

Thesis 1155

"THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION
ON MANUFACTURER ADVERTISING AND PRODUCT VARIETY."

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ABSTRACT

Retail change in the convenience good sector has been a dramatic feature of the United Kingdom since 1945 and of the 1970s in particular. The impact of such change on manufacturers is an area that is under developed both in economic and business research. This thesis aims to examine the effects on manufacturer advertising and brand variety of two of the most notable features of retail change, retail concentration and own label.

After an examination of the changing retail environment in chapter one, the literature review in chapter two reveals that despite strong theoretical expectations of retail structure having an impact on manufacturers there is little empirical work on the subject. The empirical work on retailer-manufacturer interaction has been concerned with manufacturer profitability almost exclusively.

Chapters three and four explore the existing theory and evidence on the structural determinants of advertising and variety. This exploration helps identify structural variables to be included with retail variables in the empirical part of the thesis.

Chapter five develops the specific hypotheses regarding the effect of retail concentration and own label penetration on manufacturer advertising and brand variety both at firm and market level.

Chapter six describes the sample and variables to be tested. The sample is for two periods, 1970 and 1981, which enables an analysis of change to be made as well as static cross sectional analysis.

Chapter seven reports the results of the tests on advertising and chapter eight the results on brand variety.

Chapter nine provides a summary of the results whilst chapter ten concludes by suggesting that the strong expectation of retail structure having an impact on manufacturer advertising and variety is given limited support by the empirical results. The importance of further work, the need for improvement in data provision and specific areas for research are then identified.

ACKNOWLEDGEMENTS.

I would like to thank sincerely my two supervisors, Professor Richard Shaw and Professor John Dawson, for their most valuable time. Their guidance at critical times combined with the academic freedom to learn of related areas is an exemplar of supervision and has meant that in addition to the actual production of this thesis I have become familiar with a wide range of literature.

My other unpayable debt, apart from the one to the bank manager, is to my wife and parents: Mary, Kath and Jock. For their constant support and re-assurance I am humbly thankful.

For their help in providing me with access to data and market information I would also like to thank numerous anonymous librarians at various libraries in the U.K. and the not so anonymous Sir Hector Laing of United Biscuits, Plc.

Though I would like to mention every-one at the University for a generally good working environment rumour has it that submission dates are important, so a fairly general thanks will have to suffice. Particular mention should however go to my office mates, Timothy Rodgers, Monammed Al-Jorais and Lynda Blair, and to all members of the Institute for Retail Studies for their help and friendship.

Formal recognition should also be accorded to the Economic and Social Research Council who funded this project.

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- 1.1.3. Market Power.
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THE INCREASE IN RETAIL CONCENTRATION
 AND THE GROWING WHOLESALE SECTOR.
 THE RISE IN OWN LABEL PENETRATION,
 AND THE SECTOR.

The purpose of this chapter is to give
 an overview of the retailing of food
 products. It is being able to understand and
 explain the relationship between
 advertising and brand variety.

These goods are defined as being sold
 with relatively low unit price
 and the consumer's gain from
 advertising are small relative

CHAPTER ONE: THE RETAIL ENVIRONMENT IN THE U.K.

- 1.0. OBJECTIVES.
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- 1.2. FACTORS INFLUENCING DEMAND.
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 - 1.5.3. THE RISE IN OWN LABEL PENETRATION.
- 1.6. THE CTN SECTOR.
- 1.7. SUMMARY.

1.0. OBJECTIVES:

The objective of this chapter is to give an overview of the changes occurring in the retailing of "convenience goods" in the U.K. Such an overview of the retail environment is a pre-requisite for being able to understand and interpret the specific nature of retailer-manufacturer relations and the influences on advertising and brand variety.

Convenience goods are defined by Holton (1958) as:

"Goods with relatively low unit price, purchased repeatedly, for which the consumer desires an easily accessible outlet. Probable gains from making price and quality comparisons are small relative to consumer's appraisal of search costs".

Porter (1976a) suggests that a way of making such a definition operational is to identify as convenience goods those goods that are sold principally through convenience

outlets. Convenience outlets are defined by Porter (1976a, p23) as:

"Retail outlets where little or no sales assistance (information transfer) in the form of salesperson interaction is provided with the sale and locational diversity of outlets is high".

In practice, convenience goods are largely composed of "grocery" or "household" products and it is this sector that is of prime interest.

The change in the retail environment in the U.K. has occurred due to changes in both demand and supply conditions. The main influences on demand and supply are examined in section two.

Section three discusses the unique nature of the grocery sector and section four highlights the structural change that has resulted in the sector. Section five examines the contrasting but not unrelated sector of Confectioners, Tobacconists and Newsagents (CTN's) which is the other main component of the convenience good sector.

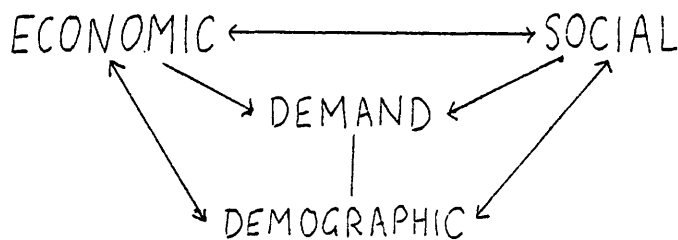
1.1. THE CAUSES OF RETAIL CHANGE.

As was mentioned above retail change results from changes in influences on demand and supply and the way consumers and retailers respond to such influences. Some of the major works written on retailing e.g. Fulop (1966), McClelland (1966) have if anything tended to be mainly concerned with supply conditions in isolation of demand. Whilst cost conditions are important it is important to examine the nature and changes in demand that have been a major explanation of retail change as well.

1.2. FACTORS INFLUENCING DEMAND.

Whilst an exhaustive list of all factors affecting consumer demand at a micro level is impossible some of the main factors can be identified. These factors can be classified into three types of influence: demographic, economic and social.

FIGURE 1.1. FACTORS INFLUENCING DEMAND.



1.2.1. DEMOGRAPHIC CHANGE.

Demographic factors, i.e. factors resulting from a changing population structure have a direct influence on the pattern and level of demand in the U.K.

As is shown from table 1.1. the population in absolute terms rose slightly from 55.9 million to 56.4 million in the U.K. between 1970 and 1981. If this was the only influence on the demand for convenience goods then demand would be expected to show a correspondingly small rise. Though given the rate of increase prior to 1970 the rate of increase in demand would be expected to fall which in itself might have effects on retailers behaviour by altering expectations of demand.

More dramatically table 1.1. illustrates how the age structure has changed and how the population is becoming more heavily weighted towards the older generations.

TABLE 1.1: THE U.K. POPULATION BY AGE GROUPS 1971 - 1986.

(Millions)

Age:	0-4	5-14	15-29	30-44	45-59	60-64	65-74	75-84	85+	ALL
1971	4.5	8.9	11.8	9.8	10.2	3.2	4.8	2.2	0.5	55.9
1976	3.7	9.2	12.4	10.0	9.8	3.1	5.1	2.3	0.5	56.2
1981	3.5	8.1	12.8	11.0	9.5	2.9	5.2	2.7	0.6	56.4
1985	3.6	7.3	13.4	11.3	9.3	3.1	4.9	2.9	0.7	56.6

Source: Social Trends.

From 1970-1981, which is the period that the statistical part of this work is concerned with, as well as a rise of 1 million in the number of over 65's there was an increase of 1.2 million in the number of 15-44 year old people. This latter rise can be expected to have a marked effect on overall consumer expenditure given that it is this age group who borrow and spend most.

Demographic change has thus been such that one would expect some rise in the demand for grocery products even if the large social and economic changes of the period had not taken place.

1.2.2. ECONOMIC CHANGE.

Economic factors can be expected to have a profound effect not just on the level of demand but on the pattern (or composition) of demand. The main economic impact on retailing has derived from the per capita increase in personal disposable income. This increase (shown in table 1.2.) has had a number of effects on retailing as a whole and in particular on grocery retailing.

One of the main effects of rising income has been to fuel the increase in consumer's expenditure (table 1.3.).

TABLE 1.2: PER CAPITA PERSONAL DISPOSABLE INCOME 1970 - 1985.

YEAR	CURRENT PRICES	1980 PRICES
1970	635	2 204
1971	695	2 222
1972	801	2 402
1973	924	2 561
1974	1 072	2 540
1975	1 331	2 549
1976	1 532	2 536
1977	1 741	2 509
1978	2 033	2 682
1979	2 430	2 823
1980	2 869	2 869
1981	3 123	2 803
1982	3 409	2 815
1983	3 664	2 881
1984	3 924	2 945
1985	4 235	3 020

Source: C. S. O.

TABLE 1.3: CONSUMERS' EXPENDITURE 1970 - 1985.

£m

YEAR	CURRENT PRICES	1980 PRICES
1970	31 963	110 946
1971	35 793	114 396
1972	40 466	121 405
1973	46 053	127 669
1974	53 080	125 810
1975	65 338	125 113
1976	75 819	125 504
1977	86 679	124 868
1978	99 873	131 742
1979	118 426	137 612
1980	137 234	137 234
1981	152 544	136 936
1982	167 362	138 201
1983	182 877	143 791
1984	195 711	146 888
1985	213 208	152 038

Source: C. S. O.

