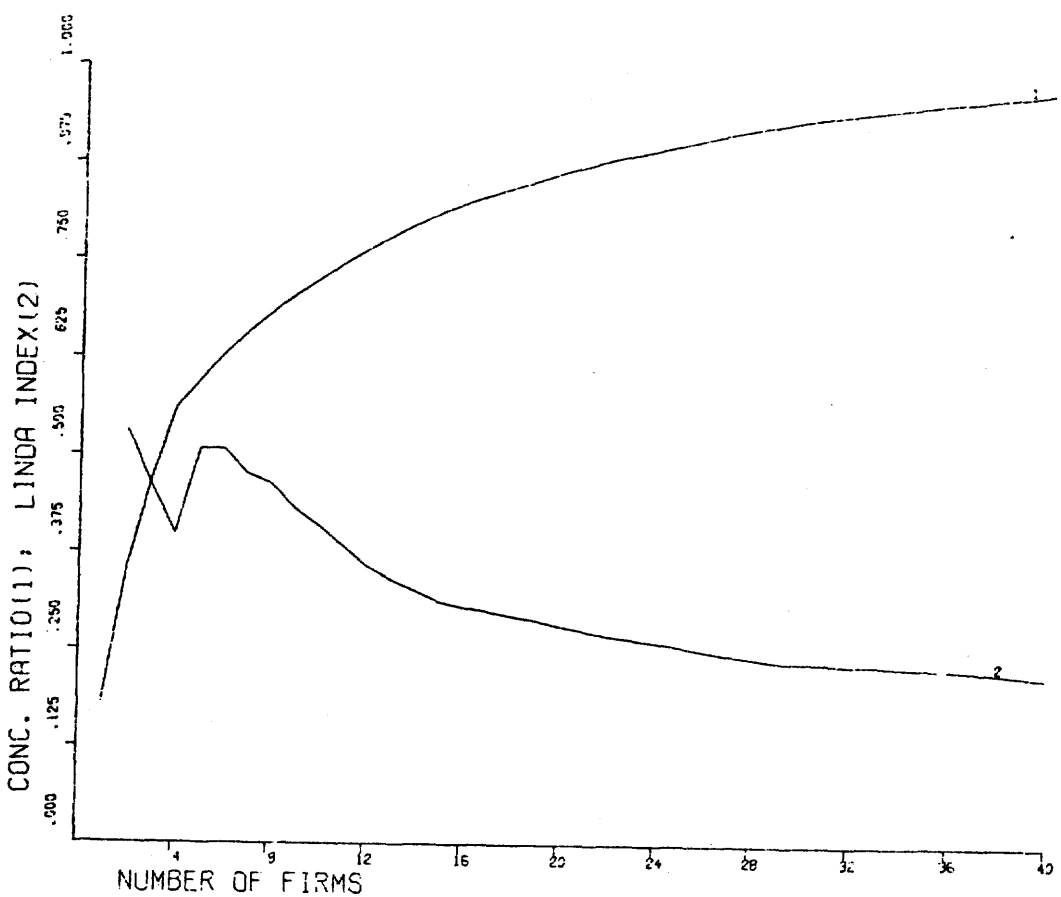


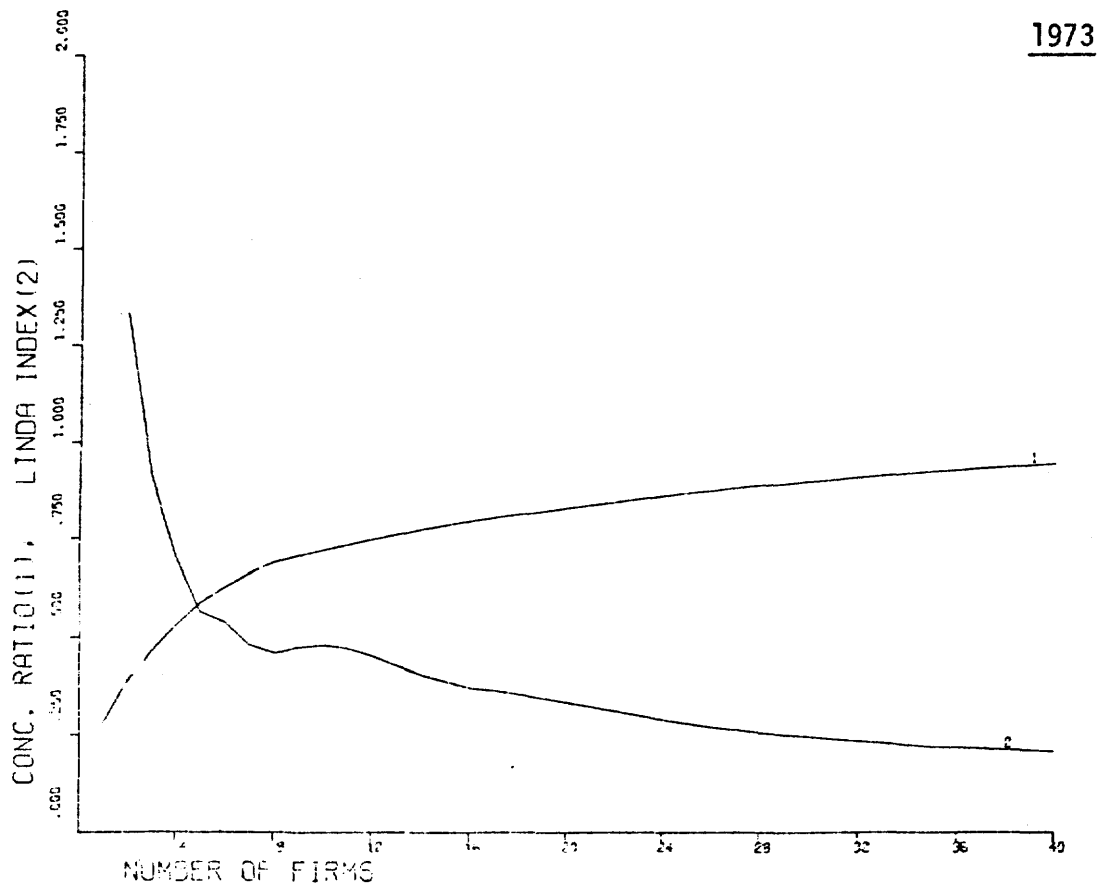
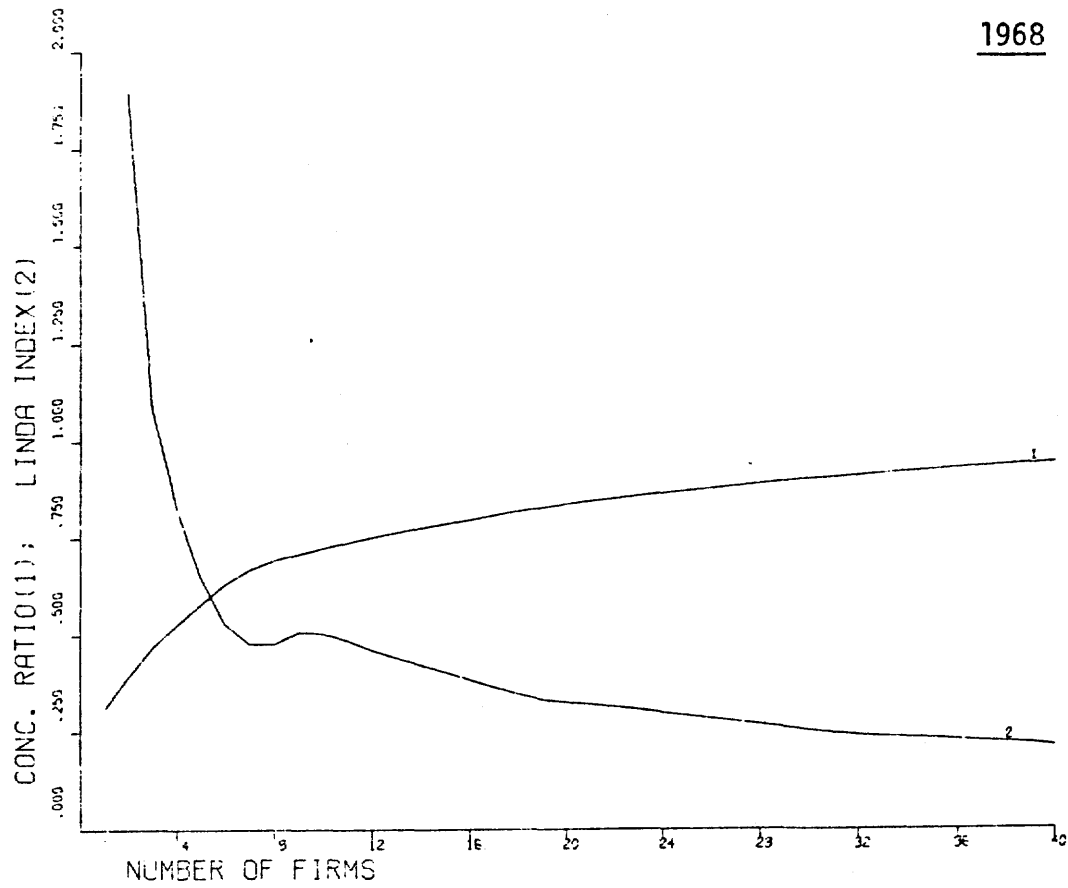
ECONOMIC ACTIVITY UNITS: WOOL



CONCENTRATION RATIOS & LINDA INDICES FOR TURNOVER IN 1968 & 1973

ECONOMIC ACTIVITY UNITS: COTTON





ESTIMATES OF TOTAL SUB-SECTOR SALES1. Wool and worsted

1969		No data available
1968)	Census of Production figures available. Figure used was "sales of goods produced and work done" by establishments classified to the sub-sector.
1970)	
1971)	
1972)	Data produced in Business Monitor PQ 414, third quarter 1974 referring to establishments with 25 or more employees. In 1971 (Census) such establishments accounted for 95 per cent of total employment. The figures for 1972 and 1973 were therefore multiplied by <u>100</u> to give estimates of total turnover of establishments
1973)	
		95 classified to the sub-sector.

