A STUDY OF THE EVOLUTION

OF CONCENTRATION

IN THE FOOD INDUSTRY

FOR THE UNITED-KINGDOM

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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.

CONCENTRATION IN THE U.K. FOOD

PROCESSING INDUSTRY

Part 1:   INDUSTRY STRUCTURE
            & CONCENTRATION,
            1969-72

A Report prepared for the

Directorate General for Competition

of the

COMMISSION OF THE EUROPEAN COMMUNITIES

by

DEVELOPMENT ANALYSTS LIMITED

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CONTENTS

1: INTRODUCTION

1.1: This Report forms part of a two-stage Study of Concentration in the U.K. Food Processing Industry, commissioned by the Directorate-General for Competition of the Commission of the European Communities. The two stages are:

(1)   a study of concentration at the industry scale, and changes in concentration since 1969;

(2)   a series of studies of the structure and level of concentration in specified industries and product-markets, namely:

Food canning
Manufactured milk products
Sugar
Margarine
Grain Milling
Ice Cream
Frozen and Dehydrated Foods
Baby Foods
Biscuits

1.2: The food processing industries have shown an exceptionally rapid rate of real growth in the last two decades as a result of changes in both demand and supply factors. On the demand side, the rise in consumers' real incomes (by two-thirds between 1952 and 1972) has meant that the housewife has been enabled to buy from others certain services that she previously was obliged to supply herself. Cakes and biscuits, for example, are now almost always bought from a bakery or a factory, and

and only rarely baked at home, and more generally, depending
on the item and on the technical possibilities, even if the final
cooking stages are carried out at home, washing and other pre-
cooking stages have been moved to the factory wherever possible.
The housewife has been prepared to pay for the saving in her
labour that is involved, using the time saved either in leisure
and in activities which raise the standard of living of the house-
hold, or to go out to work and to improve the household's income
in that way.

1.3:   On the supply side the main technical
changes have been the development of frozen foods and the
improvement of pasteurization processes, both of which have
meant that storage for longer periods has become possible. Thus,
it became increasingly practicable to centralise food processing
operation in factories, to manufacture for stock, and deliver to
more distant places. The scale of food manufacturing plants
increased over time and their costs per unit of production fell
progressively. The far-reaching transformation of household habits
to accommodate the ensuing changes in relative costs was
accelerated in this period by the now familiar new marketing
techniques, particularly television advertising: in Britain
"commercial" television, permitting advertisements, was intro-
duced in 1954 and became an established part of the marketing
process by the end of that decade.

1.4:   These factors have combined to make not
only for large manufacturing plants engaged in food processing,
but also for giant multi-plant enterprises which have the financial
resources necessary to launch "new products" on a massive scale.
The advantages that the giant enterprise enjoys over his smaller

competitor are such that many firms have taken on an international dimension. It is remarkable that activities which were only recently thought to be the inevitable preserve of the housewife in her home have, within a few decades, so increased in scale that they have become the field of activity for multi-national corporations.

1.5: The scale of these activities has been such that in some food trades, and particularly for certain products, high levels of concentration have ensued. For example, in 1968 five firms accounted for more than 90 per cent. of the sales of the following products:

sugar	soups,
condensed milk	coffee,
self-raising flour	ice cream,
breakfast cereals,	quick frozen fish
	and vegetables.

These general factors must be borne in mind when considering the assessment of the changes in concentration that have occurred in the relatively short time-span of the 1969-72 period with which this report is mainly concerned.

1.6: This study initially considers the longer-term trends in the food processing industry as far as consumer spending, changes in output, employment and investment, imports and exports and advertising are concerned. These aspects are dealt with below in Chapter 2.

1.7: In the following Chapter 3, the changes in the structure of the food processing trades as derived from Census of Production data are examined, as well as changes in con-centration (i.e. the shares of the largest five enterprises in terms

of sales) between 1963 and 1968. The scale of merger activity among food processing companies and the relative importance of foreign-owned concerns are also covered in Chapter 3.

1.8:   In Chapter 4 the leading food processing companies are identified, and their rates of growth and scale of acquisitions are presented as well as their spread of interests both throughout food processing and forward into retailing. More detailed histories of 22 concerns are also given in Chapter 4.

1.9:   Quantitative measures of the changes in concentration among the largest food processing concerns at the industry level between 1969 and 1972 are presented in Chapter 5, with supporting appendices.

2: TRENDS IN THE FOOD PROCESSING INDUSTRY

2.1: For the most part, the source of statistical data relating to food manufacturing is the Census of Production, from which it is possible to extract the trades which most nearly correspond to processed food products. The other major sources relating to consumption are the National Income and Expenditure statistics and the National Food Survey, and to imports and exports, the Overseas Trade Statistics.

2.2: The scope of the food processing industry from the Census of Production data has been taken as the whole of Food, Drink and Tobacco (SIC Order III), with the exception of animal and poultry foods (Industry code 219), Brewing and malting (231), Soft drinks (232), Spirit distilling and compounding (239.1), British wines, cider and perry (239.2), and Tobacco (240), although for some indicators, it has been necessary to vary this definition. The National Income and Expenditure data on household and total expenditure on food includes fresh produce as well as manufactured products, but the National Food Survey provides a basis for making this distinction, as well as between broad categories of processed foods.

Long term trends in consumer demand

2.3: While total spending on food in the United Kingdom rose from under £5,400 millions in 1963 to £9,800 millions in 1973, the volume of spending has increased only slightly. Between 1963 and 1968, as can be seen from Table 2.1, the increase was only 4.7 per cent., and while spending rose comparatively fast in the next two years, it fell away again so that in 1973 it was still only 6.6 per cent. higher than in

TABLE 2.1

UK Household, Catering and Total Expenditure on Food, 1963, 1968-73

	Household expenditure	Catering expenditure	Total expenditure
At current prices (£ Mns):			
1963	4,689	709	5,398
1968	5,655	869	6,524
1973	8,460	1,340	9,800
Volume-index (1963 = 100)			
1968	104.4	106.8	104.7
1969	104.5	109.0	105.1
1970	106.2	111.8	106.9
1971	106.1	109.9	106.6
1972	105.4	107.8	105.7
1973	106.3	108.6	106.6

Source: National Income & Expenditure, 1963-73
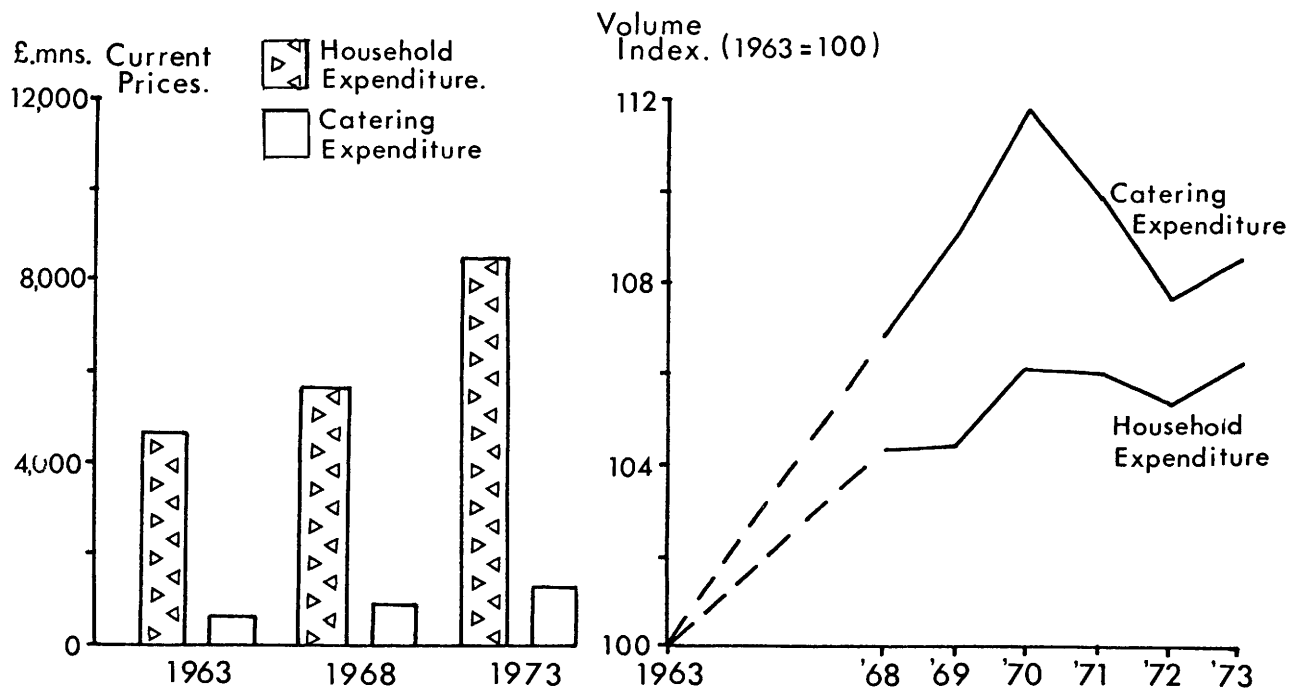
1963. When allowance is made for the rise in population during the same period, the increase in the volume of spending per head falls to 2 per cent. in the ten years.

2.4: Even so, the tendency has been for household spending on food to increase more slowly than food expenditure by caterers. Thus, from Table 2.1 it will be seen that the latter rose in real terms by nearly 12 per cent. between 1963 and 1970 as compared with little more than 6 per cent. for household spending, although by 1973 it had fallen again to 8.6 per cent. more than in 1963.

2.5: At the same time, there have been significant changes in the pattern of household spending on food, with the volume of spending on convenience foods increasing much faster than the total. In Table 2.2 is shown the 1963-72 changes in the per capita volume of household spending in Great Britain on all foods and convenience foods, based on the National Food Survey data. Between 1963 and 1968, when the increase for all foods was under 2 per cent., the rise for convenience foods was nearer 16 per cent., and in the next two years, spending per head on convenience foods increased by over 5 percentage-points as compared with a 1 percentage-point rise for all foods. Further-more, while spending per head on convenience foods fell between 1970 and 1972, the decline was much less than occurred for all foods.

2.6: Within the convenience foods category, the 1963-72 period as a whole has witnessed a dramatic growth in the volume of spending on quick-frozen foods. By 1968, it was already 50 per cent. more than in 1963, and in the next four

TABLE 2.2

Volume of Household Spending per head (GB), by Types of Food

1963, 1968-72   Index: 1963 = 100

	All foods	Convenience foods	Convenience foods:		
			Canned	Quick frozen	Other
1968	101.9	115.7	110.3	151.4	115.7
1969	102.4	118.7	112.3	175.0	116.9
1970	103.0	121.0	115.8	182.5	117.8
1971	102.0	115.5	105.4	187.1	114.2
1972	100.2	120.5	110.8	219.0	116.6

Source: Based on National Food Survey

Convenience Foods.
1972 Household
£mns. Spending (G.B.)
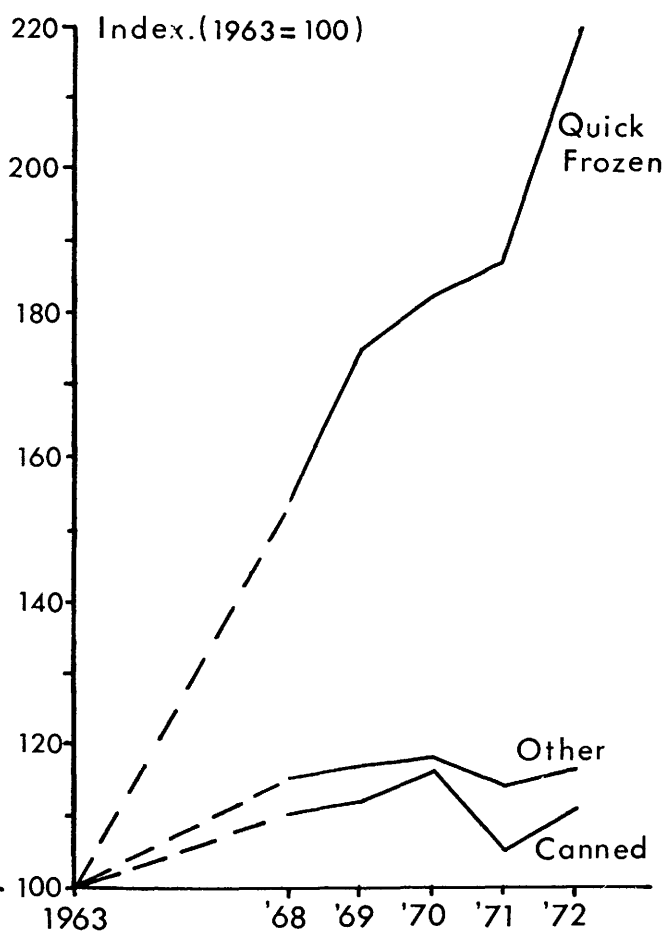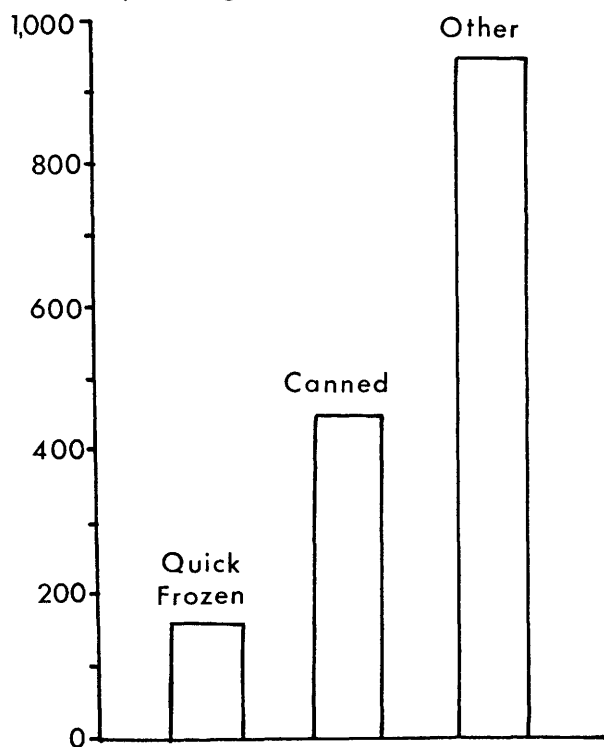
years it has risen again by nearly 45 per cent., whereas consumption of canned and other types of convenience foods was little more in 1972 than it was in 1968.

2.7:   Convenience foods, as defined by the National Food Survey, accounted for under one-quarter of total household spending on food in 1972, and quick-frozen foods alone for little more than 2 per cent. as compared with nearly 9 per cent. for canned goods and 13 per cent. for other types of convenience foods.   There is, however, a wide range of processed food products - such as dairy products, fats, sugar and preserves, bread and cereal products - which are not classified as convenience foods.   Bringing such products into account under the description of manufactured foods, the National Food Survey data suggest that they accounted for about 58 per cent. of total household food spending in 1972.

2.8:   Apart from population-increases, therefore, growth in the output of the food industry has "derived basically from changes in the type of food eaten, and in particular in the amount of pre-purchase processing undergone by that food. A switch from the consumption of cod to that of an equal quantity of fish fingers or packaged, frozen cod steaks will lead to an increase both in the value of consumption and in the output of the food industry.   Similarly, a switch from a slightly processed product, such as bacon, to that of a more highly processed variant, such as vacuum-packed bacon, represents an increase in the value of consumption and in the value-added by the industry, and therefore an increase in output."*

*   Food Manufacturing EDC: Economic Assessment to 1972, para. 5.04, (November 1970).

TABLE 2.3

UK Food Processing Industries: Gross Output and Net Output

| | Gross output | | Net output | |
	£ Mns.	Index (1968 = 100)	£ Mns	Index (1968 = 100)
1963	2,498	(66)	744	(69)
1968	3,787	100	1,083	100
1970	4,660	123	1,396	129
1971	4,997	132	1,564	144
1972 (Provisional)	5,526	146	1,817	168

Source: Censuses of Production
1963, 1968, 1970-72

TABLE 2.4

UK Food Processing Industries: Employment and Wages & Salaries

| | Employment | | Wages & Salaries | | Index of net output per person | Wages & Salaries as percent. of net output % |
	Thousands	Index (1968=100)	£Mns	Index (1968=100)		
1963	546.2	(94)	336.2	(68)	(73)	45.2
1968	583.8	100	497.1	100	100	45.9
1970	583.9	100	612.7	123	129	43.9
1971	591.9	101	695.6	140	142	44.5
1972 (Provisional)	584.4	100	768.6	155	168	42.3

Source: Censuses of Production
1963, 1968, 1970-72

Changes in output and employment

2.9:   The changes in the gross and net output of the food processing industry (as defined in para. 2.2 above) since 1968 are shown in Table 2.3, together with the 1963 data (as given in the Census for that year) which are not directly comparable with 1968 mainly because of changes in the definition of some of the constituent trades. Since 1968, the gross output of the food processing industry has increased by 32 per cent. up to 1971 and by 46 per cent. (provisionally) up to 1972. Net output has, however, risen more than gross output during both these periods: by 44 per cent. up to 1971 and 68 per cent. up to 1972.

2.10:   During the same period, employment in food processing has remained virtually unchanged at around 580-590,000 with the result that net output per person employed has risen to the same degree as net output itself. The industry's wage and salaries bill, as can be seen from Table 2.4, has risen less than net output since 1968, with a consequent fall in its proportion of net output from nearly 46 per cent. in 1968 to under $42\frac{1}{2}$ per cent. (provisionally) in 1972.

2.11:   The index of net output shown in Table 2.3 does not allow for price-increases, but the index of production for the food industry (which includes, however, animal and poultry foods) shows an increase in real terms of $2\frac{1}{2}$ per cent. between 1968 and 1971, followed by a further increase of nearly 4 per cent. in 1972 and 2 per cent. in 1973. Thus, for the 1968-73 period, assuming that employment has not changed significantly during 1973, output per head has been increasing at around $1\frac{1}{2}$-2 per cent. a year in real terms.

TABLE 2.5

UK Food Processing Industries: Net Capital Expenditure

£ Millions

	Total net capital expenditure	New building	Land and existing buildings (net)	Plant & Machinery (net)	Vehicles (net)
1963	79.8	20.2	- 0.1	49.8	9.9
1968	119.1	26.4	- 1.6	78.5	15.8
1970	131.4	25.8	- 2.2	91.2	16.6
1971	122.5	22.0	- 1.9	85.4	17.0
1972 (Provisional)	151.1	29.2	- 5.1	107.1	19.9

Source: Censuses of Production
1963, 1968, 1970-72

TABLE 2.6

UK Food Processing Industries as proportion of All Manufacturing Industries

Percent.

	Gross Output	Net Output	Employment	Net Capital Expenditure
1963	9.0	6.9	6.9	7.8
1968	9.8	7.1	7.5	7.8
1970	9.8	7.5	7.3	6.1
1971	9.9	7.8	7.5	5.7
1972 (Provisional)	10.0	8.1	7.6	7.4

Source: Censuses of Production
1963, 1968, 1970-72

Investment

2.12:   The total net capital expenditure of the food processing industry increased from £119.1 millions in 1968 to £131.4 millions in 1970, but fell to £122.5 millions in 1971 and is provisionally put at £151.1 millions in 1972. As can be seen from Table 2.5, net investment in plant and machinery accounts for the larger part of the total net expenditure, the proportion increasing from 66 per cent. in 1968 to nearly 71 per cent. in 1973. New building work, on the other hand, represented a smaller proportion of the total in 1973 (19 per cent.) than in 1968 (22 per cent.), with comparative little change in the share of net expenditure on vehicles.

Relative importance of food processing industry

2.13:   Food processing, as can be seen from Table 2.6, has slightly increased its share of the total gross output of all UK manufacturing industry between 1968 and 1972, and in terms of net output, more significantly from 7.1 per cent. in 1968 to 8.1 per cent. in 1972. Its share of UK manufacturing employment has remained virtually unchanged at around $7\frac{1}{2}$ per cent., while its contribution to net capital expenditure has tended to fall.

2.14:   Net output per head has risen considerably more between 1968 and 1972 in food processing than in manufacturing industry generally. As Table 2.7 shows, net output per head in food processing rose by nearly 30 per cent. between 1968 and 1970 as compared with 18 per cent. in all manufacturing, and by 68 per cent. for the four-year period to 1972 as against 49 per cent. overall.

TABLE 2.7

Net Output per Head and Labour Costs in UK Food Processing and All
    Manufacturing Industries

| | Index of net output per head | | Wages & Salaries as percent. of net output | |
	Food Processing	All Manufacturing	Food Processing	All Manufacturing
			%	%
1968	100	100	45.9	50.8
1970	129	118	43.9	52.6
1971	142	131	44.5	53.1
1972 (Provisional)	168	149	42.3	50.8

Source: Census of Production
         1963, 1968, 1970-72

TABLE 2.8

Imports and Exports of Manufactured Foods, 1962/3 and 1968/9

| | Imports: Current Prices | | | Exports: Current Prices |
	Manufactured	Total	%	Manufactured
1962/63	533	1,321	40	87
1968/69	662	1,586	42	125

Source: Food Manufacturing EDC,
         Economic Assessment to 1972

2.15: The proportion of net output accounted for by wages and salaries is also lower in food processing than all manufacturing, and whereas that proportion has tended to fall in food processing, for all manufacturing industry it was the same in 1972 as it was in 1968 after increasing in 1970 and 1971.

Imports and Exports of Manufactured Foods

2.16: The share of UK food imports represented by manufactured foods rose from 40 per cent. in 1962/63 to 42 per cent. in 1968/69, which was a continuation of a trend evident from the mid-1950's. At constant prices, imports of manufactured foods rose by 6 per cent. during the same period, whereas raw food imports increased by less than 1 per cent. According to the Food Manufacturing EDC, imports of manufactured foods from the mid-1950's to 1968/69 rose at a faster rate than the total UK consumption of manufactured foods, thereby taking a larger share of British markets. (see Table 2.8).

2.17: Exports of manufactured foods rose between 1962/63 and 1968/69 from £87 millions to £125 millions, or by 44 per cent. at current prices. In volume terms, the increase was $27\frac{1}{2}$ per cent. during the same period, with exports consisting mainly of the "more sophisticated foods, with a high value-added content e.g. biscuits, chocolate and sugar confectionery etc." In 1968/69, the value of UK exports of processed foods was, therefore, equivalent to roughly one-fifth of processed food imports, as well as representing about 3 per cent. of the total UK production of manufactured foods.

2.18: It is unfortunate that the breakdown of food imports as between manufactured products and raw food has not

been published for later years. According to the British Food
Export Council, exports of processed foods have risen from
£113 millions in 1969 to £238 millions in 1973, or by 110 per
cent. Total imports of food in 1973 amounted to £2,714 millions,
of which it is estimated processed food imports amounted to over
£1,000 millions. On this basis, processed food imports repre-
sented a lower proportion of all food imports in 1973 than in
1968/69, while processed food exports were equivalent to
between 20 and 25 per cent. of processed food imports.

Advertising and Market Research

2.19: The 1968 Census of Production provides
information collected on a sample basis of expenditure on
advertising and market research for eight groups of products
within the food census trades. The data are given in Table
2.9, from which it will be seen that for the most well-defined
product groups, advertising expenses were highest in 1968 for
grain milling, animal and poultry foods, followed by cocoa,
chocolate and sugar confectionery, and fruit and vegetable
products. The product-groups showing the largest relative
increases in expenditure on advertising and market research
combined between 1963 and 1968 are (excluding vegetable
oils and fats) the miscellaneous group (56 per cent.), grain
milling and animal and poultry foods (54 per cent.) and fruit
and vegetable products (51 per cent.), the remaining product-
groups registering increases of 25-30 per cent.

2.20: Another and more comprehensive source
of advertising expenditure is the MEAL Monthly Digest, which
shows that the food product group's spending on press and TV
advertising rose from £64.2 millions in 1968 to £89.2 millions
in 1973, an increase of nearly two-fifths. This was not such

TABLE 2.9

Expenditure on Advertising & Market Research by Census Food Trades, 1963 and 1968   £ Millions

Product Group	Advertising		Market Research		Total	
	1963	1968	1963	1968	1963	1968
Grain milling and animal and poultry foods	12.4	19.4	0.5	0.5	12.9	19.9
Bread and flour confectionery & biscuits	6.4	8.2	0.2	0.3	6.6	8.5
Bacon curing, meat and fish products	6.9	8.8	0.2	0.3	7.1	9.1
Sugar	0.1	0.4	-	N.a.	0.1	N.a.
Cocoa, chocolate & sugar confectionery	13.2	16.5	0.2	0.5	13.4	17.0
Fruit and vegetable products	8.8	13.2	0.2	0.4	9.0	13.6
Vegetable and animal oils and fats	0.1	0.4	-	0.1	0.1	0.5
Milk and milk products, margarine starch and miscellaneous foods	19.6	30.4	0.6	1.2	20.2	31.6

Source: Censuses of Production
          1963, 1968, 1970-72

a large increase as occurred for the 21 combined product-
groups identified by MEAL during the same period, with the
result that food's share of the total fell from 21.7 per cent.
in 1968 to 19.3 per cent. in 1973.

2.21:   Even so, food products is by far the largest
spender among the 21 groups, its nearest rivals being retail
and mail order (£50.7 millions in 1973), household stores
(£32.7 millions), toiletries and cosmetics (£32.6 millions),
financial advertising (£32.1 millions) and drink (£30.0 millions).
In relation to total household food spending, the press and TV
advertising expenditures shown in Table 2.10 declined slightly
from 1.14 per cent. in 1968 to 1.05 per cent. in 1973.

2.22:   What can also be seen from Table 2.10 is
that advertising of food products on TV has increased relative
to press advertising.   In 1968, TV advertising already accounted
for over 85½ per cent. of the combined TV and press total; by
1973 it had increased to over 88 per cent.   At the same time,
food products accounted in 1973 for 35½ per cent. of the total
TV advertising expenditure as compared with nearly 39 per cent.
in 1968.

2.23:   Finally, the food product-lines which were
most heavily advertised in 1973 were:

Chocolate confectionery	£12.0 millions
Ready-to-eat cereals	£ 5.4 millions
Margarine	£ 4.9 millions
Biscuits	£ 4.3 millions
Cheese	£ 3.6 millions
Coffee and coffee extracts	£ 3.5 millions
Milk and milk products	£ 3.2 millions

TABLE 2.10

Expenditure on Press & TV Advertising, by Food and All Product Groups

£ Millions

	Food			Total		
	TV	Press	Total	TV	Press	Total
1968	55.0	9.2	64.2	141.5	154.0	295.5
1969	58.7	10.8	69.5	146.5	176.1	322.7
1970	56.2	14.2	70.4	141.5	173.9	315.4
1971	64.0	10.1	74.1	163.6	182.5	346.1
1972	79.3	9.2	88.5	205.5	217.9	423.4
1973	78.6	10.6	89.2	221.6	241.7	463.3

Source: MEAL Monthly Digest

There were, in addition, another seven products groups where 1972 expenditure exceeded £2 millions, namely:

Bread and bakeries	Sugar confectionery
Tea	Convenience desserts
Meat and vegetable extracts	Sauces, pickles and
Canned vegetables and pasta	salad creams

Altogether these 13 product groups (out of 54 altogether) accounted for 60 per cent. of the food TV spending but under 50 per cent. of the food press spending, or 62 per cent. of the two media combined.

3: THE STRUCTURE OF THE FOOD PROCESSING INDUSTRY

3.1: The analysis of Census of Production data by enterprises relates on the one hand to each individual trade (on a Minimum List Heading basis) and to each SIC Order (that is, a group of trades) on the other. This means that at the SIC Order level the enterprise analyses refer to the whole of Food, Drink and Tobacco (Order III), which as already described in paragraph 2.2 extends beyond the scope of the food processing industry. It is also worth emphasising at the outset that the UK definition of an enterprise - "one or more establishments under common ownership or control" - differs from that used in other EEC countries where each legal entity is treated as a separate enterprise, irrespective of whether it is an independent or subsidiary company. To that extent, the UK definition is closer to what is required in economic analyses of concentration.

3.2: It is clearly desirable to establish as far as possible the enterprise structure of the food processing industry as a whole, and at first sight this might seem to involve no more than aggregating the published Census data for all the trades comprising food processing. Unfortunately matters are not as straightforward as that, for the reasons given in the Census report covering enterprise analyses (Volume 128 of the Report on the Census of Production, 1968), namely:

> "The enterprise unit (also) varies according to the level of analysis ... at the Standard Industrial Classification order level of analysis, the enterprise consists only of those establishments under its ownership and control classified to the industries of that Standard Industrial Classification order; at the census industry level of analysis the enterprise consists only of those establishments (or establishment) under its ownership or control classified to that industry."

3.3:   What this means as far as the Census
enterprise statistics are concerned can be explored with the
assistance of Table 3.1.   In section A of Table 3.1 is shown
the total employment of the SIC Order III (Food, Drink and Tobacco)
on the one hand, and those shown by summing the constituent census
industries for Food trades (i.e. industry codes 211 - 229.1 and
229.2) and Drink and Tobacco (i.e. industry codes, 231,232,
239.1 and 239.2 and 240) on the other. The SIC Order total
employment is shown to correspond with that obtained by aggre-
gating the industry totals.   In Section B of Table 3.1 is shown
the breakdown of the Order and census trades' total employment
as between enterprises employing (i) under 25 persons (ii) over
25 persons, and unsatisfactory returns. ' The employment covered
by unsatisfactory returns is the same for the Order total as for the
aggregated census industries. But whereas the SIC Order total
employment for enterprises employing under 25 persons is 23,700
persons, the aggregated census industries' figure is slightly higher
at 24,800, with the result that the larger enterprises SIC Order
total employment at 758,100 is higher than the 756,900 on the
aggregated census industries basis.

3.4:   The third Section C of Table 3.1 gives the
number of establishments of enterprises relating to the employment
figures given in Section B. The number of establishments covered
by the unsatisfactory returns is once again the same for the SIC
Order as for the aggregated census trades. But whereas there are
2,272 establishments operated by enterprises employing under 25
persons according to the SIC Order statistics, there are 2,356
such establishments when the census trades' data are aggregated.
Similarly, the Order total for the larger enterprises is 3,561
establishments, whereas for census' trades summed together the
total is 3,477 establishments.