The rise in credit and the decrease in the propensity to save have combined to accentuate the effect of the rise in income on expenditure. As table 1.4. shows and as one would expect, the increase in expenditure has varied markedly across sectors.

As table 1.5. shows the percentage of total expenditure spent on differing sectors has varied. Expenditure on food and household products as a percentage of total expenditure has noticeably fallen.

The effect on consumer buying processes of this relative decline are important both for retail structure and manufacturer strategy. With increasing income and spending power it seems fair to say that the opportunity cost of grocery shopping has increased. In other words the number of alternatives to spending time shopping for groceries has increased and the consumer will have an increased desire to spend time and attention on other activities. Amongst these other activities will be shopping for products that the consumer historically has not been able to afford but which have become affordable due to rising income or credit. Thus because the consumer has a finite time for decision making, as well as a limited capacity for decision making, a rational consumer will spend more attention on the buying of new or marginal goods than on convenience goods for which the consumer will have developed and refined criteria and feedback loops over time (Steinbruner 1974). It should be noted that this view of the rational consumer is at distinct odds to the caricature of the omniscient neo-classical economic man as portrayed by Bensusan-Butts (1978).

TABLE 1.4.: CONSUMERS' EXPENDITURE BY PRODUCT CATEGORY, 1961
- 1985 (&m 1980 Prices).

	1961	1971	1976	1981	1985
Food	20 649	22 093	22 159	22 713	23 197
Alcohol and Tobacco	10 324	12 342	14 272	14 083	14 061
Clothing & Footwear	5 844	7 566	8 406	9 788	12 378
Energy Products	6 008	9 300	10 345	11 039	11 840
Durable Goods	5 576	9 841	11 785	13 687	17 843
Other Goods	8 673	11 560	13 593	14 456	16 426
TOTAL (inc. other services)	89 552	114 396	125 504	136 936	152 038

Source: Economic Trends (1987).

TABLE 1.5. PERCENTAGE OF TOTAL CONSUMERS' EXPENDITURE BY SECTOR.

	1961	1971	1973	1975	1977	1979	1981	1983	1985
Food	24.5	19.9	18.7	18.3	18.5	17.2	15.9	15.0	14.0
Alcoholic Drink	6.0	7.4	7.3	7.4	7.6	7.3	7.3	7.3	7.4
Tobacco	6.8	4.8	4.3	4.2	4.2	3.6	3.6	3.4	3.3
Clothing & footwear	9.7	8.3	8.5	8.0	7.6	7.7	6.7	6.7	7.0
Housing	10.0	13.4	13.9	13.4	13.4	13.2	14.8	15.1	15.0
Fuel & power	4.5	4.6	4.2	4.4	4.9	4.5	5.1	5.1	5.0
Household goods & services	8.0	7.6	8.0	7.7	7.3	7.6	6.9	6.7	6.6
Transport & communication	9.9	13.8	14.3	14.4	14.7	16.3	16.5	16.9	16.7
Recreation, education & entertainment	5.2	5.6	5.6	9.2	9.3	9.3	9.2	9.1	9.2
Other goods & adjustments	16.9	16.2	16.6	13.0	12.5	13.3	14.0	14.9	15.8

Source: National Income and Expenditure, National Accounts.

The assertion that the consumer should be treated as being subject to constraints and as using different degrees of involvement for different goods is however becoming more widely developed in the behavioural economic literature (Steinbrunner 1974, Earl 1983, 1986) and exist albeit in a slightly neglected state in the consumer marketing literature (Engel and Blackwell 1982).

The rise in overall expenditure as well as having an impact on the actual decision making process of the consumer has had indirect effects on the pattern of demand (i.e. the composition of demand) by altering the consumers' ability to buy and store products. The rise in income and expenditure, as well as social forces reshaping household size and numbers, have seen a rise in car ownership and freezer ownership which has facilitated the bulk buying of products.

The increases in car ownership and freezer ownership are illustrated in tables 1.6 and 1.7 and must be regarded as playing a part in altering demand for grocery products in terms of locational and frequency dimensions.

TABLE 1.6: LICENSED MOTOR VEHICLES IN THE U.K.

000'S	1961	1971	1976	1981	1985
Private Cars	6306	12125	14104	15287	16858
All vehicles	10227	15859	18233	19784	21635

Source: Dept. of Transport /
Social Trends 1987.

TABLE 1.7: FRIDGE AND FREEZER OWNERSHIP BY HOUSEHOLD.

	1960	1970	1980	1985
Fridge	22%	66%	93%	95%
Freezers	-	43%	50%	66%

Source: General Household Survey.

1.2.3. SOCIAL CHANGE.

In close tandem with the economic and demographic environment the social environment also plays a major part in shaping the retail environment.

The most tangible result of social change has perhaps been the reduction in the average number of people per household and the increase in the number of households (tables 1.8 and 1.9). Such changes are a result of a host of factors not least of which are the increasing divorce rate, changing social attitudes and increased income.

TABLE 1.8: THE NUMBER OF HOUSEHOLDS IN THE U.K. 1961-1981.

	1961	1971	1981
1 Person Households	1 919 000	3 320 000	4 242 000
2 " "	4 820 000	5 771 000	6 222 000
3 " "	3 780 000	3 458 000	3 327 000
4 " "	3 100 000	3 148 000	3 532 000
5 " "	1 489 000	1 515 000	1 436 000
6+ " "	1 079 000	1 106 000	733 000
	-----	-----	-----
	16 189 000	18 317 000	19 492 000

Source: Social Trends (1987)

TABLE 1.9: PERCENTAGE OF HOUSEHOLDS BY SIZE. 1961-1985.

	1961	1971	1976	1981	1985
1 Person Households	12	18	21	22	24
2 " "	30	32	32	32	33
3 " "	23	19	17	17	17
4 " "	19	17	17	18	17
5 " "	9	8	8	7	6
6+ " "	7	6	5	4	2

Source: Social Trends (1987)

The increase in the number of households can be expected to stimulate demand for some grocery products given that demand for some products such as cleaning products will be

more strongly related to the number of households than to population size or even (arguably) average size of household.

Though social change is in some ways a very nebulous subject a number of changes can be identified that will influence the retail environment in addition to the changing number and composition of households.

The changing attitudes from and to women have meant that women are moving towards a less male dominated society. The gradual disintegration of sex discrimination and sex stereotyping has been reflected in and helped by such factors as the number of women working, the ratio of employed men to employed women and the implementation of the Sex Discrimination Act. Evidence of the changing number of people in employment is given in table 1.10.

TABLE 1.10. EMPLOYED PERSONS IN THE U.K 1972-1985.

YEAR	TOTAL	MALES	FEMALES
1972	22 374	13 677	8 697
1973	22 739	13 783	8 956
1974	22 829	13 613	9 216
1975	22 610	13 436	9 174
1976	22 559	13 376	9 183
1977	22 635	13 354	9 281
1978	22 886	13 416	9 470
1979	22 822	13 305	9 517
1980	21 767	12 653	9 114
1981	20 781	11 979	8 802
1982	21 093	12 040	9 053
1983	21 140	11 908	9 232
1984	21 353	11 926	9 427
1985	21 508	11 912	9 596

Figures in 000's taken as of December each year and seasonally adjusted.

Source: Dept. of Employment Gazette

Such social change has inevitably had an impact on retail demand in terms of when and where shopping is done and has presumably had an impact on who is actually spending money.

Both these effects can be expected to alter the pattern of demand. Grocery shopping used to be caricatured by housewives with heavy shopping bags using public transport, nowadays the popular caricature is that of a family doing the grocery shopping by car. Whilst such caricatures are merely undocumented popular images the assertion that grocery shopping is becoming less dominated by women is hard to dismiss.

Demand has probably also changed with the increased educational standard of the population. This is reflected in the growing number of university students between 1960 and 1980 (110,000 to 295,000) and the growing access to broader forms of education such as foreign travel and television. The number of people taking holidays abroad rose from six million to ten million between 1970 and 1980 (Social Trends). Such a change in educational and social background may have re-enforced the tendency to treat grocery shopping as mundane and something to get over in a relatively short time.

The pattern of demand has also changed as a result of changing fashion. Fashion and tastes have changed in innumerable ways but two important changes can be seen in changing attitudes to image and health.

Partly as a result of increased wealth and partly as a result of changing social attitudes the predominant image or philosophical outlook being portrayed has appeared to change. In the sixties portraying an image of equality was for example more important than in the seventies where personal gain was becoming far more acceptable. Evidence of such a change is fairly nebulous but the re-emergence of the

"Tories" as a political force in the 1970s is one example of such change. If such a change has taken place then demand can be expected to have changed as a result.

An increased awareness of the need for a healthy lifestyle began to develop during the (late) seventies and was reflected in changing diets and an increase in the popularity of physical exercise (e.g. the running boom and the vast increase in marathon running).