Resulting estimates (£m)

	<u>Overall turnover of sub-sector</u>	<u>Sample total</u>	<u>Sample as % of overall</u>
1968	559	315.3	56
1969	-	341.0	(58)
1970	565	333.8	59
1971	530	346.2	65
1972	626	398.2	64
1973	835	499.7	60

2. Cotton

The main difficulty relates to vertically integrated firms (explained in the main text p.). About 70 per cent of all cotton and man-made fibre spun yarn is used for weaving, and in 1968 about 45 per cent

of all weaving capacity was held by vertically integrated concerns and the effects of vertical integration varies considerably between firms, while some use over 70 per cent of their own yarns and buy little yarn from outside, in others less than 50 per cent of yarn production is used within the firm and more than 50 per cent of yarn consumption is purchased outside. On the other hand, the large vertically integrated concerns have a greater proportion of modern looms which they use more intensively, so that the 45 per cent of weaving capacity understates their share of cloth output. In addition, as much as half of the 12-14 per cent of sales of cotton and spun man-made fibre yarns going to knitting are probably inter-group transactions (since weft-knitting of such yarns, as opposed to filament or worsted type, is carried out, mainly by firms with Lancashire spinning interests). As a broad estimate it is assumed that 40 per cent of all yarns spun on the cotton system are used for weaving or knitting by the same company. This proportion was deducted from the 1968 Census figure of turnover in cotton and man-made fibre spinning and the residue was added to weaving sales to give a combined figure for sales to outside firms by companies in the sub-sector. This figure came to £433 millions and the sample total of 52 firms with turnover exceeding £1 million in this sub-sector represented 73 per cent of this overall total for about 590 firms.

There is very little information about vertical integration since 1968. If it were assumed that inter-group sales of yarn remained at 40 per cent then the percentage of cotton industry turnover represented by the sample in 1973 would be 80 per cent. With a greater degree of vertical organisation now existing in some major groups, the ratio may be somewhat higher. The following percentages are assumed:

	%
1968	73
1969	74
1970	75
1971	77
1972	80
1973	82

3. Hosiery and Knitwear

Data are available exactly as for wool and worsted. The ratio for adjustment of figures for 1972 and 1973, to include firms employing fewer than 25 workers was 1.04:-

	<u>Resulting estimates (£m)</u>		
	<u>Overall turnover of sub-sector</u>	<u>Sample total</u>	<u>Sample as % of overall</u>
1968	437.3	364.7	83
1969	-	392.2	(82)
1970	537.6	431.2	80
1971	533.4	461.6	87
1972	580.7	483.0	83
1973	662.3	598.8	90

RANKING OF FINANCIAL VARIABLES

The use of parameters of the Linda curves to compare concentration in different variables is valid only if the ranking of companies is similar for each of these variables. This has been tested by use of rank correlation coefficients.

1. RANK CORRELATION MATRIX: ENTERPRISES 1968

Variable	Turnover	Employment	Wage-bill	Net profits	Cash flow	Gross Investment	Equity	Exports	Net assets
Turnover									
Employment	0.76								
Wage-bill	0.80	0.94							
Net profits	0.66	0.62	0.63						
Cash flow	0.73	0.65	0.70	0.94					
Gross Investment	0.59	0.59	0.67	0.67	0.74				
Equity	0.80	0.81	0.78	0.61	0.64	0.58			
Exports	0.56	0.37	0.41	0.34	0.40	0.37	0.45		
Net assets	0.80	0.80	0.80	0.63	0.70	0.65	0.91	0.56	
Net cash flow	0.73	0.64	0.69	0.90	0.99	0.73	0.75	0.41	0.69

2. RANK CORRELATION MATRIX: ENTERPRISES 1973

Turnover									
Employment	0.76								
Wage-bill	0.79	0.93							
Net profits	0.79	0.61	0.65						
Cash flow	0.54	0.66	0.69	0.53					
Gross Investment	0.50	0.53	0.55	0.55	0.50				
Equity	0.80	0.71	0.77	0.79	0.57	0.54			
Exports	0.39	0.24	0.22	0.38	0.53	0.26	0.37		
Net assets	0.82	0.76	0.75	0.75	0.55	0.55	0.88	0.33	
Net cash flow	0.82	0.67	0.71	0.89	0.46	0.49	0.82	0.34	0.81

ECONOMIC ACTIVITY UNITSCOEFFICIENTS OF CORRELATION BETWEEN LOGARITHMS OF TURNOVER AND NET PROFITS

(For checking ranking of net profits and turnover: see text p. for reasons why this measure was preferred to rank correlation coefficients).

	<u>Wool</u>	<u>Cotton</u>	<u>Hosiery</u>	<u>Combined sub-sectors</u>
1968	0.753	0.756	0.885	0.735
1969	0.752	0.761	0.872	0.734
1970	0.756	0.772	0.825	0.733
1971	0.765	0.782	0.811	0.739
1972	0.765	0.795	0.808	0.737
1973	0.763	0.805	0.859	0.732

APPENDIX EADDITIONAL COMPANY INFORMATION

This Appendix presents in summary form the following information:-

1. Major acquisitions
2. Mergers
3. Financial links between companies
4. Links between Boards of Directors
5. Family ties

1. MAJOR ACQUISITIONS OF COMPANIES WITHIN THE SUB-SECTORS 1968-73
(with reference to more recent developments)

These are listed with the names of the acquiring companies in alphabetical order. The list relates only to the acquisition of companies with annual sales turnover of over £1 million at the time. The date of "acquisition" refers to the year in which a majority holding of equity was obtained.

Name of Acquiring Co.	Name of company acquired	Turnover in Previous Year (£000's)
<u>AGREMIN LTD.</u> (cotton sub-sector)		
1973	Clover, Croft & State Ltd. (spinners)	1215
<u>WILLIAM BAIRD TEXTILES LTD.</u> (cotton and making-up)		
1970	India Mills (Darwen) Ltd. (weaving)	3913
1971	J. H. Buckingham Ltd. (clothing group)	6215
<u>BODYCOTE INTERNATIONAL LTD.</u> (Holding company in clothing and textiles)		
1971	Valdown Jersey Fabrics Ltd. (Jersey knitting)	2078

1971	Philip Brocklehurst Group purchased from Slater Walker Securities (mainly spinning and weaving of man-made staple)	1200 (approx.)
<u>CBR JERSEY (HOLDINGS) LTD.</u> (Knitted jersey fabrics)		
1972	Bellami Knitwear Ltd. (knitted garments)	1837
<u>CARRINGTON & DEWHURST LTD.</u> (merged into Carrington- Viyella December 1970)		
1968	Jersey Kapwood Ltd. (Warp-knitting)	7596
<u>COATS-PATON LTD.</u>		
1969	West Riding Worsted & Woollens Ltd. (woollen and worsted spinners, weavers and knitters)	26779
	Dalkeith Knitwear Ltd. (knitwear)	1482
1970	Herbert L. Driver Ltd. (knitwear)	2358
	D. Byford & Co. Ltd. (knitwear)	5107
<u>COURTAULDS LTD.</u>		
1968	Prew-Smith Knitwear Ltd. (knitwear)	2700
	Clutsom-Penn International Ltd. (elastomeric fabrics)	19000 (est)
	Contour Hosiery Ltd. (hosiery)	3881
	I. & R. Morley Ltd. (hosiery and knitwear)	4161
	Ashton Bros & Co. Ltd. (cotton spinning and weaving and household textiles)	16033
	Northgate Group Ltd. (knitted underwear)	12000 (est)

	Moygashel Ltd. (rayon and linen fabrics and garments)	22000 (est)
	R. Rowley & Co. Ltd. (hosiery and knitwear)	2000 (est)
1971	C. H. Fletcher Ltd. (woven dress fabrics)	1488
1972	Harwood Cash & Co. Ltd. (cotton and man-made fibre spinning, knitting & weaving)	6310
<u>JOSEPH DAWSON (HOLDINGS) LTD., now DAWSON INTERNATIONAL LTD.</u>		
1970	Blackwood Bros	1355
	Braemar Knitwear) Ballantyne Sportswear) (knitwear)	2500 (est)
	Ballantyne Spinning	
<u>ROBERT GLEW & CO. LTD.</u>		
1972	Emu Wools Ltd. (Hand-knitting wools)	2682
<u>ILLINGWORTH MORRIS & CO. LTD.</u>		
1968	Winterbotham, Strachan & Payne	4000
1971	Woolcombers Ltd.	25000
	John Emsley Ltd.	3600
	(all in sections of woollen and worsted)	
<u>LONRHO LTD.</u>		
1969	David Whitehead & Sons Ltd. (cotton spinners and weavers)	7400
<u>NOTTINGHAM MANUFACTURING CO. LTD.</u>		
1973	Lancaster Carpets and Engineering Ltd. (Carpet yarn, carpets and engineering)	15070

SIRDAR LTD.

1972	John C. Horsfall & Sons Ltd. (Hand-knitting wool)	2720
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SPIRELLA LTD.

1968	R. Greg (Holdings) Ltd. (cotton spinning and weaving)	4500
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1970	Horrockses Ltd. Dorcas (Household textiles)	1680 1490
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	Stott & Smith Group Ltd.	1830
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STROUD RILEY LTD.

1973	James Drummond & Sons	3000 (est)
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VANTONA LTD.

1973	Cromer Ring Mill Ltd.	3062
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Since 1973

1975	<u>Illingworth Morris</u> acquired majority holding of Troydale Industries Ltd. (see Appendix F).
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1975	<u>Spirella</u> acquired almost all equity of Vantona Ltd.
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1975	<u>Tootal</u> acquired Trutex Ltd., shirt manufacturer.
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2. MERGERS

The principle mergers during the survey period are described in Appendix F because they involve the largest companies. They include:-

- (a) The amalgamation of Calico Printers' Association and English Sewing Ltd. to form English Calico Ltd., renamed Tootal Ltd. in 1973.
- (b) The merging, financed by I.C.I., of Carrington and Dewhurst Ltd. and Viyella International Ltd. in 1970.