24

TABLE 3.1

<u>Census of Production data for Food, drink and tobacco (SIC Order 111)</u>

<u>and Aggregated Census Trades   1968</u>

	Order Total (1)	Food Trades (2)	Drink & Tobacco Trades (3)	Food, Drink & Tobacco Trades (4) = (2 + 3)
		Thousands		
A: Total Employment	792.7	615.9	176.7	792.6
B: Employment of Enterprises employing:				
Under 25 persons	23.7	20.6	4.2	24.8
25 and over persons	758.1	585.3	171.6	756.9
Unsatisfactory returns	10.9	10.0	0.9	10.9
Total	792.7	615.9	176.7	792.6
		Numbers		
C: No. of establishments of enterprises employing:				
Under 25 persons	2272	1981	375	2356
25 and over persons	3561	2686	791	3477
	5833	4667	1166	5833
Unsatisfactory returns	630	603	27	630
Total	6463	5270	1193	6463
D: No. of enterprises employing:				
Under 25 persons	2230	1954	364	2318
25 and over persons	1389	1305	295	1600
Sub-total	3619	3259	659	3918
Unsatisfactory returns	N.a.	566	21	587
Total	N.a.	3825	680	4505

3.5: Finally, Section D of Table 3.1 shows the number of enterprises controlling the establishments given in Section C. For the SIC Order, the total number of enterprises submitting satisfactory returns comes to 3,619, but the number of enterprises relating to the unsatisfactory returns is not available. However, the total number of enterprises submitting satisfactory returns summed for the Census trades comes to 3,918, nearly 300 (or 8 per cent.) more than the SIC total. This is because, as pointed out in paragraph 3.2, the same enterprise can make more than one appearance in the census trades' total but only appear once in the SIC Order data. It will also be noted that whereas the number of enterprises employing under 25 persons is under 4 per cent. lower than on the aggregated census trades basis, the difference amounts to over 15 per cent. for the larger enterprises.

3.6: The fact that the same enterprise may make more than one appearance among the census trades but only one appearance in the SIC Order total means that it may appear as a small enterprise (i.e. under 25 persons) in more than one census trade but is transformed into a larger enterprise (i.e. employing 25 or more persons) in SIC Order terms. What is more, even if it is a large enterprise in each of the census trades where it operates, its size classification on the SIC Order basis will refer to its total employment within the SIC Order as a whole.

3.7: It is also true that the same enterprise may appear among those numbered under the Drink and Tobacco trades in Table 3.1 as well as under the Food trades heading. But as an approximation to the overall structure of the food trades it is conceptually better to base it on the difference between the SIC Order distribution and that obtained by summing the data for the

Drink & Tobacco trades than it is to approach it by aggregating the data for the food trades as such since the overlap and double-counting would be considerably greater by the latter method.

The Structure of the Food Processing Trades

3.8:   With all the qualifications that must be attached to the data in the light of the above considerations, Table 3.2 shows the 1968 size-distribution of 2,499 enterprises classified to food processing trades as defined in paragraph 2.2. This total has been arrived at by two stages: first, by deducting from the SIC Order total the enterprises classified to the Drink & Tobacco trades making satisfactory returns (see Table 3.1, 3,619 minus 659 = 2,960), and second, by further subtracting the enterprises classified to Animal and poultry foods (industry code 219) amounting in 1968 to 461 (after excluding unsatisfactory returns).*

3.9:   It will be seen from Table 3.2 that over three-fifths of the approximate total of 2,500 enterprises in food processing employed less than 25 persons on this basis, and although they accounted for close on two-fifths of the 4,000 establishments, their share of the 575,000 employment was less than 3 per cent. At the other end of the scale, there were 56 enterprises (less than $2\frac{1}{2}$ per cent. of the total) employing more than 1,000 persons in over three-tenths of the establishments but accounting for more than three-quarters of the total employment.

3.10:   In Table 3.3 are shown the comparable data from the 1963 Census of Production. It will be seen that for the whole of the food processing trades the number of enterprises was 2,929 in 1963, some 430 more than in 1968, although the

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*   See footnote to Table 3.2 for further qualification to number of enterprises data.

TABLE 3.2

Size-distribution of food processing enterprises, 1968[*]

Enterprises employing:	Number of Enterprises		Number of Establishments		Total Employment	
	No.	%	No.	%	Thousands	%
Under 25 persons	1538	61.5	1562	38.7	15.7	2.8
25 - 49	261	10.4	300	7.4	9.5	1.7
50 - 99	273	10.9	323	8.0	19.1	3.3
100 - 199	175	7.0	223	5.5	21.4	3.7
200 - 499	147	5.9	236	5.9	32.8	5.7
500 - 999	49	2.0	116	2.9	34.0	5.9
1,000 & over	56	2.3	1277	31.6	442.1	76.9
	2499	100.0	4037	100.0	574.6	100.0

* See Footnote to Table 3.3.

28
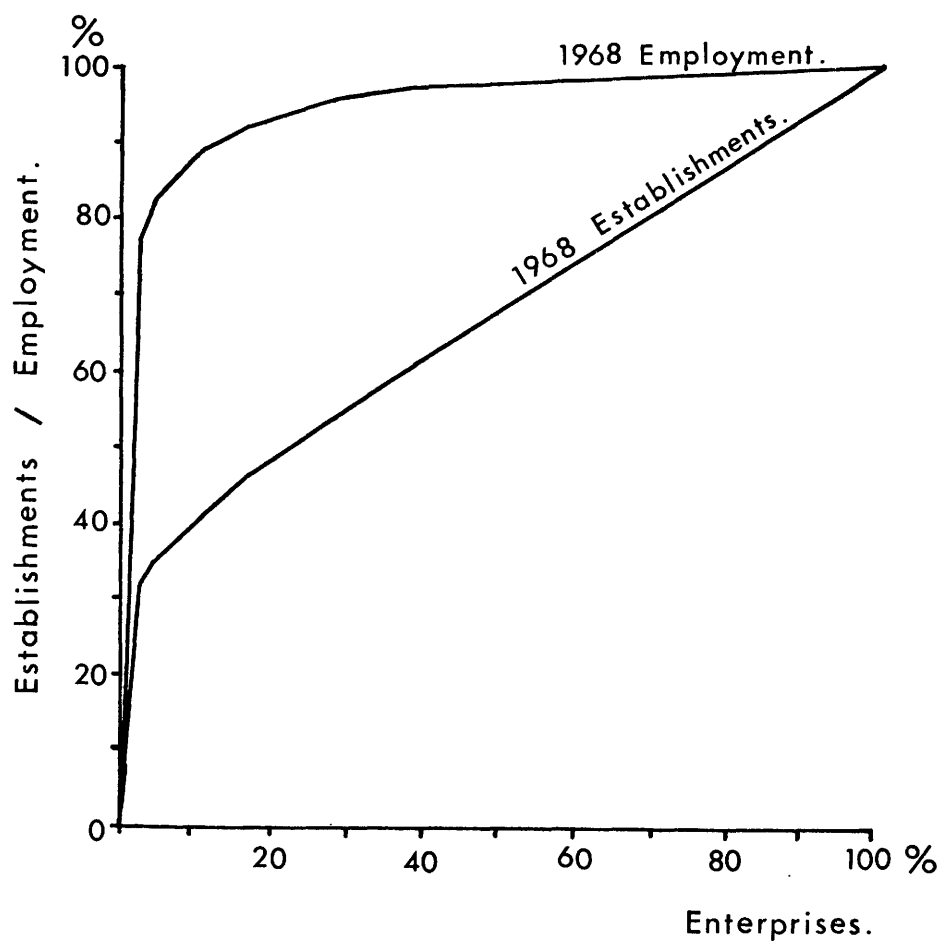
TABLE 3.3

Size-distribution of food processing enterprises, 1963*

Enterprises employing:	Number of Enterprises		Number of Establishments		Total Employment	
	No.	%	No.	%	Thousands	%
Under 25 persons	1977	67.5	1991	44.6	18.4	3.4
25 - 49	251	8.6	296	6.6	9.3	1.7
50 - 99	281	9.6	338	7.6	19.7	3.7
100 - 199	179	6.1	250	5.6	21.6	4.0
200 - 499	137	4.7	237	5.3	29.7	5.5
500 - 999	38	1.3	75	1.7	26.2	4.9
1,000 & over	66	2.2	1274	28.6	414.0	76.8
	2929	100.0	4461	100.0	538.9	100.0

* Of the 2,929 enterprises in 1963, approximately 1,011 were in the Bread and Flour Confectionery Industry. By 1968 this number had fallen to approximately 685 out of 2,499 enterprises. This is important since the treatment of bakers varies substantially among the EEC countries. In the U.K. production at small bakehouses (i.e. bakehouses with fewer than 25 employees) attached to bakers shops is excluded. In practice this means that only bakehouses supplying other shops apart from their own, attached shop, are included in the Census of Production.

whole of the difference was accounted for by a decline in the number of enterprises employing less than 25 persons. The number of establishments fell by much the same figure as the number of enterprises, again reflecting the change among small enterprises. Employment, on the other hand, increased between 1963 and 1968 by 35,700, or 6.6 per cent.

3.11: While the proportion of total employment held by enterprises each employing over 1,000 persons was virtually the same in 1963 as in 1968, and such enterprises represented the same proportion of the total number of enterprises, their numbers were 66 in 1963 as compared with 56 in 1968. There was also a fall in the number of enterprises employing at least 25 persons but under 1,000 between the two years, from 905 to 886, with their share of total employment falling slightly.

3.12: For this reason, it is worthwhile to compare the size-distribution of the larger enterprises (i.e. those employing 25 or more persons) in 1963 and 1968, more particularly because other relevant Census data relate only to these larger enterprises. The enterprise, establishment and employment distribution data are shown for the two years in Table 3.4. The proportion of establishments and employment controlled by enterprises employing 1,000 or more is not significantly different in 1968 from what it was in 1963, although the number of such enterprises fell as stated earlier from 66 to 56 during this period. Indeed, the whole distribution of both establishments and employment is very similar in both years.

3.13: The same picture emerges when attention is turned to the distribution of both net output and net capital

TABLE 3.4

Size-distribution of larger food processing enterprises, 1963 and 1968

Larger Enterprises employing:	Enterprises		Establishments		Employment	
	1963	1968	1963	1968	1963	1968
25 - 49 persons	26.4	27.2	12.0	12.1	1.8	1.7
50 - 99	29.5	28.4	13.7	13.1	3.8	3.4
100 - 199	18.8	18.2	10.1	9.0	4.2	3.8
200 - 499	14.4	15.3	9.6	9.5	5.7	5.9
500 - 999	4.0	5.1	3.0	4.7	5.0	6.1
1,000 & over	6.9	5.8	51.6	51.6	79.5	79.1
	100.0	100.0	100.0	100.0	100.0	100.0
Base:	952	961	2470	2475	520.5	558.9 (Thousands)
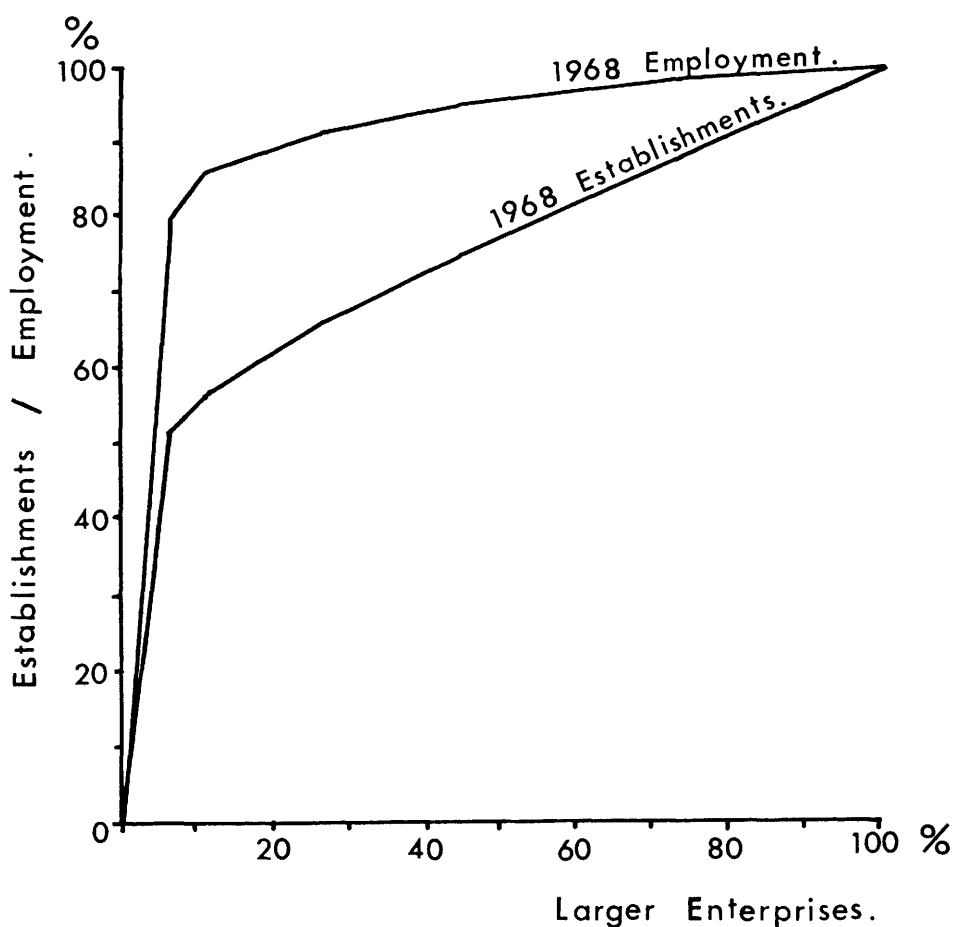
expenditure by size of enterprise in 1963 and 1968. The relevant data are given in Table 3.5, incorporating a degree of estimation in some cases. The proportion of net output controlled by enterprises employing 1,000 or more in each of the two years shows a marginal decline, while their share of total net investment shows an even smaller increase.

3.14: Too much must not be read into these comparisons in view of the method by which they have been reached, but there is little indication from these figures that the general structure of the food processing industry as a whole changed in any significant way in the five years between 1963 and 1968.

Concentration among the food processing industries

3.15: The changes that occurred between 1963 and 1968 in the number of enterprises employing (a) more than 200 persons and (b) more than 1,000 persons in each of the census trades within food processing are shown in Table 3.6. It will be seen that the number of enterprises employing more than 200 persons fell between 1963 and 1968 in five of the nine census trades for which data are available, namely: Grain milling, Bread and flour confectionery, Biscuits, Cocoa, chocolate and sugar confectionery, and Fruit and vegetable products. In the case of the other four trades - Bacon curing, meat and fish products, Milk and milk products, Vegetable and animal oils and fats, and Starch and miscellaneous foods - there was an increase in the number of enterprises employing more than 200 persons. These increases are, however, likely to have been associated with changes in the Census coverage of the trades concerned in 1968. Oven-ready poultry was brought into the

TABLE 3.5

Larger food processing enterprises: Net output and Net capital expenditure,
                    1963 and 1968

Larger Enterprises employing	Net output		Net Capital expenditure	
	1963	1968	1963	1968
	%	%	%	%
25 - 49 persons	1.4	1.4	1.3	1.5
50 - 99	3.0	3.1	2.8	3.5
100 - 199	4.3	3.9	4.5	4.5
200 - 499	8.2	8.4	9.8	7.4
500 - 999	3.2	4.4	4.4	5.2
1,000 & over	79.9	78.8	77.2	77.9
	100.0	100.0	100.0	100.0

scope of the Bacon curing trade in 1968, milk heat-treaters for retail or wholesale distribution into Milk and milk products, and tea blending and coffee roasting and blending into Starch and miscellaneous foods.

3.16: The same qualification applied to the number of enterprises employing more than 1,000 persons in these three trades, of which two - Bacon curing etc. and Milk - show an increase in such enterprises between 1963 and 1968, and the other (Starch and miscellaneous foods) no change. Otherwise there has been a fall in the number of enterprises employing more than 1,000 persons (as well as those employing more than 200) in the same five trades cited in the preceding paragraph.

3.17: The shares of employment and net output, as well as the proportion of enterprises employing more than 200 and more than 1,000 persons in the five census trades of comparable coverage in 1963 and 1968 are shown in Table 3.7. For all five trades, the total number of enterprises fell between 1963 and 1968, the decline being relatively most marked for Grain milling (39 per cent.), Bread and flour confectionery (32 per cent.) and Cocoa, chocolate and sugar confectionery (26 per cent). The proportion of the total number of enterprises employing more than 200 persons rose for these same three trades, as did their shares of trade employment and net output. For Biscuits, enterprises employing more than 200 persons represented the same proportion of the total number in 1968 as in 1963, with their shares of employment and net output falling slightly. For the Fruit and vegetable products trade, the proportion of enterprises employing more than 200 persons fell but their relative importance in terms of trade employment and net output increased slightly.

TABLE 3.6

Number of enterprises employing (a) more than 200 and (b) more than 1,000

in census food processing trades, 1963 and 1968

| | Number of enterprises employing: | | | |
| | More than 200 | | More than 1,000 | |
	1963	1968	1963	1968
Grain milling	17	14	7	6
Bread and flour confectionery	66	61	15	13
Biscuits	25	21	12	10
Bacon curing, meat and fish products	57	68	12	16
Milk and milk products	20	56	6	10
Sugar	N.a.	N.a.	N.a.	3
Cocoa, chocolate and sugar confectionery	43	41	14	12
Fruit and vegetable products	53	41	13	11
Vegetable and animal oils and fats	10	11	N.a.	N.a.
Margarine	N.a.	4	N.a.	N.a.
Starch and miscellaneous food	25	30	6	6

TABLE 3.7

Relative importance of enterprises employing (a) more than 200 and

(b) more than 1,000 in certain food processing census trades

	Total No. of Enter-prises	Enterprises employing more than 200 as percent.			Enterprises employing more than 1,000 as percent.		
		Enter-prises	Employ-ment	Net Output	Enter-prises	Employ-ment	Net Output
Grain milling:							
1963	405	4	75½	79	1½	63½	68
1968	248	5½	78½	82	2½	65	70½
Bread and flour confectionery:							
1963	1011	6½	84	84½	1½	71	72
1968	685	9	88½	89	2	74½	76
Biscuits							
1963	78	32	97	97	15½	81½	84
1968	65	32	96½	96	15½	84	84
Cocoa, chocolate & sugar confectionery							
1963	461	9½	87	89	3	73½	76½
1968	340	12	90	91½	3½	75	77½
Fruit and vegetable products							
1963	315	17	87	90	4	64	69
1968	261	16	88	90½	4	67	72½

3.18: The picture is not changed greatly for the enterprises employing more than 1,000 persons. Increases in the proportion of such enterprises as far as total enterprises are concerned occur for the same three trades as before, and each shows an increase in their shares of trade employment and net output. For Biscuits, however, the largest enterprises are again the same proportion of the total number in 1968 as in 1963, but in terms of employment (but not net output) their relative importance has increased. The remaining trade - Fruit and vegetable products - shows, however, a much more significant increase in the share of the largest enterprises of trade employment and net output than was the case for the enterprises employing more than 200 persons.

Sales concentration-ratios for selected products

3.19: The 1968 Census of Production gives concentration ratios in terms of the sales by larger establishments (i.e. those employing 25 or more persons) for 33 products in that year, with comparable data for 1963 for 30 out of the 33 products. The concentration-ratios show the share of sales for the five enterprises with the largest sales in the two years, and also the number of enterprises in 1963 accounting for the same proportion of sales as the largest five in 1968.

3.20: In Table 3.8 are shown the 14 products for which the concentration-ratio of the five largest enterprises has increased by more than 1 percentage-point between 1963 and 1968. It will be seen from this Table that there were four products where the five enterprises with the largest sales accounted for over 80 per cent. of the sales in 1968, and the average increase in their concentration ratios between 1963 and 1968 came to under 3 percentage-points. For another six products, the 1968 sales concentration-ratio was between 60 and 80 per cent., with the

TABLE 3.8

Sales concentration-ratios of five largest enterprises in food product-groups,

1963 and 1968

	1963	1968	No. of enterprises in 1963 with the same concentration-ratios as in 1968
Trades with increases in concentration ratio	%	%	
Meal and flour (excluding self-raising flour and semolina)			
- white flour for breadmaking	79.2	80.8	6
Bread sold in loaves or rolls	71.4	77.3	9
Flour confectionery	51.0	60.1	8
Biscuits for human consumption	65.5	71.0	7
Bacon and ham, cured and smoked	47.4	56.9	8
Sausages (other than black puddings) and sausage meat	52.2	56.2	6
Sugar confectionery (excl. chocolate)	35.9	43.5	7
Marmalade and jams	72.9	75.6	6
Other preserved fruit	37.7	45.7	7
Vegetables preserved in airtight containers (other than homogenised baby foods)	65.3	66.7	5
Vegetables, quick frozen	93.3	97.1	6
Pickles, sauces and relishes	68.0	71.5	6
Vegetable and seed oils (other than lubricating)	82.3	84.3	6
Self-raising flour	88.0	91.7	8
Trades with Static Concentration Ratios			
Fish and fish products, quick frozen	91.7	91.1	5
Cheese and processed cheese	78.5	77.7	5
Condensed (incl. evaporated) milk	93.4	94.4	5
Sugar	98.6	99.3	5
Cocoa products	82.3	83.3	6
Fish and marine oils (other than lubricating)	92.8	92.9	5
Margarine	92.8	93.8	ι5

TABLE 3.8 (continued)

Sales concentration-ratios of five largest enterprises in food product-groups,

1963 and 1968

	1963	1968	No. of enterprises in 1963 with the same concentration-ratios as in 1968
Trades with falls in concentration ratio	%	%	
Meal and flour (excluding self-raising flour and semolina)			
- other flour	71.6	67.2	<5
Cereal breakfast foods in packets for retail sale	97.7	93.5	<5
Butter	85.5	78.4	<5
Milk powder	88.9	84.7	<5
Ice cream, including lollies	93.1	91.2	<5
Potato crisps	91.6	83.3	<5
Soups	92.5	90.4	<5
Compound fat (including shortening)	84.8	82.6	<5
Coffee, and coffee and chicory extracts and essences	98.4	93.7	<5
Trades with concentrations ratios for 1968 only			
Dressed poultry, frozen, fresh or chilled and carcase meat and poultry, quick frozen	N.a.	39.2	N.a.
Heat treated milk	N.a.	44.2	N.a.
Tea, blended	N.a.	82.9	N.a.

Source: Census of Production, 1968

1963-68 increases averaging around 4½ percentage points. For
the other four products, the 1968 sales concentration-ratios
ranged between 40 and 60 per cent. in 1968, with an average
increase of over 7 percentage points since 1963.

3.21:   There were, in addition, seven products
where the sales concentration ratio changed by no more than
1 percentage point between 1963 and 1968. For five out of these
seven products, all of which had sales concentration-ratios in
excess of 80 per cent. in 1968, there were increases rather than
decreases in those concentration-ratios. For the other two, one
had a concentration-ratio of over 90 per cent. in 1968; the
other just under 80 per cent.

3.22:   Finally, apart from the products with only
a 1968 concentration-ratio, there were nine products where the
sales concentration-ratio was lower in 1968 than in 1963. Five
out of these nine products had concentration-ratios of more than
90 per cent. in 1963, the average fall in their concentration
ratio amounting to just over 4 percentage points. Another three
products had 1963 concentration-ratios of 80-90 per cent., and
in their case, the average fall came to nearly 4½ percentage
points. For the remaining product, with a sales concentration-
ratic of over 70 per cent. in 1963, the percentage-points fall
in the ratio also came to nearly 4½ percentage points.

3.23:   It will also be seen from Table 3.8 that
for 13 out of the 14 products with higher sales concentration-
ratios in 1968 than in 1963, the number of enterprises accounting
for the 1968 proportion of product-sales was greater than five i.e.
the number of enterprises on which the 1963 and 1968 concentration-
ratios were based. For example, in the case of bread sold in

loaves or rolls the 1968 ratio of over 77 per cent. was held not
by the five but the nine largest enterprises in 1963. Otherwise,
for six out of the 13 products, the number of enterprises respons-
ible in 1963 for the 1968 share of the largest five was seven or
eight, and for the remaining six products, the number was six.

3.24:   The reasons for these changes in product
concentration-ratios between 1963 and 1968 will be further
explored in the product market studies which comprise the second
part of this Study. But it is clear from these data that changes
in the level of concentration at the product-level between 1963
and 1968 are much more evident than changes in the overall
structure of the food processing industry during the same period.

3.25:   It will be recalled that earlier in this
Chapter, reference was made to the Census of Production data
which showed a fall in the estimated number of enterprises in
food processing from 2,929 in 1963 to 2,499 in 1968, but for
larger enterprises (i.e. those employing 25 or more persons), a
slight increase from 952 to 961. It is also the case that there
were changes in the definition of three census trades between
the 1963 and 1968 (see para. 3.15 above) censuses which
contributed to a significant   increase in the number of enter-
prises in those trades. The increase in the number of larger
enterprises in the three census trades concerned amounted to
just over 300 between 1963 and 1968. While it cannot be
assumed that these enterprises were not already represented
elsewhere among the census trades comprising food processing,
it is more than possible than on a strictly comparable coverage
the number of larger enterprises in food processing would have
shown a significant fall between 1963 and 1968.

3.26:   At the census industry level, the total number of enterprises are available for 1970 and 1971. These data are shown in Table 3.9, from which it will be seen that during the 1968-71 period the number of enterprises rose for eight out of the 11 census trades in food processing. Of the two trades with declining numbers, the fall was numerically greater for Milk and milk products (down by 139) than for Cocoa, chocolate and sugar confectionery (down by 26), while the number of enterprises in the Margarine trade remained the same.

3.27:   Unfortunately the precise number of larger enterprises are not available from the 1970 and 1971 Census data so far published, such figures for larger enterprises as are available for 1970 relating to returns received.

Merger activity among food processing companies

3.28:   A comprehensive analysis of merger activity among U.K. quoted companies with assets of more than £500,000 in 1961 was published by the Department of Trade and Industry in 1970. This covered the period 1958-68 inclusive, with separate data relating to the Food industry. The "population" of companies included in the analysis remained unchanged, apart from disappearances through mergers, so that no companies which first became large enough to meet the size qualification after the beginning of 1961 have been brought in.

3.29:   In Table 3.10 are shown the changes in the number of quoted Food companies covered by the analysis in the six years 1958-63 inclusive, and the next five years, 1964-68 inclusive. In the first of these two periods, their number fell

TABLE 3.9

Number of Enterprises in Census Food Industries, 1963, 1968, 1970 and 1971

| | All Enterprises: | | | |
	1963	1968	1970	1971
Grain Milling	405	248	297	289
Biscuits	78	65	69	69
Bread and flour confectionery	1,011	685	696	714
Bacon curing, meat and fish products	667	734	864	848
Milk and milk products	306	598	515	459
Sugar	19	16	17	18
Cocoa, chocolate and sugar confectionery	461	340	328	314
Fruit and vegetable products	315	261	275	288
Vegetable oils and fats	113	119	130	126
Margarine	20	14	14	14
Starch and miscellaneous foods	223	249	267	265

Source: Censuses of Production,
1963, 1968, 1970 and 1971

from 85 to 51, and in the second period to 39. At the same time, the net assets of these companies rose from £487 millions at end-1957 to £749 millions six years later, and stood at £1,014 millions at end-1967.

3.30: The number of mergers occurring in the 1958-63 period, therefore, totalled 34, and the net assets involved in these mergers amounted to £80 millions. In the next five years, when there were only 12 mergers involving these companies, the net assets transferred amounted to £91 millions.

3.31: For the whole of the 1958-68 period, the total net assets involved in quoted Food company mergers amounted to £171 millions, and Table 3.11 shows how this was divided between mergers within the Food sector and those involving companies outside it. Thus, out of the £171 millions, £86 millions was accounted for by 27 mergers within the Food sector, the other 19 mergers relating to companies in other sectors, the most important being retail distribution (£41 millions) and tobacco (£15 millions) within the quoted company sector with another £15 millions being involved in acquisition of companies outside it. It will be noted that the average net assets involved in these mergers was little more than £3 millions within the food sector, whereas other acquisitions within the quoted company sector average £5 millions.

3.32: In addition, Table 3.11 shows that there were 13 acquisitions of quoted food companies by other quoted companies during the 1958-68 period involving net assets of £58 millions. Eight out of these 13 mergers involved companies classified to retail or wholesale distribution acquiring food companies; such mergers, however, accounted for only one-fifth

TABLE 3.10

Number of companies, net assets and merger activity in Food Trade, 1958-68

	No. of Companies: end-year	Net Assets: end-year £ Mns	No. of mergers in period	Net assets transferred in period £ Mns
1957	85	487	N.a.	N.a.
1963	51	749	34	80
1968	39	1,014*	12	91

* End-1967 net assets

Source: DTI: A Survey of Mergers, 1958-68

TABLE 3.11

Number of mergers involving Food companies and net assets acquired, 1958-68

	No. of Mergers			Net Assets Acquired (£ Mn)		
	Within food	Other	Total	Within food	Other	Total
By food companies	27	19	46	86	85	171
Of food companies	27	13	40	86	58	134

Source: DTI: A Survey of Mergers, 1958-68

of the £58 millions transfer of net assets. Nearly three-fifths of the
latter were accounted for by two mergers by quoted companies them-
selves classified to the transport sector, with the remainder initiated
by companies in the chemicals and allied industries.

3.33:   It remains to be stated that the food sector
accounted for about 6 per cent. of all mergers covered by this analysis,
and its share of the total net assets transferred was around 4 per cent.
In terms of actual numbers of mergers, the food sector ranked seventh
out of the 22 separately identified sectors, and ninth on the basis of
the net assets involved in the mergers.

3.34:   For 1969 and subsequent years, the qualification
for inclusion of quoted companies in the analysis of company finances
was changed to either (a) net assets of £2 millions or more in 1968 (as
compared with £0.5 millions from 1964 to 1968) or (b) gross income of
£200,000 or more in 1968 (as compared with the earlier minimum
figure of £50,000). At the same time, there were certain changes in
the classification of companies to individual sectors. Final figures
for 1969 on the revised basis have not been published, and the 1969
totals comparable with 1970 final figures provide the best estimate
available. As far as the Food sector is concerned, the net result is
that the number of qualifying companies for 1969 was reduced, whereas
their total net assets increased. By 1971 Food sector quoted companies
had fallen to 38, compared with 47 in 1969 on the old basis, with an
increase in net assets to £1,941 millions. (See Table 3.12).

3.35:   Mergers and acquisitions by quoted companies
in the Food sector since 1968 are shown in Table 3.13. The

TABLE 3.12

Food: Number,   Net Assets and Turnover of Larger Quoted Companies

	1968	1969	1969*	1970	1971
No. of companies	52	47	41	39	38
Net assets (£ Mns)	1,057	1,009	1,672	1,737	1,941
Turnover (£ Mns)	N.a.	N.a.	3,964	4,403	4,806

Source: DTI Business Monitor
M3 Company Finance
*   1969 Final Figures comparable with 1970 Final Figures

TABLE 3.13

Merger Activity by Larger Quoted Food Companies, 1969-73

	1969	1970	1971	1972	1973
No. of food companies acquiring other companies	13	11	12	19	26
No. of companies so acquired	14	12	13	25	33
Expenditure on acquisitions and mergers (£ Mns)	26.6	5.0	19.9	161.0	25.5

Source: DTI Business Monitor:
M7 Acquisitions and Mergers
of Companies.

total number of companies acquired by them totals 97 in the
five years 1969-73 inclusive, with the amount expended ranging
from as low as £5 millions in 1969 to £161 millions in 1972,
and averaging £47.6 millions a year for the period as a whole.