1.3. SUPPLY.

It is against the above background of changing demand conditions that U.K. retailers have had to operate. The retail environment and retail structure are however a result of supply conditions as well as demand conditions and it these that are now examined. The main determinant of supply is the cost structure and the possible cost economies that it contains. Other influences such as legal and technological constraints are considered in section 1.4. with particular reference to the grocery sector.

Scale economies can be defined as reductions in costs that derive from scale of operations. The occurrence of economies of scale in general has long been acknowledged both explicitly by the theorists (e.g. Smith 1776) and intuitively by the practitioners (e.g. textile manufacturers at the start of the industrial revolution). The classic exposition of scale economies perhaps being that of Robinson (1958).

Scale economies are also widely referred to in the retail literature (e.g. Douglas 1962, McClelland 1966, Tucker 1975, Dawson and Shaw 1987) and even as long ago as 1890 the eminent economist Alfred Marshall mentioned economies in

retailing:

"The advantages which a large business has over a small one are conspicuous in manufacture, because, as we have noticed, it has special facilities for concentrating a great deal of work in a small area. But there is a strong tendency for large establishments to drive out small ones in many other industries. In particular the retail trade is being transformed, the small shopkeeper is losing ground daily."

(Alfred Marshall).

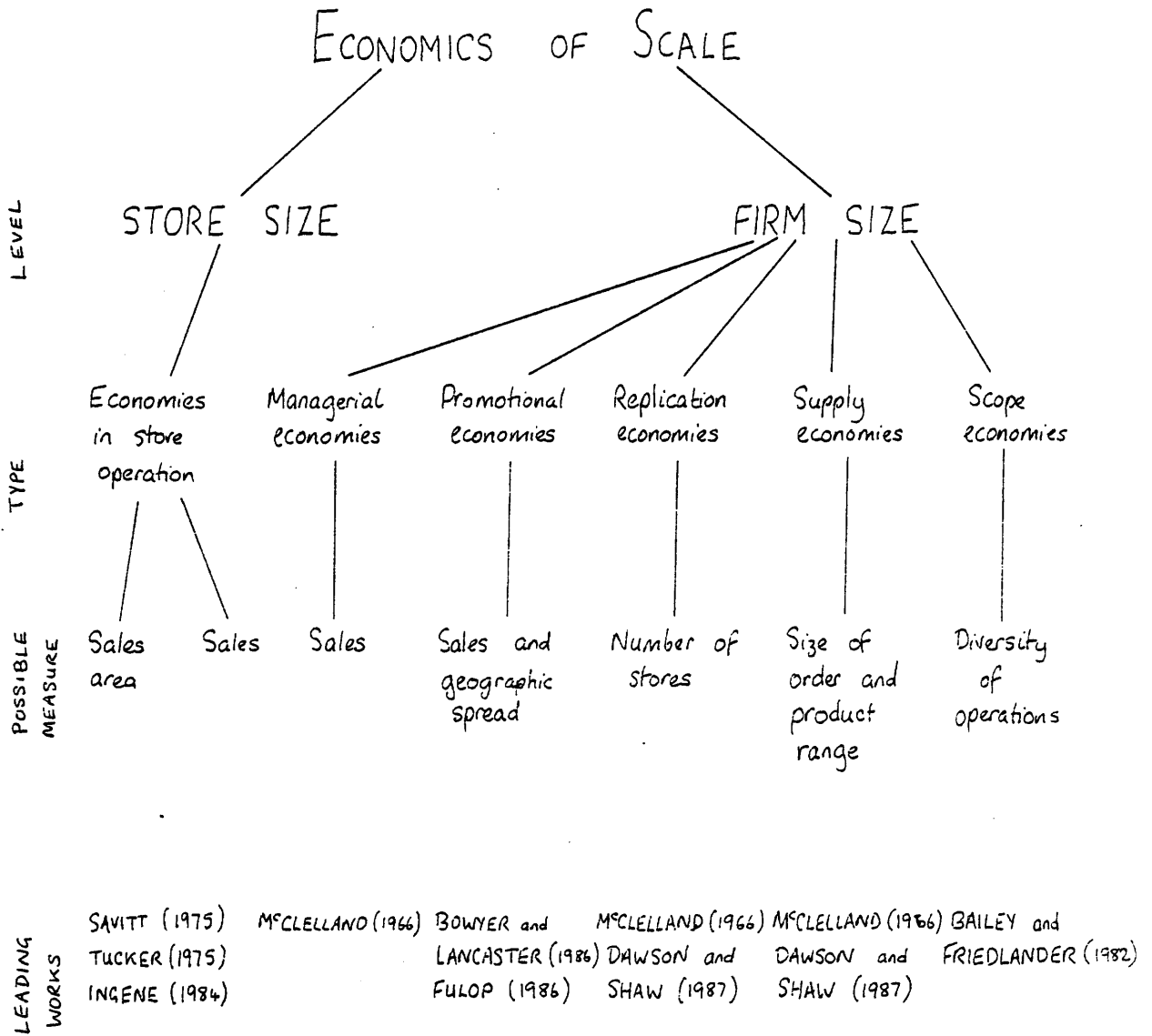
Despite the premier position occupied by scale economies in the retail literature there is a wide diversity in the types of economies regarded as important and in the empirical support for them. Figure 1.2. illustrates the large range of types of economies that are prevalent in the literature and how they derive from different measures of size. These will be discussed in turn.

The first major division that can be made in (possible) cost economies in retailing are those that derive from the size of the firm and those that derive from the size of a store.

1.3.1. STORE LEVEL ECONOMIES.

Potential economies of scale at store level are economies that may occur in store operations i.e. in direct expenses that derive from running a store such as heating, lighting, wage bills etc. The appropriate measure of size of a store will be a combination of sales area and sales, given that both may yield economies. A larger sales area may yield economies for such operations as security surveillance equipment or cleaning whereas volume of sales may yield economies in the wage bill or in checkout operation (for the latter scanning might become efficient at higher volume).

FIGURE 1.2: A CLASSIFICATION OF COST ECONOMIES IN RETAILING.



Source : Expanded from Dawson and Shaw (1987)

The reason for such economies is that even ignoring an improvement in the level of service these types of activities contain a fixed element that is spread over a larger volume or area.

There is some empirical support for store economies particularly outside the U.K. The leading work perhaps being that of Savitt (1975) who found that store expenses were significantly correlated with the degree of store utilization in a sample of Canadian supermarkets. Ofer (1973), Arndt and Olsen (1975) and Ingene (1984) also provide evidence that store size (in area terms) in some sectors at least yields economies of scale. For the U.K., studies such as McClelland (1962), Tilley and Hicks (1970), Tucker (1975) and Bamfield (1976) have found limited evidence for economies of scale at store level albeit using data of poor quality and not including the large store sizes characteristic of the grocery trade by the late 1970's.

1.3.2. FIRM LEVEL ECONOMIES.

Firm level economies in contrast to store economies are more developed in theoretical terms than in empirical testing. Firm level economies can be classified into managerial, promotional, supply, scope and replication. Though sub-dividing economies of scale is conceptually debatable in the sense that, as Arndt and Simon (1983) point out, the economies of scale concept refers to the simultaneous variation of all factor inputs there is some gain to be made from so doing. The gain is that, notwithstanding the difficulties in judging the effects of interaction, the identification of possible components of

economies of scale in retailing helps interpret the causes of structural differences across retail sectors.

(1) MANAGERIAL ECONOMIES.

The broadest type of economy at firm level are those that could be classed as managerial economies which derive from management becoming more efficient the larger the firm. These economies are those most cited as examples of economies of scale and derive from the concept of specialisation and the division of labour first identified by Smith (1776).

For many functions in the firm there is some advantage in employing a specialist, as opposed to some-one who has many tasks to do but does not specialize in any one, due to the fact that a specialist can move fully down the learning curve. It therefore follows that a firm that is so small that it cannot divide the workload for its management into specialist niches will be at a disadvantage compared to a larger firm that can. This is a slight over-simplification given that the extent of economies from a larger workforce will be reliant on the organisational structure that the large firm chooses (Williamson 1975).

(2) PROMOTIONAL ECONOMIES.

A potential area for economies of scale at firm level is through economies in promotion i.e. public relations and advertising.

In his analysis of manufacturing firms Bain (1959) found advertising to be the most important advantage of large firms. There is some controversy however of whether such an advantage is a result of economies in the scale of advertising or merely the result of large firms having

created an effective barrier to entry over time.