Another merger, not reported in Appendix F, was that which established British Mohair Spinners Ltd. from two spinning concerns in 1969, joined by a third firm in 1970. The combine, with a total turnover of £12.4 millions in 1973 is partly owned by Illingworth Morris and Co. Ltd.

As well as the large mergers which are reported in the text, there have been numerous amalgamations of small firms since 1970 often encouraged by the Department of Industry (or its predecessors). One reason for some mergers has been economy of floorspace, achieved by capital investment and high utilisation through multiple shiftwork.

3. FINANCIAL LINKS BETWEEN COMPANIES

In Section IV, the statistical analysis of concentration, an enterprise has been defined as a separate unit unless a majority of its equity (with voting rights) is owned by another company. (This follows normal U.K. accounting practice.) In most cases the majority holding has been close to 100 per cent.

There are however several companies in both the enterprise and activity unit analyses, which are partly owned by other companies in the sample, by fibre producers or by retail groups. These financial links have been identified from company accounts (English and Scottish law require that a company declare a holding of ten per cent or more of the equity of another company)

and in other cases by a search of lists of members (shareholders) also held at central registries in London and Edinburgh. As far as the second category is concerned, the list below refers only to 1973 and to holdings of at least two per cent. Because there is no published global information with which the detailed results of the search can be compared, the list of links may not be exhaustive (certain equity-holdings may have escaped the attention of the researchers).

(a) Minority holdings by one firm in the textile sub-sectors of the equity of another

Courtaulds Ltd.

- (i) Highams Ltd. - holding of ordinary shares built up to 29 per cent by December 1974 (but Government has requested that this be reduced to 25 per cent and that voting power not be used to influence policy).
- (ii) Tootal Ltd. - eight per cent of ordinary shares throughout survey period. Courtaulds represented on the board of Tootal until 1974.

Illingworth Morris Ltd.

Pursued a policy of gradual acquisitions throughout period. At 31st March 1974 principal equity holdings were:-

- (i) British Cotton and Wool Dyers' Association Ltd. - 36.7 per cent of ordinary shares.
- (ii) British Mohair Spinners - 18.4 per cent of ordinary shares.
- (iii) Hield Brothers Ltd. - 21.6 per cent of ordinary shares and 5.1 per cent of preference stock.
- (iv) George Mallinson and Sons Ltd. - 39 per cent of ordinary shares.*
- (v) Troydale Industries Ltd. - 26 per cent of ordinary shares.*

- (vi) Yorkshire Fine Woollen Spinners Ltd. - 24 per cent of ordinary shares and 26 per cent of preference stock.

In the analysis of the wool sub-sector firms (ii), (iii), (v) and (vi) have been included as separate units along with Illingworth Morris. The combined sales of Illingworth Morris and these four associate companies amounted to £111 millions in 1973 - 18.5 per cent of the sub-sector total.

- (vii) Tootal Ltd. - approximately two per cent of ordinary shares; no board representation.

William Baird Group Ltd.

Joseph Dawson (Holdings) Ltd, now Dawson International Ltd. - 20 per cent of equity 1968, increased to 28 per cent 1970 to date.

Bulmer & Lumb Ltd.

(via company pension fund) John Haggas Ltd. - holding less than one per cent.

(b) Holdings by I.C.I. Ltd.

- (i) Carrington-Viyella Ltd. - 64 per cent of ordinary shares but not treated as subsidiary in company accounts because of agreement with government not to use voting power beyond 35 per cent.
- (ii) Lister Brothers Ltd. (woollen and worsted) - 20 per cent of ordinary shares. No knowledge of any board representation.
- (iii) Tootal Ltd. - eight per cent of ordinary shares with a representative on the board.

(c) Holdings by customer groupsMarks and Spencer Ltd.

- (i) John Spencer Ltd., weaving concern - 33 per cent of equity, company liquidated in 1970.
- (ii) Corah Ltd., knitwear company selling most of its output to Marks and Spencer - 26 per cent of ordinary shares held by retailers' pension fund.
- (iii) Nottingham Manufacturing Co. Ltd. - three per cent of ordinary shares held by retailer.

4. LINKS BETWEEN BOARDS OF DIRECTORS

Individual directors of company (a) are also directors of (b). In most cases and, unless otherwise indicated, company (a) owns part of the equity of company (b).

(a)	(b)
Courtaulds	Tootal
I.C.I.	Carrington-Viyella (2 directors) Tootal
William Baird	Dawson International
Illingworth Morris	Troydale Industries (1974, before acquisition)
Stroud Riley Drummond - No known financial link	Moderna Moderna Ltd. (blanket manufacturers)
U U Textiles - No known financial link	Troydale Industries

5. FAMILY TIES

These cannot be analysed systematically because of problems of identification. Certain family names appear in shareholders' lists e.g. one minor shareholder of Carrington-Viyella is William Baird and a Simon Courtauld is a minor shareholder in Illingworth Morris. These are merely interesting reminders of the long tradition of the textile industry and of the important role of certain families.

Within smaller firms in Lancashire and Yorkshire a number of families were found to have substantial investment in a number of companies which trades as separately. For example almost all the equity of the Oldham Tyre Cord Company (1973 turnover just over £2 millions) is held by one of two brothers who also control four other separate cotton textile companies (not consolidated in the accounts) as well as engineering, warehousing and light aviation concerns. Treated as a single firm, the Dunkerley textile holdings yield an annual turnover in excess of £5 millions.

Historically, many clothing-manufacturing firms in the U.K. were developed by religious minority groups - e.g. exiled French protestants, and, especially in North-West England, Jews. The importance of Jewish families in clothing and in retailing is reflected in family ties between companies - often by marriage. These ties are reinforced in some cases by investments in equity but only of a minor order. There is no evidence that these family ties influence trading by the companies concerned, which are forced by competitive conditions to trade on "price and quality and nothing else".

APPENDIX F

ANALYSIS OF MAJOR TEXTILE COMPANIES

This section describes each of the five companies which formed an "oligopoly group" in textile processing in 1973; for each there is an analysis of turnover, profits, cash flow and employment set out in the same form to permit comparison. These companies are:

Courtaulds

Carrington-Viyella

Tootal

Coats Paton

Illingworth Morris & Company

A less detailed analysis is presented of three other groupings:

Nottingham Manufacturing Company

William Baird Textiles/Joseph Dawson - 28% of the equity is owned by the William Baird Group

Vantona/Spirella which were separate companies during the survey period but which were combined in September 1975 when Spirella acquired Vantona.

INTRODUCTION

Because of the integrated structure of the five major groups, inter-group sales account for a large proportion of output at the earlier stages of the production process. In order to identify the importance of each stage of textile processing to a vertically integrated concern, it would be necessary to analyse value added, of which detailed information is rarely published. Analysis of sales to third parties tends to overstate the importance of later stages in production and distribution.

Quite apart from commercial security in this competitive environment, this is a logical reason for the decision by certain of these big groups not to publish a breakdown of sales sufficiently detailed to permit identification of the three sub-sectors. For the purposes of this report, it has been

necessary to produce estimates in such cases. One of the most useful sources for this purpose was a detailed financial analysis of the four largest groups produced in May 1973 by the London stockbrokers de Zoete and Bevan (Ref. 8). Two months of investigation by the Cranfield research team produced results very similar to those of these earlier researchers.

Comparison of financial results is distorted by a number of factors:

- (a) Figures of net assets and equity are distorted by inflation because of which the book value of capital is excessively affected by age. Periodic revaluations aggravate this distortion.
- (b) Depreciation reflects the book value of fixed assets and is also affected. This leads to difficulties in comparison of net profits.
- (c) Companies differ in the methods whereby they allocate funds for taxation. Because of accelerated depreciation for tax purposes, most companies subtract from net profits an amount representing deferred tax liability, arising from loss of future tax relief. This means some distortion of cash flow figures.

This last element of distortion is probably the least substantial and absolute comparison of the ratio of net cash flow (net profits + depreciation - tax) to sales achieved by different companies is believed to be reasonably valid. Comparisons of ratios involving net profit, net assets, or equity should relate only to variations over time and, even then, the existence of possible distortions should be considered.

Comparative results for five major companies

(a) Growth of sales

Sales turnover figures are, of course, affected by inflation, but the relative growth of different companies may be compared.

	U.K. Textile Sales in £m.		1973 as
	1968	1973	% of 1968
Courtaulds	228	385	168
Carrington-Viyella	138*	169	122*
Tootal	72 ⁺	95	131
Coats Paton	78	136	174
Illingworth Morris	30	83	276
All other firms in textile sample	365	675	185

* Two companies in 1968

⁺ Adjusted from 13 to 12 months

(b) Net cash flow as percentage of total company sales

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Courtaulds	9.2	9.2	8.9	11.0	12.0	13.7
Carrington-Viyella	n.a.	n.a.	n.a.	5.5	6.0	7.1
Tootal	n.a.	5.1	5.5	5.4	5.9	6.9
Coats Paton	9.1	7.3	6.8	7.8	8.6	9.7
Illingworth Morris	4.5	4.1	3.9	4.9	6.4	4.7

This table shows the stronger position of Courtaulds which benefits partly from its position in the more profitable activities in man-made fibre production and also from low taxation payments, explained in the section dealing with that company. In the case of Illingworth Morris, the ratio of cash flow to sales is somewhat reduced by the subtraction from net profits of payments to holders of minority interests.

It may be observed that the three companies for which comparable data can be assembled all experienced a loss of profitability in the recession of 1969/70. Further comments on this aspect were presented in Sections IV and VI.

(c) Overseas Activities

In four of the five cases, the proportion of turnover represented by exports and sales by overseas subsidiaries has increased. One main reason for this was the depreciation of sterling which increased the unit value of overseas sales and also, by increasing profitability, gave greater incentive to sell overseas but also permitting companies to adapt competitive pricing policies. Another factor has been the slow growth of the U.K. market combined with price restraint.