3.36: Examples of the mergers and acquisitions
that have been made by quoted and non-quoted companies
classified by the Department of Trade & Industry to the Food
sector in the 1969-73 period are listed in Table 3.14. For
the most part, these mergers and acquisitions have involved
other food interests, but there are other instances where divers-
ification outside food processing has clearly been involved.
Examples are the Cavenham group's acquisition of three
retail businesses in 1970, Moores Stores Ltd. in 1971,
and Allied Suppliers in 1972. Similarly, Spillers Ltd.
acquired RHM's pet food interests in 1972 and the Mario
& Franco chain of restaurants in 1973, and Cadbury-Schweppes
Ltd. the Jeyes Group in 1972.

3.37: The growing cross-interests between food and
other industries is illustrated by the examples of mergers and acquisitions
listed in Table 3.15. For example, the Imperial Tobacco Group
acquired the frozen-food business of the Ross Group as well as
the National Canning Co. Ltd. in 1969, while the predominantly
pharmaceutical Beechams Group took over Horlicks Ltd. in the
same year. Express Dairies Ltd., itself acquired by Grand Metro-
politan Hotels in 1969, took over Hammett's Dairy and Bovril's
dairy interests in 1971, while Grand Metropolitan acquired
Hawley's Bakeries in 1973. Finally, Unigate Ltd. (classified
to Retail Distribution by the DTI) acquired Malmesbury and
Parsons Dairies Ltd. in 1970 and Scot-Bowyers Ltd. (itself a

TABLE 3.14

Acquisitions by Food Quoted & Non-Quoted Companies, 1969-73

Year	Acquiring Company	Company (or Interests) Acquired
1969	Ranks Hovis McDougall	Cerebos
	Cadbury Bros.	British Cocoa and Chocolate Group
	Rowntree and Co. Ltd.	John Mackintosh and Son Ltd.
	United Biscuits	Crimpy Crisps Branded Foods
	H.J. Heinz	Pickering Foods Ltd. (from Fisons Ltd.)
	J. Lyons and Co. Ltd.	Tonibell Manufacturing Co. Ltd. (from British American Tobacco Ltd.)
	Trebor Holdings Ltd.	Clarnico Ltd.
	Adams Foods Ltd.	R.W. Davidson Ltd.
	Associated British Foods	Allied Farm Foods
	Cadbury-Schweppes	Cadbury Bros.
1970	United Biscuits Ltd.	Montgomerie & Co. Ltd.
	Robertsons Foods Ltd.	British Canners Ltd.
	Bowyers Ltd.	G. Brazil & Co. (Holdings)
	Southland-Cavenham Ltd.	R.S. McColl, Birrell Ltd. and Alex Shops Ltd.
	J. Lyons & Co. Ltd.	Union International Ltd.'s and W.D. Mark's interests in Glacier Foods Ltd.
		Scribban-Kemp's Ltd. and _International Stores Ltd.'s cake plants.
		Kingsley Windsor Hotels Ltd.
1971	Armour Trust	Carter Pengiun Group
	McVitie and Cadbury Cakes Ltd.	Merger of Cadbury's and United Biscuits cake interests
	Cavenham-Southland Ltd.	Moores Stores Ltd.
	Cavenham Ltd.	Bovril Ltd. Wrights Biscuits Ltd.

TABLE 3.14 (continued)

Acquisitions by Food Quoted & Non-Quoted Companies, 1969-73

Year	Acquiring Company	Company (or Interests) Acquired
1972	United Biscuits Ltd.	Wrights Biscuits Ltd. Carrs of Carlisle Carr and Co. Ltd. Kemps Biscuits Ltd. acquired from Cavenham Ltd.
	Cavenham Ltd.	Allied Suppliers Ltd. (from Unilever Ltd.)
	J. Lyons & Co. Ltd.	Unigate Ltd.'s ice cream interests Fox's Biscuits Ltd., Tetley Tea Co.
	Cadbury-Schweppes Ltd.	Jeyes Group Ltd.
	Spiller-French Holdings Ltd.	J.W. French Ltd. (from J. Lyons & Co. Ltd.) and CWS milling interests
	Spillers Ltd.	Ranks Hovis McDougall pet food interests
	Robertson Foods Ltd.	N. Rossos Foods
	Northern Foods Ltd.	Three Countries Creameries Ltd. (from Cadbury-Schweppes Ltd.)
	Adams Foods Ltd.	Lloyd's Dairies
	Associated Biscuits Manufacturers Ltd.	O.P. Chocolate Ltd.
	S & K Holdings Ltd.	Waller & Hartley Ltd.
	Northern Foods Ltd.	Park Cake Bakeries Smiths Flour Mills Ltd. Hull Brewery Co.
	Trebor Holdings Ltd.	Trebor-Sharps Ltd.
	Quaker Oats Ltd.	Louis Marx & Co.

TABLE 3.14 (continued)

Acquisitions by Food Quoted & Non-Quoted Companies, 1969-73

Year	Acquiring Company	Company (or Interests) Acquired
1973	Spillers Ltd.	Mario & Franco Restaurants Ltd.
	Northern Foods Ltd.	Bristol Merchant Group Ltd.
	Cadbury-Schweppes Ltd.	Mapletons Foods Ltd. Modern Health Foods (Distribution) Ltd.
	Unilever Ltd.	Massey (Robert B.) Ltd.
	J. Bibby & Sons Ltd.	Crosfield Farm Foods (SE) Ltd. Crosfield Farm Foods (NI) Ltd.
	Nestlé Co. Ltd.	Findus (UK) Ltd.
	Spillers Ltd.	Newgrain Ltd.
	Oriel Foods Ltd.	Morris & David Jones
	R. Paterson & Sons Ltd.	Jenks Bros Foods Ltd.

TABLE 3.15

Acquisition of Food Companies by Other Quoted & Non-Quoted Companies,

1969-73

Year	Acquiring Company	Company (or Interests) Acquired
1969	Imperial Tobacco Group	Ross Group National Canning Co. Ltd.
	Beecham Group	Horlicks Ltd.
1970	Unigate Ltd.	Malmesbury and Parsons Dairies Ltd.
1971	Express Dairies Ltd.	Hammett's Dairy and Bovril's dairy interests
1972	Unigate Ltd.	Scot-Bowyers Ltd.
	Booker McConnell	Unigate's retail grocery interests
	Fitch Lovell Ltd.	Harris Bros. (London)
1973	Grand Metropolitan Hotels	Hawley's Bakeries
	S & W Berisford	Smithfield and Zwanenberg Group Sinclair, Kemp & Lee (London) Ltd.
	Brooke Bond Liebig Ltd.	Baxters (Butchers) Ltd.

merger of Bowyers Ltd. and Scot Meat Products) in 1972.

3.38: The spread of interests among and beyond the food processing trades of the leading food firms will be examined in more detail in the following Chapter.

Foreign-owned companies in UK food processing

3.39: There are significant numbers of foreign-owned companies which are prominent in the UK food processing industry. One measure of their relative importance is obtained from the analysis of the number and capital employed of foreign-owned companies by industrial sector in 1970 published in Economic Trends (August 1973). In Table 3.16 are shown the data for the food sector and all manufacturing industry, from which it will be seen that there were 15 overseas companies (2 quoted and 13 unquoted) out of the 71 of qualifying size in the food sector in 1970. But whereas in terms of numbers they represented one-fifth of the total food sector companies, their share of the sector's capital employed was much lower at under 9 per cent.

3.40: The relative importance in numbers of overseas companies was the same in the Food sector as it was for all manufacturing, but in terms of capital employed they were much less important in food (under 9 per cent) than all manufacturing (16 per cent.)

3.41: The performance of overseas companies compared with UK companies for both food and all manufacturing is illustrated by Table 3.17. The net income/net assets

TABLE 3.16

Relative Importance .of Overseas Companies in Food and All Manufacturing, 1970

| | Food Sector | | All Manufacturing | |
	No.	Capital Employed £ Mns.	No.	Capital Employed £ Mns.
UK companies:				
Quoted	37	1928.8	834	18418.2
Unquoted	19	81.7	216	1056.7
	56	2010.5	1050	19474.9
Overseas companies:				
Quoted	2	57.2	40	1388.6
Unquoted	13	136.7	236	2366.5
	15	193.7	276	3755.1
ALL	71	2204.2	1326	23230.0

Source: Economic Trends,   August 1973

ratios of the overseas companies were much higher than UK
companies in both the quoted and unquoted categories in
1969 and 1970. Part of the explanation here may be that
certain expenses, such as product development, are principally
carried on in the home country and do not appear as a full
charge against the UK operation. Similarly, loans from the
parent company are often treated as current liabilities and so
reduce the net assets figure, whereas in reality they are com-
parable to long-term finance. It is to be remarked, however,
that the net income/net assets ratio for quoted overseas com-
panies in all manufacturing was substantially lower than that of
the UK companies, whereas in the food sector, it was substantially
higher.

3.42: The gross profits/turnover ratio was higher
for the overseas quoted companies than the UK quoted companies
in the food sector, unlike all manufacturing where it was lower.
The difference was much smaller among the non-quoted companies
in the food sector, and slightly to the advantage of the UK
companies, whereas for all manufacturing, the gross profit/
turnover ratio was higher for the overseas unquoted companies.

3.43: Finally, it can be stated that in 1970 the
overseas companies share of capital employed in the food sector
at under 9 per cent. was comparatively small as compared with
vehicles (36 per cent.), non-electrical engineering (29 per cent.),
other manufacturing (27 per cent.), chemicals (25 per cent.),
electrical engineering (19 per cent.) and tobacco (17 per cent.).
Overall the food sector ranked eighth out of the 16 sectors
identified in this analysis, its nearest rivals being metal goods
not elsewhere specified, paper, printing and publishing, and
clothing and footwear.

TABLE 3.17

Relative Profitability of Overseas Companies in Food and All Manufacturing
1969-70

| | Food Sector | | | | All Manufacturing | | | |
| | Net income/ net assets | | Gross trading profits/turnover | | Net income/ net assets | | Gross trading profits/turnover | |
	1969	1970	1969	1970	1969	1970	1969	1970
	%	%	%	%	%	%	%	%
U.K. companies:								
Quoted	12.7	11.6	7.2	6.7	13.6	12.5	10.4	9.5
Unquoted	15.0	17.0	9.4	9.2	14.2	14.0	10.1	9.7
Overseas companies:								
Quoted	20.1	20.9	12.6	10.9	9.5	6.5	7.6	6.1
Unquoted	25.3	21.1	8.8	7.9	21.8	19.5	12.6	11.3

Source: Economic Trends, August 1973

3.44: The 1968 Census of Production enterprise analyses give the shares of selected food products sales controlled by foreign-owned enterprises, and these are shown in Table 3.18. In 1968, the products where foreign companies accounted for more than one-half of total sales were:

Soups	82 per cent.
Condensed and evaporated milk	73 per cent.
Coffee, and coffee and chicory extracts and essences	69 per cent.

Compared with 1963, there has been an increase in the foreign-owned companies share of sales in only one of these three product groups, namely condensed and evaporated milk, where the 1963 share was 45 per cent.

3.45: There were another three products with foreign-owned shares of total sales of 33-50 per cent. in 1968, namely pickles, sauces and relish (48 per cent.), preserved vegetables in airtight containers (40 per cent.) and potato crisps (37 per cent.), the latter showing a particularly large increase compared with 1963.

3.46: Of the 18 products listed in Table 3.18 with sales' shares for both 1963 and 1968, the foreign-owned companies relative importance increased by more than one percentage-point in only three instances: condensed and evaporated milk, cocoa products and potato crisps. On the other hand, their share fell by more than 1 percentage point for seven trades, namely fish and fish products, quick frozen; cheese and processed cheese; sugar confectionery, marmalades and jams, preserved vegetables, soups and coffee products.

TABLE 3.18

Relative Importance of Sales by Foreign-Owned Companies in Food Product
Groups, 1968

	1963	1968
	Percent.	
Biscuits for human consumption	2	3
Sausages (other than black puddings) and sausage meat	-	1
Dressed poultry, frozen, fresh or chilled carcase meats and poultry, quick frozen	N.a.	1
Fish and fish products, quick frozen	3	-
Cheese and processed cheese	34	30
Condensed (incl. evaporated) milk	45	73
Milk powder	14	15
Cocoa products	14	19
Sugar confectionery (excl. chocolate confectionery)	12	10
Marmalades and jam	3	1
Other preserved fruit	1	2
Potato crisps	8	37
Vegetables preserved in airtight containers (other than homogenised baby foods)	42	40
Pickles, sauces and relish	47	48
Soups	86	82
Vegetable and seed oils (other than lubricating)	8	7
Fish and marine animal oils (other than lubricating)	5	5
Compound fat	22	21
Coffee, and coffee and chicory extracts and essences	82	69
Tea, blended	N.a.	4

Source: Census of Production, 1968

3.47:   The most important foreign-owned companies
in the food sector are Union International, H.J. Heinz, Nestle,
and Mars in terms of 1972 turnover.   The relative importance
of the other 12 leading foreign-owned companies is shown in
Table 3.19.   In terms of net assets there is little difference in
the relative importance of Mars and CPC (UK) - formerly Brown
& Polson - but Mars' turnover was more than four times greater
than that of CPC in 1972.

3.48:   The fastest growing foreign companies, in
terms of the increase in net assets between 1969 and 1972, were
Kellogg Co. of GB, General Foods, Quaker Oats, Mars and
Libby McNeill & Libby, where the growth ranged from 47 per
cent. to more than 109 per cent.

TABLE 3.19

Foreign-Owned Food Companies: 1972 Turnover and Net Assets and

1969-72 Change in Net Assets

	1972 Turnover	1969-72 Growth in Net Assets	1972 Net Assets
	£ Mns	%	£ Mns.
Quoted:			
Union International	402.6	16	54.3
H. J. Heinz	104.8	16	46.1
Non-quoted			
Nestlé Co.	98.7	20	56.1
Mars	158.1	48	18.0
CPC (United Kingdom)	36.5	12	18.2
General Foods	46.8	64	12.4
Kellogg Co. of GB	35.2	109	11.6
Kraft Foods	48.6	- 26	5.5
Nabisco	15.2	14	5.5
Weetabix	12.5	38	6.1
Wrigley Co.	7.8	28	5.2
Quaker Oats	16.7	56	4.8
Libby McNeill & Libby	20.4	47	3.5
Carnation Foods	11.7	39	2.5
Campbells Soups	6.7	6	2.8
Swift & Co.	43.2	36	5.5

4: THE LEADING FOOD PROCESSING FIRMS

4.1:   In this Chapter it is intended to identify the leading food processing firms in the United Kingdom, to consider their rate of growth in recent years, and the spread of their activities throughout food and other manufacturing industries as well as retail and wholesale distribution. There were 16 quoted and unquoted companies classified to Food in the DTI's company finance   statistics which in 1972 had turnovers in excess of £100 millions or net assets of more than £45 millions. In addition, there were four other companies classified to industries other than Food which, as well as satisfying the turnover/net assets criteria, had food processing interests sufficiently large to warrant their inclusion in the concentration analysis. Beyond those companies are two organisations of considerable importance in food processing: namely, the Milk Marketing Board of England & Wales and the Co-operative Wholesale Society Ltd.

4.2:   Included as an Appendix to this Chapter are brief histories of these 22 companies and organisations, but the more immediate point to be covered relates to their growth in recent years.

Growth in Net Assets

4.3:   In Table 4.1 are listed the 21 companies by size of their total turnover in 1972, and against each is shown the 1969-72 percentage growth in net assets. By far the fastest grow-ing concern was Cavenham Ltd., whose net assets were 31 times higher at end-1972 than three years earlier. The next fastest growing business was J. Lyons and Co. whose net assets more

than doubled during the same period, followed by the British Sugar Corporation (77 per cent.), Unigate (62 per cent.), Mars (48 per cent.), Associated British Foods (39 per cent.) and Spillers (34 per cent.).

4.4: The actual amounts invested in subsidiaries in the three years 1970-72, and their relationship to the total growth in net assets are also shown in Table 4.1. Not surprisingly, Cavenham Ltd. had by far the largest investment in subsidiaries (£132.7 millions) accounting for nearly nine-tenths of the increase in its net assets. Next largest in terms of investment in subsidiaries was J. Lyons and Co. (£73.5 millions), equivalent to nearly two-thirds of its growth in net assets, followed by Unigate (£66.7 millions) whose acquisitions accounted for three-quarters of its growth. Investment in subsidiaries came to more than £20 millions for another two companies - Unilever and Cadbury-Schweppes - but whereas in Unilever's case it accounted for one-half of the growth, for Cadbury-Schweppes it was more than the total increase in net assets.

4.5: Although the amounts spent on investment in subsidiaries were comparatively small, they represented over three-fifths of the growth of Brooke Bond Liebig and Rowntree Mackintosh, nearly one-half of that of United Biscuits and nearly one-quarter of that of H. J. Heinz.

Spread of interests throughout food processing

4.6: In Table 4.2 is shown the representation of each of the 22 concerns among the 11 census trades taken as comprising food processing. The concerns with the widest spread of interests are the CWS (represented in 9 census trades) and

TABLE 4.1

Turnover, Growth in Net Assets and Investment in Subsidiaries of Leading Processing Companies, 1969-72

	1972 Turnover	1969-72 Growth in Net Assets	Investment in Subsidiaries	
			Total £ Mns.	As percent. of increase in NA
	£ Mns	%		
Unilever	1,539	10	23.0	49
Associated British Foods	729	39	8.5	16
CWS	596			
Cavenham	462	31 times	132.7	89
Ranks Hovis McDougall	441	9	1.1	6
Tate & Lyle	419	16	1.5	7
Unigate	409	62	66.7	76
Union International	403	16	0.9	12
Cadbury-Schweppes	349	15	24.1	105
Spillers	279	34	0.1	<1
Brooke Bond Liebig	263	20	12.3	64
J. Lyons	259	114	73.5	65
Fitch Lovell	187	24	1.1	17
Rowntree Mackintosh	170	30	10.5	64
FMC	168	14	-	-
Mars	158	48	-	-
United Biscuits	129	21	4.6	47
H. J. Heinz	105	16	1.4	23
J. Bibby	104	15	0.3	9
Nestle	98	20	0.4	4
British Sugar Corporation	96	77	-	-

TABLE 4.2

Spread of Interests Throughout Food of Leading Food Processing Companies

	Grain Milling	Bread and Flour Confectionery	Biscuits	Bacon, meat and fresh products	Milk & Milk products	Sugar	Cocoa, Chocolate etc.	Fruit & Vegetable Products	Vegetable oils and fats	Margarine	Starch and miscellaneous
Unilever	X	X		X	X			X	X	X	X
Associated British Foods	X	X	X	X				X			
CWS	X	X	X	X	X			X	X	X	X
Cavenham					X			X			X
Ranks Hovis McDougall	X	X	X	X	X			X			X
Tate & Lyle						X					
Unigate				X	X						
Union International				X				X			X
Cadbury-Schweppes		X	X	X	X		X	X			X
Spillers	X	X	X	X				X			X
Brooke Bond Liebig				X				X			X
J. Lyons	X	X	X	X	X		X				X
Fitch Lovell				X	X		X	X			
Rowntree Mackintosh							X				
FMC				X					X		
Mars			X				X	X			
United Biscuits	X		X					X			
H.J. Heinz		X		X				X			
J. Bibby				X				X	X	X	X
Nestle				X	X		X	X			X
British Sugar Corporation						X					X
Milk Marketing Board					X						

Unilever (8), followed by Cadbury-Schweppes (7), J. Lyons (6)
Ranks Hovis McDougall (6), with Associated British Foods, Spillers
and Nestle all represented in five census trades.

Forward integration into retailing

4.7:   The extensive interests of many of the leading
food processing concerns in retail distribution is illustrated in
Table 4.3. In particular, it will be seen that Cavenham owns
through Allied Suppliers and the Moores/Wrights business more
than 3,000 grocery outlets, while Associated British Foods controls
the FineFare supermarkets and other retail interests (including a
department store) amounting to 1,200 outlets and the Allied
Bakeries group of 2,490 bakers' shops. Unilever's retail interests
were much greater before disposing of Allied Suppliers, and its
main interest is now the MacFisheries chain of over 300 shops.

4.8:   The CWS has become increasingly involved
in retailing either through the Co-operative Retail Services Ltd.
which has taken over the running of retail societies in difficulties
or more directly through the establishment of specialist retail shops
such as Shoefayre and National Co-operative Chemists.

4.9:   Unigate has, in the past, had a chain of
small grocery/dairy shops as well as the Kibby's supermarkets,
but these interests have been progressively diminished so that it
has no significant retail interests any longer.

4.10:   The relative importance of the retail sales
of some of these concerns can be obtained from estimates of their
1971 trade that appeared in the Distributive Trades EDC report.
That report put Cavenham's retail trade at £325 millions, as
compared with £275 millions for Associated British Foods, £75
millions for Union International and £65 millions for Fitch Lovell.

TABLE 4.3

Retail Interests of Food Processing Companies

Processing Company	Main Retail Interests	Business	Branches
Unilever	MacFisheries	Grocers/fish	310
Associated British Foods	Fine Fare	Supermarkets	1,200
	Allied Bakeries Group	Bakers	2,490
CWS	Co-operative Retail Services	Grocers/butchers	750
	Shoefayre	Footwear	115
	National Co-operative Chemists	Chemists	105
Cavenham	Allied Suppliers (incl. Lipton, Home & Colonial, Maypole)	Grocers and supermarkets	1,550
	Moores Wrights	Grocers	760
Ranks Hovis McDougall	British Bakeries	Bakers	> 600
Union International	J.H. Dewhurst	Butchers	1,550
	Downsway Super-markets	Grocers	40
Brooke Bond Liebig	Baxters	Butchers	400
J. Lyons		Restaurants	150
Fitch Lovell	Keymarkets	Grocers and supermarkets	425
	R. Gunner	Butchers	120

66

Interests of UK Food Processors in other EEC Countries

4.11: The leading food processing concerns in the
United Kingdom are frequently found to be active in other
countries of the EEC as well as other parts of the world. The
prime example is, of course, Unilever, which through Unilever
NV has an important stake in the food industries of the Netherlands
and Germany in particular. In Table 4.4 are shown the EEC
countries in which 17 leading UK food processing firms are involved,
and instances are given of their operating companies where their
identity and association with the UK company is not obvious from
their name.

TABLE 4.4

Interest of U.K. Food Processors in Other EEC Countries

Company	Interests in EEC Countries	EEC Countries
Unilever Ltd.	Unilever NV	Belgium, Denmark, Germany, France, Eire, Italy, Netherlands
Associated British Foods Ltd.	R. Twining & Co. SA Sté Nouvelle De Thé Asia Power Fruits Ltd.	France Eire
Cavenham Ltd.	P. Rutzon & Co. A/S Irma Fabricerne	Belgium, Denmark, Eire France, Netherlands, Luxembourg
Ranks Hovis McDougall Ltd.	Cerebos Alimentaire SA	Belgium, Eire, Germany, Netherlands, Denmark, France
Tate & Lyle Ltd.	European Sugars	Belgium, France, Germany, Netherlands
Unigate Ltd.	Boel Mejerierne L' Huissier SA	Denmark, Eire, France
Union International Ltd.	Weddel	Belgium, France, Germany, Netherlands, Italy.
Cadbury-Schweppes Ltd.	Cadbury-Fry	Belgium, Denmark, Eire, France, Germany, Italy
Spillers Ltd.		Belgium
Brooke Bond Leibig Ltd.		Belgium, Eire, France, Germany, Netherlands, Italy
J. Lyons & Co. Ltd.	Tonibell SA Ste Continentale de Boissons et de Products Alimentaires	Belgium, Eire, France, Netherlands, Italy, Luxembourg
Rowntree Mackintosh Ltd.	Fox's Glacier Mints (Ireland) Chocolate Menier SA A.J. Caley GmbH.	Belgium, Eire, France, Germany, Netherlands, Italy.

TABLE 4.4 (continued)

Interests of UK Food Processors in Other EEC Countries

Company	Interests in EEC Countries	EEC Countries
FMC Ltd.	Premier Meat Packers (Ireland)	Eire
Mars Ltd.	Master Foods GmbH	Belgium, Germany, Netherlands, Italy
United Biscuits Ltd.	NV Westimex Futura SA Fritura GmbH Selba BV Milanc Univers	Belgium, Denmark, Germany, Netherlands
H.J. Heinz & Co. Ltd.		Eire
J. Bibby & Sons Ltd.		Netherlands, Italy

UNILEVER LTD.

<div style="text-align: right">

Turnover

1972   £1,538.8 million.

</div>

1.   Lever Brothers was registered in 1894 and by 1921 had acquired or held considerable interest in 39 other soap manufacturing companies. By acquiring British Oil and Seed Cake Mills in 1925 to assume control of this firm's entry into the soap market, it gained an interest in the manufacture of animal feeds. As a parallel interest to the processing of oils Lever Brothers wanted to obtain a substantial hold on the rapidly growing margarine market. At the beginning of this century the industry was largely controlled by two Dutch concerns: Anton Jurgens and Van den Berghs, leaving only the Maypole Dairy Company with a significant British interest in the home market. Lever Brothers acquired J. Watson Ltd. and with Government support entered the margarine trade in 1914 as the Planter's Margarine Company. Jurgens had been securing outlets for margarine and its other products by acquiring a controlling interest in Home and Colonial Stores Ltd. in 1918 and later, Van den Berghs acquired the Lipton grocery chain for similar reasons. In 1927 these two Dutch companies merged to become Margarine Union Ltd. aiming to strengthen their share of the market, but in 1929, Lever Brothers merged with Margarine Union Ltd. to form Unilever Ltd., the largest manufacturer of margarine, compound fats and cooking oil in Britain.

2.   In 1919 Lever Brothers acquired their first retail fish shop to handle their Hebridean fisheries. A large retail chain developed under the name of MacFisheries, and in recent years this has been extended into the supermarket chain MacMarkets.

3.   T. Walls and Sons Ltd., manufacturers of sausages and meat products, began to produce ice cream in 1922 and the firm was acquired by Lever Brothers later in the 1920's to be placed under the

control of Unilever Ltd. In 1937 these concerns were renamed
Lever Brothers and Unilever Ltd. until 1952 when the present name
Unilever Ltd. was adopted. In 1955 T. Walls (Ice Cream) Ltd. was
formed to manage the ice cream section of Unilever, and in 1963
the Walls mobile ice cream business merged with Forte Holdings Ltd.
(Mr. Whippy). Forte Holdings' interest was fully acquired in 1966
when Unilever formed Walls-Whippy Ltd.

4.   Batchelors Foods Ltd. was acquired in 1943 which gave
Unilever an interest in the production of canned and dehydrated
vegetables, fruit, meat and soup. This interest was furthered with
the development of frozen foods when Unilever established Birds Eye
Foods Ltd. in 1946 which immediately captured a large share of the
market. The frozen food market was controlled further with the
acquisition of Tempo Frozen Foods in 1959.

5.   Unilever has diverse interests in other industries but its
other main food manufacturing subsidiaries include:

John West Foods Ltd.	(canned fruit, vegetables & fish)
James & Geo H. Matthews Ltd.	(grain millers)
Midland Poultry Holdings Ltd.	
Richmond Sausages Ltd.	
Drings Ltd.	(sausages)
Mattessons Meats Ltd.	
Smethursts Foods Ltd.	(frozen foods)
Poulton & Noel Ltd.	(soup)
Lawson of Dyce Ltd.	(meat products)
Food Industries Ltd.	(essences, fruit concentrates, spice extracts, vitamin concentrates, and emulsifying agents).

6.   Home and Colonial Stores Ltd., Lipton Ltd. and Maypole Ltd.
were all subsidiaries of Allied Suppliers Ltd. which was itself acquired by
Cavenham Ltd. in 1972, although Unilever subsequently bought back
Lipton's Tea Holdings.

Turnover

ASSOCIATED BRITISH FOODS LTD.   1972   £728.5 million

(subsidiary of George Weston
Holdings Ltd.)

1.   Associated British Foods was first registered as Food
Investments Ltd. in 1935 but later that year the firm was renamed
Allied Bakeries. In 1938 Weston Foods was established to control
Allied Bakeries' biscuit manufacturing interests, and these interests
were extended further when it acquired Burton's Gold Medal Biscuits
in 1948 and the Caledonian Oat Cake Baking Co. in 1953. In
addition, Weston Foods had by 1954 bought a large interest in
Meredith and Drew Ltd. although not enough for outright control.
However, Meredith and Drew was sold to United Biscuits in 1967,
and Weston Foods now operates 8 factories in the U.K.

2.   In 1954 Allied Bakeries acquired R. Marcantino Ltd.,
manufacturers of ice cream and lollies. Also in the mid-1950's
Allied Bakeries backed the formation of Nielsons Ltd. (ice cream
manufacturers) but this firm was later acquired by J. Lyons & Co.
Ltd. in 1962. Allied Bakeries extended its baking interests when it
acquired the Aerated Bread Company in 1955. In 1958 the wholesale
grocery business of Peter Keevil and George Walker Ltd. was acquired.

3.   In 1960 United Caterers was acquired and the Allied
Bakeries group of companies were renamed Associated British Foods Ltd.
The firm operates as investors in securities of manufacturers and whole-
sale and retail dealers in bread, cake, biscuits and foodstuffs.
Prior to 1961 Associated British Foods had no control over the milling
industry which supplied it but in that year the acquisition of Vitbe
Flour Mills Ltd. began a series of moves towards backward integration.
Between 1962 and 1964 at least 29 mills were bought up and from 1968
these concerns were organised under the subsidiary, Allied Mills.

4.   The Twining Crosfield Group with at least 7 tea and coffee factories in Europe was acquired in 1964, and the Nelson Preserving Co. Ltd. was acquired in 1965. The Fine Fare Group with approximately 11 manufacturing units and 460 supermarkets was fully acquired by 1968, and Food Securities Ltd. has been acquired which operates 7 factories in Britain processing fruit and vegetables.

5.   Other subsidiaries engaged in food manufacturing include:

The Ryvita Co. Ltd. (crispbreads)
Betabake Ltd.   (bread, cake)
Anglia Canners Ltd.
Angus Foods Ltd.
Atkinsons Confectionery Ltd.
Castle Crisps Ltd.
The Charter Tea and Coffee Co. Ltd.
Citra Drinks Ltd.
The Ibex Instant Coffee Co. Ltd.
Tower Tea Ltd.
"X.L." Crisp Co. Ltd.

The Allied Bakery Group has extensive interests controlling 52 bakeries and 2,485 retail shops and restaurants in the U.K.

73

Turnover

THE CO-OPERATIVE WHOLESALE SOCIETY 1972 £595.8 millions

1. The CWS is a central organisation set up by the retail Co-operative societies of England, Wales and Northern Ireland to meet their trading needs. In 1973 the Scottish Co-operative Whole-sale Society engaged in similar operations merged with the CWS to bring under a single wholesale society the buying, production, marketing and service activities required by some 240 retail societies throughout the United Kingdom. These retail societies which operate more than 11,000 shops control the CWS by electing directors and providing share capital in proportion to the number of their members.

2. In 1863 a conference of retail co-operative societies led to the formation of the North of England Co-operative Wholesale Society and ten years after its formation it began to acquire its own factories: a biscuit works in Manchester, a footwear factory in Leicester, and later a soap factory. In 1874 a depot was established in London signifying the Society's growth as a nationwide organisation. Soon the CWS was able to become an importer as well through its shipping interests. By 1900 the CWS produced textiles, leather, clothing; cocoa, chocolate, milk, flour, lard, preserved, tobacco; and furniture; and owned a printing works. Diversification of product lines continued rapidly until 1940 so that the CWS can now meet a wide range of consumer demands for food, clothing and household durables.