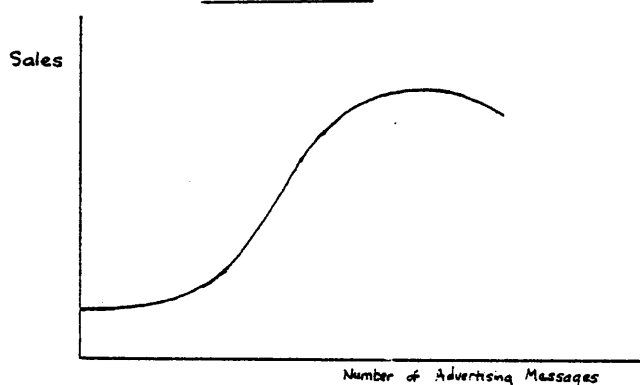
There is certainly some evidence, particularly for the United States, that bulk buying of advertising leads to cheaper advertising per minute or per line (particularly if the potential quality improvements arising from more bargaining power are taken into account) e.g. Comanor and Wilson (1974, p53-61). Furthermore as Porter (1976b) observes, different forms of media will have different costs per message and in terms of the customer response that advertising buys, it is the larger forms of media, such as national television, that are the cheaper. Whilst this is possibly true it has to be borne in mind that considerations other than size, such as the geographical dispersion of the firm, will play an important part in determining the applicability and cost effectiveness of advertising. This is demonstrated by Scherer (1980, p111) who shows that a large retailer in Chicago cannot sensibly advertise on national television whereas a smaller retailer with a broader geographic compass can. Even to the extent that advertising is cheaper if bought in bulk, the marginal cost of extra sales may be rising and so offsetting the discount gained. Empirical evidence on the presence of economies of scale in advertising is particularly ambiguous not least because of the difficulty in empirically isolating economies of scale in advertising from other (inter-related) economies of scale (Arndt and Simon 1983, Fulop 1988).

A dimension of the debate on economies in advertising has been on the shape of the advertising response function. The advertising response function is the relationship between sales and the number of advertising messages, holding other

input factors constant. As the review of the advertising response function by Simon and Arndt (1980) shows, many theoreticians and practitioners believe there is a threshold effect in the response curve so that it is the shape shown in figure 1.3.

Though the evidence of such a relationship is questionable as the review by Simon and Arndt (1980) suggests, even if the response rate is as popularly believed, this is not sufficient to say that an economy of scale exists.

FIGURE 1.3: POPULAR VIEW OF THE ADVERTISING RESPONSE FUNCTION.



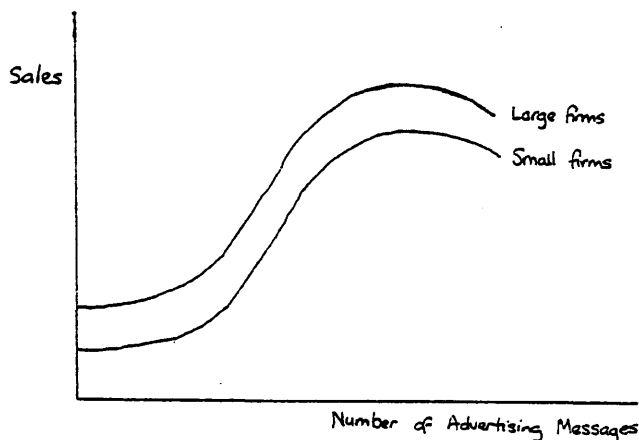
For if all firms are profit maximizers they will invest in the number of advertising messages up to the point where marginal returns decline, as with any other factor input (Boyer and Lancaster 1986). The only two ways that the advertising response function is indicative of scale economies is either if it is interacting with the differing ability of firms of different size to raise finance (a pecuniary economy) or if the function differs between firms of different size.

Pecuniary economies whilst dismissed by many economists as unimportant, perhaps because they derive from the indeterminate area of bargaining power, are a fundamental

feature of industrial structure and are of particular importance, as Koch (1980) suggests when discussing bilateral market power.

Scherer (1980, p110) explores the possibility that large retailers may have different response functions to small retailers as illustrated in figure 1.4. He suggests that this will arise because of consumer inertia and because of physical barriers to the rapid expansion of sales. Consumer inertia he argues arises from the fact that large firms will start out by having more customers who for whatever reason are unlikely to be influenced by advertising and thus small firms will have a harder job appealing to these "unmovables". Physical barriers, Scherer argues, occur because even if advertising has the desired effect there will be time lags and costs involved in building more check-outs or expanding store space etc.

FIGURE 1.4: DIFFERING ADVERTISING RESPONSE FUNCTIONS.

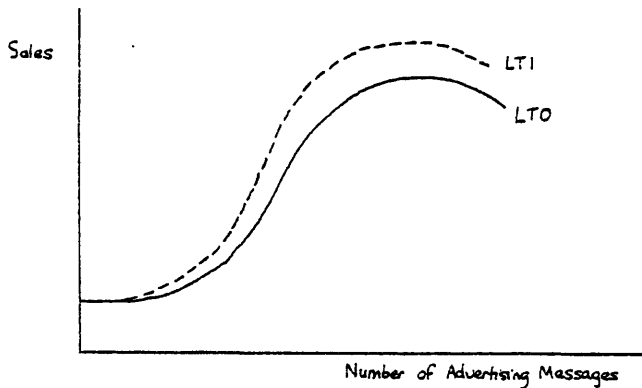


Source: Scherer (1980).

It can also be argued that the build up of the stock of advertising over time will cause inertia. For, if large firms have been in the market for one time period longer than the small firm, the real response functions facing the firms will

be as shown in figure 1.5.

FIGURE 1.5: THE EFFECTS OF TIME ON THE ADVERTISING RESPONSE FUNCTION.



The large firm having a response function LT_1 as the initial response function LTO will rise to this in terms of sales purely as a result of group interaction over the time period. Thus if a company advertises X number of times in time period 0 this will generate A_0 sales in period 0 and A_1 sales by the end of period 1.

It should be noted that as drawn LT_1 diverges from LTO and then becomes parallel. The reason for suspecting this to happen is that after a certain threshold one would expect the group dynamic to have an increased effect whilst having a finite (even decreasing) limit after a certain number of advertising messages.

A feature of advertising that may have yielded much clearer economies of scale in retail advertising are the potential economies of scope in multibrand advertising. It is sometimes suggested in the advertising literature, e.g. Simon (1970), in regard to manufacturers that the use of a company trademark or similar collective identity may yield both volume discounts and communication economies. This would seem to be particularly plausible for yielding "image economies"

to large retailers. Large retailers in terms of product range (particularly products sold under their own name) may gain from the "free rider" effects in advertising for an additional product line. This type of economy will be discussed more fully in the section on economies of scope.

As well as economies of scope in promotion and possible economies of scale in promotion it is important to remember that retail advertising can also be a mechanism for realising the benefits from other potential economies. Fulop (1988) for example shows how retail advertising is an important weapon in communicating competitive advantage for more recently established types of retailer (such as discount stores and superstores) e.g. price competition by discount retailers of electrical goods.

(3) ECONOMIES OF SUPPLY.

Cost economies for retailers may also be achieved through the relationships with suppliers. These may occur either through "real economies" or "bargaining economies". The "real" economies will be economies that arise from the decrease in transaction costs that occur as a retailer gets larger. Transaction economies will derive both from savings in costs of communication and physical distribution economies. Communication becomes more efficient since the employment of buying specialists (and selling specialists for the manufacturer) becomes worthwhile. Economies in physical distribution also arise since large retailers will not want small cases or half van loads of merchandise. Investment in physical distribution procedures becomes worthwhile with large orders and as a result the process will become more

efficient.

Bargaining economies are the economies that arise from the retailer having greater bargaining power in relation to the manufacturer. This may take the form of cheaper goods via over-riders or discounts (MMC 1981) but may also take the form of transfers of service between the retailer and manufacturer. The manufacturer may have to take on some of the tasks that the (smaller) retailer would normally do e.g. putting goods onto pallets or in a more manageable form. The manufacturer may also be expected to provide advertising and promotional allowances for the retailer, particularly if a manufacturer wants a prime location either in store or in retailer advertising (Fulop 1988). Such allowances are in some senses evidence of indirect economies of scale in advertising by retailers.

The discounts that arise from the exertion of bargaining power have been subject to investigation both by the Monopolies and Mergers Commission (1981) and by the Office of Fair Trading (1985). Though controversially special terms were found not to be against the public interest these studies did verify that such terms did exist and were more extensive amongst the larger retailers compared to smaller retailers (table 1.11).

TABLE 1.11: VALUE OF SPECIAL TERMS NEGOTIATED BY MANUFACTURERS WITH CUSTOMERS.

Size ranking of customer	% of gross sales
1-4	9.2
5-10	7.7
1-10	8.7
Others	5.6
All	6.6

Note: The results were compiled by the Monopolies and Mergers commission on the basis of replies from 12 "convenience good" companies.

Source: MMC (1981).

...real time saving to the customer. ... consumer becoming more important one ... to increase the number of product lines ... demand and to gain economies of ... organisational level dealing with ... to yield economies. Such economies ... the supply and ... that they will ... that derive from the expertise ... will also include the promotional ... promoting a collection of ...

(4) ECONOMIES OF SCOPE.

The formulation of a theory of economies of scope is still comparatively under-developed (Panzar and Willig 1975, 1981) but its key concept has always been at the heart of retailing as Dawson and Shaw (1987) identify. There are said to be economies of scope when a single firm can produce a given level of output for each product line more cheaply than a combination of separate firms, each producing a single product at the given output level. In retailing terms a retailer will collect an assortment of products together in order to gain the synergistic economies of scope. Such a concept is given the label of scrambled merchandising or compound trading in the retail literature (e.g. McNair and Hansen (1949). At store level this will, as well as giving cost economies to the retailer, up to a point be giving a transactional time saving to the customer. With time saving for the consumer becoming more important one would expect retailers to increase the number of product lines both to meet consumer demand and to gain economies of scope.