Overseas sales (including exports) as % of total

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Courtaulds	36	39	39	40	45	48
Carrington-Viyella	-	-	-	17	23	26
Tootal	40	43	42	47	52	56
Coats Paton	68	67	70	69	71	74
Illingworth Morris*	25	28	28	13	15	14

* Figure fell 1971 onwards because of acquisitions of firms less export-orientated.

1. COURTAULDS

Of all the companies included in this study, Courtaulds Ltd was found to have the largest turnover in the three sub-sectors combined. When its world-wide activities, including the production of man-made fibres, are considered, Courtaulds has the largest turnover of any textile company in the world.¹ The company's world-wide turnover in all products in 1973-4 was £957m, U.K. turnover (including exports) was £717m and the company employed 125,000 in this country.

The company originated in silk manufacture but its growth until the early 1960's was due mainly to its development of cellulosic fibres, viscous rayon and acetate, which the company pioneered in the first quarter of the century. Immediately before the 1939-45 war, Courtaulds entered into an agreement with I.C.I. Ltd. for the establishment of British Nylon Spinners Ltd., with sole British rights to nylon production. During the 1950's the company decided upon a number of policies with the aim of reversing a declining trend in profits.² These included (a) commercial development of new triacetate yarns and acrylic fibres, (b) "rationalisation" of the British rayon industry by acquisition of British Celanese and five other rayon firms and closure of certain older rayon plants and (c) diversification into packaging and paints.

By 1960 these policies had pushed profits up to a record level but a subsequent drop in earnings led to a sharp weakening of the company's share price. In December 1961, I.C.I. made a takeover bid, at that time the biggest in British industrial history. This

¹ G. Delanoe: Report on Courtaulds in a series "Analyse des Groupes", DAFSA, Paris, December 1974.

² Information taken "A Brief History of Courtaulds," published by Courtaulds Ltd., in 1969. Subsequent quotations in the next paragraphs are from this text.

bid failed, leaving I.C.I. at the end of the battle in March 1962 with 38% of Courtaulds equity capital. In August 1964 this holding was exchanged for Courtaulds' 50% interest in British Nylon Spinners and I.C.I. agreed to make a further £10m available over the next five years. Courtaulds used these funds plus the proceeds from the sale of certain other investments to finance (a) the development of its own nylon production and (b) (particularly important in the present context) forward integration into the textile processes which would provide an outlet for its fibres and filament yarns.

In some cases, Courtaulds co-operated with I.C.I. during the period 1963-8 in providing Funds to support major textile groups. In 1963 Courtaulds and I.C.I. both acquired minority holdings in English Sewing Cotton Co. Ltd., (now Tootal, described in 3 below) and in Carrington and Dewhurst Ltd. (see 2 below), though the 10% holding in the latter was sold to I.C.I. in 1968. Until January 1975 one of the directors of Courtaulds was also on the board of Tootal. The more significant growth of Courtaulds' textile interests came about through direct acquisition on which nearly £150m was spent over the six years 1963-9. This left the company with the following approximate share of U.K. output in each stage of production in mid-1968:-

	<u>% of U.K. output (volume)</u>
Cellulosic fibres production	95
Synthetic fibres production	25
Cotton and man-made fibres spinning	30
" " " " weaving	12 (Filament weaving 22)
Fabric finishing	9
Textile "converting" (= merchanting)	7
Warp Knitting	35
Weft Knitting	15

Sources: Textile Council, "Cotton and Allied Textiles" (1969), Table 2 de Zoete and Bevan, "The Major Textile Companies", pp. 16-19.

A report by the Monopolies Commission into the supply of cellulosic fibres accused the company of operating against the public interest. As well as proposing tariff reductions and the breaking up of inter-

national cartel agreements, the Commission criticised Courtaulds' transfer-pricing policy and also urged strict Board of Trade control over further textile acquisitions. This restriction was one of the factors limiting the expansion of the company in the three sub-sectors during the survey period.

Courtaulds' share of the combined textile turnover of the firms in the sample (excluding fibre-production) remained at about 22% throughout the period 1968-73. The company makes almost every kind of product within the "cotton industry" and "hosiery and knitwear" ranges and through its subsidiary Henry Lister & Co. also has an outlet for its acrylic fibre in the wool and worsted industry. Expressed as a percentage of turnover, profits on these activities were lower than the average for the industry. De Zoete and Bevan's estimate for 1972-3 was 6.1%, compared with a 1972 average for the total sample of 7.7%. This is misleading because of internal purchase of fibres: taking fibres and textiles together the margin on turnover in 1972-3 was 10.5%.

In its 1974/5 accounts Courtaulds has published a national profit and loss account and balance sheet adjusted for past inflation. This shows that, with this adjustment, shareholders' funds would have represented 60 per cent of net assets in March 1974 and 67 per cent in March 1975. These figures show the company to be highly geared but less so than would appear from an analysis of the statutory figures. Courtaulds' published return on equity (see (c) of the summary table at the end of this sub-section) was 33 per cent in 1973/4, one of the highest in European textiles: the inflation adjusted figure was however only 18 per cent.

A major factor influencing the company's cash flow position has been reduction of taxation partly achieved by inter-subsidary sales of fixed assets in 1971-2. In addition, the company does not have a deferred tax account (see p.). In the financial years ended March 1973, 1974 and 1975, taxation amounted to only 22 per cent of profits before tax (after interest and depreciation).

The growing importance of Courtaulds as a multinational company is revealed by the growth of sales by overseas subsidiaries from £117m in 1968/9 to £239m in 1973/4. This rise partly reflects inflation and depreciation of the pound but, after correction for these factors, it also indicates that restriction of expansion in the U.K. has encouraged Courtaulds to seek growth overseas. During the course of this investigation Courtaulds have resumed growth in the U.K. textile sector with acquisition of shares of Highams Ltd. Holdings of this company's equity rose from 0 in December 1972 to 10% in December 1973 and 29% in December 1974. With an annual turnover of £18m Highams is one of the U.K.'s largest manufacturers of sheets and bedding and the large investment by Courtaulds provides the fibre manufacturer with a more secure outlet for polyester and cotton yarns.

Post scriptum (September 1975)

Evidence of continued opposition by government to investment by Courtaulds in the textile industry is an agreement following a request by the Office of Fair Trading that the company will reduce its holding to 25 per cent and not use voting power to change policy.

COURTAULDS LTD.ANALYSIS OF SALES, PROFITS AND CASH FLOW(i) ANALYSIS OF SALES (£m)

* = estimates	Financial year ended 31st March . . .					
	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
"Cotton-type" spinning and weaving*	70	89	85	95	110	135
Woollen fabrics	7	8	11	12	10	12
Hosiery, Knitwear & garments	114	123	139	159	148	169
Other textiles & wholesaling	37	24	31	28	45	69
<hr/>						
U.K. Textile Processing	228	244	266	294	313	385
U.K. fibre production	149	155	167	160	180	220
Other U.K. Activities	75	83	83	76	92	112
<hr/>						
TOTAL U.K. SALES ⁽¹⁾	452	482	516	530	585	717
Overseas fibres and textiles	77	93	88	93	130	159
Other overseas sales	47	51	55	58	72	80
<hr/>						
TOTAL SALES	576	626	659	681	777	956
<hr/>						

(1) Includes exports	(81)	(98)	(114)	(124)	(145)	(218)
Exports and overseas sales as % of total	36	39	39	40	45	48

COURTAULDS LTD. (Cont'd)(ii) ANALYSIS OF PROFITS(a) Net Profit Before Interest and Taxation (£m)

	Financial year ended 31st March . . .					
	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
U.K. Textiles (est.)	14.5	14.0	13.7	17.7	20.3	25.2
<hr/> Company total	<hr/> 61.5	<hr/> 67.0	<hr/> 59.8	<hr/> 64.6	<hr/> 88.3	<hr/> 141.0

(b) Net Profit Before Interest and Taxation as Percentages of Sales and Net Assets% of Sales

U.K. Textiles (est.)	6.4	5.7	5.2	6.0	6.5	6.6
Company total	10.7	10.7	9.1	9.5	11.4	14.8
% of net assets	14.9	14.6	11.8	12.2	14.6	20.6

(c) Net Profit after Interest but before Tax

£m	50.9	52.1	42.0	45.5	68.2	116.3
% of equity	23.6	23.2	18.0	18.2	23.7	33.0

(iii) CASH FLOW BEFORE AND AFTER TAX

Before tax	75.3	80.3	73.9	80.5	105.2	158.2
After tax	52.9	57.7	58.3	74.8	92.9	131.3
After tax figure as % of sales	9.2	9.2	8.9	11.0	12.0	13.7

AVERAGE U.K.
EMPLOYMENT

135,352	137,819	136,331	128,046	124,038	124,475
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2. CARRINGTON-VIYELLA LTD.

This company was formed in 1970 by the merging of Viyella International Ltd. with Carrington and Dewhurst Ltd. The survival of these two companies in merged form was financed mainly by Imperial Chemical Industries. In February 1975 I.C.I. Holdings Ltd. and Imperial Chemical Industries Ltd. jointly owned 64.4 per cent of the ordinary shares of Carrington-Viyella Ltd.

History of Viyella International Ltd.

In 1894 a long-established cotton spinning firm, William Hollins and Company Ltd., registered the trade mark "Viyella" to describe a new fabric manufactured from yarns in which wool and cotton were blended. This new branded cloth proved very successful in shirts and the company developed its own weaving and formed a garment division. By the mid-1950's, all processes from purchase of raw materials to wholesaling of the finished shirts were carried out by the company. It then faced a number of unfavourable developments: loss of exports, excessive reliance on one large retailer who was able to force down profit margins, the growing popularity of man-made fibres in shirts and (allied particularly to the use of nylon) increasing competition from warp-knitted fabrics. In 1961, having failed to negotiate a satisfactory merger with Tootal Ltd. (see 3 below), Hollins decided to diversify by taking over Gainsborough Cornard Ltd. a manufacturer of synthetic yarns and warp knitted fabrics. This takeover was followed by a reorganisation and rationalisation of the company, renamed Viyella International Ltd., under the chairmanship of Mr. J. Hyman.