3. The CWS is divided now into two main trading divisions: the Food division employing 11,740 persons and achieving sales of £520.6 million in 1973, and the Non-Food division employing 7,010 persons and achieving sales of £144.9 million in 1973.

The Food division also controls the purchasing of packaging materials, the Society's overseas buying depots and regional grocery warehousing developments; while the Non-Food Division has further interests in funeral furnishing services, the fellmongery departments, the supply of optical equipment and the Society's export trade and contract supplies to public authorities, nationalised industries, etc.

4. The CWS operates over 100 productive units in the UK. These include the mills and bakeries now under Spillers-French Holdings, and Chancelot Mills Ltd. in Scotland, as well as 40,000 acres of farmland. Overseas production units include a subsidiary company jointly owned by the CWS and Plumrose A/S operating bacon factories in Denmark; meat-freezing plants in New Zealand owned by the subsidiary Ocean Beach Freezing Company Ltd; and the Co-operative Tea Society Ltd. which owns tea estates in India, Ceylon and Tanzania.

5. The CWS is deeply involved in its retailing network to ensure its products are marketed efficiently. Co-operative Retail Services Ltd. was established in 1934 to ensure adequate retailing facilities were provided throughout the United Kingdom taking over societies in difficulties. By January 1972 the CRS had 29 branches and was the largest retailing society in the UK with sales of £132 millions. Sales amounting to £96 million were made through its 950 food shops two thirds of which are self-service. The CWS entered the retail pharmacy trade with National Co-operative Chemists Ltd. in 1945. The CWS sub-sidiary Shoefayre Ltd. established since 1961 provides a retail chain of footwear specialists, Countrywide Fuels Ltd. is the CWS's retail merchant company for solid fuels, and the Co-operative Insurance Society now has assets in excess of £550 millions.

Further CWS services include, the Co-operative Bank Ltd. in
operation since 1872 with present day assets amounting to about
£223 millions, Co-op Travel Agencies and Travco Hotels Ltd.

6.   Marketing has been improved in the CWS by the
establishment of 27 regional grocery warehouses, and the com-
pilation of a National Stock Assortment list for food products
has developed along with a centralised buying system. The
"Co-op" brand label is being extended with food and non-food
sales amounting to £122 millions and £23 millions respectively
during 1973. There now operates also 35 home freezer centres
throughout the country with a comprehensive service of freezer
provision and frozen goods.

RANKS HOVIS MCDOUGALL LTD.

1972

Turnover

£441.0 million

1.   In 1885 Joseph Rank Ltd. were established as grain millers. By 1924 they controlled at least 8 other companies including John Ure & Sons acquired in 1912, the Riverside Milling Co. and Buchanan's Flour Mills. Further control of the grain milling industry was attained in 1932 with the acquisition of Associated London Flour Millers Ltd., a combine of several milling concerns; and in 1939 John Greenwood Millers was acquired. In 1933 Joseph Rank Ltd. became a public company, Ranks Ltd. In 1955 Ranks moved towards forward integration when it formed the subsidiary, British Bakeries, to amalgamate its baking interests. The baking firm Inglis and Company was acquired in 1958, and Hales Bread Bakery Ltd. acquired in 1958. Thomas Bell and Sons Ltd., manufacturers of flour, baking powder and cake mixes, was acquired in 1957, and the dietary bread and biscuit company, Energen Foods Co. Ltd., was acquired in 1958. In 1962 The Christopher Hill Group was acquired (animal feeds).

2.   Hovis Ltd., manufacturers of speciality flour and bread, acquired Marriage, Neave & Co. Ltd. in 1920 and in 1957 Hovis merged with McDougall Ltd., a leading producer of household flour. By 1962 Ranks had acquired 73 firms, and in that year it merged with Hovis-McDougall to form the present company Ranks Hovis McDougall Ltd. Since then R.H.M. has diversified its product lines, for example, Cerebos Ltd., a large salt producing company, was acquired in 1968 together with its subsidiaries Brand and Co. Ltd. (soup, spreads, sauces), Hugon & Co. (suet), A & R Scott Ltd. (porridge oats) and Cerebos Foods Ltd. (salt, gravy mixes). In 1972 R.H.M. sold its pet food interests to Spillers Ltd.

3.   R.H.M. has established R.H.M. Foods Ltd. to manage the production of such foods as ready meals, soup, canned vegetables and preserves, and McDougall's Catering Foods Ltd. to manufacture dried vegetables and milk. Other products manufactured by Ranks Hovis McDougall's Ltd. include pork pies, bacon, fruit pie fillings, preserves, condiments, spices, pâtes, pickles and tinned fish.

4.   Among R.H.M's leading food manufacturing subsidiaries are:

Beatties Biscuits Ltd.
Affined Foods Ltd. (dehydrated foods) (also associated with
Samuel Hansons & Son ("   "   ) Union International)
Black Diamond Creameries Ltd. (cheese)
Bradley Packing & Freezing Ltd. (frozen foods)
Linfield Canners Ltd.
J.A. Sharwood & Co. Ltd. (pickles)
Orchard Dene Turkeys Ltd.
The Thistle Poultry Co. Ltd.
Pasta Foods Ltd.
Dairy Produce Packers Ltd.
Willer & Riley Ltd. (fruit and vegetable canners)

TATE AND LYLE LTD.

Turnover

1972   £419.3 million

1.   Tate and Lyle was formed in 1921 from a merger between Henry Tate and Sons Ltd. (registered in 1903), and Abram Lyle & Sons Ltd. both firms being engaged in sugar refining. To give Tate and Lyle further control of this industry Fairrie and Company was acquired and John Walker and Company controlled in 1929. In 1938 Macfie and Sons Ltd. was acquired, and at about this same time Tate and Lyle jointly held the Glebe Sugar Refining Company with Westburn Sugar Refineries.

2.   Tate and Lyle Refineries Ltd. controls the group's sugar refining interests which includes such firms as Huskisson Transit Co. Ltd. Silvertown Services Lighterage Ltd., Millwall Sugars Ltd. John Walker & Co. Ltd. and the Greenock Bulk Handling Co., United Molasses and its subsidiaries is also a subsidiary of Tate and Lyle. In fact Tate and Lyle's other interests in shipping, road transport and raw sugar production accrued a larger percentage of turnover (45 per cent.) in 1972 than Tate and Lyle's U.K. sugar refining conerns (34 per cent.)

CAVENHAM LTD.

Turnover

1972   £461.7 million

1.   Cavenham Ltd. was formed in 1894 to acquire Carr and Co. Ltd. (biscuit manufacturers), and became a public company in 1927.   In 1965 the firm was renamed Cavenham Foods Ltd. and in 1971 Cavenham Ltd., manufacturers and distributors of grocery, confectionery, tobacco, baking and allied products.

2.   Many acquisitions have been made by the firm recently. In 1970 the subsidiary Southland-Cavenham Ltd. acquired R.S. McColl Ltd. (confectioners, tobacconists and newsagents), Birell Ltd. (confectioners) and Alex Shops Ltd.   The large concern Bovril Ltd. (meat extracts) was acquired in 1971 and this incorporated subsidiaries such as Ambrosia Ltd. (milk puddings), Marmite Ltd. (yeast extract) and Jaffajuice Ltd. (fruit juice).   Also in that year Wrights Biscuits Ltd. was bought but in 1972 Cavenham sold all its biscuit manufacturing interests (Wrights Biscuits Ltd., Carrs of Carlisle, Carr & Co. Ltd. and Kemps Biscuits Ltd.) to United Biscuits (Holdings) Ltd.   Allied Suppliers Ltd. was bought in 1972 and this included Unilever's share of Allied Suppliers such as Lipton Ltd. (tea and supermarkets), Home and Colonial Stores Ltd. and Maypole Ltd. (supermarkets).   Cavenham has now sold Lipton's Tea Holdings.   In 1971, Bovril sold its bulk dairy interests to Express Dairies Ltd.

3.   Other Cavenham subsidiaries include food manufacturing firms such as:

        Cavenhams Confectionery Ltd.
        Cavenham Food (Distributors) Ltd.
        Cavenham-Southland Ltd. (which acquired Moores
            Stores in 1971 and Wrights Ltd. (retail grocers))
        Slimcea Ltd. (gluten enriched flour and bread)
        Illingworth's Tobacco Ltd. (largest snuff producers
            in the world).
        T.W. Beach Ltd. (packers and manufacturers under
            retailer's private labels).
        Cavenham Overseas Ltd. (the group's operations are
            spread throughout the world and in 1973 70 per
            cent. of sales and profits were expected to be
            made overseas)

Turnover

UNIGATE LTD.   1972   £408.8 million

1.   During the 1930's Cow and Gate Ltd. expanded considerably and in 1959 it merged with United Dairies Ltd., which also had a number of dairy subsidiaries, to form Unigate Ltd. This process of concentration of ownership was furthered when the sizeable Midland Counties Dairy Ltd. was acquired in 1963, which was a significant producer of ice cream. In 1972, however, Unigate sold its accumulated interests in ice cream to J. Lyons & Co. Ltd.

2.   Unigate Ltd. remains the controller of at least 25 manufacturing dairies and hence has substantial influence in the milk products industry marketing products under Unigate Foods Ltd. Four-fifths of its 1972 turnover was in milk and related products. Unigate also holds an interest in the sausage and meat products industry through its subsidiary Scot & Bowyers Ltd. acquired in 1972, which itself was a merger of Scot Meat Products and Bowyers Ltd. Only 2 per cent. of turnover was derived from this meat division in 1972 but this share is growing while that of milk products is declining. About 7 per cent. of sales were made overseas and a further 10 per cent. came from Unigate's transport and service subsidiaries.

3.   Among Unigate other food subsidiaries are:

Aplin and Barrett
Beddington Nut Produce Co. Ltd.
Cannings Ltd.
M.A. Brown & Son Ltd.
Cheshire Sterilised Milk Co. Ltd.
Malgavita Ltd.
Wyles Preserves Ltd.
George Denney Ltd.

Turnover

UNION INTERNATIONAL LTD.   1972   £402.6 million

(Ultimate Holding Company:
Western United Investment Co. USA)

1.   Union International was first registered as the Union Cold Storage Ice Co. Ltd. in 1897 and later in 1903 as the Union Cold Storage Co. Ltd. The name Union International was adopted in 1949 with the firm continuing operations in cold storage and the food distribution business.

2.   Union International briefly owned Eldorado Ice Cream Ltd. in the early 1960's but this was sold to J. Lyons & Co. in 1963. From 1963 to 1968 Union International and J. Lyons jointly held "Eskimo" Frozen Foods bought from Associated Fisheries, and held a part interest in Nestle's Findus Ltd. in 1968 but later that year Union International sold its interest.

3.   Union International has remained largely in the cold storage business and foods associated with this such as meat, vegetables and fruit. Subsidiaries in the meat industry and in meat retailing include:

J.H. Dewhurst Ltd.
C. Kingston Ltd.
R.C. Hammett Ltd.
The British Beef Co. Ltd.
British and Argentine Meat Co. Ltd.
Empire Meat Co. Ltd.

Poultry and egg producing interests include:

South Western Egg Products Ltd.
Sun Valley Poultry Ltd.

Fruit and vegetable processing and canners include:

Affined Foods Ltd. (partially owned)
Donald Cook & Sons Ltd.
Country Produce Ltd.

		Turnover
CADBURY-SCHWEPPES LTD.	1972	£348,9 million

1.   Cadbury Brothers (confectioners) was registered in 1899 and Schweppes Ltd. (bottlers of mineral waters) was registered in 1897. Schweppes expanded and acquired similar firms such as Appolinaris Co. in 1955, and in 1963 a Schweppes-Lyons company Rose Kia Ora Sales Ltd. controlled an estimated 46 per cent. of the squash market. Recently in 1973 Cadbury Schweppes sold its holding O.R. Groves Ltd. to Lyons who will supply fruit concentrates under the brand name "Sunfresh". Cadbury Brothers extended its interests and acquired the British Cocoa and Chocolate Group in 1969. In that same year Cadbury Brothers and Schweppes Ltd. merged to form Cadbury Schweppes Ltd. In 1970 Cadbury Schweppes Overseas Ltd. was formed from Cadbury Brothers to manage overseas interests.

2.   In 1972 the Jeyes Group Ltd. was acquired which held considerable interests in the manufacture of disinfectants, insecticides and toilet paper. In 1971 United Biscuits and Cadbury's merged their cake interests under the name of McVitie and Cadbury Cakes Ltd.

3.   Cadbury's control of Typhoo Tea Ltd. gave Cadbury Typhoo Ltd. a considerable interest in tea and coffee, for example through the Kenco Coffee Co. Ltd. In 1972 Cadbury-Schweppes sold its investment in Three Counties Creameries Ltd. to Northern Foods Ltd.

4.   Other food manufacturing firms which are subsidiaries of Cadbury-Schweppes Ltd. include:

    Goldhanger Fruit Farms Ltd.
    Connaught Food Products Ltd.
    The Jamaica Coffee Co. Ltd.
    Kardomah Ltd.
    The Kenya Coffee Co. Ltd.
    Chivers-Hartley Ltd. (jam, preserves, jellies)
    James Pascall Ltd. (confectionery)
    Mapleton's Foods Ltd. (cereal breakfast foods)
    Duncans Ltd. (canned meat)
    J.S. Fry and Sons Ltd. (confectionery)

SPILLERS LTD.

Turnover

1972   £279.0 million

1.   Spillers was a registered company of flour merchants in 1887, by 1891 it had developed interests in ship and dog biscuits, and in 1896 it went into grain milling. Spillers followed a policy of expanding its milling interests, acquiring William Vernon and Sons in 1921 and Hosegood Industries in 1938.

2.   In order to rationalise its growing interests in the baking industry, United Bakeries was formed in 1955. In 1963, British Feeding Meals, which itself had acquired Pilgrim Feeds in 1961, extended Spillers' interests in animal feeds. 1972 saw the formation of Spillers-French Holdings when Spillers took controlling interest in J. Lyons', J.W. French Ltd. (grain millers) and the flour milling interests of the Co-operative Wholesale Society. This concern incorporated such baking and confectionery interests as Spillers-French Baking Ltd., Bilsland Bros. Ltd., Garners Bakeries Ltd., D & E. Wells Ltd. and Matthes Holdings Ltd. (the Sunshine Bread Co. Ltd.), and a share in poultry interests such as Double-S Poultry Ltd. (50%), Huntley Egg Producers (33.3%), Macster Poultry Ltd. (53.8%), Mount Tabor Poultry Ltd. (50%) and Sainsbury-Spillers Ltd. (50%).

3.   Other subsidiaries include:

The Meade-Lonsdale Group Ltd. acquired in 1969 which has extensive interests in the distribution of home produced and imported meat;

Tyne Brand Products (canned fruit, vegetables and meat);

Norie Ltd. (manufacturers of sausages and pies);

Spillers Foods Ltd. (flour and meat based convenience foods);

Henry Jones Ltd. (suppliers to the catering trade);

Lakeland Food Industries Ltd. (private label suppliers);

Mario & Franco Restaurants acquired in 1973;

Spillers Food Services (rusks, spices, flavourings).

4.   In 1972 approximately 66 per cent. of Spillers Ltd.'s turnover was in food for human consumption.

BROOKE BOND LIEBIG LTD. 1972 Turnover

£262.9 million

1.   Brooke Bond and Co. Ltd. was established in 1892 as wholesale tea dealers and distributors with the brand names Brooke Bond and P.G. Tips. This interest has been extended so that the company through its wholly and partially owned subsidiaries in Asia and Africa now manages some 39,000 acres of tea estates. Interests have now been developed in instant coffee.

2.   In 1968 Brooke Bond acquired new interests in meat and meat extracts when it merged with the Liebig Extract of Meat Co. Ltd. This new company, Brooke Bond Liebig Ltd., owns extensive cattle ranches amounting to $2\frac{1}{2}$ million acres in Argentina, Paraguay, and Rhodesia, and imports meat for wholesaling, meat extracts and canning (Fray Bentos brand). Brooke Bond Liebig's most recent acquisition is the chain of butcher's shops, Baxters Ltd., made in 1974.

3.   Other important food manufacturing subsidiaries include:-

Brooke Bond Liebig Foods Ltd.
     Beefex Products Ltd.
     Home and Country Tea Co. Ltd.
     Liebig Food Service Ltd.
     Oxo Ltd. (meat extracts)
Brooke Bond Oxo Ltd.
     Brooke Vale Ltd. (fruit and vegetables)
     Haywards Foods Ltd. (pickles)
Brooke Bond Frozen Eoods Ltd.
Oxoid Ltd. (meat extracts)
Somervest Ltd. (meat)
Brown and Knight Ltd. (meat)
S.S. Smith & Son (Tea Brokers) Ltd. (94.3%)
Tea Blenders Ltd. (51%)
     Tenco Brooke Bond Ltd. (25.5%)

J. LYONS AND CO. LTD.   1972   Turnover
                                                     £259.0 million

1.   J. Lyons & Co. Ltd. were selling ice cream in 1922 and beg10n wholesaling ice cream in 1924. In 1962 Nielson's was acquired and soon after in 1963 the ice cream interests of J. Lyons, Nielson's and Eldorado were merged to form Lyons Maid Ltd. as a subsidiary of Glacier Foods Ltd. This firm was jointly held by J. Lyons, 44 per cent; Union International, 39 per cent., Nestlé Co. Ltd., 15 per cent. and W.D. Mark & Sons Ltd., 2 per cent. However, in 1970 J. Lyons acquired Union International's and W.D. Mark and Son's shares to hold an 85 per cent. interest in Glacier Foods Ltd. with the remaining shares held by Nestlés. J. Lyons ice cream interests were extended further in 1969 when the Tonibell Manufacturing Co. Ltd. was acquired from British American Tobacco Ltd.; Bertorelli's Ice Cream Ltd. was also acquired in the 1960's, and these firms are held presently under Lyons Ice Cream Holdings Ltd.

2.   J. Lyons began its interests in the frozen food industry in 1963 when it, together with Union International, bought "Eskimo" foods from Associated Fisheries. In 1968 Nestlés' Findus Ltd. merged with the Lyons-Union International but later Union International sold its interest to J. Lyons so that "Findus" frozen foods are now held equally by J. Lyons. and Nestlés.

3.   By 1969 J. Lyons had taken a controlling interest in J.W. French & Co. (grain millers), and in 1971 the flour and bread interests of J. Lyons and the CWS were merged; but in 1972 these concerns were sold to Spillers Ltd. During a period 1965-1968 J. Lyons acquired Sol Café Ltd. from an American corporation, Chock Ful o'Nuts, and this gave Lyons an interest in coffee. J. Lyons acquired the cake plants of Scribbans-Kemp and International Stores in 1970, and these interests were extended with the acquisition of Hale-Trent Holdings Ltd. in 1974. J. Lyons jointly holds Rose Kia Ora Sales Co. Ltd.

with Cadbury-Schweppes, and has become through this association a
leading supplier of private label soft drinks.

4.   Other food manufacturing subsidiaries not previously
mentioned include:

> Lyons Bakery Ltd.
> Morning Bakeries Ltd.
> Linden Bakery Ltd.
> Lyons Groceries Ltd.
> Symbol Biscuits Ltd.
> Fox's Biscuits Ltd.
> Tetley Tea Co. Ltd.
> Garden Isle Ltd. (canned fruit and vegetables)
> W. Symington & Co. Ltd. (canned foods)
> Henry Telfer Ltd. (meat products for catering
>   and private label).

5.   In 1972 J. Lyons & Co. Ltd. derived approximately 50
per cent. of its turnover from food manufacture and distribution, with
22 per cent. of this arising from overseas sales, a further 16 per cent.
from its catering and hotel operations, and the remainder from invest-
ments in property.

		Turnover
FITCH LOVELL LTD.	1972	£186.7 million

1. Fitch & Son Ltd. was registered in 1920 and merged with Lovell & Christmas Ltd. (registered in 1893) in 1958 to form the present company Fitch Lovell Ltd. Lovell & Christmas Ltd. holds subsidiaries such as Blue Cap Ltd. (milk products, fruit and vegetable canning), De Haan Ltd. (meat canning) and Newforge Ltd. (fruit and vegetable canning).

2. Recent acquisitions include the David Greig supermarket chain in 1970, R. Gonzalez & Co. Ltd. (shippers of wines and spirits) and Edwin Bevington Ltd. (fruit and vegetable wholesalers) in 1972, and a 76 per cent. share of the Robert Daniel Group in 1973 (cash and carry warehouses). In 1974 Hale-Trent Cakes Ltd. was sold to J. Lyons Co. Ltd.

3. Other subsidiaries of Fitch Lovell give the firm diverse interests in meat and poultry, and other food products but only 16 per cent. of turnover is derived from food manufacturing activities as wholesaling (48 per cent.) and retailing (33 per cent.) form more significant interests financially.

4. Important food manufacturing and other subsidiaries include:-

R. Gunner Ltd. (meat)
B.L. Wood Ltd. (ham, bacon)
W.L. Miller & Sons Ltd. (sausages)
Thomas Forde & Co. Ltd. (bacon, ham, lard)
Fitch Lovell Poultry Ltd. (Golden Produce)
Fresh Fields Foods Ltd. (margarine) (50%)
L. Noel & Sons Ltd. (herbs, spices, specialities)
Roberts and Birch Ltd. (meat)

Key Markets Ltd., (supermarkets)
I. Bear & Sons Ltd. (wholesale provisions)

ROWNTREE MACKINTOSH LTD.

Turnover

1972   £169.7 million

1.   The chocolate and sugar confectionery firm of Rowntree & Co. Ltd. (registered 1897) acquired the similar concern John Mackintosh & Son Ltd. in 1969. Rowntree Mackintosh is now extending its interests into other foods such as biscuits and grocery products. It holds 16 per cent. of the share capital of Associated Biscuit Manufacturers, but in 1974 it realised its holdings in Northern Foods Ltd. and Cavenham Ltd.

2.   The following indicates the main food manufacturing subsidiaries of Rowntree Mackintosh:

Beech Nut Sweets Ltd.
British Biscuits Ltd.
Creamola Food Products Ltd.
W & M Duncan Ltd.
Gray Dunn & Co. Ltd. (biscuits)
Alfred Hughes & Sons Ltd.
Maconochie Bros. Ltd.
Hill Biscuits Ltd.
Foxes Glacier Mints Ltd.
Steward, Esplen & Greenhough Ltd.
Sun Pat Products Ltd. (nuts)
Whitefields Ltd.

3.   In 1972 home sales accounted for 60 per cent. of turnover, sales in the EEC, 17 per cent. and 23 per cent. of sales were made in the rest of the world.

FMC LTD.   1972   £168.1 million

1.   The Fatstock Marketing Corporation was set up on the decontrol of meat in 1954 by the three main farming unions as a meat marketing enterprise. In 1960 the firm changed its name and became registered as the Farmers Meat Company Ltd., and then FMC Ltd. in 1962 when the company become public. It was in this year that Marsh & Baxter Ltd. were acquired, which incorporated C & T Harris Ltd., The Dunmow Flitch Bacon Co. Ltd., A Kirkpatrick & Sons Ltd., The Vale of Mowbray Bacon Co. Ltd., the Wiltshire Bacon Co. Ltd., and other meat firms; and this group of companies held control over 45 per cent. of the capacity for British Bacon processing. FMC Products Ltd. was established to manage subsidiaries processing meat by-products, and controlled such firms as Dewar and Davidson (hides, skins and dripping) as well as a number of other fellmongers, hide and skin dealers and woolbrokers.

2.   In addition to these subsidiaries FMC Ltd. also controls:-

Lancashire Turkeys Ltd.
Blue Rosette Hatcheries Ltd.
Aberdeen Scotch Beef Co. Ltd.
Inverurie Scotch Meat Co. Ltd.
Hygrade Pig Producers Ltd.
United Fresh Meat Co. Ltd.
Winsford Bacon Co. Ltd.

Turnover

MARS LTD. (Mars Inc. USA)   1972   £158.1 million

Subsidiaries:

Mars Food Ltd.
      Dornay Foods Ltd.
      Four Square Catering and Vending Ltd.
Mars Ltd.
      Petfoods Ltd.
      Thomas's Ltd.

UNITED BISCUIT HOLDINGS LTD.

Turnover

1972   £128.5 million

1.   United Biscuits was formed in 1948 from a merger between Macfarlane Lang & Co., and McVitie and Price Ltd., and became known as United Biscuits Holdings Ltd. in 1966. The company has remained largely one of biscuit manufacturers with growing interests in allied products such as cakes, tarts, crisps, nuts and snacks acquired by a series of takeovers in the 1960's. In 1962 D.S. Crawford Ltd. was acquired which has a substantial number of subsidiaries. Meredith and Drew Ltd. was acquired from Associated British Foods in 1967, and likewise Kenyon Sons and Craven Ltd. in 1968. Crimpy Crisps Ltd. and Branded Foods Ltd. were acquired in 1969. In 1971 United Biscuits merged their cake interests with those of Cadbury-Schweppes to form the company McVitie and Cadbury Cakes Ltd. Cavenham Ltd. sold its biscuit manufacturing interests to United Biscuits in 1972 which included such companies as Carrs of Carlisle, Kemps Biscuits Ltd. and Wright & Son Ltd. As a result of this growth United Biscuits Ltd. has become the largest group of biscuit manufacturers outside the USA.

2.   United Biscuit Holdings Ltd. also incorporates interests in grain milling through the firms Jas. Bowman and Sons Ltd., Clark and Butcher Ltd., and in 1970 Montgomerie & Co. Ltd.

3.   Other food manufacturing subsidiaries include:-

William Crawford & Sons Ltd. (biscuits)
William Macdonald & Sons Ltd. (biscuits)
Also, the restaurant chain "Oodles"

Turnover

H. J HEINZ & CO. LTD.   1972   £104.8 million

(a wholly owned subsidiary of the
H.J. Heinz Co.)

1.   H.J. Heinz & Co. Ltd. was registered in 1917 as canners of vegetables, and began soup production in 1930. In 1948 the company became public. In 1966 Heinz acquired J.G. Read (Poultry) Ltd. and in 1967 acquired the Samor Pure Foods Ltd. which held Montrose Canned Foods Ltd. and Thames Valley Canneries Ltd. as its subsidiaries. In 1968 an 80 per cent. share of Moss Waltham and Co. Ltd., processors of meat, was held which included the subsidiaries Leanstock Ltd. and George Allen Catering Ltd. Pickering Foods Ltd., manufacturers of milk based puddings and fruit pie fillings, was acquired from Fisons Ltd. in 1969, and this firm incorporated Dinnodog Products Ltd. (frozen pet foods) and Lowercroft Warehouses Ltd. A 70 per cent. share is held in W. Darlington and Sons (Holdings) Ltd. growers of mushrooms which includes various mushroom growing and spawn producing subsidiaries as well as Worthing Canners Ltd. Other subsidiaries include: Tender Weekend Joints Ltd. and Steralcon Food Products Ltd. The Heinz brand products include such food items as soup, baked beans, baby foods, custard, milk puddings, sauces, spreads, sponge puddings, pasta and beefburgers, manufactured and processed in its 11 factories.

J. BIBBY & SONS Ltd.

Turnover

1972   £103.7 million

1.   J. Bibby & Sons Ltd. was founded in 1878, registered in 1914 and became a public company in 1951. The company has a range of food manufacturing interests although its main concerns tend to be more connected with agricultural production than food manufacture. The activities of the company include agricultural feeds and seeds, eggs, chicks, processed poultry, grocery products, canned foods, vegetable oils and derivatives, and wholesale bakery and catering products. Princes Foods Ltd. was acquired in 1968 manufacturing spreads and canning fish, together with its subsidiaries Abbey Foods Ltd. (fruit and vegetables) and W.T. Marriott Ltd. (cooked meats). N. Riech Ltd. was acquired in 1967.

2.   Other food manufacturing subsidiaries include:-

Twydale Turkeys Ltd.
Palethorpes Ltd. (sausages and meat products)
Norfolk Newlay Egg Co. Ltd.
J. Bibby Food Products Ltd. (margarine, compound
                                                    cooking fat, tinned fish)
J. Bibby Services Ltd.

NESTLÉ COMPANY LTD.

(subsidiary of Nestlé Alimentana S.A.)

1.   In 1866 the small Swiss company Anglo-Swiss Condensed Milk Co. was founded and by 1905 this firm had opened five plants in Britain. In this year this company merged with Soc. Henri Nestlé, who had been manufacturing baby foods since 1865 and chocolate since 1875, to form Nestlé and Anglo Swiss Condensed Milk Co. In 1914 Nestlé acquired Fussell and Company, a small English condensing firm in Salisbury. With increasing trading restrictions the company was forced to establish several foreign trading companies to enable expansion to continue. Expansion of interest was rapid up to the late 1920's but during the slump years the firms was forced to contain its growth and consolidate its interests.

2.   Mid-way though the 1930's the company realised the need to develop product lines other than milk products and chocolate as more profits could be made from the development of specialities. By 1937 only 51 per cent. of the British market for condensed milk was supplied by British owned firms. In that year the company decided to reorganise its operations to become the Nestlé and Anglo-Swiss Holding Co. with the Nestlé and Anglo-Swiss Condensed Milk Co. under it to be responsible for production, and Unilac Inc. was formed in Panama to manage the company's North and South American interests. Some of the more important factories controlled by the company in Europe were Nestlé Milk Products, London; Hollandia Anglo-Dutch Milk and Food Co., Vlaardingen; Soc. Nestlé, Brussels; and Soc. Nestlé, Intra, Italy.

3.   Nestlé was careful not to over expand during the Second World War and emerged ready to tackle the reconstruction

period with the specialities it was developing. Nestlé had introduced Nescafé, the first soluble powdered coffee, in 1939 and Nestlé still holds 50 per cent. of the instant coffee market today, despite competition from General Foods Ltd. and J. Lyons and Co. Ltd. In 1946 Nestlé amalgamated with the Maggi Company (Alimentana S.A.) which was engaged in soup manufacture. As a result the company was renamed Nestlé-Alimentana S.A. while the Maggi concern was renamed Entreprises Maggi S.A.

4. In 1948 the Nestlé Company Ltd. was registered in Britain to control this country's manufacturing interests. Nestlé acquired a controlling interest in Findus Ltd., frozen food processors, in 1962. In 1968 Nestlé's Findus merged with the Lyons-Union International concern "Eskimo". This brand name was dropped when Union International sold its interest to Lyons and Findus was then jointly owned by Nestlé and Lyons. In 1960 Nestle acquired Crosse and Blackwell Ltd. which then claimed 20 per cent. of the soup market and now claims 27 per cent. (1973). It also holds interests in pickles (Branston), baked beans and canned spaghetti. In 1964, freeze dried coffee was introduced under the brand names Blend 37, and Gold Blend, and in 1970 Nescafé in powdered form was replaced by an agglomerated product trades as 'granules'. In 1973 the Nestlé Company Ltd. purchased a share in British Vending Industries Ltd.