At an organisational level dealing with more products can be expected to yield economies. Such economies will be closely related to the supply and managerial economies mentioned above, in that they will include bargaining economies that derive from the expertise of management buyers. They will also include the promotional economies that derive from promoting a collection of products. Retail advertising is fundamentally different from manufacturer advertising in that corporate identity is far more important than individual brand advertising. In promoting retail identity there would seem to be a case for saying that there

is a threshold of awareness that has to be reached and that the marginal cost for promoting a particular product line is minimal. The logic of this is evident from example; a supermarket chain such as Tesco will have to spend a large amount promoting the corporate image but because of this the marginal cost of promoting another own or manufacturer brand will be negligible.

(5) ECONOMIES OF REPLICATION.

Economies of replication although developed in the retail literature from McClelland (1966) are in some ways merely a special example of learning economies and economies of scale that have particular importance for retailing. They occur because of the large fixed costs in devising a retail format and the low variable costs of "replicating" the format. Store design, logo, computerized stock systems etc all require heavy investment for the "first" store but are available to subsequent stores at very low cost. Such replication economies are clearly dependent on the number of stores but since capital investment in retailing has been steadily increasing the importance of large store numbers is correspondingly increasing in order to make such investment worthwhile.

1.4. THE PARTICULAR NATURE OF THE GROCERY SECTOR.

Before going onto examine how general demand and supply factors have influenced the grocery retail environment it is worth examining the factors that are specific to the sector. There are three specific aspects that have had particular significance for the extent of retail change: the limits to

demand growth, the impact of technological change and the impact of legal change.

1.4.1. THE LIMITS TO GROWTH.

A feature of the demand for grocery products are the restrictions on the overall level of demand in volume terms and the degree to which these restrictions are already influencing competition.

Given that demand for food in calorific terms is finite per person and that household products are finite per household, industry volume growth will be harder to achieve other than through the rise in population and the rise in the number of households. As was noted above there has only been a slight rise in the former and a moderate rise in the latter. The justification for saying that growth will be harder is that, though grocery goods are "normal goods" in terms of the relationship between income and quantity, it is reasonable to say that a significant proportion of the population have sufficient income that the volume of their grocery products will no longer increase if their income increases. The larger the proportion of the population for which this is true the more one would expect overall demand to level out and (in theory) eventually become constant in volume terms. Whether the U.K. approximates such a model yet is questionable but the trend in food consumption, at least as reflected by value figures which one would expect to be more volatile, has levelled off towards the end of the 1970s.

The reason that the macro level of demand for grocery goods is of importance when examining the shaping of the retail environment is that a levelling off of demand can be

expected to be a force increasing concentration. This is simply because a levelling off or slowing down of demand will mean that retailers in order to gain sales will become more reliant on having to gain market share from other retailers. Such a process can be expected to close down the less efficient firms that have not exploited scale economies or found a market niche.

Factors that mitigate such a process are the degree that grocery products are sold along with other products and the degree to which "value added" products are introduced.

The selling of other products may slow down the process to some extent due to the fact that it may be more acceptable within firms selling other products not to increase grocery sales. This might be the case if offering grocery products helped the sales of other products e.g. a convenience store selling bread and milk might sell more videos, newspapers or confectionery as a result even if bread and milk sales were static or declining.

The introduction of "value added" products might be a valid counter argument to the suggestion that grocery sales are reaching a peak in value terms but whether it is a valid counter argument to the suggestion that restrictions in volume growth are a force increasing concentration is debatable. If all retailers had the same ability to sell "value added products" then subject to the ability of manufacturers to come up with value added products sales growth could continue ad infinitum. It is however hard to support such a case in the light of the investment in technology needed for some "value added" products and in the

light of the occurrence of own label value added leaders. Both of these factors suggest that it is retailers with sufficient resources who will benefit from "value added" products and thus one would expect this to exacerbate the forces increasing retail concentration.

1.4.2. TECHNOLOGICAL CHANGE.

As well as the unique characteristics of grocery demand the advent of new technology has had special significance for the sector.

The impact on products has been seen mainly through their prolonged shelf life (Blanchfield (1983) resulting primarily from both canning and freezer technology. At the supply end this has again required heavy capital investment and to the extent that consumers now require goods with a long storage life this has enabled the larger chains to use their advantages of size in regard to financing these fixed costs.

Technology has also had an important impact on stock control and delivery systems. Computerised systems have allowed a decline in the amount of stock that has to be held but again have required a large amount of investment. Financing electronic point of sales systems are another example of capital requirements that are likely to be available only to the larger retailer.

Overall, technological change has been important in allowing the change to "one stop" shopping and has been a factor in realising the benefits of size.

1.4.3. LEGAL CHANGE.

Changes in the legal environment have affected the

grocery sector in many ways. Two major areas, aside from employment legislation, are the interpretation of planning legislation and the interpretation of monopoly legislation.

In terms of planning permission for out of town sites evidence suggests that there has been an increase in planning permission granted on appeal to grocery stores (Lee, Roberts and Hands (1986). The effect of this has to allow a major change in shopping location to have taken place.

Similarly, there has been little use of monopoly legislation to prevent acquisitions in the grocery trade. Though the percentage of the U.K. grocery market held by any one retailer in the seventies amounted to at most 13 or 14 percent, in certain regions mergers might have been referred to the monopolies commission on the grounds that they had a local monopoly of over 25 percent.

1.5. RETAIL CHANGE IN THE GROCERY SECTOR.

All the factors mentioned above have combined to shape the retail environment. In this section the main features of the retail environment and the changes occurring between the early seventies and eighties will be identified. Particular attention will be paid to the changes in retail concentration and the market penetration of own labels which have been a central feature of the "new environment" of grocery retailing which is emerging.

1.5.1. THE INCREASE IN RETAIL CONCENTRATION.

As was evident from the demand factors there has been an increase in demand for grocery stores that offer an efficient use of time. Such stores are caricatured by the typical store that offers a large range of items enabling the weeeekly or

fortnightly bundle of goods to be bought in one shop with easy access and car parking facilities.

Such a change in demand has made economies of scale a more vital factor in competition and has accordingly, over the last thirty years, led to an increase in the share of the market that the multiple chains have (table 1.12) and to an increase in the average size of stores (table 1.13). The advantage of firm and store size has been such that the resulting increase in concentration has been dramatic and is shown by the fall in the number of retail outlets (table 1.14).

Within the multiple sector the large firms have grown significantly in market share with the largest three firms having 37% of the total grocery market in 1981 compared to 24% in 1970.

Both independent and co-operative stores have been hard hit by the rise in the growth of the large multiples. For many stores, closure was inevitable as direct competition with the large multiples in terms of price, advertising and car parking was unviable given the scale advantages of the large stores. The firms that have survived the direct onslaught of the large multiples have done so by offering products or services that the large multiples cannot or have not. The most obvious way that the "corner shop" has survived has been by offering "convenience" in terms of products that have to be shopped for regularly or which are forgotten in the supermarket shop. For whilst supermarkets may offer time saving and convenience for a basket or trolley full of goods this will not be true for just a handful of goods. Goods that

a consumer runs out of between large supermarket shops are an obvious example of this, as are purchases which are in some ways important to at least a segment of consumers. Such segments would include those who are shopping for presents or those who have a specialist interest in a product normally classed as convenience such as tea, coffee, cheese etc. The smaller shop can exploit these market segments by an offering

TABLE 1.12: PERCENTAGE OF GROCERY SALES BY TYPE OF OUTLET.

YEAR	% OF TOTAL GROCERY SALES		
	Independents	Multiples	Co-operatives
1950	57	20	23
1957	55	22	23
1961	53	27	20
1966	48	36	16
1969	44	41	15
1970	43	42	15
1971	43	43	14
1972	41	46	13
1973	39	48	13
1974	38	49	13
1975	37	49	14
1976	37	49	14
1977	35	51	14
1978	28	57	15
1979	26	59	15
1980	25	61	14
1981	24	63	14
1982	22	65	13
1983	21	67	13
1984	19	69	12
1985	19	70	11

Source: A.C.Nielson, Annual Review of Grocery Trading.

TABLE 1.13: SIZE PROFILE OF MULTIPLE STORES 1976-1984.
(IGD SAMPLES).

	1976	1977	1978	1979	1980	1981	1982	1983	1984
Sales Area (sq ft)									
< 2000	44.3	39.5	36.7	33.3	30.4	27.6	24.0	22.7	20.8
2 - 9999	46.1	49.1	50.2	51.4	50.9	51.5	52.4	53.3	52.8
10 - 24999	7.7	9.0	10.5	11.8	14.3	15.9	16.7	17.5	19.4
25000+	1.9	2.4	2.6	3.4	4.3	5.0	6.3	6.5	6.9

SOURCE: IGD (1985).