The growth of Viyella International in the 1960's was directed towards the formation of an international, vertically integrated multi-fibre textile group. This growth was financially assisted from 1963 onwards by I.C.I., which after its failure to take over Courtaulds, was concerned to secure markets for its own output of fibres. I.C.I.'s policy was to assist firms which it considered progressive but without acquiring majority control (unlike Courtaulds) and in 1963 it injected £13m. into Viyella in a combination of

equity and long-term loans.

With this money and with internally generated funds, Viyella International embarked upon a series of acquisitions which increased sales from £8m. in 1963 to £67m. in 1966 and £76m. in 1969. The activities of the companies acquired included cotton and man-made fibre spinning; texturation and weaving; warp knitting- jersey fabrics; branded shirts; other garments; textile finishing; household textiles, furnishing fabrics and tufted carpets.

The weakest part of this vertically integrated group proved to be the traditional cotton spinning and weaving activities. When margins declined in the man-made fibre activities (e.g. texturation) in the late 1960's profits declined and a major managerial crisis developed. In December 1969, in order to ensure the stability of the company, I.C.I. offered to acquire Viyella International with the intention of merging it with Carrington and Dewhurst Ltd.

History of Carrington and Dewhurst Ltd.

This traditional weaving concern turned entirely to weaving of filament artificial fibres in the 1920's and by 1960 was one of Europe's largest weavers of rayon, acetate and nylon filament fabrics.

During the 1960's the company spent £35m. on acquisitions and further sums on modernisation and internal expansion. The process began with funds acquired from the Cotton Industry Act of 1959 and from the infusion of £1½m. in a joint share subscription by Courtaulds and I.C.I. in 1963. Courtaulds did not add any further funds and sold its equity holding in 1968. I.C.I. added continually to its holdings and by 1970 held 17 per cent of the equity, having invested a total of £8m. into Carrington and Dewhurst in a seven-year period.

Carrington and Dewhurst's expansion programme had three elements (all associated with I.C.I.'s desire to secure the continued growth of a market for its fibres within the U.K.). One objective was expansion of filament weaving and by acquisition of two major competitors the company increased its share of U.K. output of woven filament fabrics to 29 per cent by 1968. A second objective was vertical integration forwards from filament weaving to merchant converting, dyeing and finishing and the making up of outerwear from woven filament cloth. A third objective was diversification into texturation of filament yarns, warp-knitting and to a lesser degree, weft-knitting. At the same time the company developed factories in Italy, Belgium and Germany.

A crisis for Carrington and Dewhurst occurred in 1969. Encouraged by the 1969 report of the Textile Council and by I.C.I., the company decided upon a £28m. expansion programme including a £6m. venture for the sale of texturised polyester yarn ("Crimplene") on the German market. A number of adverse developments coincided to bring the company to the brink of financial collapse:- a trade recession at home which led to excess weaving capacity and intensive price competition; chaos in the warp-knitting trade which encountered a decline in sales after a period of uninterrupted expansion; unexpected competition in Germany where local polyester yarn prices fell by 40 per cent and the French devaluation. Even the British weather turned against the company: a drought occurred just after it had completed an increase in capacity for production of rainwear garments and fabrics. The danger that the company would go into liquidation and that a substantial slice of the U.K. market for synthetic fibres might disappear, forced the intervention of I.C.I. and the merging of Carrington and Dewhurst with Viyella International.

Carrington-Viyella since the merger in 1970

As the analysis of the two former companies has indicated, Carrington-Viyella produces for a variety of final markets. Although an attempt

has been made from analysis of accounts of subsidiary companies to divide textile operations into "cotton" and knitting the breakdown can be regarded as only approximate because some subsidiaries are vertically integrated.

While maintaining a broad technical base (spinning, weaving, weft- and warp-knitting, dyeing and finishing) the new company has curtailed some less profitable operations and specialised on certain successful activities. The latter include the spinning of yarns blended from polyester and cotton and the development of branded products incorporating such yarns:- sheets and pillowcases, shirts and menswear. Vertical integration has been extended in this reorganisation. Contrary to expectations of the late 1960's the main financial difficulties have occurred in texturising (sold to I.C.I. in 1971), weft- and warp-knitting where excess capacity has still (early 1975) not been eliminated.

The market-orientated policy has led to an improvement in profitability as well as substantial expansion of sales. Although 1974 saw a setback in profitability, this was less pronounced than that which occurred in the textile industry as a whole.

The position of I.C.I. in relation to the company is affected by an agreement between I.C.I. and the Government at the time of the merger. Under this agreement, I.C.I. undertook to reduce its shareholding in Carrington-Viyella to no more than 35% as soon as practicable and if this has not been completed within 12 months not to exercise more votes than if it had. The holding remains at 64 per cent, probably because of the generally depressed state of the stock market in recent years and the effect on the price of the shares. The activities of Carrington-Viyella Ltd. are not included in the consolidated accounts of I.C.I. One of the directors of Carrington Viyella is also a director of I.C.I.

CARRINGTON-VIYELLA LTD.ANALYSIS OF SALES, PROFITS, CASH FLOW AND EMPLOYMENT(i) ANALYSIS OF SALES (£m)

	Financial year ended 31st December . . .			
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Cotton-type activities	102.0	94.1	99.1	n.a.
Hosiery, knitting and garments	26.0	22.0	39.0	n.a.
Other textiles	14.4	18.0	16.0	n.a.
<hr/>				
TOTAL U.K. SALES (all textiles) ¹	142.4	134.1	154.1	168.8
Overseas activities	10.9	21.0	29.4	33.5
<hr/>				
TOTAL SALES	153.3	155.1	183.5	202.3
<hr/>				

¹ Includes Exports (15.3) (14.2) (18.9) (22.5)

Exports and o/s sales as % of total 17 23 26 28

CARRINGTON-VIYELLA LTD.(ii) ANALYSIS OF PROFITS(a) Net Profit Before Interest and Taxation

U.K. Textiles (est.)	Financial year ended 31st December . . .			
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
U.K. textiles (est.)	8.6	9.5	12.8	12.1
Overseas activities (est.)	0.8	1.0	2.6	2.1
<hr/> Company Total	<hr/> 9.39	<hr/> 10.46	<hr/> 15.37	<hr/> 14.51

(b) Net Profit Before Interest and Tax as percentages of Sales and Net Assets% of sales

U.K. textiles	6.0	7.1	8.3	7.2
Company total	6.1	6.8	8.4	7.2
% of net assets (total)	10.7	11.0	14.9	12.5

(c) Net Profit After Interest but Before Tax

£ millions	5.84	7.45	12.11	9.02
% of equity	9.7	12.0	18.1	13.1

(iii) CASH FLOW BEFORE AND AFTER TAX

Before tax	10.66	12.31	17.50	15.28
After tax	8.45	9.29	12.98	11.24
After tax figure as % of sales	5.5	6.0	7.1	5.6

AVERAGE U.K.
EMPLOYMENT

32,717	33,543	33,553	34,016
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3. TOOTAL LTD.

Until mid-1973 this company was known as English Calico Ltd., which was formed in 1968 by a merger of the English Sewing Cotton Company Ltd. and the Calico Printers' Association. The name Tootal is derived from Edward Tootal one of the forerunners of Tootal Broadhurst Lee and Company Ltd., acquired by English Sewing Cotton in 1963.

English Sewing Cotton Ltd. itself was formed in 1897 as an amalgamation of a large number of Lancashire thread producers concerned about the growing dominance of J. P. Coats Ltd. of Scotland. For many years ESC's thread was marketed by the world-wide Central Agency for sewing threads, which was created and dominated by Coats. With the dissolution of the Central Agency in 1958 ESC became responsible for the marketing of its own thread and at the same time turned its attention towards diversification into other textile products.

The concern of Courtaulds and ICI about the future of the Lancashire cotton industry was reflected in their combined investment of £6m. in ESC in the early 1960's, together with a promise of a further £4m. if required for further development. These funds were used to purchase Tootal Broadhurst Lee and Company, a vertically integrated group engaged in spinning, weaving, knitting, menswear and household furnishings. Further expansions by ESC prior to the 1968 merger were in household textiles, dress fabrics, fine worsteds, industrial fabrics and knitted children's wear.

Evidence suggests that, as with the Coats-Paton group, diversification added little to profits in the short-term and in 1967, the year before the merger, the only profitable product of ESC (apart from minor non-textile interests) was sewing cotton. In 1968 Viyella International proposed a merger with ESC but ESC was already negotiating with the Calico Printers' Association.

The Calico Printers' Association was also formed in the 1890's as an amalgamation of many small firms, in this case engaged in printing of calico ("grey" cotton cloth used mainly for lightweight apparel). Weaving of calico for printing and subsequent export to Asia and Africa was at that time a major activity in central Lancashire but this was the most vulnerable of all cotton textile activities to self-sufficiency and

competition in export markets. Printing, piece-dyeing or bleaching and finishing were less easily adapted in developing countries and in the 1950's CPA's main business was in the application of these processes to imported grey cloth, either purchasing the cloth itself or operating on a commission basis. From this developed a substantial merchanting business. A research department set up to develop new textile finishes, proved more profitable than either industrial processing or merchanting through the receipt of royalties from patent agreements. The most important of these related to "Terylene" (a polyester fibre developed experimentally in 1941).

CPA faced two problems in the mid-1960's: (a) the imminent expiry of patent agreements which accounted for 73 per cent of total profits over the five years 1961-65 and (b) contraction of textile printing as this activity developed in overseas textile producing countries. (CPA assisted this process with its own overseas subsidiaries). Diversification was adopted as a company policy but, as de Zoete and Bevan point out, there was little logical connection between some of the new activities and CPA's existing vertical structure. Acquisitions included retail shops (men and women's fashion wear and department stores), and manufacturers of ladies garment and knitwear, warp-knitted stretch covers and men's shirts.