5. Within the United Kingdom Nestlé owns 17 factories manufacturing the following products:

Condensed and Evaporated Milk	(Nestlés, Ideal)
Tinned Milk and Cream	(Nestlés)
Milk Powder and instant chocolate drinks	(Nestlés, Nesquick)

Cheese, butter   (Swiss Knight)
Yogurt, desserts   (Chambourcy, Sweet Heart)
Coffee and tea extracts   (Nescafe, Fine Blend,
      Gold Blend, Blend 37)

Liquid drinks
Chocolate and Cocoa confectionery   (Nestles)
Dietic Milk Foods and specialities
Soups, seasonings and condiments   (Crosse and Blackwell)
Frozen Foods   (Findus)
Jam and Preserves   (Keiller)

98

Turnover

1972   £95.8 million

1.   The British Sugar Corporation was registered in 1936 under the Sugar Industry (Reorganisation) Act of that year for the purpose of amalgamating 15 British beet sugar companies. The sugar industry was already highly concentrated before the merger, and this merger was responsible for a further increase in trade concentration. As a result of this statutory reorganisation the British Sugar Corporation holds a monopoly in beet sugar processing in the United Kingdom, and traditionally the Government has subsidised beet growers by covering any losses made by the Corp- oration. Sugar beet production was limited to help Commonwealth cane sugar producers so that only a third of the sugar refined in the United Kingdom is obtained from beet sugar. A Commonwealth Sugar Agreement guaranteed a raw sugar price and the Sugar Act of 1956 provided control for refiners' processing margins between the prices of raw and refined sugar. As from February 1973 the Corporation was required to make an agreement with the EEC. and its Common Agricultural Policy regulations.

2.   In 1973 the British Sugar Corporation employed 5,278 persons in 17 factories engaged in the manufacture of sugar from beet. Sugar beet was grown in this year by 25,000 farmers on 443,000 acres of land in Great Britain producing approximately 892,400 tons of white sugar, 582,450 tons of dried sugar beet pulp and 91,850 tons of molasses. The Corporation achieved a 1973 turnover of £96 millions with a trading profit of £12½ millions and holds a nominal capital of £10 millions.

THE MILK MARKETING BOARDS

1.   The United Kingdom Milk Marketing Boards were instituted in 1933 to be responsible for regulating sales of milk. They operate like producer co-operaties responsible for finding a market for all liquid milk produced in the United Kingdom and a fiar return on this for the producers. The country is divided into five regional Milk Marketing Board areas as follows: England and Wales, Scottish, Aberdeen and District, the North of Scotland and Northern Ireland. These Boards negotiate annually with the Government the price to be fixed for liquid milk within a guaranteed price system. The price for milk for manufacture is negotiated between the creamery proprietors and the respective Milk Marketing Board. The Boards organise the transfer of milk supplies to ensure requirements are met adequately throughout the country. They also provide certain veterinary, advice and research services for producers.

2.   Farmers intending to produce milk must be registered as such with the Milk Marketing Board for their area, and this enables certain hygienic standards to be assured. They become either 'wholesale producers' by contracting to sell their milk to the Board which directs supplies to buyers, or 'producer retailers' who retail all or part of their milk production with the authorisation of the Board. Farmers may also become Farmhouse Cheesemakers permitted under special contract with their Board to make cheese on the farm. It is only this group of producers who have increased in number in recent years although they remain fair in number having risen from 240 in 1970 to 285 in 1973. Over this same period wholesale producers in the United Kingdom declined from

99,384 to 85,663, retail producers from 8,016 to 6,454 and producer retailers with producer wholesale contracts from 7,338 to 5,956. This amounts to a considerable decrease in the number of milk producers and farmhouse cheesemakers from 114,978 in 1970 to 98,358 in 1973.

3. The Milk Marketing Boards own 49 creameries and dairies set up or acquired to enable all milk supplies to be taken up. These units employed some 6,000 persons in 1972 and manufactured some 24 different products under such brand names as 'Country Life', 'Dairy Crest' and 'Scottish Pride'. From the 1,307 million gallons of milk available for manufacture 1972-1973, the Milk Marketing Boards' creameries handled approximately 14 per cent. for creamery cheesemaking, 30 per cent. of milk used in butter production, 25 per cent. of milk used in spray milk powder manufacture and 10 per cent. of that used for yogurt production.

4. From 1972 to 1973 the Boards contributed nearly 6 millions to advertising and sales promotion. Milk Publicity Councils have been in operation with the joint support of the Milk Marketing Boards and the dairy trade to promote the sale of milk. The Boards also give considerable support to the Cheese Information Service and the Butter Information Council.

5: MEASURES OF CONCENTRATION

Coverage of Firms and Data Sources

5.1:   To measure concentration in the food
processing industry by the EEC indices such as the Linda
index has made it necessary to compile information on individual
enterprises. Such data have been obtained from the published
accounts of quoted and unquoted companies, standardised by
the Companies Division of the Department of Industry. "Quoted"
companies are those with a quotation of the London Stock Exchange.

5.2:   The enterprises studied are those engaged
mainly in the United Kingdom in food manufacturing, as
delimited by the Department of Industry, with net assets of
£2.0 million or more and/or gross income of £200,000 and
over in 1968. Those operating wholly or mainly overseas
have been excluded. The classification of companies to
industry groups, as the basis of their main activity, is some-
what arbitrary for those companies with interests in a number
of manufacturing and service industries. Consequently, certain
companies classified to Retail or Wholesale Distribution by the
Companies Division of the Department of Industry, have been
included in our sample, by virtue of their considerable interests
in food manufacturing, and the strong relationship of their
distribution activities to the food processing sector. Such
classification is difficult. In example, the 1974 Company
Report of Clover Dairies Ltd. states that the company's
"activities are so intermingled and interdependent that it would
not be relevant to given an analysis and indeed to do so would
be misleading." Major companies reclassified in this way in
1972 are Associated Dairies Ltd., Brooke Bond Liebig Ltd.,
Clifford's Dairies Ltd., Clover Dairies Ltd., Danish Bacon Co.

Ltd., FMC Ltd., Fitch Lovell Ltd., Marshall's Universal Ltd., Northern Foods Ltd. (formerly Northern Dairies Ltd.), S & K Holdings Ltd., Swift & Co. Ltd., Unigate Ltd. and Wright's Biscuits Ltd. (before their acquisition by Cavenham Ltd.).

5.3: Wherever possible the accounts used in the analysis are the consolidated accounts of groups of companies forming the enterprise. Balance sheets and profit and loss accounts of subsidiary companies within each group are included in the consolidated accounts. The data, therefore, are not confined to activities within the United Kingdom. Similarly, where a company is excluded because it operates mainly overseas, such as Reckitt and Colman Ltd. after 1969, the subsidiaries of that company are automatically excluded regardless of whether they operate in the United Kingdom or not. Unilever provides the one exception to using accounts of the whole group. Unilever comprises Unilever Ltd. and Unilever N.V., who have identical Boards of Directors and are linked by agreements in such a way that "the combined affairs of Limited and N.V. are more important to shareholders than the separate affairs of either company." In terms of a study of the United Kingdom food processing industry the affairs of Unilever Ltd. alone are more important, since Unilever N.V. operates almost exclusively overseas. Consequently, only the consolidated accounts of Unilever Ltd. are included in the population.

5.4: Data from the consolidated accounts are not confined solely to activities in food processing. The operations of subsidiaries engaged in other than food processing will be included. Whilst in most instances this proviso is unimportant, in the case of some of the larger, more highly

diversified companies, particularly Unilever Ltd., care must be taken in interpreting the data. The standardised consolidated accounts used here provide the most accurate data available for individual enterprises. They also have the merit of providing a consistent set of data across enterprises. However, we have made some estimates of the non-food activities of the very largest firms which are used in Appendix C to assess their effects on the measurement of concentration, which should also be borne in mind when interpreting the EEC indices.

5.5: The data relate to the period 1969 to 1972, the most recent year for which comprehensive figures are available. Figures relate to the companies' accounting years finishing between April 6th of the year under consideration and April 5th of the following year. Of the quoted companies about 40 per cent. have accounting periods ending in the fourth quarter of the calendar year and about 30 per cent. end in the first quarter.

5.6: There still remain a limited number of concerns, particularly the Co-operative Societies and the Milk Marketing Boards, with extensive food processing interests, who are excluded from this analysis because of the non-comparability of some of their financial data. Their principal importance lies in the individual product sectors some of which are investigated in our subsequent report. Certain firms, with a parent company clearly classified to an industry group other than food manufacturing, but with some food interests, are also omitted from the population. For example, Express Dairy Co. Ltd. is included in the consolidated accounts of Grand Metropolitan Hotels Ltd., which is clearly not classified to food manufacturing.

5.7: To supply an adequate basis for the quantitative measurement of concentration, 11 variables have been extracted for each company in the population; namely turnover, (01), employment (02), wages and salaries (03), net profit (04), cash flow (05), gross investments (06), own means (07), exports (08), retained profit (11), net assets (12), investment in subsidiaries (13).

5.8: The definitions of certain of these variables which need clarification, are:

Turnover (01) Total sales, excluding inter-group sales.

Net Profit (04) is defined as cash flow less depreciation provisions i.e. net profit before tax.

Cash-flow (05) The definition used here is that given to us by the EEC. It is a gross cash flow comprising gross trading profits (after charging directors fees and emoluments, pensions to past directors, superannuation payments, compensation for loss of office, auditors' fees etc.) and other income (from investments and other sources) before allowing for depreciation provisions, plus prior year adjustments other than tax, less hire of plant.

Gross Investments (06) - Net expenditure on tangible fixed assets.

Own Means (07) This EEC term is given as the sum of issued ordinary and preference share capital plus total reserved.

Retained Profit (11) is net profit before tax less amounts written off, less UK and overseas tax on profits of year, less tax equalisation and other deferred tax, plus prior year tax adjustments, less dividends, loan interest (other than bank and short term) and asset renewals and replacements.

Net Assets (12)   are fixed assets, after deduction of depreciation, plus total current assets, less total current liabilities.

Changes in Numbers of Quoted and Unquoted Companies

5.9:   The total number of companies, quoted and unquoted, for which data were extracted, was 110 in 1969, of which three-fifths were in the quoted sector. By 1972 the number of companies had fallen to 72, with over three-fifths ($62\frac{1}{2}$ per cent.) in the quoted sector, as shown in Table 5.1. It should be noted that the number of companies differs from the number in Table 3.12, because of the inclusion in the food industry of certain companies classified elsewhere.

5.10:   The major change in the number of companies between 1969 and 1972 occurred largely as a result of companies falling below the size-criteria stipulated in paragraph 5.2, particularly in the 1969-70 period. The only important case of a company being reclassified was Reckitt and Colman Ltd., which was excluded after 1969 since the major part of its business was being carried out overseas.

5.11:   A further significant fall in numbers occurred during 1971-72, but this was due to mergers, rather than to companies falling below size. During the total period 14 companies of the 1969 population were the subject of mergers and takeovers, two-thirds of which occurred in the year 1971-72. More mergers occurred amongst companies in the quoted sector rather than the unquoted sector, and, with one exception, all the acquiring companies were themselves food processing companies.

TABLE 5.1

Changes in Numbers of Quoted and Unquoted Companies

	Quoted	Unquoted	Total
No. of Companies			
1969	66	44	110
1970	51	34	85
1971	50	33	83
1972	45	27	72
Changes in No. of Companies			
1969-70:			
Below-size or rebased	12	10	22
Mergers	3	-	3
1970-71:			
Mergers	1	1	2
1971-72:			
Below-size or rebased	-	2	2
Mergers	5	4	9
Total 1969-72:			
Below-size or rebased	12	12	24
Mergers	9	5	14

Changes in Turnover, Cash Flow, Net Assets and Employment in the Food Processing Sector

5.12:   Total figures for the food processing sector, for each variable, are given in Appendix Table A1, but for ease of reference are reproduced here as Table 5.2. Despite the fall in the number of enterprises, with the exceptions of employment, and investment in subsidiaries, (which has been excluded from the following analysis of concentration indices, since it is based on only a small number of enterprises), all other variables have increased between 1969 and 1972, although there were considerable fluctuations from year to year.

5.13:   Total turnover increased over the whole period by nearly 40 per cent. to £8,084 million in 1972, with over a half of the total increase of £2,266 million occurring between 1971 and 1972. When the decrease in the number of enterprises is taken into account, average turnover per enterprise rose from £52.9 million in 1969 to £112.3 million in 1972, and the periods 1969-70 and 1971-72 showed equally large growth rates.

5.14:   In terms of total cash flow there was also an increase over the whole period, slightly larger than for turnover, at 46 per cent. The major period of growth, both in terms of total cash flow, and average cash-flow per enterprise was between 1971 and 1972. Whilst these figures would superficially indicate that profitability measured by cash flow increased faster than size as measured by turnover, this is not necessarily the case. The EEC computer did not process data of cash flow or of net profit for enterprises which showed a negative value for these measures, and consequently a more detailed system of analysis is required.

TABLE 5.2

Financial Data for the Food Processing Sector, 1969-72

		1969	1970	1971	1972
No.	of enterprises	110	85	83	72
(01)	Turnover (£ Mns)	5817.3	6167.8	6800.7	8083.9
(02)	Employment (00s)	688.1	645.9	625.8	654.7
(03)	Wages & Salaries (£ Mns)	642.4	701.1	771.7	879.5
(04)	Net Profit (£ Mns)	286.7	273.9	317.1	436.0
(05)	Cash Flow (£Mns)	408.6	401.3	452.7	596.6
(06)	Gross Investments (£ Mns)	190.1	205.9	182.9	233.8
(07)	Own Means (£ Mns)	1735.0	1660.0	1838.7	2050.3
(08)	Exports (£ Mns)	870.4	1001.6	1041.0	1062.0
(11)	Retained Profit (£ Mns)	42.9	53.1	62.8	118.4
(12)	Net Assets (£ Mns)	2253.3	2240.4	2482.8	2856.5
(13)	Investment in Subsidiaries (£ Mns)	217.0	(43.9)	152.0	213.5

5.15:   The growth in net assets during the four year period amounted to approximately £600 million, or 27 per cent. As with most other measures of size, there was an increase in net assets per enterprise for every year, with the increase between 1970 and 1971 being somewhat smaller than for the other two periods.

5.16:   Employment is the only size-measure which has exhibited an overall decrease, of over 33,000 persons. The pattern between 1969 and 1971 was one of decreasing total employment and between 1970 and 1971 even employment per enterprise fell slightly, but in the following year employment increased by nearly 5 per cent. and employment per enterprise by over 20 per cent. The difference between these two rates of increase for employment in total and per enterprise may be the result of many of the larger companies expanding their existing interest or extending their activities into new fields.

The 1969 Level of Concentration

5.17: Before examining the direction and magnitude
of changes in concentration among the larger food processing
enterprises during the 1969-72 period it is desirable to establish
the situation prevailing in 1969 itself. The concentration-ratios
for the 4, 8 and 12 largest enterprises by each of the 10 variables
in 1969 are shown in Table 5.3. It must be emphasised that the
identity of the 4, 8 or 12 largest enterprises is not necessarily the
same for each variable, but with the exception of exports (08)
the concentration-ratios for the 4 largest enterprises lie within the
range of $41-47\frac{1}{2}$ per cent., for the 8 largest, 58-68 per cent.,
and for the 12 largest, $64-76\frac{1}{2}$ per cent.

5.18: It is worth noting that whether concentration
relates to the 4, 8 or 12 largest enterprises, it is lowest in terms
of turnover and highest in terms of retained profits. But the fact
that at least two-fifths of turnover, employment and net assets
were controlled by the four largest enterprises in 1969, with the
next four largest sharing roughly another one-fifth, are indications
of the already significantly high degree of concentration in food
processing prevailing in 1969.

5.19: Also shown in Table 5.3 is the summary
measure of the Linda indices (L_s) for 1969, from which it will be
seen that again apart from exports (08), the values fall within a
range of 0.23 for employment (02) and 0.41 for net profits (04),
gross investment (06) and net assets (12).

TABLE 5.3

Concentration Ratios for the 4, 8 and 12 Largest Enterprises and Average
Linda Indices in 1969

Percent.

		4 largest	8 largest	12 largest	L_s
(01)	Turnover	41.1	58.3	64.0	0.28
(02)	Employment	42.8	60.9	71.0	0.23
(03)	Wages and salaries	43.0	61.3	70.9	0.25
(04)	Net profit	44.7	61.9	72.4	0.41
(05)	Cash flow	45.3	62.0	72.5	0.36
(06)	Gross Investment	42.3	58.3	69.8	0.41
(07)	Own means	42.8	60.8	74.0	0.39
(08)	Exports	90.3	93.2	94.9	3.25
(11)	Retained profits	47.4	67.7	76.4	0.28
(12)	Net assets	44.0	63.1	75.9	0.41

112

Concentration Indices

5.20: The tables in Appendix A give estimates of concentration in the food processing industry for each of the four years 1969 to 1972, for each of 11 alternative measures of the size of a firm, using various indices: the coefficient of variation (V), the Gini coefficient (G), the EEC definitions of the Hirschman-Herfindahl index (H) and entropy (E), 8 concentration ratios and 8 Linda indices, the minimum and the maximum of the Linda curve, and an average value of the Linda index. In addition, Linda indices were calculated for all values of $N^*=2,\ldots,60$. In total there are over 2,000 estimates of concentration; these have been prepared as part of a co-ordinated project by the EEC which has commissioned comparable studies for several industries in other member states, using the same definitions and the same indices, to enable comparisons to be made between concentration in different industries in the same country, or between the same industries in different countries. For example, one member country may have data on employment in food-processing but not on assets, and another may have data on assets but not on employment, but both member countries can compare concentration in their food processing industries with that in the United Kingdom using the appropriate table in Appendix A.[+] But for the purpose of this chapter, where we are interested in surveying the level and change of concentration in the United Kingdom food processing industry, it is unnecessary to use concentration measurements based on all 11 variables, and it is also unnecessary to use all the different indices which are available. This section aims to reduce the mass of alternative computations provided by the EEC to a few simple measures which summarise the level and changes in concentration in this industry in recent years.

[+] Part of Appendix A has been published by the EEC in No. 11 of its Tableaux de Concentration series.

5.21: The first simple measure is the traditional con-
centration ratio measuring the share of the top four, CR_4 or top
eight, CR_8 firms in total employment and the nine other size-
measures listed in Table A3 in Appendix A.

5.22: Changes in these concentration ratios are sum-
marised in Table 5.4 excluding those derived from data on
investment in subsidiaries, because the observations available were
considered too few to compare with approximately 100 observations
for each of the other 10 variables. On average, concentration
clearly increased 1969-70, and clearly decreased 1970-71. The
direction of change 1971-72 is uncertain because the concentration
ratio for CR_4 on average decreased and CR_8 increased on the average.
Thus the first problem arises from the well-known tendency for con-
centration curves to cross: some form of average measure of concentration
is required such as those listed in the tables in Appendix A.

5.23: The change in concentration measured by CR_4
or by CR_8 between 1969 and 1972 is not clear: in one instance,
they suggest a fall in concentration, and in the other an increase,
so that, the second problem is to find a test which will enable us to
be confident that observed changes in concentration really did occur
and were not simply due to chance sampling fluctuations based on
the variables or years selected for the sample. The need for such a
test aids the choice between the many concentration indices available,
for there is obviously no point in using an index with an unknown
standard error when measuring relatively small changes over time.

5.24: A third problem which arises when interpreting
the concentration indices concerns the tendency for enterprises to
change rank order over time so that the enterprises in the numerator
of CR_4 or CR_8 are not the same in each year. This dynamic effect
needs to be measured by a dynamic concentration index, which

TABLE 5.4

Directions of Change of Concentration Ratios for Top Four and Top
 Eight Enterprises*

	CR_4		CR_8	
	+		+	
Individual Years				
1969-70	10	0	9	1
1970-71	1	9	1	9
1971-72	4	6	9	1
Whole Period				
1969-72	3	7	6	4

* The ten concentration ratios for each comparison
relate to the ten different measures of size
remaining, after excluding concentration ratios
derived from data on investments in subsidiaries.

TABLE 5.5

Mean and Standard Error of $CR_{N,i}$ (1972) - $CR_{N,i}$(1969)

N	Mean = $\bar{D}_{CN}$	Standard Error
4	-0.705	0.69
8	0.124	0.52
20	1.725	0.24

should also have known sampling properties. This problem will be considered later in this section after a discussion of the static concentration indices.

5.25: The first problem of crossing concentration curves in the upper tail of the distribution could be overcome by finding a minimum CR_N for which all curves move in the same direction. In the Table 3 in Appendix A it can be seen that at CR_{20} the cumulative concentration curve increases between 1969 and 1972 for each of the 10 variables in Table 5.4. But the fact that all curves increased at CR_{20} does not necessarily imply that there was a significant increase in concentration; all estimates are subject to a sampling error and the second problem is to devise a test which enables us to show <u>reliable</u> conclusions on the direction of change in concentration. One way of doing this is to use the Central Limit Theorem and argue that the sampling distribution of the average concentration ratio of all variables for one year tends to normality. This implies that the sampling distribution of the mean difference, $\overline{D}_{CN} = \overline{CR}_N (1972) - \overline{CR}_N(1969)$, is also normal. The variance of this sampling distribution may be estimated by using the variance of the difference $CR_{N,i}(1972) - CR_{N,i}(1969)$ across all 10 variables $(i = 1, .., 8, 11, 12)$, which yield the standard errors of the estimated $\overline{D}_{CN}$, (N = 4, 8, 20) in Table

5.26: It can be seen that for N = 4 and for N = 8 there was no significant difference between the average concentration ratios for 1972 and 1969, but for N = 20 there was a small but significant increase in concentration between 1969 and 1972. That is, the mean increase of 1.725 percentage points was too large to be attributed to chance sampling fluctuations.

5.27: The average statistics of concentration given in the tables in Appendix A are V, G, H, E, and L_s, where L_s is

the average of Linda indices for all L_{N*} up to the minimum value of L_{N*} below 60. The restriction of the range of N^* to an upper limit of 60 was determined by the capacity of the EEC computer. The number of firms used in the estimation of the other averages varies over time and between variables. These differences may be important because some measures depend on N. For example, the H measure equals $(V^2 + 1)/N$ which clearly shows its dependence on N. This relationship was noted in 1945 by Hirschman[**], who first formulated this index, and assists in the choice of index. It is clear that a knowledge of V^2 and N enables us to calculate H uniquely (the opposite is not true) and so H does not provide any independent information. A third reason for not choosing to use the H measure is that its standard error is not known. This is also a limitation of G, E and L_N, but not of V or L_s^* where L_s^* is the mean of all the Linda indices up to $N^* = 60$. The standard error of V is approximately $V/\sqrt{2N}$, providing the sample of N is chosen from a normal population.[+] But it would be unwise to use this standard error in the present context because the population is highly skew and certainly not normal.

5.28: The sampling distribution of L_s^* is normal because it is an average of L_N and the Central Limit Theorem implies that, under very general conditions, the distribution of L_s^* would tend to normality as the size of sample increases. That is Var $(L_s^*) =$ Var (L_N) $/\sqrt{N}$ gives the variance of the sampling distribution of L_s^*, so its standard error can be calculated. Because the distribution of L_s^* is normal, it is possible to estimate confidence limits for L_s^* and test the significance of the change in L_s^* between 1969 and 1972.

[**] Hirschman, A.O. (1945), National Power and the Structure of Foreign Trade, University of California: Berkely

[+] Cf. Kendall, M.G. and Stuart, A. (1969) The Advanced Theory of Statistics Vol. 1 Distribution Theory, (3rd Edition) Griffin: London, p.233. The standard error of V for the general case is also given by Kendall and Stuart, but it is a somewhat cumbersome expression, which it is unnecessary to reproduce here.

Table 5.6 gives L_s^* and its standard error for each of the 10 variables.

5.29: It can be seen that 8 of the 10 values of L_s^* decreased between 1969 and 1972 and one of the values which increased was that for variable 08 (exports) which is clearly atypical and may be ignored for the present purposes of summarising the data. But whether these decreases were statistically significant depends on the standard errors given in parentheses below each mean. Perhaps the simplest way to summarise Table 5.6 is to repeat the test applied to the concentration ratios and work in terms of the differences between $L_{s,i}^*(1972)$ and $L_{s,i}^*(1969)$ across all 10 variables. In fact the mean difference was -0.00495, indicating a small decrease, but the standard error of this difference was 0.00487 so that we cannot be confident that there was any change in the Linda index over the period.

5.30: Similar summaries could be compiled for the differences between the other average measures of concentration in Table A2 in the appendix, but a more interesting approach is to formulate an average of the V, G and E measures. To do this, we must use standard statistical distribution theory.

5.31: The observed distributions are positively skew and are approximately lognormal, even in truncated form. Thus it is reasonable to assume that the population from which the samples of enterprises are chosen is lognormal, with distribution function denoted by $\Lambda(\mu, \sigma^2)$ where μ and σ^2 are the mean and variance of the natural logarithms of the size of firm. This assumption enables us to use standard tests of significance: for example, the F-test on $\hat{\sigma}^2$, the estimate of σ^2, may be used to test the significance of changes in $\hat{\sigma}^2$. Furthermore, in a lognormal distribution all the different concentration indices depend on σ.

TABLE 5.6

Means and Standard Errors of Linda Indices 1969-72

Variable	1969	1970	1971	1972
01	0.2425 (0.1927)	0.2481 (0.2114)	0.2377 (0.2102)	0.2373 (0.2000)
02	0.2311 (0.0104)	0.2304 (0.0108)	0.2140 (0.0104)	0.2157 (0.0085)
03	0.2440 (0.0156)	0.2430 (0.0160)	0.2299 (0.0156)	0.2263 (0.0144)
04	0.2824 (0.0230)	0.3066 (0.0236)	0.2642 (0.0211)	2.8828 (0.0242)
05	0.2842 (0.0225)	0.3001 (0.0230)	0.2678 (0.0216)	0.2810 (0.0233)
06	0.2618 (0.0226)	0.2526 (0.0193)	0.2247 (0.0080)	0.2391 (0.0122)
07	0.2761 (0.0207)	0.2841 (0.0219)	0.2717 (0.0216)	0.2731 (0.0207)
08	2.7942 (0.3790)	3.3755 (0.4899)	3.0529 (0.4169)	2.8289 (0.3615)
11	0.2827 (0.0162)	0.2828 (0.0222)	0.1982 (0.0107)	0.2730 (0.1466)
12	0.2935 (0.0183)	0.2963 (0.0184)	0.2836 (0.0186)	0.2802 (0.0173)

It is known that in a lognormal distribution the following relationships hold:

(5.1) $V^2 = e^{\sigma^2} - 1$

(5.2) $G = 2\phi(\sigma/\sqrt{2}|0, 1) - 1$, where $\phi(0,1)$ is the distribution function of the standard normal curve with mean zero and unit variance.

(5.3) $H = e^{\sigma^2}/N$. The EEC definition used in Table 2 in Appendix A is 1000H

(5.4) $E = -\sum_i y_i \log_e y_i = \log_e N - \frac{1}{2}\sigma^2$ where y_i is the market share of the ith enterprise. The EEC definition used in Table 2 in Appendix A is $-1000E$ in $\log_{10}$.

The relationship between the lognormal distribution and the Linda index, which to the best of our knowledge has not been shown before, is described in Appendix B, where it is shown that the Linda index is also governed by σ.

5.32: Table 5.7 gives the estimates of σ^2 for each of nine variables for 1964 and 1972 derived from V, G and E[+]. The derivations from V and G have been taken from Table A1 in Appendix A of Aitchison and Brown (1957)[*], using linear interpolation between the values they tabulated. It can be seen that, for each year, the estimates of σ for all variables are the same order of magnitude, but that $\hat{\sigma}(G) > \hat{\sigma}(E) > \hat{\sigma}(V)$. However, the differences are small. Indeed, the ratio of a 1969 value of $\hat{\sigma}$ to the corresponding $\hat{\sigma}$ in 1972 is similar for all variables for each

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[+] The derivation of σ^2 from H has been omitted because it must be the same as that obtained from V. Variable 08 (exports) has been omitted because of its atypical values.

[*] Aitchison, J. and Brown, J.A.C. (1957) The Lognormal Distribution, Cambridge University Press.

120

TABLE 5.7

Derivation of σ from V, G and E, 1969-72

Units: logs$_e$

Variable	1969			1972		
	σ(V)	σ(G)	σ(E)	σ(V)	σ(G)	σ(E)
01	1.42	1.74	1.63	1.25	1.51	1.42
02	1.40	1.73	1.63	1.21	1.52	1.41
03	1.41	1.75	1.64	1.22	1.51	1.41
04	1.47	1.82	1.70	1.35	1.59	1.52
05	1.48	1.82	1.70	1.34	1.59	1.51
06	1.44	1.79	1.67	1.27	1.52	1.45
07	1.46	1.83	1.70	1.30	1.61	1.50
11	1.41	1.74	1.64	1.30	1.60	1.50
12	1.47	1.90	1.74	1.28	1.65	1.51

of the three derivations. Consequently, the 27 estimates of σ for each year may be combined to perform an F test on the significance of the difference between $\hat{\sigma}^2$ in 1969 and in 1972. In fact, the overall mean value of $\hat{\sigma}$ in 1969 was 1.716 compared with 1.566 in 1972 and the F-test becomes F = (2.95/2.45) = 1.2 which is not significant at the 5 per cent. level, for with (100,100) degrees of freedom the value of F_p is approximately 1.35. That is, with data on approximately 100 enterprises, the ratio of σ^2 in 1969 and 1972 would have to exceed 1.35 before we could be confident that the variance of the logarithms really declined over this period. Thus the conclusion reached by using the Linda index, V, G and E is that there was a small decrease in the degree of business concentration in this sector over the period 1969-72 but it was too small to be regarded as statistically significant.

5.33:   These estimates of average concentration, of standard errors, and significance tests solve the first and second problems involved in measuring changes in concentration in the food processing industry, but they cannot solve the dynamic problem of measuring changes in the rank order of enterprises. To do this we need more powerful techniques. One appropriate technique is to use the relationship of $\sigma_t/\sigma_{t-1} = \beta/\rho$ where β is the regression of the logarithm of size at time t on the logarithm of size at time t-1 and where ρ is the associated correlation coefficient. As explained in Hart and Prais (1956)[**], β measures the proportionate growth of larger enterprises relatively to small enterprises and ρ is a measure of size mobility. It would be possible to use a rank correlation coefficient to measure changes in rank order, but because some enterprises are very close together in size and a very small difference in their

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[**]   Hart, P.E. and Prais, S.J. (1956). The analysis of business concentration: a statistical approach. Journal Royal Statistical Society, A, 119 pp 150 - 191.

respective growths can change their order, it is better to use ρ , which gives small weight to such small variations in growth and large weight to large variations in growth.

5.34: It is not possible to estimate β or ρ from the tables in the Appendix and thus we have to use the original data. It would be possible to estimate β and ρ for each of the 10 variables, or for any combination of them, or for a new variable if this was considered preferable. In fact, if only one variable is used to calculate β and ρ , it is preferable to use the output or value added of each enterprise; turnover depends on the extent of vertical integration, exports are not a measure of size, and all the other variables reflect the effects of one input only, either labour or capital. Value added, which is equal to gross profits plus wages and salaries, reflects the influence of labour and capital together. It is true that it is in money terms, but this does not matter: because of the logarithmic transformation, σ^2, β and ρ are not affected by the deflation for price changes. Table 5.8 uses the natural logarithms of value-added to estimate μ , σ^2, β , ρ and the residual variance σ_ϵ^2. Similar tables could be compiled for the 10 variables examined earlier.