TABLE 1.14: NUMBER OF GROCERY RETAIL OUTLETS

YEAR	MULTIPLES (1)	CO-OPERATIVES	INDEPENDENTS (2)	TOTAL
1976	7,960	6,270	66,000	80,230
1977	7,000	6,000	62,000	75,000
1978	6,440	5,760	59,000	71,200
1979	6,000	5,550	56,000	67,550
1980	5,700	5,250	53,000	63,950
1981	5,600	5,050	51,000	61,650
1982	5,430	4,630	48,000	58,060
1983	4,760	4,490	43,000	52,250
1984	4,380	4,230	40,850	49,460
1985	4,290	4,120	40,100	48,510

SOURCE: I. G. D. (1987)

- (1) Firms with more than 10 outlets.
 (2) Firms with less than 10 outlets.

that differs from the supermarket offering in terms of location, product range or service.

The opportunity for the small sized store to exploit such segments along with the growing importance of scale economies in addressing the mass market has led to a growing polarization within the retail grocery trade. This polarization is characterized on the one hand by large (out of town) supermarkets and on the other by local "convenience" stores and specialist outlets.

1.5.2. THE CHANGING WHOLESALE SECTOR.

The effects on the wholesale sector of retail change have been enormous. Large retailers have gained economies of supply by internalising much of the wholesale function. Gains have accrued to large retailers through reduced transaction costs (in terms of physical distribution) and greater bargaining power (by dealing directly with the manufacturer). Purchases by large retailers are rarely made from a wholesaler and a result of increasing concentration has thus been a decline in overall market share passing through wholesalers for grocery products. Statistics on wholesaling between 1970 and 1980 are extremely poor, although the position has improved somewhat since 1980 with wholesaling now being included in Business Monitor statistics on a regular basis.

The result of a declining share of the overall market has brought about a number of changes as wholesalers have tried to compete with the large multiple retailers. The most obvious is perhaps the growth in the concentration of wholesaling as wholesalers strive to take advantage of some

of the economies of scale that large retailers are also trying to achieve. The most significant of these will probably be in the area of bargaining economies and distribution economies.

As Dawson, Shaw and Harris (1987) observe the change in retail structure has also led to large wholesalers widening their role by offering a greater degree of service to the smaller retailers on which they depend. Spar for example offer a Trispar scheme which offers management training, merchandising expertise, promotion to their members. The growth of such voluntary schemes is widespread with large wholesalers all offering some degree of support for retailers who opt into their schemes. Such support often includes own label products.

Such change in wholesale structure and behaviour is a factor that will accentuate the effects of retail concentration on manufacturer performance. In the subsequent statistical analysis only the crude measures of retail concentration and own label penetration will be used but it should be recognised that if the statistics on the distributive trades were improved more sophisticated and accurate tests could be made by incorporating wholesale change in a more focused manner.

1.5.3. THE RISE IN OWN LABEL PENETRATION.

In this thesis the concept of "own labels" will frequently be referred to. It is worth discussing exactly what is meant by "own labels" particularly as the meaning in the retail trade and retail literature is constantly changing and evolving. The definition used in this work is all

encompassing and includes "any product sold under the retailer's own name or under a brand name that is the exclusive property of the retailer whether actively promoted or not". For the period under review (1970-1981) the term own label has added appeal given that during this time this was the popular manner of referring to them. Since the early eighties it has become fashionable to talk of retailer brands in order to make the (valuable) strategic point that such brands can be an important tool in the overall marketing mix of the retailer. It has also become fashionable to distinguish between labels and brands on the grounds that the former are unsupported and the latter supported in terms of promotion. This distinction is in some ways rather an artificial one and is not used in this work because all products are promoted although to varying degrees. As the objective of this work is to examine the effect of own labels in the broad sense rather than sub-divide it into categories of heavily supported multiple retailer brands, less supported own labels, voluntary chain own labels, generics etc the title of "own labels" seems the best, though not perfect, title to use. Sub-dividing own labels into such groupings may however be a useful exercise in future work for later time periods and particularly for more micro analyses into the nature of own labels, retailer brands etc. Such work however would require the collection of data not currently available in secondary sources.

The increase in own label penetration in packaged groceries shown in table 1.15 has arisen as a result of a number of forces. Historically retailers have always sold some products under their own name but a number of forces

have contributed to the recent rise.

TABLE 1.15: OWN LABEL PENETRATION OF PACKAGED GROCERIES.

(% Share by Value)

1972	20.0	1981	23.4
1975	20.5	1982	24.9
1976	20.9	1983	27.1
1977	22.5	1984	27.4
1978	23.0	1985	28.0
1979	22.2	1986	28.6
1980	22.5		

Source: AGB.

In the early sixties the existence of retail price maintenance encouraged retailers to introduce own labels as a means of engaging in price competition. Although retail price maintenance has long since disappeared (1964) it was one factor in encouraging more own labels to be introduced.

The main factor in the increase in own label penetration however is perhaps that the changing retail environment, in particular the growth in concentration, was giving the "own label" a chance for its inherent promotional advantages to be used. Indeed the very term own label has begun to fall into disuse as more retailers develop active strategies for their "own brands". The promotional advantages of the own label are a very important factor in their success and it is worth examining these advantages in detail.

Their advantages occur in a number of areas: price, economies of scope in promotion, retailer control and bargaining power.

The price advantage of own labels derive partially from economies of scope in promotion and partially from bargaining power. The main advantage derives from the fact that for a

large retailer the additional cost of promoting an own label is very low if the retailer is promoting its general image or other own labels. Since promoting and advertising synergy is obtained from having to promote a store full of products the cost of promoting any one own label is low compared to manufacturers who tend to promote each brand by itself. The reason for manufacturers doing this results from the fact that they have far less scope for inter-product synergy in promotion.

The changes in demand and the increasing convenience nature of grocery products has benefitted own label growth by putting different attention on the physical attributes of the product and on the image attributes of the product. In regard to the physical attributes increased income, education etc has reduced the search time and effort for grocery products and has probably led to the consumer being more willing to experiment by trial (i.e. in Nelson's typology these goods would be "experience goods", Nelson 1970). Such a hypothesized increase in experimentation would mean that a consumer may be more "objective" in assessing quality and thus an "own label" would be able to compete effectively on physical attributes if it met a threshold level of quality.

Furthermore to the extent that image is important to consumers the image that archetypal own labels portray, i.e. a cheaper version of a manufacturer brand but having similar quality attributes, is also an image that is suitable for convenience and low cost products. In addition for such products it is likely that in-store promotion is likely to have much more effect than out-of-store promotion given the

reduction in the search process that lower involvement entails. Since in-store promotion is chiefly determined by the retailer, the retailer has an important say in the relative promotion of own labels and manufacturer brands.

The increasing ability of large retailers to obtain cost economies increases the logic of price competition. For price competition will improve long term profitability if in the short term it eliminates competition. Due to the cost savings of own label deriving from both dealing with smaller manufacturers and from the economies in promotional expense, own labels are an important means of engaging in price competition.

Retailer control is another important advantage that own labels have. Retailers have control over all products in their stores and can thus control shelf space and displays of products to yield maximum profits. As own labels offer retailers greater margins profit maximising display will tend to be beneficial to the own label. In addition by developing own labels retailers have a much greater control over the product range that they have in the store. By being an important party in the manufacturing stage the retailer can develop a range of own labels to promote the store image.

Closely allied to the concept of control is the fact that own labels can be used to exert bargaining power over the manufacturer. The forces of demand and supply and the changing legal and technological environment in which they operate have combined as a force increasing retail concentration. Fundamental to the process of retail concentration and its effects however is the exertion of bargaining power between manufacturer and retailer in the

marketing channel. This is because the success of bargaining discounts, terms of delivery etc, will effect the degree of horizontal success that the specific retailer will enjoy and will effect how the retail environment evolves. The whole of this subject is explored in chapter two, however it is evident that having an own label range will be one factor in exerting influence over the manufacturer.

Own label increases the retailer's bargaining power relative to the manufacturer by offering the retailer an alternative if a bargaining impasse arises when negotiating terms for a brand. The viability of such an alternative is clearly going to be dependent on the brand loyalty of the manufacturer's brand. In the environment outlined above it would seem reasonable to suppose that brand choice has become less important relative to store choice for a number of products, even if the availability of brands may be a factor influencing store choice.

1.6. THE CTN SECTOR.

Though the grocery sector is very much a "convenience good sector" it is important to remember that it is not the only one. The Confectionery Tobacconist Newsagent (CTN) sector is also very much a sector that sells convenience goods. The change that has taken place in this sector is related to the change that has taken place in the grocery sector but is different in number of ways.

The change that has occurred is partially related to grocery change. For the CTNs have been well placed to exploit the opportunities for "convenience stores" which have resulted from the trend towards large supermarkets. This

advantage relative to small grocers derives from CTNs being more frequently visited than grocers. Extending product assortment to existing customers is an easier option for CTNs than small grocers extending product assortment and trying to gain new customers.

Due to the high frequency of purchase by CTN customers the CTN sector has not undergone the explosion of store size associated with the grocery sector and remained dominated by the independents in the 1970s. The fragmentation of the CTN sector is paralleled by the fragmentary nature of the data available on it. Table 1.16 however provides some idea of how unconcentrated the sector is.