The merger between ESC and CPA to form English Calico made possible joint development of production and marketing of apparel and furnishing fabrics, the broadening of the range of men's wear products, usage of retail outlets to monitor changes in fashion demand and merging of substantial but complementary overseas interests.

It quickly became apparent that more rapid deterioration in CPA's printing activities would offset improved profitability on the part of ESC. In 1969 Courtaulds announced a bid for English Calico - attracted by a low share price and believed to be interested in acquiring textile finishing, merchanting and retailing. This takeover was aborted by a decision by the Board of Trade opposing any further acquisitions of textile processing on the part of fibre manufacturers.

Between 1969 and 1973 profitability of the English Calico (Tootal) group was increased mainly by reorganisation and rationalisation. Despite the complete elimination of royalties (£683,000 in 1969/70) profits rose consistently.

This profitability was achieved by reduction in calico printing capacity (by about 60 per cent) accompanied by increased productivity, by disposal of certain retailing activities not forming an integrated part of the group's textile interests (a policy pursued with greater vigour during 1974 and 1975) and by further development of branded products in clothing and household textiles.

The most profitable activity remains the production of sewing thread, especially overseas. The summary table shows that, although the profitability of U.K. textile operations was increased substantially during the survey period, it still falls behind that of textile operations overseas, the most significant part of which is the American Thread Company, a long established subsidiary of ESC in the United States.

Courtaulds and ICI continue to hold 8.25 per cent and 8.29 per cent of the ordinary share capital of Tootal. One director of ICI and one of Courtaulds' sat on the board of Tootal until January 1975. (There is no Courtaulds' representation in 1975/6). Although the group, like most textile concerns, has been severely hit by the trade recession of 1974/5, the reorganisation of the 1969-73 period has left it much better equipped to survive these adverse trading conditions.

TOOTAL LTD.ANALYSIS OF SALES, PROFITS, CASH FLOW AND EMPLOYMENT(i) ANALYSIS OF SALES (£m)

* = estimates	Year ended January . . .					
	<u>1969</u> (13 mths)	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Thread and spinning*	16	18	20	20	23	n.a.
Woven Fabrics* and woven household textiles	29	26	26	26	29	n.a.
	45	44	46	48	52	58
Knitted Fabrics, Knitwear and Clothing*	28	25	25	29	30	34
Other Textiles*	5	6	4	4	3	3
TOTAL U. K. TEXTILES	78	75	75	81	85	95
Non-textile activities	30	28	29	25	22	23.
TOTAL U.K. SALES (Includes exports)	108 (14)	103 (16)	104 (16)	106 (19)	107 (19)	118 (24)
Overseas sales (all textiles)	49	49	48	57	76	97
TOTAL SALES	157	152	152	173	183	215
Overseas sales + exports as % of total sales	40	43	42	47	52	56

TOOTAL LTD. (Cont'd)

Financial year ended January . . .
1970 1971 1972 1973 1974

(ii) ANALYSIS OF PROFITS (Because the company was formed during the financial year 1968/9, data for that period are not comparable and are omitted).

(a) Net Profit Before Interest and Taxation (£m)

U.K. textiles	3.9	5.2	6.6	6.4	9.3
U.K. non-textiles	0.6	0.6	-0.1	1.1	1.4
Overseas textiles	4.5	4.6	5.4	7.0	10.6
<hr/>					
Total trading	8.98	10.40	11.88	14.47	21.27
Terylene royalties	0.68	0.20	0.03	-	-
<hr/>					
TOTAL NET PROFIT	9.66	10.60	11.91	14.47	21.27
<hr/>					

(b) Net Profit Before Interest and Tax as percentages of sales and net assets% of sales

U.K. textiles	5.4	7.4	8.6	7.8	10.0
Non-textile activities	2.5	2.1	-0.2	5.1	6.0
Overseas textiles	10.0	10.0	10.1	9.6	11.4
Company total	6.4	7.0	6.9	7.9	9.9
% of net assets	11.8	12.9	14.7	16.4	21.2

(c) Net Profit After Interest but Before Tax

£millions	7.16	8.17	9.59	12.12	18.34
% of equity	12.3	14.0	16.7	18.8	24.5

TOTAL LTD. (Cont'd)(iii) CASH FLOW BEFORE AND AFTER TAX

Before tax	11.44	12.32	13.90	17.03	23.93
After tax	7.70	8.34	9.33	10.70	14.72
After tax figure as % of sales	5.1	5.5	5.4	5.9	6.9

AVERAGE U.K.
EMPLOYMENT

27,126	25,106	23,697	20,720	20,001
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4. COATS PATONS LTD.

This company's major features are

- (a) its predominantly international nature; in 1973 nearly three-quarters of its sales were to customers outside the United Kingdom and 65 per cent were supplied by overseas subsidiaries
- (b) specialisation on and a leading supplier of world markets for a limited number of major products, chiefly sewing thread and knitting wool yarns.

The company was formed at the end of 1960 as a holding company for the merger of J. and P. Coats Ltd. and Paton and Baldwins Ltd.

J. and P. Coats is the largest manufacturer in the world of sewing threads, made from cotton and synthetic fibres and sold for both industrial and domestic uses. Profit margins are usually high but vary with the prices of fibres, since consumer prices tend to be less flexible. Coats' strong position in many markets, as well as economies of scale, may explain a margin varying from 13% (1969) to 21% (1973) of gross sales. Long-established overseas subsidiaries account for over 85% of Coats' sales of sewing threads.

Paton and Baldwins Ltd. is the largest worsted spinner of hosiery and hand-knitting yarns in Europe. Hand-knitting yarns account for about half of the output. The company is vertically integrated from wool sorting to yarn dyeing and finishing. Coats-Patons Ltd. also operates a chain of retail shops, which was extended by the acquisition of S. Bellman and Sons in 1966. These market hand-knitting wools (exclusively group) and garments (40% group). Associated companies of Paton and Baldwins Ltd. operate in Australia and Canada.

Since the merger, Coats-Patons Ltd. has extended its activities mainly by vertical integration into textile processes using worsted yarns and sewing threads. Acquisitions have included:-

Knitwear and garments

- 1965 Coats-Patons acquired majority holding of Pasolds Ltd. leading U.K. manufacturer of children's knitted garments. Total equity was obtained by 1971.
- 1967 Jaeger Ltd. joined the Coats-Paton group. This company with an annual turnover of about £9m. at the time of acquisition is a major supplier of ladies' knitted and tailored goods.
- 1969-70 Seven smaller knitted goods companies acquired, with a combined turnover of about £12m.

The author estimates the 1973 turnover of Coats-Paton Knitwear companies in the United Kingdom to be about £48 millions and this is equal to about 9 per cent of total turnover in the hosiery, knitwear and weft-knitted fabric industries.

Spinning, weaving and warp knitting

In 1968 Coats-Paton acquired 40 per cent of the capital of West Riding Worsted and Woollen Mills Ltd; a majority shareholding was acquired in 1969 and West Riding Worsted and Woollen Mills Ltd became wholly owned in 1971. This company is itself a broadly-based group including woollen and worsted-spinning weaving and fabric-knitting.

In 1968 the group acquired the textile interests of John Heathcoat Ltd. which manufactures a wide range of warp-knitted and woven fabrics.

Over the period since 1968 the main expansion in Coats-Patons U.K. activities has been in knitted garments and fabrics woven on the woollen and worsted system. The most profitable activity has remained the production (mainly overseas) of sewing thread. (A similar observation was made in the case of English Sewing Cotton, within the Tootal group). In the last reported year (1974) this product accounted for 43 per cent of turnover and 73 per cent of trading profit. In the survey period, overseas activities showed better utilisation of capital and higher profit margins on sales. Average return on capital employed over the years 1968-73 was 6.0 per cent in the United Kingdom and 16.6 per cent overseas. Despite what has been regarded (8) as

a deliberate attempt to diversify and, because of taxation conditions, to derive more profit from U.K. operations, Coats-Paton continues to depend very heavily upon the sales overseas of a narrow product range.

In spite of its predominance in the sewing "cotton" and knitting "wool" industries (both of which now use more synthetic fibres than natural fibres), none of the equity of Coats-Paton (apart from single shares) is held by the major fibre producers.

COATS PATON LTD.ANALYSIS OF SALES, PROFITS, CASH FLOW AND EMPLOYMENT(i) ANALYSIS OF SALES

	Year ended 31st December					
	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
<u>U.K. activities</u>						
Cotton-type spinning	14	15	15	16	17	20
Wool-type activities	34	62	60	58	59	68
Garments and knitwear	30	32	37	41	42	48
Zip fasteners, needles etc.	7	7	7	7	8	11
<hr/>						
TOTAL U.K. (including exports)	85 (18)	116 (28)	119 (29)	122 (27)	126 (25)	147 (39)
<u>Overseas activities</u>						
Textile yarns	91	122	133	129	158	187
Knitwear and clothing	2	3	14	17	21	24
Non-textile	32	27	32	35	45	57
<hr/>						
TOTAL SALES	210	268	298	303	350	415
<hr/>						

Overseas sales + exports
as % of the total

68 67 70 69 71 74

COATS PATON LTD. (Cont'd)(ii) ANALYSIS OF PROFITS

	Financial year ended 31st December					
	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
<u>(a) Net Profit Before Interest and Taxation</u>						
U.K.	6.7	4.9	3.9	4.9	7.6	13.1
Overseas	18.5	18.5	21.0	26.2	33.0	44.3
COMPANY TOTAL	25.2	23.4	24.9	31.1	40.6	57.4

(b) Net Profit Before Interest and Taxation as percentages of sales and net assets% of sales

U.K.	7.9	4.2	3.3	4.0	6.0	8.9
Overseas	14.8	12.2	11.7	14.5	14.7	16.5
Total	12.0	8.7	8.4	10.3	11.6	13.8
<u>% of net assets</u>	<u>15.2</u>	<u>12.0</u>	<u>11.1</u>	<u>14.2</u>	<u>18.1</u>	<u>22.4</u>

(c) Net Profit After Interest but before Taxation

£m	23.3	20.4	21.0	26.7	37.4	54.1
% of equity	20.0	16.9	16.1	20.9	26.5	33.9

(iii) ANALYSIS OF CASH FLOW

Before tax (£m)	29.6	28.1	29.7	36.2	47.4	64.5
After tax (£m)	19.1	19.7	20.3	23.7	30.1	40.4
After tax as % of sales	9.1	7.3	6.8	7.8	8.6	9.7

AVERAGE U.K.
EMPLOYMENT

29,000	39,000	40,000	35,000	34,000	32,965
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5. ILLINGWORTH MORRIS LTD.