5.35: Table 5.8 shows that the geometric mean value-added of the largest 50 enterprises in 1969 increased by 61.5 per cent., since antilog$_e$ (9.4074 - 8.9283) = 1.615. However, while $\hat{\mu}$ is affected by price changes, $\hat{\sigma}^2$ is not altered by deflating by a price index. It can be seen that $\hat{\sigma}^2$ fell from 1.7884 in 1969 to 1.7479 in 1972, which is consistent with the Linda indices in Table 5.6 and with the results of Table 5.7 , even though Table 5.8 uses only the largest 50 enterprises. However, an F-test shows that the ratio of these estimated variances is not significantly different from unity, at the 5 per cent. level, so we cannot be confident that the observed decline cannot be attributed to chance sampling

TABLE 5.8

Dynamic Concentration Parameters for Value Added in Food Processing Enterprises, UK, 1969-72

Units: $\log_e$

	1969	1972
N	50	50
$\hat{\mu}$	8.9283	9.4074
$\hat{\sigma}$	1.3373	1.3221
$\hat{\sigma}^2$	1.7884	1.7479
$\hat{\beta}$	0.9359	
$S(\hat{\beta})$	0.0460	
t	20.35	
$\hat{\rho}$	0.9467	
$\hat{\sigma}_\epsilon^2$	0.1779	

9

fluctuations. Again, this conclusion is consistent with those derived from Tables 5.6 and 5.7.

5.36: The decrease in the point estimate of the σ'^2 measure of concentration is also shown by the fact that $\hat{\rho} > \beta$. The point estimate of β is 0.9359 which suggests that the proportionate growth of the very largest enterprises in food processing was slightly below that of their rivals. But once again, when its standard error, $S(\hat{\beta}) = 0.0460$, is considered it is clear that $\hat{\beta}$ is not significantly below unity.

5.37: The value of $\hat{\rho} = 0.9467$ is high (and the value of the residual variance is low), but the period 1969 to 1972 is too short to obtain reliable measures of the change in concentration. Although the period 1969-72 chosen by the EEC has the advantage of being comparable with the period studied in other member countries, it would have been better, from some points of view, to have taken a longer period, such as 1962-1972, even if the intervening years were omitted.

5.38: We may summarise the results of the extensive tests as follows. Our concern is with the changes in the degree of concentration among the largest enterprises in the food processing industry over the relatively short period 1969-72. Because the period is short we must expect that comparisons will be blurred by random fluctuations, and even by errors of measurement in the company accounts, and that these may prevent us from discerning the longer term structural development. Statistical tests of significance have been applied to the observed changes in the concentration indices. They show that although most of the concentration indices declined over the period, the decreases were not statistically significant and, consequently, the conclusion to draw is that concentration in the food processing sector as a whole was much the same in 1972 as in 1969. This does not mean that there have been no significant changes in concentration

in individual food products within the whole food processing sector,
as will be seen in our subsequent studies of selected food products.

Profitability and Size of Firm

5.39:   All the measures of concentration in Appendix A
are derived from univariate distributions of firms. To measure the
relationship between two variables, such as profitability and size,
it is necessary to have measures derived from bivariate distributions.
It is impossible to estimate the parameters of a bivariate distributions
from the parameters of its two marginal, univariate distributions,
without introducing restrictive assumptions such as the assumption
that the correlation between the two variables is unity. In
particular, it would be wrong to conclude that the larger firms by
assets are more profitable than the smaller firms by assets simply
because, for example, the Linda index or σ^2 for profit is larger than
the Linda index or σ^2 for assets. The reason is simple enough; the
rank order of firms by assets is not the same as by profit. For
example, suppose large firms are less profitable than small firms.
Hence some large firms by assets are unprofitable and have lower
rank by profit, and some small firms by assets are highly profitable
and have higher rank by profit. Estimates of σ^2 by profit would
still exceed σ^2 by assets for though each estimate relates to the
same firms, they are ranked in different order by different variables.

5.40:   To overcome this problem, it is necessary to use
measures derived from a bivariate distribution such as Table 5.9
which is a bivariate frequency distribution of 100 enterprises in the
food processing industry by two variables, namely employment in
1969 and average profitability 1969 to 1972, where profitability
is the ratio of gross profit to assets for each enterprise.

TABLE 5.9

Distribution of 100 Enterprises in U.K. Food Processing Industry by Employment
In 1969 and Average Profitability 1969-72

Average Profitability 1969-72 % — Upper Limits	Employment 1969											Σ
	125	250	500	1,000	2,000	4,000	8,000	16,000	32,000	64,000	128,000	
7.07				1			1					2
10		1	1	1								3
14.14				2	1	2	1	1	1	2		10
20		1	2	4	7	4	3	3	1	2		27
28.28	1	2	3	8	3	3	2	3	2		2	29
40		3	3		8	5	1					20
56.56		1	1	2	1	1						6
80				2			1					3
Σ	1	8	10	20	20	15	9	7	4	4	2	100

5.41:   The sum in the bottom row of Table 5.9 gives the univariate distribution of enterprises by employment, and the other sum on the extreme right hand column gives the univariate distribution of enterprises by profitability. For both variables logarithmic size classes are used, for reasons which are obvious.   For employment each class interval is equal to unity in terms of logarithms to the base 2, whereas for profitability each class interval equals one half in logarithms to the base two. That is, the unit logarithmic class intervals (5, 10, 20, 40, 80) for profitability have been divided into two at the geometric mean of each class. For example, $\sqrt{(10 \times 20)}$ = 14.14.

5.42:   An inspection of the univariate distribution of enterprises by profitability reveals that the median class is 20 - 28.28 per cent. This is also the modal class, which is not surprising, because if the distributions by profit and by assets are lognormal, then the distribution by the ratio of profit to assets is also lognormal and the median and mode are equal.

5.43:   If the logarithm of profitability is independent of size of firm, as measured by the logarithm of employment, then the median for each column should be the same. An inspection of the columns shows that the median is in the class 20 - 28.28 per cent. for the six lowest size classes of employment, but for the larger enterprises above 4,000 the median is smaller and is in the profit-ability class 14.14 - 20 per cent. The exception is the column with two largest enterprises which have median profitability. Thus Table 5.9 suggests that, apart from the two largest enterprises, smaller firms have higher median profitability than do larger firms. This table also shows that larger firms have a smaller dispersion of profit rates than do smaller firms, which is another matter.

5.44:   The finding that larger firms tend to have lower profitability is consistent with the results of the investigation by the Monopolies Commission into the relationship between size of firm and profitability in the food processing sector.   Table 5.10 summarises its results.

5.45:   The first part of Table 5.10 ranks 47 food companies by their profit rates on assets in 1969.   It can be seen that the first quartile group, containing the companies with the highest profit rates, was small having an average of only £4.6 million assets in 1969.   The second part of Table 5.10 ranks the 47 companies by assets, showing that the largest companies in the first quartile group earned a profit rate of 11.9 per cent. compared with the average for all 47 companies of 11.8 per cent.   The smaller companies in the fourth quartile group earned 16.8 per cent.

5.46:   Tables 5.9 and 5.10 are interesting and suggest that the larger enterprises are not the most profitable.   However, more rigorous estimates of the relationship between size and profitability are required.   To do this, the following regressions were introduced from the bivariate distributions of the specified variables:-

5.5 $\log (P/K)_i = \alpha_1 + \beta_1 \log W_i + \varepsilon_{i1}$

5.6 $\log (P/K)_i = \alpha_2 + \beta_2 \log Y_i + \varepsilon_{i2}$

5.7 $\log P_i = \alpha_3 + \beta_3 \log K_i + \varepsilon_{i3}$

where for the ith enterprise, P_i is gross profit, K_i is net assets, and W_i is numbers of employees.   The results of the regression analysis are shown in Table 5.11 for the same 50 companies used in Table 5.8.

5.47:   Each of the equations is estimated from averages of 1969 and 1972 values.   Table 5.11 suggests there is a slight tendency

TABLE 5.10

The Profit Rates for 1969 for Quartile Groups of the 47 Companies in the Food
Manufacturing Industry, Ranked by Size of Profit Rate

Quartile Group	Number of Companies	Profit	Net Assets	Profit per cent. of net assets	Average net assets per company
		£m	£m		£m
First	12	12.2	55.0	22.2	4.6
Second	11	58.3	355.7	16.4	32.3
Third	12	37.8	415.7	9.1	34.6
Fourth	12	10.6	182.6	5.8	15.2
Total	47	118.9	1,008.9	11.8	21.5

The Profit Rates for 1969 for Quartile Groups of the 47 Companies in the Food
Manufacturing Industry, Ranked by Size of Closing Net Assets

Quartile Group	Number of Companies	Net Assets	Profit	Profit per cent. of net assets	Average net assets per company
		£m	£m		£m
First	12	898.0	106.7	11.9	74.9
Second	11	78.9	6.5	8.2	7.2
Third	12	21.9	4.0	18.3	1.8
Fourth	12	10.1	1.7	16.8	0.8
Total	47	1,008.9	118.9	11.8	21.5

Source: Monopolies Commission Report on
the Supply of Ready Cooked
Breakfast Cereals p.39

TABLE 5.11

Estimates of Equations 5.5 to 5.7

	5.5	5.6	5.7
$\hat{\alpha}$	-0.896	-1.041	-0.473
$S(\hat{\alpha})$	0.409	0.465	0.401
$\hat{\beta}$	-0.0747	-0.053	0.891
$S(\hat{\beta})$	0.0473	0.050	0.041
t	1.58	1.07	(2.66)
$\hat{\rho}^2$	0.0494	0.023	0.909

for the very largest enterprises to be _less_ profitable than their

smaller rivals. The point estimates of $\hat{\beta}$ in equations 5.5 and

5.6 are negative, but their standard errors indicate that they are

not significantly different from zero, so the safest conclusion is

that these equations indicate that there is no relationship between

profitability and size. The same result is shown by the very low

values of ρ^2

     5.48:   Equation No.5.7 suggests that a one per cent.

increase in the assets of an enterprise is associated with a

0.891 percent. increase in its profit. That is, since 0.89 is signi-

ficantly below unity, there is a slight tendency for profitability

to decrease with size. Thus the more formal regression analysis

confirms the impressions given by Tables 5.9 and 5.10.

6: SUMMARY AND CONCLUSION

The main findings of this study can be briefly summarised as follows:

6.1: Consumer demand	The volume of spending on food in the United Kingdom has increased by only 6½ per cent. in the last decade, and when account is taken of population-increases, by only 0.2 per cent. a year.

Spending per head among households on convenience foods increased, however, by 2 per cent. a year between 1963 and 1972, and quick-frozen foods within that category by over 9 per cent. a year. Thus, processed foods have shown a considerable expansion, and are estimated to have accounted for nearly three-fifths of total household spending in 1972.

6.2:
Net Output

Before allowing for price-increases, the net output of the food processing trades rose by more rhan two-thirds between 1968 and 1972. With employment virtually unchanged, net output per head in real terms has been increasing at 1½ - 2 per cent. a year.

Food processing has increased its contribution to total net output of all UK manufacturing industry from 7 per cent. in 1968 to 8 per cent. in 1972.

6.3:
Imports and
exports

Manufactured foods represented an increasing share of all UK food imports between 1962 and 1968, but may have fallen since then. Exports of manufactured foods represented only 3 per cent. of UK production in 1968, when they were equivalent to roughly one-fifth of processed food imports. By 1973, exports of manufactured foods are estimated at 20-25 per cent. of processed food imports.

6.4:
Advertising

Advertising expenditure on TV and in the press for food products amounted to nearly £90 millions in 1973, or one-fifth of the total for all products. Although food products are the most heavily advertised of 21 identified groups, expenditure in relation to household spending at little more than 1 per cent. in 1973 was fractionally lower than in 1968.

6.5:
Number and size
of enterprises

It is estimated that there were about 2,500 enterprises classified to the food processing trades of the Census of Production in 1968, of which over three-fifths employed less than 25 persons. At the other end of the scale, there were 56 enterprises employing more than 1,000, accounting for over three-tenths of establishments and more than three-quarters of total employment.

Although the proportion of total employment accounted for by enterprises with over 1,000 persons was much the same in 1968 as in 1963, such enterprises were larger in number in 1963 than in 1968.

Among the individual trades within the food processing industry, the number of enterprises employing more than 1,000 persons fell between 1963 and 1968 in 5 out of 8 trades where data are available, while their share of total trade employment increased.

6.6:
Sales
Concentration
Ratios

The 1968 Census of Production gives data on the proportion of sales held by the 5 largest enterprises for 33 products, with comparable data for 1963 in the case of 30 of these products. Out of these 30 products, 14 showed an increase in concentration between 1963 and 1968, 9 lower concentration and 7 where it did not change. But whereas only 4 of the 14 products where concentration rose had ratios of over 80 per cent. in 1968, 7 of the 9 with a fall in concentration had ratios of over 80 per cent. in 1963.

6.7:
Mergers

Merger activity among food processing firms reduced the numbers of quoted companies with assets of more than £500,000 in 1961 from 85 in 1957 to 39 in 1968, while their net assets more than doubled during the same period.

Roughly one-half of the net assets of £171 million involved in mergers among these companies between 1958 and 1968 were accounted for by mergers within the food sector, with the greater part of the remainder relating to mergers between food and retail distribution companies.

In the 1969-73 period there have been 81 instances where the larger quoted food companies have acquired other companies (the latter numbering 97 in all) involving total expenditure amounting to £238 millions.

6.8: Foreign
Owned Companies

Foreign owned companies represent about one-fifth of the 71 larger quoted and unquoted larger food companies, but less than one-tenth of their capital employed.

Even so, foreign owned companies accounted for more than one-half of the sales of soups, condensed and evaporated milk, coffee, and over one-third of pickles, sauces etc., preserved vegetables and potato crisps.

6.9: Growth
in net Assets

Out of the 21 largest quoted and unquoted food processing companies there were 7 which registered an increase of at least one-third in their net assets between 1969 and 1972. In addition, 7 companies spent more than £10 millions on investment in subsidiaries during this period, and in each case growth by acquisition accounted for at least one-half of their increase in net assets.

Out of 22 leading food processing concerns,
five are active in at least six out of the
11 Census food processing trades. Similarly,
nine of the 22 have extensive interests in
wholesale and retail distribution.

6.10:
Financial
Data

For the purposes of assessing changes in
concentration at the industry scale, financial
and other data were extracted for 110 quoted
and unquoted companies in 1969, but by
1972 their numbers had been reduced to 72.
Of the reduction in numbers, 24 were due
to the introduction of a new size-criterion
from 1970 onwards, and 14 because of
mergers.

For the whole population, turnover increased
by 40 per cent. between 1969 and 1972, but
on average, turnover per enterprise more than
doubled. Net assets increased in total by
27 per cent. but employment fell by around
5 per cent.

6.11:
Concentration
Indices

Concentration has been measured in terms
of 10 variables. The concentration ratios
in 1969 for the four largest enterprises lie
within the range $41-47\frac{1}{2}$ per cent., for the
eight largest 58-68 per cent., and for the
12 largest $64-76\frac{1}{2}$ per cent. Concentration
in 1969 was lowest in terms of turnover,
and highest in terms of retained profit.

By all 10 variables, the relative importance
of the four largest firms (in terms of the
individual variables) increased between 1969
and 1970, but in the following year 1971,
the relative importance of the four largest
companies fell for nine out of the 10
variables and in 1972 it also fell for six
out of the 10 variables. Taking the 1969-
72 period as a whole, the concentration-
ratio for the four largest enterprises increased
for three of the variables, but fell for the
other seven.

Conversely, during the whole period the concentration-ratio for the eight largest enterprises increased for six out of the 10 variables, but fell by the other four variables.

While the average concentration-ratios based on the four and eight largest enterprises show no significant change between 1969 and 1972, there was a small but significant increase in concentration during this period in terms of the 20 largest enterprises.

For eight out of the 10 variables, the average Linda index (L_s^*) decreased between 1969 and 1972. However, in terms of the mean differences between the Linda index in 1969 and 1972 over all the variables, although a small decrease was evident, it was not statistically significant.

On the assumption that the population from which the samples of enterprises are chosen is lognormally distributed, the variance of the natural logarithms of the size of firms was estimated from V, G and E. These variances indicated a small decrease in the degree of business concentration between 1969 and 1972, but it was too small to be regarded as statistically significant.

Consideration of the changing rank order of enterprises similarly indicates that the observed decline in concentration may be due to chance sampling fluctuations.

Examining the relationships between size of firm and profitability leads to the conclusion that larger firms tend to have lower profitability, which is consistent with published findings of the Monopolies Commission.

6.12:
Conclusion:

The conclusion to be drawn from the detailed study of the concentration indices is that concentration in the food processing sector as a whole was much the same in 1972 as in 1969, but more reliable measures of the trends in concentration requires that a longer time period be considered.

APPENDIX A

Concentration Indices

IV/A-5 ———— CONCENTRATION INDUSTRIELLE ————

TABLEAU NO 1

EVOLUTION DES DONNEES GLOBALES : TOTAL DU SECTEUR ET ECHANTILLON   1969 - 1972

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

PAGE   1

VARIABLE : 01 CHIFFRE D'AFFAIRES (1000 LIVRES STERLING)

| | TOTAL | | | ECHANTILLON | | | |
ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	110	5817.308	100	60	5644.160	100	97.02
1970	85	6107.642	106	60	6053.004	107	98.14
1971	83	6830.711	118	60	6685.570	118	98.31
1972	72	8093.896	138	60	8033.918	142	99.38

VARIABLE : 02 EFFECTIF

| | TOTAL | | | ECHANTILLON | | | |
ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	110	668.099	100	60	645.100	100	96.56
1970	85	645.893	96	60	633.117	98	98.02
1971	83	625.825	93	60	611.885	95	98.10
1972	72	654.708	97	60	649.922	100	99.27

IV/A-3

CONCENTRATION INDUSTRIELLE

TABLEAU NO 1

1969 - 1972

PAGE 2

EVOLUTION DES DONNEES GLOBALES : TOTAL DU SECTEUR ET ECHANTILLON

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES :

VARIABLE : 03 MASSE SALARIALE (1000 LIVRES STERLING)

| | TOTAL | | | ECHANTILLON | | | |
ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	110	642.405	100	60	620.990	100	96.67
1970	85	701.069	109	60	686.498	110	97.92
1971	83	771.707	120	60	756.744	121	98.06
1972	72	879.534	136	60	872.500	140	99.20

VARIABLE : 04 BENEFICE NET (1000 LIVRES STERLING)

| | TOTAL | | | ECHANTILLON | | | |
ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	107	236.714	100	60	279.368	100	97.61
1970	83	273.864	95	60	270.020	96	98.59
1971	82	317.072	110	60	312.760	111	98.63
1972	71	436.005	152	60	433.192	154	99.35

CONCENTRATION INDUSTRIELLE

TABLEAU NO 1

1969 - 1972

PAGE 3

EVOLUTION DES DONNEES GLOBALES : TOTAL DU SECTEUR ET ECHANTILLON

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(H.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 05 CASH FLOW (1000 LIVRES STERLING)

| | | TOTAL | | | ECHANTILLON | | |
ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	108	408.563	100	60	397.482	100	97.29
1970	83	401.263	98	60	394.337	99	98.29
1971	82	452.456	110	60	445.271	112	98.37
1972	72	596.560	146	60	592.221	148	99.27

VARIABLE : 06 INVESTIS. BRUTS (1000 LIVRES STERLING)

| | | TOTAL | | | ECHANTILLON | | |
ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	107	190.103	100	60	185.975	100	97.83
1970	85	205.871	108	60	202.020	108	98.13
1971	78	182.859	96	60	181.142	97	99.04
1972	69	235.835	123	60	235.053	125	99.67

IV/A-3

IV/A-3

CONCENTRATION INDUSTRIELLE

TABLEAU NO 1

EVOLUTION DES DONNEES GLOBALES : TOTAL DU SECTEUR ET ECHANTILLON

1969 - 1972

PAGE 4

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD,
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 07 CAPITAUX PROPRES (1000 LIVRES STERLING)

ANNEE	TOTAL			ECHANTILLON			E/T %
	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	
1969	110	1735.018	100	60	1688.423	100	97.31
1970	85	1660.002	95	60	1630.719	96	98.24
1971	83	1838.713	105	60	1809.989	107	98.44
1972	72	2050.311	118	60	2036.041	120	99.30

VARIABLE : 03 EXPORT. (1000 LIVRES STERLING)

ANNEE	TOTAL			ECHANTILLON			E/T %
	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	
1969	77	870.442	100	60	869.874	100	99.93
1970	68	1001.555	115	60	1001.481	115	99.99
1971	66	1040.982	119	60	1040.928	119	99.99
1972	59	1061.950	122	58	1061.939	122	100.00

IV/A-3

CONCENTRATION INDUSTRIELLE

TABLEAU NO 1

1969 - 1972

PAGE 1

EVOLUTION DES DONNEES GLOBALES : TOTAL DU SECTEUR ET ECHANTILLON

PAYS   : UNITED KINGDOM
INSTITUT   : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES :

VARIABLE : 11 BENEFICE NON DISTRIBUE   (1000 LIVRES STERLING)

| | | TOTAL | | | | ECHANTILLON | | |
ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	89	42.948	100	60	42.240	100	98.35
1970	79	53.053	123	60	52.401	124	98.77
1971	80	62.288	146	60	61.707	146	98.28
1972	68	118.406	275	60	118.136	279	99.77

VARIABLE : 12 ACTIF NET   (1000 LIVRES STERLING)

ANNEE	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	110	2253.306	100	60	2201.588	100	97.70
1970	85	2240.434	99	60	2207.880	100	98.55
1971	83	2482.835	110	60	2450.643	111	98.70
1972	72	2856.530	126	60	2840.394	129	99.44

CONCENTRATION INDUSTRIELLE

IV/A-3

* TABLEAU NO 1 *

EVOLUTION DES DONNEES GLOBALES : TOTAL DU SECTEUR ET ECHANTILLON

* 1969 - 1972 *

PAGE 2

PAYS   : UNITED KINGDOM
INSTITUT   : DEVELOPMENT ANALYST LTD;
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 13 PORTEFEUILLE "INVESTISSEMENTS"   (1000 LIVRES STERLING)

ANNEE	TOTAL			ECHANTILLON			
	N	VALEUR (T)	1969=100	N*	VALEUR (E)	1969=100	E/T %
1969	32	217.046	100	31	217.043	100	100.00
1970	?)	43.767	20	30	43.867	20	100.00
1971	22	152.031	70	21	152.028	70	100.00
1972	33	213.481	98	32	213.480	98	100.00

IV/A-3

EVOLUTION DE LA CONCENTRATION

*TABLEAU NO 2

PAGE 1

TOTAL DU SECTEUR

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES :

VARIABLES : 01 CHIFFRE D'AFFAIRES   02 EFFECTIF   03 MASSE SALARIALE
04 BENEFICE NET   05 CASH FLOW   06 INVESTIS BRUTS
07 CAPITAUX PROPRES   08 EXPORT.   09 IMPORT.   10

ANNEE

1969

	N	M	V	G	H	E
01	110*	52.885*	2.55761*	.73151*	68.55809*	-146.29363
02	110*	6.074*	2.45536*	.77837*	63.80905*	-146.75448
03	110*	5.840*	2.52055*	.78248*	67.12213*	-145.67785
04	107*	2.680*	2.79611*	.80122*	82.41340*	-139.91710
05	108*	3.783*	2.81207*	.79968*	82.47386*	-140.32940
06	107*	1.777*	2.65920*	.79387*	75.43325*	-142.55114
07	110*	15.773*	2.71574*	.80406*	76.13878*	-141.05749
08	77*	11.304*	7.43993*	.94460*	731.85159*	-38.94728

1970

	N	M	V	G	H	E
01	85*	72.565*	2.28572*	.73870*	73.22967*	-143.14499*
02	85*	7.599*	2.14392*	.73884*	65.83973*	-143.70764*
03	85*	8.248*	2.20369*	.74102*	68.89729*	-143.01823*
04	83*	3.500*	2.68301*	.77128*	98.77763*	-133.82222*
05	83*	4.854*	2.62298*	.76386*	94.94022*	-135.38242*
06	85*	2.422*	2.28166*	.74553*	73.02193*	-142.22808*
07	85*	19.529*	2.50721*	.76507*	85.71856*	-137.48653*
08	68*	14.729*	7.13868*	.94394*	764.12848*	-34.71236*

1971

	N	M	V	G	H	E
01	83*	81.936*	2.17047*	.72856*	68.80620*	-144.43107
02	83*	7.540*	2.01581*	.72246*	60.90364*	-146.04350
03	83*	9.299*	2.09511*	.72852*	64.83244*	-144.66836
04	82*	3.867*	2.36059*	.74951*	80.49708*	-139.51054
05	82*	5.520*	2.38161*	.74708*	81.36689*	-139.61886
06	78*	2.344*	1.97246*	.74060*	62.70003*	-141.54540
07	83*	22.153*	2.31998*	.75792*	76.89515*	-139.21026
08	66*	15.772*	6.94959*	.94099*	746.92083*	-36.69725

1972

	N	M	V	G	H	E
01	72*	112.276*	1.95733*	.71371*	67.09914*	-141.89582*
02	72*	9.093*	1.82149*	.71635*	59.96986*	-142.46206*
03	72*	12.216*	1.87123*	.71406*	62.52085*	-142.49305*
04	71*	6.141*	2.29423*	.73973*	88.21804*	-135.18872*
05	72*	8.286*	2.26319*	.73785*	85.02791*	-136.35619*
06	69*	3.389*	2.00744*	.71747*	73.01241*	-138.36478*
07	72*	28.477*	2.10504*	.74406*	75.43345*	-136.81498*
08	59*	17.999*	2.45225*	.93034*	722.56730*	-39.59512*

IV/A-3

EVOLUTION DE LA CONCENTRATION
****

*TABLEAU NO 2 *
****

TOTAL DU SECTEUR
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PAGE 1

PAYS   : UNITED KINGDOM
INSTITUT   : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-b)
ENTREPRISES :
VARIABLES : 11 BENEFICE NON DISTRIBUE
             12 ACTIF NET
             13 PORTEFEUILLE "INVESTISSEMENTS"

ANNEE	VARIABLE	N	M	V	G	H	E
1969	1 1	89*	.483*	2.51796*	.77960*	82.47326*	-136.75749*
	1 2	110*	20.485*	2.77233*	.81856*	78.96177*	-138.04453*
	1 3	32*	6.783*	3.00392*	.87977*	313.23531*	-68.43976*
1970	1 1	79*	.672*	2.52308*	.73664*	93.23935*	-137.16945*
	1 2	85*	26.358*	2.46280*	.78347*	83.12234*	-135.17385*
	1 3						
1971	1 1	80*	.785*	1.87699*	.69789*	56.53860*	-148.46104*
	1 2	83*	29.914*	2.28671*	.77428*	75.04881*	-137.03213*
	1 3	22*	6.910*	3.68443*	.89836*	662.50256*	-37.60772*
1972	1 1	68*	1.741*	2.10338*	.74066*	79.76786*	-134.60122*
	1 2	72*	39.674*	2.02945*	.75453*	71.09280*	-135.93635*
	1 3	33*	6.469*	2.16957*	.81325*	172.94105*	-91.13083*

IV/A-3

E V O L U T I O N   D E   L A   C O N C E N T R A T I O N

TABLEAU NO 3

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

1969 - 1972

PAGE 1

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 01 CHIFFRE D'AFFAIRES

ANNEE	INDICES L ET CR RELATIFS A N* =									ECHANTILLON							COURBES L			
	4	8	10	12	20	30	40	N*	N*: HC<	L: N*HC	N+ : HC:	1ER MAXIMUM L: N+H	2EM MAXIMUM : N* : Mi	MINIMUM L : N+M					
1969 L : .61054	.32866	.26732	.25255	.19353	.19032	.17870*	110100	.19028* 2	.99660 2	.99660 2	.9966 .17734								
CR *41.05	58.33	64.01	68.97	81.51	88.96	93.21	97.02												
1970 L : .04955	.32961	.28901	.25954	.20536	.19149	.17647*	85140	.19346* 2	1.10390 2	1.10390 2	1.10390 .17622								
CR *42.09	59.85	65.49	70.44	82.32	89.61	94.16	95.14												
1971 L : .66611	.31582	.27861	.25520	.19536	.17352	.16960*	83160	.18972* 2	1.10783 2	1.10783 2	1.10783 .16718								
CR *40.91	58.69	64.46	68.98	81.45	89.91	94.40	95.31												
1972 L : .01704	.28187	.24466	.22219	.19060	.17714	.17780*	72160	.22309* 2	1.05616 2	1.05616 2	1.05616 .17182								
CR *39.21	58.75	65.46	70.97	83.68	91.91	96.12	99.38												

IV/A-3

EVOLUTION DE LA CONCENTRATION

****
* TABLEAU NO 3 *
****
* 1969 - 1972 *
****

PAGE 2

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY (N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 02 EFFECTIF

INDICES L ET CR RELATIFS A N* :

ANNEE		4	8	10	12	20	30	40
1969	CR	42.75	60.93	66.71	70.79	81.79	88.24	92.03
	L	.46529	.29607	.26845	.25420	.21811	.20745	.19526*
1970	CR	43.60	61.93	67.30	72.03	82.54	89.28	93.44
	L	.40061	.29380	.26761	.25693	.22367	.20185	.18812*
1971	CR	41.93	59.37	65.20	69.59	81.78	89.03	93.35
	L	.43578	.29068	.26137	.24578	.19571	.18391	.17610*
1972	CR	39.84	60.95	67.99	72.55	84.68	91.92	95.62
	L	.40638	.23865	.21677	.21871	.18683	.18950	.19067*

COURBES L :

	ECHANTILLON		1ER MAXIMUM		2EM MAXIMUM		MINIMUM		L N*M
	N	L	N* : N*H<		N* : H		N* : M		
1969	110160	96.56	.17843* 2		.61018 2		.61018 60		.17843
1970	85160	93.02	.17770* 2		.62643 2		.62643 60		.17770
1971	83160	98.10	.16822* 2		.58767 2		.58767 53		.16534
1972	72160	99.27	.21487* 2		.54801 2		.54801 22		.18150

IV/A-3

E V O L U T I O N   D E   L A   C O N C E N T R A T I O N

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*   TABLEAU NO 3    *
*                   *
*   1969  -  1972   *
*                   *
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INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