The two sources of data, the census of distribution and the retail inquiry, are not compatible in the sense that they use a different classification of outlet type. Both however show that the sector is relatively unconcentrated with the trend towards concentration only accelerating after 1980.

TABLE 1.16: SHARE OF THE CTN MARKET BY ORGANIZATIONAL TYPE.

CENSUS OF DISTRIBUTION DATA.

	Independent	Multiples
1961	90%	10%
1971	86%	14%

RETAIL INQUIRY DATA.

	Single Outlet	Small Multiples	Large Multiples
1976	65%	12%	23%
1977	64%	13%	23%
1978	63%	13%	24%
1979	62%	12%	26%
1980	61%	12%	27%

The unconcentrated nature of the sector is in some ways useful for the empirical analysis of this work because it

enables a wider variety of retail concentration to be examined than would have been possible if just the grocery sector were examined. Furthermore because goods sold through grocery and CTNs are convenience in nature, there is not a strong argument for suggesting that the differing nature of such goods will affect the sample.

1.7. SUMMARY.

This chapter has shown how both changing demand and supply forces have interacted within a changing legal and technological environment to produce the unique retail environment of the grocery market.

Demand has been influenced by demographic, social and economic change. The latter two having particular significance in the growth of demand for time-efficient stores for convenience products and for the polarisation between large scale supermarkets and small neighbourhood stores.

The change in demand has enabled retailers to take advantage of a variety of scale economies. Such economies have been a potent force in encouraging the growth in retail concentration and in the development of own labels.

In the subsequent analysis of how retail concentration and own label penetration affect manufacturers, and in particular the advertising and product variety of manufacturers, it is important to bear in mind the retail environment that has produced such a degree of concentration. For it may be that the combination of forces that have produced such concentration of buying power and own label share are very much a part of the influences on manufacturer

performance and that in a different environment with the same levels of concentration the outcome may be different because of these macro influences.

1. INTRODUCTION.
2. THEORETICAL FRAMEWORK.
3. MARKET CONCENTRATION.
4. MARKET STRUCTURE.
5. BARGAINING POWER THEORY.
6. MANUFACTURER AND RETAILER SIZE.
7. DIVERSIFICATION.
8. SUBSTITUTABILITY: MARKET CONCENTRATION AND CONSUMER BUYING PROCESS.
9. STRATEGIC CONSIDERATIONS.
10. REVIEW OF PREVIOUS EMPIRICAL WORK.

OBJECTIVES.

The main objective of this chapter is to review the literature on how retail structure may affect manufacturer performance. A broad theoretical understanding of how retail structure affects manufacturer performance is a prerequisite to developing the hypotheses of how manufacturer advertising and own label penetration will be affected by advertising and brand variety (Chapter 5). It is useful in explaining why the literature on structural determinants of advertising and brand variety (discussed in Chapter 3) and which largely ignores retail considerations,

CHAPTER TWO: RETAIL STRUCTURE AND MANUFACTURER PERFORMANCE.

2.0. OBJECTIVES.

2.1. TRADITIONAL ECONOMIC MODELS.

- 2.1.1. OLIGOPOLY.
- 2.1.2. MONOPSONY.
- 2.1.3. OLIGOPSONY.
- 2.1.4. BI-LATERAL MONOPOLY.
- 2.1.5. BI-LATERAL OLIGOPOLY.
- 2.1.6. OTHER MODELS.

2.2. COUNTERVAILING POWER.

2.3. THE NATURE OF BARGAINING POWER.

- 2.3.1. REWARD POWER.
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- 2.3.3. EXPERT POWER.
- 2.3.4. IDENTIFICATION.
- 2.3.5. LEGITIMACY.

2.4. A REFORMULATION OF BARGAINING POWER THEORY.

- 2.4.1. MANUFACTURER AND RETAILER SIZE.
- 2.4.2. DIVERSIFICATION.
- 2.4.3. SUBSTITUTABILITY: MARKET CONCENTRATION AND THE CONSUMER BUYING PROCESS.
- 2.4.4. STRATEGIC CONSIDERATIONS.

2.5. REVIEW OF PREVIOUS EMPIRICAL WORK.

2.0. OBJECTIVES.

The main objective of this chapter is to review the existing literature on how retail structure may affect manufacturer performance. A broad theoretical understanding of how retailer structure affects manufacturer performance is a pre-requisite to developing the hypotheses of how retail concentration and own label penetration will affect manufacturer advertising and brand variety (Chapter 5). It is also useful in explaining why the literature on structural determinants of advertising and brand variety (discussed in Chapters 3 and 4) largely ignores retail considerations.

2.1. TRADITIONAL ECONOMIC MODELS.

Neo-classical economic theory has numerous models of the firm which are widely taught and rigorously developed, e.g. perfect competition, imperfect competition, monopolistic

competition, oligopoly and monopoly. In such models buyer structure is implicitly assumed to be either atomistic or not to have any effect. Neo-classical economic theory however also offers a number of extensions to these models in which buyer structure is incorporated. It is appropriate to review some of these extended models to assess what predictions such models make with different types of retail structure.

If we assume for simplicity that there are three types of market structure: monopoly, oligopoly and perfect competition, then this will give six possible models featuring a non atomistic retail structure. These are shown in table 2.1. and will be examined in turn and compared to an atomistic retail structure where appropriate.

TABLE 2.1: ECONOMIC MODELS OF BUYING POWER.

Manufacturer Structure.	Retail structure.
Perfectly Competitive	Monopoly
Perfectly Competitive	Oligopoly
Oligopoly	Monopoly
Oligopoly	Oligopoly
Monopoly	Monopoly
Monopoly	Oligopoly

Before examining the economic models of buyer-seller interaction it is necessary to briefly review some of the differing models of oligopoly in order that structures that feature oligopoly can be more fully understood.

2.1.1. OLIGOPOLY.

The numerous models of oligopoly with differing strategy assumptions lead to differing outcomes even before one takes into account bi-lateral considerations.

Cournot's theory of oligopoly, which was first specified as a theory of duopoly (Cournot 1838), is based on the very

simple assumption that each firm chooses to produce the quantity of output that maximizes its own profits, assuming the quantities of rivals to be fixed. Such an assumption leads to a stable price/quantity equilibrium. The equilibrium being determined by the number of sellers. In the duopoly case the result will be each firm producing a third of the total market whereas in a market with many sellers the situation approximates the competitive equilibrium.

Though Cournot's model is an interesting exercise in logic if it is to be judged on the reality of its assumptions the model has serious drawbacks. As Fisher (1898) said of it:

"no business man assumes either that his rival's output or price will remain constant any more than a chess player assumes that his opponent will not interfere with his effort to capture a knight. On the contrary, his whole thought is to forecast what move his rival will make in response to his own."

(Fisher 1898).

Despite such extreme criticism the model keeps a high profile in the literature ninety years later presumably due to its neatness of solution compared to other oligopoly models and because many empiricists, e.g. Friedman (1971), regard the behavioural plausibility of a model as irrelevant.

The behavioural naivety of Cournot's model is slightly reduced by Stackelberg (1952) who assumes that a firm will maximize profit assuming that the other firm will follow Cournot's assumption. The result of such a model is that the sophisticated firm will set its output at the level at which it maximizes its own profit. If the other firm does in fact follow a Cournot approach then it will become a follower in the sense it will be producing less output and making less profit than the sophisticated firm. However this is not the

only strategy open to the "other" firm for it too might want to become the leader and be earning the larger profit. If it does then the market situation becomes unstable (Stackelberg's disequilibrium) with a price war following until one firm agrees to become a follower or indeed until the firms collude at an intermediary point.

In addition to the non-collusive analysis illustrated by Cournot and Stackelberg it is worth mentioning two other types of oligopoly analysis namely collusive oligopoly and game theory.

Collusive models are simply models in which the firms implicitly agree that because there are costs and risks in competition that they would be better off in collusion. Collusive oligopoly can take a number of different forms as the work of Fellner (1949) demonstrates. Such collusion can take the form of agreements on quotas (such as that operated by OPEC) in order to gain monopoly profit or agreements not to compete on price.

One of the problems or unstable aspects about collusive oligopoly is that, particularly with quotas, there is an incentive for an individual firm to cheat and produce more if detection and subsequent punishment are unlikely.

Non-price competition for which there are a variety of models is normally reliant on price leadership and is more likely to be stable than quota collusion because, for an atomistic market at least, price is reasonably detectable.

In contrast to the various models of collusive and non-collusive models of oligopoly the evolution of game theory has brought a new method of analysis to the oligopoly problem. The original work on game theory by Neumann and

Morgenstern (1944) developed (and mathematically proved) a variety of game models. The theory of games does not yield a model that provides a price output outcome of the same genus as perfect competition or monopoly but it does give some insight into strategy selection under various structural characteristics. Games can fall into one of two classifications zero-sum or variable-sum games. Both involve representing the choices of firms by a pay-off matrix.

The zero-sum game is the most appealing given the definite behavioural outcome that it predicts for two firms. A two firm zero-sum game is illustrated by the pay-off matrix in figure 2.1.

FIGURE 2.1: A TWO FIRM ZERO-SUM PAY-OFF MATRIX.