(a) INTRODUCTION

Although the company acquired a cotton spinning and weaving firm (Joshua Hoyle and Sons Ltd.) in 1963 and owns two small knitting firms, the vast majority of its turnover is derived from the preparatory processing, spinning and weaving of wool and of man-made fibres on the same system. Since 1968 the company has followed a continuing policy of investment in equity of other woollen and worsted firms gradually acquiring majority holdings. As a result, its share of the total market for woollen and worsted fabrics increased from 4 per cent in 1968 to 10 per cent in 1973, (16 per cent of the wool sample and the largest firm in that sub-sector).

In 1971 it acquired majority holdings in two companies with turnover of nearly £30 millions and as a result of the increased turnover shown in consolidated accounts for the following financial year, it became large enough to form a fifth member of the "oligopoly" group within the textiles industry as a whole.

The company has a number of distinctive features:

- (i) a majority of the ordinary shares is held by one family, that of the chairman M. Ostrer;
- (ii) the capital structure includes very little long-term borrowing;
- (iii) the policy of investment in competing companies leading to acquisitions.

(b) OWNERSHIP OF THE COMPANY

The ordinary share capital consists of £2 millions in voting shares and £4.75 millions in non-voting shares. Of the vote-bearing shares, 46 per cent are held by Mr. I. Ostrer and 35 per cent by Mr. M. Ostrer (who also holds a majority of the non-voting shares). No other major textile company, fibre manufacturer or major customer for textile products has any significant

investment in the company.

(c) CAPITAL STRUCTURE

The company's balance sheet in March 1974 may be summarised as follows:

	<u>£000's</u>		<u>£000's</u>
Issued capital stock	9,709	Fixed assets	17,336
Reserves	<u>13,926</u>	Investments	4,191
Shareholders' funds	23,635	Advance corporation tax	205
Minority interests	3,160	Current Assets	43,366
Long-term loans & debentures	436	Current Liabilities (-)	38,467
	<hr/>		<hr/>
	26,631		26,631
	<hr/>		<hr/>

The table shows that shareholders' funds amounted to nearly 89 per cent of capital employed. The large figures of current assets and liabilities reflect the high level of inventories (equivalent to 4 months' turnover) financed by bank overdrafts. The complete vertical integration of the company may explain this high level of stock holding.

(d) ACQUISITIONS

Illingworth Morris showed most rapid growth of any of the major companies included in the survey. This growth occurred through gradual acquisition of equity of other firms. Among firms acquired during the period were:

	Date majority Holding acq.(1)	% of ordinary shares, April 1975	(£m)	
			Value at date (1) Equity	Turnover
Winterbottom, Strachan & Payne Ltd. (Woollen & Worsted weavers)	1968	100	2.0	4.0
Woolcombers (Holdings) Ltd. (Preparatory processes in wool & synthetic fibres)	1971	95.6	4.5	25.0
John Emsley Ltd. (Worsted spinners)	1971	100	1.3	3.6

Since the end of the survey period the company has also acquired a majority shareholding in other firms. The only one with a turnover of over £1 million was Troydale Industries Ltd. (mainly woollen and worsteds) with group sales in 1973 of £7.35 millions, mainly in woollen textiles. The holding in Troydale increased from 26 per cent in March 1974 to 96 per cent in March 1975.

As well as the companies in which a majority holding has been acquired, Illingworth Morris has increased its holdings in other enterprises some of which are also included in the wool industry sample of large firms. In April 1975 investments in these companies (at cost) amounted to £3.71 millions and income from these investments in the financial year ended March 1975 was £323,000, 8.7 per cent of the accumulated investment and nearly 20 per cent of Illingworth Morris's net profits.

ILLINGWORTH MORRIS LTDANALYSIS OF SALES, PROFITS AND CASH FLOW(i) ANALYSIS OF SALES (£m)

	Financial year ended March					
	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Cotton etc. spinning & weaving	4.1	3.8	3.8	3.4	2.0	2.2
Woollen and Worsted	25.2	26.2	24.3	32.1	63.9	80.2
Knitting	0.6	0.6	0.7	0.5	0.4	0.5
<hr/>						
TOTAL U.K. SALES (1)	29.9	30.6	28.8	36.0	66.3	82.9
Overseas sales	-	-	-	0.7	4.1	2.7
<hr/>						
TOTAL SALES	29.9	30.6	28.8	36.7	70.4	85.6
(1) Includes direct exports:	7.7	8.5	8.0	10.8	23.4	32.2
" indirect exports:	4.6	4.8	4.5	4.1	5.7	9.1
Overseas sales and direct exports as % of total:	26.0	28.0	28.0	13.0	15.0	14.0

Financial year ended March

	1969	1970	1971	1972	1973	1974
--	------	------	------	------	------	------

(ii) ANALYSIS OF PROFITS

(a) Net Profit Before Interest and Taxation

Company total	2.18	2.12	1.64	2.24	6.39	7.97
<u>(b)</u> as % of Sales	7.3	6.9	5.7	6.2	9.6	9.6
as % of net assets	See note (2)					

(c) Net Profit After Interest but Before Tax

£ millions (2)	1.11	1.06	0.67	1.09	3.75	4.47
% of equity	10.5	9.9	6.1	9.3	25.0	19.4

(iii) CASH FLOW BEFORE AND AFTER TAX

Before tax	1.88	1.78	1.43	2.28	5.61	5.92
After tax	1.36	1.25	1.13	1.77	4.07	3.93
After tax figure as % of sales	4.5	4.1	3.9	4.9	6.4	4.7

AVERAGE U.K.
EMPLOYMENT

	10,900	10,700	9,900	11,300	10,500	9,800
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- (2) This company has an unusual balance sheet: in March 1974 long-term borrowing amounted to £446,000 and minority interests in subsidiaries £3,160,000; bank overdrafts, in contrast, amounted to £25,994,000. Relation of profit before interest to net assets (excluding overdraft) would, therefore, be misleading.
- (3) After adjustment for minority interests in partly-owned subsidiaries.

6. OTHER MAJOR COMPANIES

The five companies analysed in detail form a distinct oligopoly group in the textile industries. Ranked by turnover in 1973 the major firms in the three sub-sectors combined were:

<u>U.K. Textile Turnover £m</u>	
Courtaulds	385
Carrington-Viyella	154
Coats Paton	147
Tootal	95
Illingworth Morris	82
Nottingham Manufacturing	48
Joseph Dawson	37
Vantona	37
William Baird	29

(a) WILLIAM BAIRD/JOSEPH DAWSON

William Baird and Co. Ltd. owned 20 per cent of the ordinary shares of Joseph Dawson (Holdings) Ltd. at the end of 1968 and 28 per cent by the end of 1973. The chairman of the William Baird Group is on the board of Joseph Dawson (now renamed Dawson International Ltd.). The turnover of the two companies in 1968 and 1973 can be analysed as follows:

<u>TURNOVER (£m)</u>	<u>1968</u>	<u>1973</u>
Cotton etc. spinning, weaving and making-up into shirts, nightwear and childrens' clothing (Baird)	16.2	29.7
Woollen and worsted spinning and yarn dyeing (Dawson)	15.6	32.9
Knitwear: Baird (interests sold to Dawson in 1969)	3.9	-
Dawson	<u>5.5</u>	<u>16.2</u>
TOTAL TURNOVER IN RELEVANT SUB-SECTORS	<u>41.2</u>	<u>78.8</u>

Whereas Dawson's activities fall almost entirely within yarn production and knitting, William Baird also has interests in chemicals and industrial engineering, overseas mining and investment. Textiles accounted for 52% of group turnover in 1968 and nearly 56% in 1973. Profits over the survey period varied as follows:-

Profit before interest and tax as percentage of sales:-

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
William Baird Textiles Ltd.	6.7	4.5	3.6	4.8	4.7	5.1
Joseph Dawson (Holdings) Ltd.*	17.7	17.4	6.1	7.7	13.3	18.6

Profit before interest and tax as percentage of net assets:-

William Baird Textiles Ltd.	24.9	18.7	14.2	16.0	17.6	21.8
Joseph Dawson (Holdings) Ltd.*	27.9	29.8	11.3	10.8	23.7	39.0

* Adjusted for change in accounting period 1970/1.

In the case of Baird, the contrast between margin on sales and return on capital employed is believed to be due to predominance of business with one major customer, Marks and Spencer. This business is of a low-margin, low-overhead nature.

Three knitwear companies were sold by Baird to Dawson in 1969 and this is believed to have contributed to the dip in profit margins experienced by Dawson in 1970 and 1971. Dawson supply major retail customers but are also engaged in the production of more expensive fashion knitwear, which is reflected in the volatility of profits.

(b) NOTTINGHAM MANUFACTURING CO. LTD.

This is the second largest company in the hosiery and knitting sub-sector, accounting for about 8 per cent of sales in that sub-sector by U.K. firms with over 25 employees. Activities include hosiery, knitted garments, weft- and warp-knitted fabrics, dyeing and finishing. In 1973 the firm acquired Lancaster Carpets and Engineering, with a turnover of £15 millions and with tufted carpets the major product. (This research team subtracted turnover and profit figures associated with these activities from Nottingham Manufacturing's accounts in order to derive "economic activity unit" data).

The firm is one of the major suppliers of Marks and Spencer Ltd. with which there are family and financial ties. These include investment by the retailers' pension fund (only about 3 per cent of equity) and holdings of equity by directors and major shareholders in Marks and Spencer. The retailer is not however, represented on the board of the company and sales to Marks and Spencer are believed not to be a dominant proportion of total turnover.