PAGE   3

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 03   MASSE SALARIALE

ANNEE	L ET CR	INDICES L ET CR RELATIFS A N* =							N*	COURBES L						
		4	8	10	12	20	30	40	N	ECHANTILLON		1ER MAXIMUM		2EM MAXIMUM		MINIMUM
										N* : L(N*)		N* : N*H<		N* : N+H		N* : N+M
1969	L	.47376	.11059	.28740	.26580	.21059	.21817	.19684	110160	.13809	96.67	2	.97961	2	.97961	.18459
	CR	43.01	61.31	66.65	70.90	82.60	86.59	92.43								
1970	L	.46227	.31041	.28479	.26313	.22044	.21237	.19181	85160	.16552	96.67	2	.99007	2	.99007	.18322
	CR	43.78	62.00	67.51	71.88	83.28	89.48	93.53								
1971	L	.43530	.30367	.27812	.25184	.20173	.19438	.18008	83160	.17690	97.92	2	.95600	2	.95600	.17533
	CR	42.58	60.32	65.85	70.44	82.47	89.35	93.65								
1972	L	.43381	.27301	.24180	.22900	.18530	.18622	.18942	72160	.21442	98.06	2	.90765	2	.90765	.18101
	CR	40.73	60.10	66.48	71.23	84.48	91.77	95.62								

IV/A-3

EVOLUTION DE LA CONCENTRATION

****
* TABLEAU NO 3 *
* *
INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)
* 1969 - 1972 *
*
****

PAGE 4

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 04 BENEFICE NET

INDICES L ET CR RELATIFS A N*

ANNEE	ET/CR	N	4	8	10	12	20	30	40
1969	L		.63741	.37033	.32082	.27196	.21390	.22294	.23112*
	CR		44.73	61.92	67.30	72.44	85.16	91.15	94.18
1970	L		.69912	.40631	.35668	.32965	.27743	.25257	.23670*
	CR		49.37	66.53	71.61	75.78	91.49	91.49	94.77
1971	L		.61345	.36294	.31489	.27711	.23188	.20449	.19068*
	CR		45.29	61.90	67.47	72.31	83.65	90.78	95.03
1972	L		.67162	.37827	.31581	.27080	.21603	.21768	.22457*
	CR		46.19	62.75	68.39	73.75	86.67	93.22	96.45

	ECHANTILLON		1ER MAXIMUM		2EM MAXIMUM		MINIMUM	
	N :	N* : L	N*< : HC<	N*< : L	N*+ : H<	N*+ : L	N*+M : M :	L : N*M
1969	107160	.22654	2 : 1.32779	2 : 1.32779	2 : 1.32779	2 : 1.32779	:	.21420
1970	83160	.22702	2 : 1.33006	2 : 1.33006	2 : 1.33006	2 : 1.33006	:	.21700
1971	82160	.21616	2 : 1.14418	2 : 1.14418	2 : 1.14418	2 : 1.14418	:	.18841
1972	71160	.25793	2 : 1.34310	2 : 1.34310	2 : 1.34310	2 : 1.34310	:	.20741

151

IV/A-3

E V O L U T I O N   D E   L A   C O N C E N T R A T I O N

* TABLEAU NO 3 *
* 1969 - 1972 *

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

PAGE 5

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD,
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 05 CASH FLOW

INDICES L ET CR RELATIFS A N* *

ANNEE	ET/CR %	4	8	10	12	20	30	40	N
1969	L	.63006	.35609	.31069	.27180	.21881	.23002	.23473	102160
	CR	45.27	61.99	67.41	72.49	84.84	91.01	93.99	
1970	L	.66758	.39000	.35451	.31808	.24805	.24830	.23554	83160
	CR	48.90	65.58	70.52	74.77	85.55	91.25	94.52	
1971	L	.61418	.36151	.31114	.28724	.22548	.20193	.19848	82160
	CR	45.54	62.04	67.77	72.07	83.66	90.94	94.81	
1972	L	.65451	.38032	.31001	.26514	.20776	.20592	.21971	72160
	CR	45.69	61.73	67.58	72.95	86.13	93.15	96.39	

C O U R B E S   L

ECHANTILLON	1ER MAXIMUM		2EM MAXIMUM		MINIMUM	
N* : L	N*HC< N+HC N+L : H	N*	N+H : M	N*	M : L	N*M
97.29 : .22910*	1.29825	2	1.29825	2	1.29825	.21023
98.29 : .22371*	1.29582	2	1.29582	2		.21631
93.37 : .21448*	1.19260	2	1.19260	2		.19503
99.27 : .25677*	1.27772	2	1.27772	2		.20242

152

EVOLUTION DE LA CONCENTRATION

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*********************          *
                              * TABLEAU NO 3
INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)   * 1969 - 1972
                              *
*********************          PAGE    6
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PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT-ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 06 INVESTIS BRUTS

INDICES L ET CR RELATIFS A N= *

ANNEE		4	8	10	12	20	30	40
1969	L	.63?2	.76173	.9370	.25491	.19?82	.19378	.20022
	CR	42.31	53.26	64.55	69.76	84.2?	90.84	94.41
1970	L	.64261	.33247	.28067	.24412	.20609	.20550	.19414
	CR	42.38	59.68	66.01	71.45	83.63	90.52	94.31
1971	L	.37699	.29000	.24810	.21193	.1774	.20388	.20700
	CR	42.41	60.52	66.96	72.98	85.38	92.01	95.29
1972	L	.57180	.35339	.29561	.25575	.19465	.19865	.18527
	CR	46.19	60.77	66.69	71.86	85.45	92.08	96.31

COURBES

ECHANTILLON		1ER MAXIMUM		2EM MAXIMUM		MINIMUM	
N	L	N*	HC	N*	H	N+H	N*M
107160	.20939					1.21102	.18901
85160	.19741					1.00424	.19325
78160	.21368					.56079	.19356
69160	.22520					.58294	.18494

IV/A-3

IV/A-3

E V O L U T I O N   D E   L A   C O N C E N T R A T I O N

TABLEAU NO 3

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

1969 - 1972

PAGE 7

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 07 CAPITAUX PROPRES

INDICES L ET CR RELATIFS A N* =

ANNEE		4	8	10	12	20	30	40	N
1969	L	.64461	.31891	.25161	.23123	.21659	.22452	.22832*	110160
	CR	42.75	60.78	68.64	74.01	85.36	91.33	94.37	
1970	L	.66390	.33213	.30028	.28355	.24635	.22461	.22128*	85160
	CR	45.96	64.59	70.37	74.66	85.05	91.43	94.89	
1971	L	.65743	.31981	.25071	.23061	.21119	.21356	.22254*	83160
	CR	42.40	60.63	68.56	73.94	85.96	92.21	95.29	
1972	L	.55437	.28488	.23997	.22521	.21720	.21422	.23110*	72160
	CR	42.31	63.09	70.61	75.94	87.23	93.56	96.61	

C O U R B E S   L

ECHANTILLON*1ER MAXIMUM : 2EM MAXIMUM : MINIMUM

	N*	L N*HC	N* L N*H	N* M L N*H	N* M L N*H
1969	.24892* 2	1.23339	2 1.23339	18	.21320
1970	.22969* 2	1.28220	2 1.28220	33	.21996
1971	.23691* 2	1.25494	2 1.25494	18	.20893
1972	.26972* 2	1.28047	2 1.28047	29	.21364

154

IV/A-3

E V O L U T I O N   D E   L A   C O N C E N T R A T I O N

****
* TABLEAU NO 3 *
* *
* 1969 - 1972 *
****

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

PAGE 8

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 08 EXPORT.

INDICES L ET CR RELATIFS A N* =

ANNEE*		N*=	4	8	10	12	20	30	40
1969	L		9.56638	4.97347	4.08630	3.44965	2.01253	1.65709	1.47141
	CR		90.29	93.23	94.10	94.85	97.29	98.66	99.40
1970	L		11.28028	6.16464	4.87182	3.95284	2.19008	1.77325	1.59769
	CR		91.34	93.73	94.52	95.26	97.63	98.99	99.66
1971	L		10.17516	5.25782	4.26460	3.55670	2.10179	1.74108	1.58153
	CR		90.84	95.67	94.53	95.29	97.64	98.95	99.62
1972	L		9.41474	4.52276	3.75977	3.22038	1.87046	1.49505	1.47335
	CR		89.95	93.07	94.04	94.82	97.41	99.05	99.70

ECHANTILLON*1ER MAXIMUM : 2EM MAXIMUM : MINIMUM

C O U R B E S   L

	N	N*I :	L :	N* :	HC< :	N*HC :	N* :	L :	N*H :	M :	N*H :	L
	77141	60	1.66377	2	17.67137	2	17.67137				1.43394
	68160	60	3.28309	2	24.15926	2	24.15926	43			1.59370
	66160	60	2.78185	2	21.00762	2	21.00762	41			1.58024
	59158	60	3.02217	2	15.91430	2	15.91430	37			1.65728
		00.00	99.99		99.99		99.99		99.62		

IV/A-3   E V O L U T I O N   D E   L A   C O N C E N T R A T I O N

* TABLEAU NO 3 *

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

* 1969 - 1972 *

PAGE   1

PAYS   : UNITED KINGDOM
INSTITUT   : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE :   11   BENEFICE NON DISTRIBUE

ANNEE* L *   INDICES   L   ET   CR   RELATIFS   A   N*

ANNEE			4	8	10	12	20	30	40			N	ECHANTILLON							COURBES			
	ET													1ER MAXIMUM	2EM MAXIMUM	MINIMUM							
	CR												N*	H<I	N+	H<C	L	N*H	2EM MAXIMUM	N+	H<	L	N+H	MINIMUM	N+M	L
1969	L	.51906	.31471	.30906	.30574	.27405	.25224	.23506*		89I60	.21116*	2	.21165	98.35										
	CR	47.38	67.71	72.74	76.39	85.34	91.05	94.32																
1970	L	.66643	.43743	.38616	.35614	.28057	.22273	.18968*		79I60	.18441*	2	1.03739	2	1.03739	59	2	1.03739					.20948		
	CR	49.92	64.26	69.03	72.56	81.97	89.06	93.76						98.77										
1971	L	.41254	.27279	.25140	.23713	.19358	.17091	.15066*		80I60	.15155*	2	1.11242	2	1.11242	50	2	1.11242					.17314		
	CR	39.62	57.64	63.36	67.73	79.71	87.66	92.90						98.28										
1972	L	.58896	.31849	.27051	.25116	.23165	.23594	.21930*		68I60	.26864*	3	.53349	2	.53349	45	2	.53349					.14263		
	CR	45.45	64.56	71.54	76.63	87.72	93.31	96.91						99.77					.78485	3	.78485	40	.21930	

IV/A-3

E V O L U T I O N   D E   L A   C O N C E N T R A T I O N

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

* TABLEAU NO 3 *
* 1969 - 1972 *

PAGE   2

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 12 ACTIF NET

INDICES L ET CR RELATIFS A N* =

ANNEE	L/CR	4	8	10	12	20	30	40
1969	CR	*44.00	*63.12	*71.33	*75.86	*87.15	*92.54	*95.23
1969	L	.59833	.31339	.24663	.24716	.22634	.24900	.25875
1970	CR	*45.32	*66.07	*72.74	*77.20	*87.62	*93.02	*95.85
1970	L	.59213	.29584	.27310	.26193	.24741	.25017	.25712
1971	CR	*41.80	*62.55	*71.60	*76.19	*88.04	*93.55	*96.14
1971	L	.58598	.27747	.21965	.22803	.21088	.23567	.25707
1972	CR	*40.93	*63.95	*72.18	*76.66	*89.09	*94.78	*97.23
1972	L	.49967	.24333	.21075	.22369	.19463	.22676	.26526

C O U R B E S   L

ECHANTILLON

	N*	N	N*H<	1ER MAXIMUM N* : L	N*H : L	2EM MAXIMUM N*H : L	MINIMUM N*M : L
N*	60	:110	.28881*	2 : 1.10745	2 : 1.10745	15 : .22591
N*	60	:85	.27775*	2 : 1.12536	2 : 1.12536	19 : .24376
N*	60	:83	.23214*	2 : 1.10421	2 : 1.10421	17 : .21087
N*	60	:72	.31391*	2 : 1.11382	2 : 1.11382	20 : .19463

97.70
98.55
98.70
99.44

157

IV/A-3   EVOLUTION DE LA CONCENTRATION

****
* TABLEAU NO 3 *
*   *
* 1969 - 1972 *
*   *

INDICES LINDA (L) ET RATIOS DE CONCENTRATION (CR)

****

PAGE   3

PAYS   : UNITED KINGDOM
INSTITUT   : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE : 13   PORTEFEUILLE "INVESTISSEMENTS"

ANNEE		INDICES L ET CR RELATIFS A N* =								COURBES										
										ECHANTILLON		1ER MAXIMUM		2EM MAXIMUM		MINIMUM					
		4	8	10	12	20	30	40	N	N*	L	N*	HC<	N*HC	H<	N*H	N+H	MI	M	L	N*M
1969	L	1.17648	1.45696	1.48546	1.63669	2.23513	7.56310	.00000	31	31	8.98516	2	.84226	2	8.98516	2	.34226
	CR	88.97	96.79	97.69	98.53	99.76	00.00	.00
1970	L	.41414	.44224	.38665	.37802	.47779	2.24311	.00000	30	30	2.24311	2	.64802	2	2.24311	2	.37422
	CR							
1971	L	3.82636	2.77966	3.57706	3.64181	6.78015	.00000	.00000	21	21	8.43785	2	5.99493	2	8.43785	2	2.77966
	CR	93.75	98.58	99.07	99.46	99.99	.00	.00
1972	L	.54612	.53606	.56084	.78615	1.20821	2.55648	.00000	32	32	7.03347	3	.70999	3	7.03347	5	.42763
	CR	72.63	92.68	96.23	97.32	99.41	99.99	.00

IV/A-3

CONCENTRATION INDUSTRIELLE

TABLEAU STRUCTUREL DES COURBES LINDA

****** TABLEAU NO 3PIS ******

PAGE 1

ANNEE : 1969

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

VARIABLE

N*	01 CHIFFRE D'AFFAIRES	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT
2	.99660	.61018	.97961	1.32779	1.29825	1.21102	1.23339	17.67137
3	.50791	.47526	.57499	.89766	.87124	.87773	.74996	13.93212
4	.63054	.46529	.47376	.63781	.63006	.63002	.64461	9.58688
5	.49025	.40688	.41474	.50226	.53032	.52209	.52466	7.47183
6	.41537	.34572	.35025	.43409	.46830	.43795	.43515	7.24479
7	.36700	.31090	.31168	.38558	.40969	.41626	.36703	5.33914
8	.34366	.29607	.31059	.37033	.35808	.36173	.31891	4.97347
9	.30646	.27974	.29359	.34975	.33595	.33384	.28018	4.51525
10	.25732	.26845	.23740	.32082	.31069	.29370	.25161	4.08630
11	.26576	.26497	.27607	.29560	.29313	.27189	.24411	3.75903
12	.25255	.25420	.24580	.27190	.27180	.25591	.23123	3.44965
13	.23665	.25486	.25976	.25441	.25574	.25238	.22936	3.19125
14	.22822	.24838	.25109	.24265	.24843	.22215	.22544	2.95248
15	.22206	.24000	.24084	.23462	.23872	.20754	.22629	2.72859
16	.22035	.23054	.23038	.22531	.23389	.20146	.22498	2.55050
17	.21472	.22274	.22202	.22161	.22821	.19447	.21942	2.37943
18	.20843	.22409	.21539	.21732	.22039	.18901	.21320	2.22223
19	.20406	.22153	.21281	.21420	.21842	.19164	.21774	2.09781
20	.19853	.21811	.21059	.21890	.21881	.19382	.21659	2.01253
21	.19241	.21934	.21186	.22057	.21718	.19680	.21817	1.92442
22	.18754	.21735	.21366	.21929	.21741	.20069	.21947	1.88877
23	.18778	.21657	.21360	.21638	.21587	.20253	.22204	1.84637
24	.18960	.21375	.21247	.21465	.21351	.20265	.22212	1.80891
25	.18933	.21111	.21150	.21590	.21023	.20125	.22017	1.78455
26	.18792	.20971	.21610	.21985	.21580	.19689	.21766	1.74865
27	.18917	.20843	.21830	.22182	.22004	.19737	.21784	1.71431
28	.19062	.20917	.21968	.22694	.22207	.19712	.22054	1.70271
29	.19059	.20641	.21961	.22808	.22780	.19965	.22232	1.68269
30	.19032	.20745	.21817	.22994	.23002	.19376	.22452	1.65709
31	.18917	.20591	.21695	.23092	.23085	.19353	.22462	1.63305
32	.18721	.20454	.21475	.23082	.23031	.19365	.22506	1.60680
33	.18484	.20263	.21223	.23080	.22921	.19358	.22464	1.57994
34	.18319	.20121	.20951	.23080	.22782	.19487	.22086	1.54347
35	.18072	.20149	.20629	.23004	.22903	.19487	.22079	1.53150
36	.17914	.20061	.20484	.23199	.23045	.19655	.22992	1.51244
37	.17734	.19956	.20261	.23230	.23122	.19791	.23074	1.49712
38	.17792	.19847	.20075	.23171	.23580	.19675	.23038	1.48720
39	.17864	.19697	.19834	.23124	.23484	.19914	.22922	1.47630
40	.17570	.19526	.19684	.23112	.23473	.20022	.22852	1.47141
41	.18118	.19350	.19520	.23092	.23412	.20121	.22854	1.46695
42	.18238	.19210	.19571	.23011	.23345	.20148	.22834	1.45720

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3EIS *

TABLEAU STRUCTUREL DES COURBES LINDA

PAGE 2

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY (N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1969

VARIABLE

N*	01 CHIFFRE D'AFFAIRES	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT
43	.18270	.19028	.19540	.22885	.23295	.20338	.22928	1.44648
44	.18320	.18812	.19459	.22884	.23267	.20501	.23041	1.43394
45	.18378	.18755	.19388	.22809	.23340	.20631	.23057	1.43656
46	.18386	.18697	.19292	.22676	.23356	.20734	.23222	1.44158
47	.18415	.18600	.19230	.22541	.23304	.20785	.23383	1.46762
48	.18459	.18465	.19143	.22417	.23211	.20836	.23501	1.49782
49	.18450	.18306	.19014	.22332	.23145	.20844	.23678	1.52126
50	.18496	.18191	.18884	.22256	.23075	.20859	.23811	1.53907
51	.18512	.18112	.18726	.22329	.23023	.20832	.23879	1.56059
52	.18623	.18039	.18622	.22374	.22960	.20936	.23747	1.57852
53	.18708	.17943	.18491	.22376	.22695	.20262	.23978	1.59140
54	.18758	.17933	.18459	.22352	.22030	.20952	.23988	1.60358
55	.18767	.17885	.18513	.22286	.22858	.20919	.24147	1.61358
56	.18855	.17894	.18533	.22224	.22911	.20979	.24355	1.62672
57	.18906	.17839	.18626	.22378	.22900	.21003	.24525	1.63994
58	.18915	.17684	.18717	.22460	.22851	.20995	.24707	1.64848
59	.18930	.17676	.18750	.22584	.22812	.20964	.24815	1.65290
60	.19025	.17341	.18809	.22654	.22910	.20939	.24892	1.66377

IV/A-3

CONCENTRATION INDUSTRIELLE

****
* TABLEAU NO 3EIS *
****

TABLEAU STRUCTUREL DES COURBES LINDA

PAGE 3

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1970

VARIABLE

N*	01 CHIFFRE D'AFFAIRES	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT
2	1.10390	.62643	.99007	1.33006	1.29582	1.00424	1.28220	24.15926
3	.85941	.48033	.59392	.95242	.91293	.82426	.80203	16.68391
4	.64955	.46061	.46227	.68912	.66758	.66261	.66390	11.28028
5	.50619	.40836	.41445	.54455	.58280	.52536	.54246	8.40457
6	.42916	.35477	.36105	.47488	.42414	.43017	.45161	7.36895
7	.36844	.31617	.31585	.43405	.42134	.37242	.38602	6.88681
8	.32961	.29380	.31041	.40631	.39000	.33247	.33213	6.16464
9	.30656	.28012	.29289	.37664	.37722	.30144	.32074	5.46990
10	.25901	.26761	.23479	.35568	.35451	.28067	.30028	4.87182
11	.27356	.26517	.27600	.34199	.33578	.25778	.29305	4.34172
12	.25954	.25693	.26313	.32085	.31908	.24412	.28355	3.95254
13	.25112	.25727	.25418	.31495	.29906	.23795	.28440	3.61613
14	.24674	.25171	.24597	.30671	.29622	.23403	.27707	3.32706
15	.23959	.24306	.23545	.30066	.29095	.22654	.26839	3.06673
16	.23379	.23232	.23278	.29854	.28362	.21950	.25802	2.83286
17	.22693	.23116	.22644	.29129	.27444	.21360	.24647	2.62028
18	.21856	.22922	.22264	.28550	.26485	.20988	.24837	2.46291
19	.21010	.22744	.21976	.23441	.25441	.20452	.24616	2.32295
20	.20536	.22867	.22044	.27743	.24805	.20609	.24633	2.19008
21	.20122	.22625	.22488	.26955	.25092	.20448	.24549	2.09675
22	.20160	.22609	.22498	.26803	.25095	.20111	.24218	2.00917
23	.20200	.22269	.22278	.26347	.25065	.19733	.24068	1.97756
24	.20236	.22063	.22152	.26074	.24054	.19696	.23620	1.94457
25	.20085	.21820	.21861	.25615	.24486	.19493	.23410	1.91306
26	.19831	.21555	.21807	.25110	.24481	.19529	.23415	1.87784
27	.19797	.21195	.21762	.25080	.24019	.19988	.23029	1.84150
28	.19638	.20888	.21685	.25066	.24976	.20354	.22810	1.81718
29	.19423	.20494	.21505	.25289	.24968	.20500	.22554	1.79158
30	.19149	.20185	.21237	.25257	.24630	.20550	.22461	1.77325
31	.18844	.19822	.20976	.25209	.24283	.20535	.22277	1.75395
32	.18652	.19437	.20743	.25230	.24517	.20438	.22168	1.73194
33	.18301	.19434	.20591	.25154	.24372	.20295	.21996	1.70476
34	.18117	.19309	.20379	.24980	.24190	.20261	.22016	1.67638
35	.17917	.19217	.20108	.24735	.24136	.20125	.22072	1.64996
36	.17738	.19235	.19915	.24449	.23966	.19975	.22105	1.63406
37	.17695	.19212	.19693	.24116	.23592	.19788	.22145	1.61893
38	.17674	.19115	.19464	.23976	.23697	.19588	.22094	1.60444
39	.17677	.18971	.19348	.23670	.23662	.19413	.22097	1.60259
40	.17647	.18612	.19161	.23670	.23554	.19414	.22128	1.59769
41	.17663	.18632	.18982	.23428	.23451	.19358	.22080	1.59866
42	.17622	.18434	.18875	.23205	.23238	.19336	.22125	1.59697

IV/A-3

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3BIS *

PAGE 4

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

TABLEAU STRUCTUREL DES COURBES LINDA

ANNEE : 1970

VARIABLE

N*	01 CHIFFRE D'AFFAIRES*	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT.
43	.17690	.18366	.18872	.22947	.23024	.19325	.22227	1.59370
44	.17734	.18332	.18640	.22669	.22657	.19451	.22220	1.62291
45	.17716	.18242	.18764	.22403	.22691	.19528	.22158	1.67138
46	.17667	.18158	.18748	.22140	.22497	.19550	.22064	1.70625
47	.17660	.18046	.18679	.21953	.22272	.19532	.22031	1.73156
48	.17744	.17915	.18587	.21784	.22054	.19541	.22123	1.75767
49	.17803	.17819	.18552	.21732	.21970	.19577	.22255	1.76617
50	.17802	.17818	.18464	.21737	.21836	.19593	.22324	1.81238
51	.18015	.17820	.18350	.21700	.21606	.19767	.22352	1.68124
52	.16151	.17822	.18322	.21824	.21725	.19860	.22362	1.93339
53	.18295	.17823	.18364	.22011	.21639	.19914	.22353	2.04111
54	.18485	.17844	.18454	.22129	.21651	.19922	.22470	2.15354
55	.18627	.17843	.18499	.22193	.21762	.19905	.22522	2.29543
56	.18224	.17804	.18493	.22304	.21901	.19873	.22591	2.46256
57	.18996	.17816	.18451	.22356	.22006	.19665	.22666	2.66764
58	.19163	.17833	.18509	.22456	.22065	.19618	.22749	2.86414
59	.19277	.17814	.18534	.22560	.22237	.19786	.22886	3.05057
60	.19346	.17770	.18552	.22702	.22371	.19741	.22969	3.28309

IV/A-3

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3BIS *

PAGE 5

TABLEAU STRUCTUREL DES COURBES LINDA

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1971

VARIABLE

N*	01 CHIFFRE D'AFFAIRES	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT.
2	1.10783	.58767	.95600	1.14418	1.19280	.56079	1.25494	21.00762
3	.84695	.45203	.57265	.85609	.85391	.60297	.61041	13.90435
4	.60811	.43578	.43530	.61345	.61418	.37699	.65743	10.17516
5	.49266	.39725	.40828	.52432	.53451	.32114	.53577	7.50089
6	.43152	.35259	.35394	.44489	.45752	.34181	.43789	6.30298
7	.34672	.31002	.30364	.39678	.40194	.30506	.36654	5.79254
8	.31582	.29063	.30367	.36294	.36151	.29000	.31931	5.25782
9	.29764	.27461	.28358	.33820	.33760	.26637	.23088	4.74476
10	.27881	.26137	.27612	.31439	.31114	.24810	.25071	4.26460
11	.26880	.25542	.26450	.29063	.29839	.22878	.24362	3.86776
12	.25520	.24578	.25184	.27711	.28724	.22193	.23061	3.55670
13	.24427	.23733	.24548	.26348	.27207	.21650	.22752	3.27870
14	.23654	.23369	.23559	.25505	.25689	.20487	.22055	3.02639
15	.22733	.22561	.22504	.24451	.25034	.20484	.21513	2.80613
16	.22224	.21702	.22242	.24100	.24742	.20548	.21162	2.63348
17	.21553	.20736	.21635	.23568	.24390	.20234	.21162	2.46599
18	.20934	.20075	.21200	.23659	.23935	.19823	.20693	2.32103
19	.20221	.19754	.20563	.23393	.23260	.19620	.21059	2.19322
20	.19533	.19571	.20173	.23188	.22543	.19774	.21119	2.10179
21	.19007	.19423	.20275	.22823	.22006	.19670	.20902	2.02687
22	.18582	.19439	.20399	.22424	.22024	.19797	.21344	1.95877
23	.18130	.19444	.20268	.22004	.21784	.19917	.21710	1.90787
24	.18034	.19398	.20195	.21552	.21404	.19696	.21770	1.66722
25	.17793	.19214	.20059	.21431	.20996	.19714	.21628	1.65780
26	.17702	.19091	.19813	.21251	.20792	.19508	.21579	1.83411
27	.17611	.18672	.19564	.21006	.20727	.19356	.21441	1.81192
28	.17552	.18753	.19556	.20932	.20593	.19942	.21394	1.78229
29	.17502	.18553	.19567	.20718	.20367	.20245	.21242	1.76252
30	.17352	.18391	.19458	.20449	.20193	.20588	.21558	1.74108
31	.17156	.18196	.19228	.20128	.20110	.20473	.21326	1.71268
32	.17075	.17967	.18992	.19672	.19991	.20787	.21543	1.70078
33	.17003	.17768	.18780	.19717	.19831	.20972	.21995	1.68039
34	.16891	.17686	.18557	.19568	.19369	.21008	.22203	1.66224
35	.16718	.17609	.18406	.19405	.19772	.21057	.22555	1.64036
36	.16745	.17597	.18222	.19290	.19627	.20996	.22421	1.61980
37	.16791	.17563	.18157	.19120	.19006	.20915	.22465	1.59930
38	.16904	.17544	.18165	.19008	.19762	.20877	.22413	1.58178
39	.16925	.17623	.18094	.19165	.19786	.20790	.22557	1.58263
40	.16960	.17610	.18008	.19068	.19048	.20700	.22254	1.56153
41	.16942	.17533	.17900	.19015	.19635	.20555	.22259	1.58024
42	.17037	.17743	.17616	.18922	.19764	.20400	.22309	1.58558

IV/A-3

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3BIS *

TABLEAU STRUCTUREL DES COURBES LINDA

PAGE 6

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1971

VARIABLE

N*	01 CHIFFRE D'AFFAIRES	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT.
43	.17090	.17280	.17840	.18918	.19698	.20207	.22424	1.58584
44	.17133	.17217	.17616	.18890	.19613	.19997	.22524	1.58124
45	.17162	.17104	.17863	.18855	.19503	.19855	.22533	1.56294
46	.17192	.16983	.17886	.18941	.19737	.19899	.22488	1.59348
47	.17299	.16852	.17840	.19005	.19934	.19976	.22534	1.62537
48	.17338	.16738	.17759	.19121	.20034	.19984	.22736	1.66128
49	.17393	.16614	.17688	.19485	.20120	.20021	.22793	1.68563
50	.17473	.16634	.17619	.19741	.20161	.20029	.22903	1.74419
51	.17560	.16617	.17623	.19922	.20458	.20001	.22965	1.80924
52	.17820	.16589	.17690	.20151	.20632	.19940	.23006	1.86919
53	.18086	.16534	.17533	.20384	.20838	.19900	.23005	1.93202
54	.18290	.16588	.17567	.20549	.20977	.20063	.22957	1.98494
55	.18478	.16631	.17607	.20692	.21092	.20277	.23023	2.03348
56	.18599	.16660	.17669	.20918	.21175	.20413	.23170	2.14871
57	.18747	.16686	.17686	.21131	.21286	.20494	.23248	2.27733
58	.18847	.16728	.17702	.21365	.21356	.20547	.23415	2.39266
59	.18916	.16781	.17689	.21516	.21413	.20963	.23515	2.53153
60	.18972	.16822	.17690	.21616	.21448	.21368	.23091	2.78185

164

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES   ANNEE : 1972

VARIABLE

N	01 CHIFFRE D'AFFAIRES	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT.
2	1.05616	.54801	.90765	1.34310	1.27772	.58294	1.28047	15.91430
3	.34021	.44694	.56592	.94275	.91275	.55190	.78415	13.51947
4	.61704	.40638	.43381	.67162	.65437	.57180	.55437	9.41174
5	.47898	.33339	.36641	.57581	.58640	.53748	.42953	7.18935
6	.38564	.29158	.32933	.50413	.49437	.46634	.35972	6.11733
7	.31944	.26418	.23823	.43111	.42276	.40168	.31786	5.23599
8	.23187	.23065	.27501	.37627	.33032	.35339	.28485	4.52276
9	.26351	.22662	.26047	.34496	.34104	.34482	.26274	4.12239
10	.24468	.21677	.24180	.31381	.31001	.29561	.23997	3.73977
11	.22557	.21777	.23763	.28743	.28743	.27403	.23512	3.47724
12	.22219	.21671	.22900	.27080	.26514	.25575	.22521	3.22038
13	.21722	.21379	.22092	.25908	.25597	.24492	.22517	3.06226
14	.20865	.21655	.21148	.24620	.24064	.23367	.22073	2.79004
15	.20057	.21476	.20385	.23358	.23149	.23363	.22577	2.59607
16	.19883	.20919	.19608	.22177	.22207	.21305	.22416	2.41288
17	.20026	.20214	.19645	.21752	.21752	.20475	.22539	2.24578
18	.19775	.19245	.19268	.21136	.21464	.20007	.21692	2.02212
19	.19462	.19222	.18945	.21675	.21222	.19778	.21485	1.97461
20	.19060	.18693	.18550	.21603	.20770	.19465	.21720	1.87046
21	.18555	.18155	.18101	.21830	.20517	.19752	.21957	1.78763
22	.18084	.18150	.18372	.21704	.20242	.20251	.21867	1.71745
23	.17831	.18227	.18525	.21419	.20215	.20399	.22107	1.65851
24	.17557	.18457	.18554	.21107	.20202	.20388	.22038	1.60109
25	.17290	.18706	.18453	.20741	.20424	.20289	.21941	1.57006
26	.17417	.18936	.18561	.21352	.20446	.20194	.21809	1.54253
27	.17655	.18967	.18593	.21666	.20035	.20053	.21035	1.53668
28	.17772	.18873	.18733	.21769	.20446	.20005	.21558	1.52564
29	.17755	.18996	.18755	.21739	.20597	.19957	.21364	1.50639
30	.17714	.18950	.18622	.21768	.20592	.19863	.21422	1.49503
31	.17644	.18825	.18651	.21847	.20630	.19755	.21478	1.46500
32	.17690	.18870	.18343	.21896	.20599	.19586	.21515	1.46411
33	.17373	.19015	.18382	.21945	.20053	.19419	.21480	1.47748
34	.17363	.19128	.18361	.21099	.20097	.19192	.21966	1.46638
35	.17264	.19213	.18369	.22012	.20097	.18923	.22173	1.46329
36	.17182	.19262	.18370	.21916	.21204	.18698	.22501	1.46517
37	.17246	.19251	.18574	.22008	.21550	.18614	.22678	1.45728
38	.17446	.19187	.18728	.22013	.21802	.18502	.22818	1.46251
39	.17651	.19114	.18793	.22314	.21937	.18550	.23001	1.46593
40	.17780	.19067	.18742	.22457	.21971	.18527	.23110	1.47335
41	.18050	.19059	.19003	.22487	.22120	.18649	.23179	1.47508
42	.18206	.19020	.19060	.22495	.22161	.18654	.23230	1.47313

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3BIS *

PAGE 8

TABLEAU STRUCTUREL DES COURBES LINDA

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1972

VARIABLE

N*	01 CHIFFRE D'AFFAIRES	02 EFFECTIF	03 MASSE SALARIALE	04 BENEFICE NET	05 CASH FLOW	06 INVESTIS BRUTS	07 CAPITAUX PROPRES	08 EXPORT.
43	.18307	.19018	.19036	.22494	.22125	.18815	.23226	1.46732
44	.18429	.18947	.18971	.22464	.22173	.18955	.23579	1.47089
45	.18545	.18933	.18977	.22477	.22459	.19101	.23929	1.48546
46	.18631	.18590	.18921	.22649	.22660	.19370	.24147	1.59451
47	.18694	.18860	.18627	.22846	.22816	.19639	.24537	1.62622
48	.18741	.18815	.18723	.22992	.22882	.19793	.24442	1.75832
49	.16832	.18890	.18650	.23405	.22899	.19876	.24617	1.83454
50	.19155	.18895	.18843	.23654	.23039	.20103	.24702	1.89546
51	.19454	.18906	.19078	.23835	.23175	.20296	.24605	1.95889
52	.19210	.19224	.19268	.23974	.23227	.20436	.24971	2.06694
53	.20149	.19506	.19536	.24160	.23241	.20521	.25080	2.17630
54	.20381	.19701	.19858	.24292	.23717	.20679	.25194	2.26139
55	.20548	.19895	.20168	.24440	.24158	.20849	.25452	2.33760
56	.20690	.20325	.20420	.24842	.24578	.21007	.25859	2.49913
57	.21116	.20659	.20915	.25133	.24691	.21217	.26196	2.66412
58	.21578	.20949	.25384	.25187	.21462	.26501	3.02217	
59	.21985	.21252	.21205	.25609	.25450	.21847	.26782	
60	.22303	.21487	.21662	.25793	.25677	.22520	.26972	

CONCENTRATION INDUSTRIELLE
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* TABLEAU NO 3RIS *
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TABLEAU STRUCTUREL DES COURBES LINDA
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PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1969

PAGE 1

V A R I A B L E

N*	11 BENEFICE NON DISTRIBUE	12 ACTIF NET	13 PORTEFEUILLE "INTERN"
2	1.03739	1.10745	.84226
3	.67990	.80334	1.18301
4	.51906	.59833	1.17648
5	.41997	.47415	1.34496
6	.36615	.40734	1.26522
7	.34153	.36667	1.29841
8	.31471	.31339	1.45696
9	.32124	.27555	1.50965
10	.30906	.26663	1.48546
11	.31057	.24678	1.51907
12	.30574	.24716	1.63069
13	.31033	.23915	1.79046
14	.30618	.22841	1.90834
15	.30043	.22591	1.99112
16	.29212	.23251	2.01731
17	.28398	.23357	2.01716
18	.27668	.23109	2.01247
19	.27686	.23024	2.11253
20	.27405	.22634	2.23513
21	.27170	.22916	2.40031
22	.26863	.23093	2.63387
23	.26644	.23365	2.79960
24	.26291	.23469	3.18865
25	.26178	.23683	3.46411
26	.25871	.23535	3.65796
27	.25667	.23866	4.15248
28	.25508	.23713	4.61529
29	.25223	.24560	5.65918
30	.25224	.24900	7.56310
31	.25082	.25010	8.98516
32	.25056	.25010	
33	.25041	.24977	
34	.24983	.24942	
35	.24817	.24849	
36	.24618	.25136	
37	.24343	.25305	
38	.24069	.25562	
39	.23777	.25674	
40	.23506	.25875	
41	.23350	.25982	
42	.23150	.26104	
43	.22913	.26131	
44	.22636	.26325	
45	.22525	.26516	
46	.22410	.26692	
47	.22302	.26867	
48	.22207	.26953	
49	.22073	.27286	
50	.21970	.27512	
51	.21816	.27787	
52	.21648	.27963	

TABLEAU STRUCTUREL DES COURBES LINDA

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1969

VARIABLE

11	12	13
BENEFICE NON DISTRIBUE	ACTIF NET "PORTEFEUILLE"	"INVESTIS"

N*	11	12	13
53	.21487	.28056	
54	.21313	.28097	
55	.21203	.28108	
56	.21106	.28122	
57	.21045	.28395	
58	.20976	.28583	
59	.20948	.28758	
60	.21116	.28881	

IV/A-3

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3RIS *

TABLEAU STRUCTUREL DES COURBES LINDA

PAGE 3

PAYS	: UNITED KINGDOM
INSTITUT	: DEVELOPMENT ANALYST LTD.
SECTEUR	: FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES	

ANNEE : 1970

VARIABLE

N*	11 RETOURCE "ON DISPOSE"	12 ACTIF NET	13 PORTEFEUILLE "INDUSTRIE"
2	1.11242	1.12536	.64802
3	.82235	.81886	.52361
4	.66643	.59213	.41414
5	.59529	.48332	.45715
6	.54485	.39888	.43765
7	.49127	.53974	.44697
8	.43763	.29584	.44224
9	.40559	.26881	.41778
10	.38616	.27310	.38665
11	.37535	.27040	.37422
12	.35614	.26193	.37802
13	.33869	.25108	.37845
14	.32501	.24740	.39420
15	.31327	.25505	.40954
16	.30905	.25431	.41547
17	.30451	.25059	.42181
18	.29803	.24480	.43666
19	.28990	.24378	.45031
20	.28057	.24741	.47779
21	.27219	.24909	.49267
22	.26421	.25080	.52306
23	.25847	.25077	.58843
24	.25178	.24939	.63459
25	.24543	.25206	.68478
26	.24049	.25290	.71589
27	.23623	.25297	.73500
28	.23124	.25330	.93480
29	.22704	.25214	1.17513
30	.22273	.25017	2.24311
31	.21848	.25014	
32	.21471	.24974	
33	.21152	.25001	
34	.20775	.24918	
35	.20446	.24792	
36	.20213	.25280	
37	.19913	.25568	
38	.19619	.25684	
39	.19297	.25582	
40	.18963	.25712	
41	.18701	.25700	
42	.18408	.25711	
43	.18122	.25745	
44	.17831	.25989	
45	.17533	.26086	
46	.17336	.26106	
47	.17325	.26101	
48	.17365	.26278	
49	.17347	.26473	
50	.17314	.26550	
51	.17327	.26633	
52	.17333	.26700	

IV/A-3

CONCENTRATION INDUSTRIELLE
****
* TABLEAU NO 3BIS *
****

TABLEAU STRUCTUREL DES COURBES LINDA
****

PAGE 4

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1970

VARIABLE

N*	11 * EENEFICE * NON DISTRIBUE	12 * ACTIF NET	13 * PORTEFEUILLE "INVESTIS"
53	.17403	.26839	
54	.17488	.26928	
55	.17510	.26940	
56	.17740	.27091	
57	.17969	.27166	
58	.18132	.27474	
59	.18288	.27661	
60	.18441	.27775	

172 - 173

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3BIS *

TABLEAU STRUCTUREL DES COURBES LINDA

PAGE 5

IV/A-3

ANNEE : 1971

PAYS	: UNITED KINGDOM
INSTITUT	: DEVELOPMENT ANALYST LTD.
SECTEUR	: FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES	

VARIABLE

N°	11 BENEFICE NON DISTRIBUE	12 ACTIF NET	13 PORTEFEUILLE "INVEST"
2	.53349	1.10421	5.99493
3	.51839	.82369	4.63652
4	.41254	.58598	3.82636
5	.36438	.46240	3.28794
6	.31963	.37929	2.95240
7	.29629	.32155	2.88268
8	.27279	.27747	2.77966
9	.25831	.24277	3.20775
10	.25140	.21965	3.57706
11	.24342	.22412	3.66902
12	.23713	.22803	3.64181
13	.23195	.22425	3.71544
14	.22429	.21688	3.90924
15	.21426	.21545	4.09364
16	.20434	.21274	4.38639
17	.19796	.21087	4.59525
18	.19694	.21223	5.26254
19	.19670	.21167	5.68156
20	.19358	.21088	6.78015
21	.18991	.21647	8.43785
22	.18637	.21827	
23	.18326	.21945	
24	.18296	.22241	
25	.18073	.22381	
26	.17543	.22765	
27	.17517	.23190	
28	.17407	.23471	
29	.17263	.23582	
30	.17091	.23567	
31	.16853	.23555	
32	.16574	.23793	
33	.16358	.24044	
34	.16172	.24379	
35	.15932	.24978	
36	.15783	.25392	
37	.15596	.25621	
38	.15440	.25749	
39	.15262	.25770	
40	.15086	.25707	
41	.14904	.25734	
42	.14730	.25656	
43	.14558	.25679	
44	.14401	.25900	
45	.14263	.26141	
46	.14375	.26416	
47	.14404	.26579	
48	.14397	.26666	
49	.14414	.26766	
50	.14514	.26952	
51	.14582	.27097	
52	.14651	.27307	

174

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3BIS *

TABLEAU STRUCTUREL DES COURBES LINDA

PAGE 6

IV/A-3

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1971

VARIABLE

N*	11 BENEFICE NET "NON DISTRIBUE"	12 ACTIF NET "PORTEFEUILLE" "INVESTIS"	13
53	.14715	.27461	
54	.14781	.27540	
55	.14824	.27575	
56	.14936	.27727	
57	.15037	.27934	
58	.15098	.28047	
59	.15120	.28147	
60	.15155	.28214	

IV/A-3

PAYS : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1972

V A R I A B L E

N*	11 BENEFICE NON DISTRIBUE	12 ACTIF NET	13 PORTEFEUILLE "EXPLOITION"
2	.77522	1.11382	.65867
3	.78485	.69286	.70999
4	.58896	.49967	.54612
5	.46538	.39498	.42763
6	.40516	.32060	.49118
7	.36204	.27798	.48486
8	.31849	.24333	.53606
9	.28729	.22707	.53013
10	.27051	.21075	.56084
11	.25685	.21681	.71547
12	.25116	.22369	.78615
13	.24416	.22147	.86921
14	.24178	.21619	.89850
15	.24243	.21650	.98081
16	.24015	.21287	1.06851
17	.23775	.20726	1.10927
18	.23369	.20116	1.12619
19	.23081	.19628	1.14738
20	.23165	.19463	1.20821
21	.23690	.19756	1.29317
22	.24064	.20551	1.33502
23	.24149	.21066	1.33761
24	.24190	.21259	1.52946
25	.24021	.21402	1.64724
26	.24257	.21616	1.74911
27	.24191	.22104	1.82109
28	.24100	.22388	1.90554
29	.23891	.22635	2.19496
30	.23594	.22676	2.55648
31	.23389	.22602	3.03782
32	.23249	.23071	7.03347
33	.23068	.23293	
34	.23038	.24097	
35	.22740	.24829	
36	.22529	.25324	
37	.22312	.25847	
38	.22210	.26162	
39	.22096	.26333	
40	.21930	.26526	
41	.21942	.26802	
42	.22046	.27006	
43	.22374	.27127	
44	.22626	.27518	
45	.22774	.27829	
46	.22954	.28013	
47	.23103	.28270	
48	.23287	.28549	
49	.23442	.28758	
50	.23570	.28985	
51	.23615	.29273	
52	.23856	.29477	

IV/A-3

CONCENTRATION INDUSTRIELLE

* TABLEAU NO 3BIS *

TABLEAU STRUCTUREL DES COURBES LINDA

PAGE 8

PAYS   : UNITED KINGDOM
INSTITUT   : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE : 1972

VARIABLE

N*	11 BENEFICE NON DISPONIBLE	12 ACTIF NET	13 PORTEFEUILLE "INVESTIS"
53	.24110	.29593	
54	.24324	.29773	
55	.24637	.29951	
56	.24832	.30280	
57	.25238	.30571	
58	.25746	.30771	
59	.26362	.30883	
60	.26864	.31391	

IV/A-3

CONCENTRATION INDUSTRIELLE

TABLEAU NO 4

TABLEAU RECAPITULATIF DES INDICES L

PAGE 1

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD,
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE

VARIABLES	1969 INDICES N: M: LN*M / LS	1970 INDICES N: M: LN*M / LS	1971 INDICES N: M: LN*M / LS	1972 INDICES N: M: LN*M / LS
01 CHIFFRE D'AFFAIRES	*37 .17734 .27943*42	.17622 .27677*35	.16718 .28281*36	.17182 .26754*
02 EFFECTIF	*60 .17843 .23107*60	.17770 .23037*53	.16534 .22032*22	.18150 .25732*
03 MASSE SALARIALE	*54 .18459 .25047*52	.18322 .25207*53	.17533 .23704*21	.18101 .29554*
04 BENEFICE NET	*19 .21420 .41156*51	.21700 .32172*46	.18841 .28297*25	.20741 .37364*
05 CASH FLOW	*25 .21023 .36338*54	.21631 .30909*45	.19505 .28849*22	.20242 .38766*
06 INVESTIS. BRUTS	*18 .18901 .40899*43	.19325 .27501*27	.19356 .25072*41	.18494 .25631*
07 CAPITAUX PROPRES	*12 .21320 .38950*33	.21996 .33560*18	.20895 .39288*29	.21364 .31080*
08 EXPORT.	*44 1.43394 3.25055*43	1.59370 3.86740*41	1.58024 3.59290*37	1.45728 3.38112*

IV/A-3

CONCENTRATION INDUSTRIELLE

****
* TABLEAU NO 4 *
****

TABLEAU RECAPITULATIF DES INDICES L

PAGE 1

PAYS   : UNITED KINGDOM
INSTITUT : DEVELOPMENT ANALYST LTD.
SECTEUR   : FOOD INDUSTRY(N.I.C.E. 20-B)
ENTREPRISES

ANNEE

VARIABLES	1969 INDICES			1970 INDICES			1971 INDICES			1972 INDICES			0 INDICES		
	N	LN*M	LS	N	LN*M	LS	N	LN*M	LS	N	LN*M	LS	N	LN*M	LS
	M			M			M			M			M		
11 BENEFICE NON DISTRIBUE	59	.20948	.28393*50		.17314	.30433*45		.14263	.21548*40		.29057				
12 ACTIF NET	15	.22591	.41223*19		.24376	.38196*17		.21087	.37183*20		.19463	.32042*			
13 PORTEFEUILLE "INVESTISSEMENTS"	2	.84226	.84226*11		.37422	.45484*8	2.77960	2.77960	3.76578*5		.42763	.58560*			

APPENDIX B

The relationship between the Linda
Index and the parameters of the
log-normal distribution.

APPENDIX B

THE LINDA INDEX

1. Suppose z_i is the size of the ith firm, $i = 1, \ldots, n$, in descending order of size, which, for example, might be measured by employment. Then the first stage of the calculation of the Linda index is

$$(B.1) \qquad EO_k = (n-k) \left(\sum_{i=1}^{k} z_i / \sum_{i=1}^{n} z_i \right) \div \left(\sum_{i=k+1}^{n} z_i / \sum_{i=1}^{n} z_i \right) k, \quad k = 1, \ldots, n-1,$$

$$= \left\{ \frac{1-F_1(z_k)}{F_1(z_k)} \right\} \left\{ \frac{F(z_k)}{1-F(z_k)} \right\}$$

where $F_1(z_k)$ is the first moment distribution of z at the point z_k (e.g. the proportion of _employment_ in firms equal to or less than z_k employees) and where $F(z_k)$ is the distribution function evaluated at the point z_k (i.e. the proportion of _firms_ with z_k employees or less).

2. The Lorenz curve used to calculate G is the locus of points with abscissa $F(z)$ and ordinate $F_1(z)$. Thus EO_k is a measure derived from the Lorenz curve at the firm size with z_k, and like the Lorenz curve it is governed by the relationship between the size distribution of firms and its corresponding first moment distribution.

3. If z is lognormally distributed, $\Lambda(\mu, \sigma^2)$, its Lorenz curve is symmetrical and is governed by σ^2, and hence so is EO_k. To illustrate, suppose $z_k = \alpha$ is the arithmetic mean size of firm by

employment, so that $\Lambda(\alpha)$ is the proportion of firms below arithmetic mean size. Then

$$(B.2) \qquad EO_\alpha = \left\{ \frac{1-\Lambda_1(\alpha)}{\Lambda_1(\alpha)} \right\} \left\{ \frac{\Lambda(\alpha)}{1-\Lambda(\alpha)} \right\}$$

In this case if 75 per cent. of the firms are below mean size, they must have 25 per cent. of the employment, since $\Lambda(\alpha) = 1-\Lambda_1(\alpha)$. Substituting the result in (B.2), we have

$$(B.3) \qquad EO_\alpha = \left\{ \Lambda(\alpha)/1-\Lambda(\alpha) \right\}^2$$

which clearly depends solely on the proportion of firms below mean size. For example, if this proportion is 0.75, then $EO_\alpha = 9$. In the lognormal distribution this proportion is given by

$$(B.4) \qquad \Lambda(\alpha) = \phi(\sigma/2 \mid 0,1)$$

For example, if the standard deviation of the natural logarithms of z is 2, so that $\frac{1}{2}\sigma = 1$, then $\Lambda(\alpha) = 0.8413$ since 84.13 per cent. of the area of the standardised normal curve, $\phi(0,1)$, lies below $\frac{1}{2}\sigma = 1$. Clearly, $\Lambda(\alpha)$ and EO_α are governed by σ. This relationship is illustrated for various values of σ in Table B.1, which also gives V, G, H and E for purposes of comparison. If σ is known then EO_k can be computed for all values of k, with the aid of tables of the standardised normal curve.

4. The second stage in the computation of the Linda index involves taking an average of the n-1 ratios in (B.1), namely

$$(B.5) \qquad \overline{EO}_k = \Sigma \, EO_k/n-1$$

and the Linda index is then given by[+]

(B.6) $\qquad L = \overline{EO}_k/n$

     5. In practice, the total number of firms, n, is often unknown and we are compelled to work with n*, where n* is generally the number of larger firms. In the present study, n* = 60, because this was the maximum value which could be handled by the EEC computer. However, it should be sufficient to permit comparisons with other member countries. Furthermore, the Linda index has been computed for all values of n* = 2,...,60, so that some indication of its sensitivity to n* is provided.

[+] The division of EO_k by n-1 (B.5) precedes the division by n in (B.6) which is the reverse of the usual order of division. Since both n and n-1 are constants the result in (B.6) is the usual one.

TABLE B.1

Concentration Measures for a Lognormal Distribution with N=100

σ	V	G	H	E_e	E_{10}	EO_α
0.5	0.5329	0.2767	0.1284	4.480	1.9456	2.2258
1.0	1.3108	0.5204	0.2718	4.105	1.7828	5.0243
1.5	2.913	0.7108	0.9488	3.4802	1.5114	11.6490
2.0	7.321	0.8415	5.460	2.6052	1.1314	28.1027
2.5	22.74	0.9233	51.799	1.480	1.357	71.7358
3.0	90.01	0.966	810.36	0.1052	0.0457	195.1626

Notes

Coefficient of variation $= V = e^{\sigma^2} - 1$

Gini coefficient $= G = 2\phi(\sigma/\sqrt{2} \mid 0,1) - 1$

Hirschman-Herfindahl index $= H = \exp(\sigma^2)/N$

Entropy (in natural logs) $= E = \log_e N - \tfrac{1}{2}\sigma^2$

Linda $EO_\alpha = EO_i$ at arithmetic mean $=$
$$\left\{ \phi(\sigma/2 \mid 0, 1)^{-1} - 1 \right\}^{-2}$$

APPENDIX C

The Sensitivity of the Concentration
Measures to Accounting Data Relating
to Non-Food Activities.

APPENDIX C

THE SENSITIVITY OF THE CONCENTRATION MEASURES TO ACCOUNTING DATA RELATING TO NON-FOOD ACTIVITIES

1.   The estimates of concentration in Appendix A are derived from the accounts of enterprises which do not, in general, distinguish their activities in food-processing from all their other activities.   For example, Unilever has extensive activities in soap and detergents and in animal feeds while Associated British Foods has extensive activities in retail and wholesale distributions.   Of course, from an economic point of view it could be argued that such large conglomerate enterprises have buying and selling advantages in their food processing activities which stem from their non-food activities and that no attempt should be made to exclude their non-food activities from the measurement of their degree of dominance in the food-processing sector.   There is much to be said for this view, especially when our subsequent report on individual food processing industries uses Census of Production and other data which exclude non-food activities.   However, it seems worthwhile to estimate the effects of the wider coverage of accounting data in the concentration measures, because the problem occurs in most industries in most member countries and results reported here may be useful to other studies sponsored by the EEC.   This appendix determines the effects of non-food activities in general, using a mathematical decomposition of concentration which can be applied to similar problems which arise in the study of concentration in other industries and in other countries.   It then illustrates the mathematical results with reference to five large enterprises in the UK, using estimates of employment for 1969.

2. The decomposition properties of the Gini coefficient have been described by Mendershausen (1946)*, those of the entropy measure have been set out by Theil (1972)**, and those of the variance of the logarithms were used in Hart and Prais (1956)[+] The decomposition properties of the variance and of the arithmetic mean are well-known and could be used to decompose the Herfindahl measure. The decomposition properties of the Linda index remain an exciting challenge for future research. Of the alternative measures with known decomposition properties, we choose the variance of the logarithms, σ^2. The assumption of a lognormal distribution need not be made in the following decompositions, but if a lognormal distribution is assumed then the sensitivity results for σ^2 can be extended to the other measures, including the Linda index.

3. Suppose the n enterprises being studied are divided into two groups: group 1 which contains those with important non-food activities, and group 2 contains those without any significant non-food activities. Then the variance of the logarithms of the sizes of the n enterprises, denoted by σ_T^2, is

(C.1.) $$\sigma_T^2 = w_1\sigma_1^2 + w_2\sigma_2^2 + w_1w_2(\mu_1 - \mu_2)^2$$

where subscripts 1 and 2 refer to the two groups, where σ_i^2 and μ_i, (i=1,2) are the variances and means of the logarithms of sizes of enterprises in each group, and where w_i denotes the ratio of the number of enterprises in group i to the total number, n.

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*
Mendershausen, H. (1946) Changes in Income Distribution during the Great Depression New York: N.B.E.R.

**
Theil, H. (1972) Statistical Decomposition Analysis, Amsterdam: North Holland

[+]
op. cit.

4. After excluding all non-food activities from the size measures used for group 1, the new measure of concentration becomes

$$(C.2) \qquad \sigma_F^2 = w_1 \, \sigma_3^2 + w_2 \, \sigma_2^2 + w_1 w_2 \, (\mu_3 - \mu_2)^2$$

where μ_3 and σ_3^2 are the mean and variance of the logarithms of the sizes after non-food activities have been eliminated. Note that the weights w_i remain the same, because the number of enterprises in each group does not change. Thus the difference between σ_F^2 and σ_T^2 depends on $(\sigma_2^2 - \sigma_3^2)$ and $(\mu_1 - \mu_3)$ and the weights.

$$(C.3) \qquad \sigma_T^2 - \sigma_F^2 = w_1 (\sigma_1^2 - \sigma_3^2) + w_1 w_2 \{ \mu_1^2 - \mu_3^2 - 2\mu_2(\mu_1 - \mu_3) \}$$

It can be seen that if the number of enterprises affected is small, say $n/10$, then $w_1 = 0.1$ and $w_1 w_2 = 0.09$ and the difference $\sigma_T^2 - \sigma_F^2$ is likely to be small, even though some of the enterprises in group 1 have large non-food activities.

5. In a further analysis of the right hand side of C.3 let us denote the ratio of the non-food activity of the jth enterprise to its total activitity by D_j, and denote its logarithm by d_j. If, for example, activity is measured by employment, z_j, and if its logarithm is x_j, then the logarithm of employment in food processing in the jth enterprise is simply $x_j - d_j$. If the mean of the d_j is denoted by μ_d, then $\mu_1 = \mu_3 + \mu_d$, and the second term on the R.H.S. of C.3 reduces to $w_1 w_2 \{ \mu_d^2 + (\mu_3 - \mu_2) 2\mu_d \}$, which shows the effect of μ_d on the σ^2 measure of concentration really depends on the square of μ_d for the difference $\mu_3 - \mu_2$ is likely to be small so the term $2\mu_d(\mu_3 - \mu_2)$ is also likely to be small. The term μ_d^2, being a square of the mean of the logarithms of a series to ratios below unity is also likely to be small. For example, suppose $\mu_d = \overline{1}.7$, which would correspond to an average of D_i of about one half. Then $\mu_d^2 = 0.09$. In addition, this small effect has to be multiplied

by $w_1 w_2$, which is also likely to be small.

$$(C.4) \quad w_1(\sigma_1^2 - \sigma_3^2) = w_1 \left\{ \sigma_1^2 - (\sigma_1^2 + \sigma_d^2 - 2\rho\sigma_1\sigma_d) \right\}$$

$$= w_1 \left\{ 2\rho\sigma_1\sigma_d - \sigma_d^2 \right\} = w_1 \left\{ \sigma_d(2\rho\sigma_1 - \sigma_d) \right\}$$

where σ_d^2 is the measure of d_i, and ρ is the correlation between x_i and d_i.

6. If the correlation is positive, then the first term on R.H.S. of C.3 is also small, even before multiplying by a small weight w_1. A positive correlation would imply that the larger enterprises have proportionally more non-food activities, which seems a plausible assumption to make.

7. It follows that the order of magnitude of the estimated value of σ is unlikely to be far from the truth. Nevertheless, for precise comparisons, either across countries, or across industries, it would appear to be desirable to obtain accurate figures of the interest of the largest enterprises that lie outside food processing. In the U.K. food processing sector we have collected information for the largest five enterprises showing their food processing actitivites compared with their other activities. It was thought necessary to consider only the very largest enterprises because they are the significantly diversified firms. We then estimated σ^2 including and excluding non-food activities and concluded that if the measured degree of concentration were represented by $\sigma = 1.5$, then the exclusion of non-food activities would lower this to about $\sigma = 1.2$. This deserves to be borne in mind in any further comparison made from the figures quoted in this report.

APPENDIX D

Changing Rank Order of the
Largest Enterprises, 1969
and 1972.

APPENDIX D

The Largest Twenty Food Processing Enterprises, Ranked by Different Variables, 1969 and 1972 (Enterprises represented by code letters A...Z, and then A(1) ...Z(1))

Rank	(01) Turnover 1969	1972	(02) Employment 1969	1972	(03) Wages & Salaries 1969	1972	(04) Net Profit 1969	1972	(05) Cash Flow 1969	1972	(06) Gross Investments 1969	1972	(07) Own Means 1969	1972	(08) Exports 1969	1972	(12) Net Assets 1969	1972
1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	B	B	B	B	B	B	B	B	B	B	G	K	C	C	G	G	C	C
3	C	P(1)	C	C	C	C	C	C	C	B	C	B	F	K	F	F	F	K
4	D	C	D	D	D	D	F	F	F	F	I	D	D	F	N	N	B	B
5	E	G	F	P(1)	F	I	—	P(1)	J	C	P	N(1)	H	D	R	R	G	F
6	F	D	K	I	K;	F	J	D	D	G	F	E	G	B	J	E	D	D
7	G	E	I	K	I	K	H	G	H	P(1)	B	V	B	P(1)	N	B	K	P(1)
8	H	F	P	F	Z	P(1)	D	H	G	D	U	Z	I	G	E	O	H	G
9	I	I	N	P	P	Z	G	K	I	K	J	I	K	H	C	P	J	I
10	J	H	E	N	E	P	I	Z	K	H	N(1)	H	J	I	O	I	I	H
11	K	K	L	E	G	G	S	O	Z	Z	Z	R	E	Z	B	S	Z	N
12	L	L	R	L	R	O	Z	I	E	I	E	P	N	E	D	P(1)	P	P
13	M	M	M	R	L	E	E	P	S	O	V	F	P	P	P	K	E	R
14	N	N	J	M	O	R	K	S	O	E(1)	O	O	S	S	H	D	R	E
15	O	O	W	S	S	L	O	E	P	R	D	C	N(1)	L	W	C	S	V
16	P	P	G	G	J	S	E(1)	V	V	L	H	W	V	R	I	H	L	S
17	Q	Q	S	W	M	M	P	L	E(1)	W	W	L	R	Y	K	M&Z {-	W	N(1)
18	R	R	T	B(1)	W	H	R	W	R	R	S	B(1)	L	W	C(1)	N(1)	V	W
19	S	S	O	Y	H	W	V	R	L	N(1)	L	Y	W	V	N(1)	W	U	Y
20	T	V	H	O	V	Y	X	Y	W		R(1)	U	U	N(1)	I(1)	N(1)	N(1)	L

*Changes in rank order shown in the table could be measured using a rank correlation coefficient. But many smaller enterprises are very close together, with the result that a very small change in their respective growth rates could alter their ranks for different years. It is better to use a product-moment correlation coefficient which gives small weight to small variations in growth, and large weight to large variations in growth. The same applies to comparison of rank by different variables for one year; slight differences in rank influence the rank correlation coefficient but have little effect on the product-moment correlation coefficient.