The financial record of the company during the survey period is shown below:-

	Sales Turnover (£m.)	Profit before interest and tax (£m.)	% of sales
1968	19.9	4.4	22
1969	25.3	5.2	21
1970	29.5	5.8	20
1971	33.2	6.4	19
1972	37.4	7.1	19
1973*	63.3	9.2	15

* Including Lancaster Carpets and Engineering (£15m turnover, £1.6m profit before tax).

A declining ratio of profit to net assets is due mainly to investment in new assets which, because of inflation and the absence of revaluation, has a distorting effect. Because of the distortion the ratio is not presented here.

(c) VANTONA/SPIRELLA LTD.

Shortly before the completion of this report, major shareholders of Vantona Ltd. accepted an offer by Spirella Ltd. and by the end of September 1975 Spirella owned 91 per cent of Vantona. The combined turnover of the two companies amounts to £70 millions, and the merger will result in another addition to the "oligopoly group".

Vantona Ltd. was in the early 1960's a spinning and weaving group in the Lancashire cotton industry. Acquisitions during the 1960's led to forward vertical integration into selected household textiles, especially bedding and bedspreads. More recent developments include the acquisition of firms producing woven and knitted furnishing fabrics, and a wide range of clothing. In 1973 Cromer Ring Mill Ltd., a large spinning concern with £3 million turnover was acquired. This company was developing production of woven filament fabrics including tyre cord.

The following table shows the turnover and profits of Vantona annually from 1968/9 to 1974/5.

Year ended March	Turnover (£m.)	Net profits before interest and tax		
		£m.	% of turnover	% of net assets
1969	11.5	0.88	7.7	17.9
1970	14.2	1.00	7.0	14.4
1971	16.6	1.05	6.3	15.2
1972	19.9	1.58	7.9	19.2
1973	26.7	2.75	10.3	25.3
1974	38.3	4.12	10.8	28.8
1975	41.1	3.34	8.1	22.1

Spirella Ltd. is probably best known by the brand name for corsetry but as this market has become static, turnover has been expanded by developments in fashion fabrics and (more recently) by acquisition in household textiles. Among major groups acquired are Horrockses Ltd. and Dorcas Ltd. The following tables show levels of turnover in each of the product divisions in recent years together with the overall profit margin.

Year ended November	Sales turnover (£m)			Total
	Foundation garments	Fashion fabrics & spinning	Household Textiles	
1968	2.78	4.14	-	6.91
1969	4.94	4.55	-	9.49
1970	3.91	4.31	5.86	14.08
1971	3.18	4.85	11.30	19.33
1972	3.30	5.58	11.55	20.43
1973	3.34	8.81	13.61	25.76
1974	3.41	10.34	15.65	29.40

Net profit before interest and tax

	<u>£000's</u>	<u>% of sales</u>	<u>% of net assets</u>
1968	523	7.6	24.0
1969	536	5.6	17.0
1970	923	6.6	13.0
1971	1,268	6.6	14.1
1972	1,548	7.6	17.2
1973	2,114	8.2	22.1
1974	2,600	8.8	21.8

APPENDIX G

CENSUS OF PRODUCTION 1963 and 1968ANALYSIS OF ENTERPRISESI. MLH 413 Weaving of cotton linen and man-made fibres

Size group (No. of Employees)	No. of Enterprises	Total Employment	Net Output £m	Net Output per head £m	Capital Expenditure £
<u>1963</u>					
1-24	119	1.5	-	-	-
25-49	66	2.4	1.8	774	0.1
50-99	92	6.7	5.0	756	0.2
100-199	109	15.4	11.4	741	1.0
200-499	81	24.1	19.3	800	1.8
500-999	28	25.0	21.6	866	2.0
1000-1999					
2000 and over	5	12.8	12.5	975	3.3
Unsatisfactory returns	29	1.3	-	-	-
TOTAL	529	89.1	74.0	831	8.6
<u>1968</u>					
1-24	111	1.5	-	-	-
25-49	40	1.5	1.8	1150	0.1
50-99	77	5.6	6.5	1166	0.3
100-199	87	12.4	13.5	1087	1.1
200-499	46	13.3	18.3	1375	1.9
500-999	15	11.3	15.1	1330	1.2
1000-1999					
2000 and over	4	17.0	22.3	1312	6.2
Unsatisfactory returns	30	1.1	-	-	-
TOTAL	410	63.7	80.7	1266	11.2

APPENDIX G2. MLH 412 Spinning and Doubling on the cotton and flax system

Size group (No. of employees)	No. of Enterprises	Total Employment	Net Output £m	Net Output per head £m	Capital Expenditure £m
<u>1963</u>					
1-24	97	1.3	-	- (98)*	-
25-49	38	1.5	1.2	847 (40)	0.1
50-99	56	4.0	3.4	870 (58)	0.2
100-199	44	6.6	5.2	786 (55)	0.5
200-499	55	17.6	12.9	735 (82)	1.1
500-999	27	18.6	13.9	746 (65)	1.6
1000-1999	9	12.7	9.8	772 (37)	1.1
2000 and over	8	41.6	29.2	703 (121)	4.1
Unsatisfactory returns	11	0.5	-	703 (15)	-
TOTAL	345	104.3	77.0	-	9.4
<u>1968</u>					
1-24	62	0.8	-	- (62)*	-
25-49	41	1.6	2.2	1330 (42)	0.2
50-99	42	3.1	4.3	1406 (46)	0.8
100-199	30	4.2	4.7	1122 (33)	0.9
200-499	41	13.5	15.4	1143 (57)	2.0
500-999	17	11.9	14.4	1212 (46)	1.3
1000-1999	10	13.3	16.1	1207 (31)	4.6
2000 and over	5	36.9	54.8	1485 (98)	8.8
Unsatisfactory returns	11	0.4	54.8	1485 (13)	-
TOTAL	259	85.6	113.4	-	19.0

* Figures in brackets relate to establishments.

APPENDIX G3. MLH 414 Woollen and Worsted

Size group (No. of employees)	No. of Enterprises	Total Employment	Net Output £m	Net Output per head £m	Capital Expenditure £m
<u>1963</u>					
1-24	515	5.5	-	-	-
25-49	130	4.9	6.1	1237	0.2
50-99	145	10.1	10.1	993	0.5
100-199	154	21.8	20.2	926	1.2
200-499	133	39.6	40.9	1034	2.6
500-999	39	24.9	28.1	1130	1.9
1000-1999	24	31.1	34.8	1117	2.1
2000 and over	7	37.3	37.5	1007	3.7
Unsatisfactory returns	44	1.9	-	-	-
TOTAL	1191	177.1	185.4	1047	13.1
<u>1968</u>					
1-24	427	4.5	-	-	-
25-49	101	3.8	5.1	1333	0.3
50-99	115	8.2	11.0	1338	0.8
100-199	123	17.9	22.8	1275	1.8
200-499	92	28.0	39.0	1412	3.5
500-999	30	20.1	30.3	1509	2.5
1000-1999	13	17.9	28.0	1561	1.9
2000 and over	9	39.1	54.4	1389	4.1
Unsatisfactory returns	55	1.9	-	-	-
TOTAL	965	141.6	200.3	1415	15.6

4. MLH 417 Hosiery and other knitted goods

Size group (No. of employees)	No. of Enterprises	Total Employment 000's	Net Output £m	Net Output per head £m	Capital Expenditure £m
1963					
1-24	389	5.1	-	-	-
25-49	141	5.0	4.5	891	0.3
50-99	151	10.5	10.2	970	0.9
100-199	95	13.5	14.5	1070	1.7
200-499	64	18.3	15.9	869	1.3
500-999	32	21.0	20.1	957	1.7
1000-1999	20	26.7	24.5	918	2.2
2000 and over	5	22.6	21.4	948	2.2
Unsatisfactory returns	40	1.8	-	-	-
TOTAL	937	124.5	117.6	944	10.9
1968					
1-24	374	4.8	-	-	-
25-49	108	4.1	5.7	1398	0.7
50-99	122	8.5	12.9	1526	1.4
100-199	87	12.1	18.6	1529	1.8
200-499	64	19.3	25.1	1297	2.7
500-999	28	18.7	23.2	1240	2.2
1000-1999	15	20.4	30.1	1478	3.6
2000 and over	7	45.6	74.3	1628	10.9
Unsatisfactory returns	62	1.1	-	-	-
TOTAL	937	134.7	198.6	1475	24.5

5. ORDER XIII TEXTILES

Size group (No. of employees)	No. of Enterprises	Total Employment	Net Output £m	Net Output per head £m	Capital Expenditure £m
<u>1963</u>					
1-24	2287	25.9	-	-	-
25-49	605	21.8	21.3	977	1.3
50-99	658	45.9	42.1	918	3.1
100-199	494	70.5	64.4	912	5.5
200-499	404	123.6	116.5	943	11.0
500-999	140	95.4	93.9	985	8.1
1000-1999	72	100.3	99.4	991	8.5
2000-4999	37	115.0	139.0	1209	12.7
5000-9999	8	57.5	53.8	936	3.3
10,000 and over	5	86.1	129.6	1506	14.4
Unsatisfactory returns	-	7.4	-	-	-
TOTAL	φ	749.3	792.4	1058	70.3
<u>1968</u>					
1-24	1983	22.8	-	-	-
25-49	478	18.0	22.8	1268	1.8
50-99	509	35.8	48.8	1363	4.5
100-199	381	53.2	67.0	1259	6.7
200-499	300	92.6	126.4	1364	12.5
500-999	107	72.7	102.7	1413	10.1
1000-1999	52	69.7	99.3	1423	13.9
2000-4999	29	77.2	132.9	1720	13.3
5000-9999	9	57.3	85.9	1500	7.9
10,000 and over	6	160.1	331.3	2070	50.6
Unsatisfactory returns	-	6.7	-	-	-
TOTAL	φ	666.2	1058.2	1588	125.3

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