		B's Strategies		
		b1	b2	b3
A's Strategies	a1	7	-4	-6
	a2	8	2	-1
	a3	0	-2	5

Each number in the matrix represents the pay-off expected by A for a particular pair of strategies. The pay-off for B in a zero-sum game being the negative of A. Neumann and Morgenstern (1944) demonstrated that by following a "minimax" strategy the firms would get a higher average pay-off than by following any other strategy rule. A "minimax" strategy being where the firm examines the worst possible outcome of following each strategy and adopts the strategy which has the best pay-off for the worst outcome. In the example in figure 2.1. firm A would examine the worst possible outcomes of the three strategies (-6, -1, -2) and select strategy two which is

the best of the three. Correspondingly firm B would select strategy three because the worst pay-off that this could yield is -5 compared to -7 and -8 of strategies one and two.

To prove that a "minimax" strategy is the best under zero-sum conditions is a step forward for oligopoly theory. Unfortunately as Neumann and Morgenstern (1944) readily observed the occurrence of zero sum games in oligopoly is a rarity! A further drawback of the zero-sum game is that, though a two person zero sum game has a simple solution, n person zero sum games are often less straightforward.

Variable-sum games which are more readily observable yield interesting results although not quite as definitive and prescriptive as the "minimax" solution of the zero-sum variety. A variable sum game is a game in which the pay-offs do not sum to zero and thus some outcomes will be more favourable to the firms jointly than others. A special example of a variable-sum game is the "prisoner's dilemma" which gives some insight into the nature of oligopolistic competition. The "prisoner's dilemma can be explained as follows. Smith and Jones are arrested and charged with both a murder and a lesser offence of possessing a firearm without a licence. They are put into separate cells. Neither can be found guilty of murder unless the other confesses that they both did it. If one of them confesses then he will be freed (both charges dropped) and the other will get 30 years imprisonment. If they both confess then they get a more lenient sentence of 15 years. If neither confess then they each get jailed for 18 months on the lesser term.

The pay-off matrix for Smith and Jones is illustrated in figure 2.2.

FIGURE 2.2: THE PRISONERS' DILEMMA: AN EXAMPLE OF A PAY-OFF MATRIX.

		Smith	
		Silent	Confesses
Jones	Silent	1.5, 1.5	30, Free
	Confesses	Free, 30	15, 15

The logical strategy to adopt, assuming no other considerations are taken into account apart from assuming an adversity to prison, is for the accused to adopt a "minimax" strategy and confess. This paradoxically results in them both serving a longer term than if they had both kept silent.

One of the insights this offers in terms of behaviour is that they both have an incentive to change the rules of the dilemma they are in and try to ensure that both will collude. Such collusion will be dependent on a number of factors.

The first is clearly information about the other prisoner, if the prisoner has information about the other and there is a lag involved in a course of action then the dilemma is reduced. This can be illustrated in the prisoner example if the prisoners were kept in the same cell and had to bang on the door in order to get a lawyer to hear a confession. For in this case it would be relatively easy for the prisoners to sit by a far wall and both be reassured that the joint favourable outcome would be achieved. In the business world one could see a major advertising campaign in the same mould, as there is a considerable lag before a campaign can be launched with the intentions for a campaign becoming public fairly quickly.

Another way the participants may wish to change the dilemma is by manipulating the pay-off matrix itself. For

example if one prisoner faces a high risk of revenge then there is less incentive to confess. Furthermore it will be in the interests of a prisoner to issue threats etc even if it worsens his own pay-off matrix. Such logic is analagous to investment in entry barriers or costs involved in limit pricing etc.

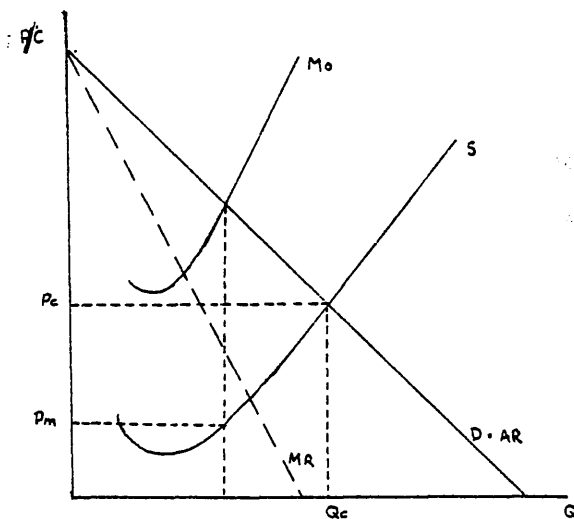
Another important factor is the dynamics of game theory. The prisoners' dilemma is a static model but if the game is played constantly then there is an opportunity to build up trust and collusion over time.

Having examined a sample of oligopoly models it is now possible to explore the predictions of bi-lateral market structures.

2.1.2. MONOPSONY.

A monopsony exists when there is one buyer and many sellers. The outcome, as illustrated by figure 2.3., will be a lower quantity and lower price than the competitive outcome.

FIGURE 2.3: MONOPSONY.



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This is because the monopsonist will wish to buy until the marginal outlay, MO , which is the marginal cost of buying, equals the price determined by the demand curve. The price the monopsonist will pay will thus be P_m . In a competitive situation manufacturers would sell a total quantity of Q_c at price P_c , i.e. where demand and supply intersect.

2.1.2. OLIGOPSONY.

An oligopsony occurs when one has a few buyers facing perfectly competitive manufacturers. An oligopsony yields less precise results than monopsony because one is faced with possible differences in strategy. If buyers were to collude then one might get a position similar to monopsony. Depending on assumptions about information however, the fact that there are many manufacturers will mean a greater chance of individual buyers making secret agreements with manufacturers than in bi-lateral oligopoly. In other words collusion is unlikely to be effective and the price and quantity outcome is likely to be nearer the competitive manufacturer outcome indicated in figure 2.3. than the monopsonist outcome.

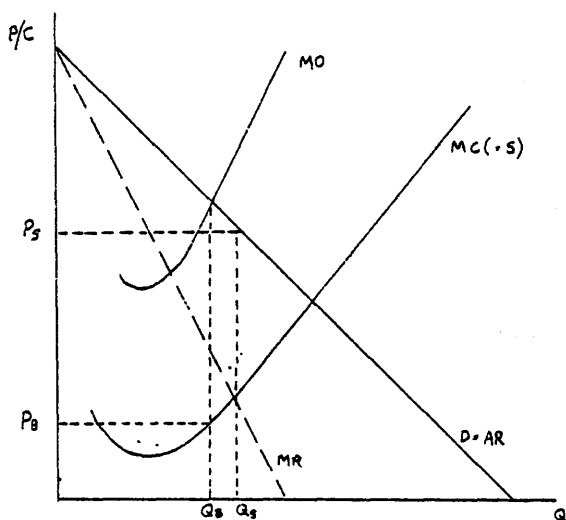
2.1.4. BI-LATERAL MONOPOLY.

The theory of bi-lateral monopoly (Bowley 1928) which is perhaps the most interesting of the neo-classical models, is likewise indeterminate since, even with the restrictive assumptions of perfect knowledge and a static environment, it does not give a precise prediction as to price, quantity and profit (figure 2.4.). The reason for its "interesting nature" is the fact that its indeterminacy derives from its bi-lateral nature and not from the models on either side.

The prediction it does give with regard to price and quantity is that it will fall in a given range and that the exact position within that range will be determined by the bargaining strength and skill of the two firms.

The monopolist seller will wish to maximize profit ($MC=MR$) and if facing an atomistic market would sell Q_s at a price of P_s .

FIGURE 2.4: BI-LATERAL MONOPOLY.



The monopsonist (buyer) on the other hand would wish to buy until the marginal outlay (MO), the marginal cost of buying, equalled the price determined by the demand curve. Thus the monopsonist would wish to purchase Q_b and if faced with an atomistic producer market would be able to negotiate the price down to P_b . Without a detailed theory of bargaining one can conclude that the price will fall somewhere between P_b and P_s .

2.1.5. BI-LATERAL OLIGOPOLY.

The model of bi-lateral oligopoly, i.e. a few sellers and a few buyers, again yields no precise prediction about price

and quantity. It is however, as Scherer (1980) notes:

"Highly conceivable that a few end product sellers could have sufficient power to hold the price of intermediate products supplied by upstream oligopolists at or near competitive levels."

There are a number of reasons for expecting in practice that the probability of retailers (buyers) exerting bargaining power and gaining concessions from manufacturers is higher than vice versa, particularly for consumer industries.

One such reason is the U.K. competition policy which is very dependent on the definition of public interest. For collusive behaviour or at least the exertion of bargaining power by oligopolistic retailers is often justified on the grounds of being in the "public interest" (e.g. the Monopolies and Mergers Commission (1981) and the Office of Fair Trading (1985)). In these two investigations into alleged practices of over-riders and discounts in the food trade, such practices were given tacit if not explicit approval on the grounds that they were being passed onto the consumer. The effect on the consumer of such discounts accelerating the demise of (some) small retailers did not appear to be investigated.

For manufacturers, far removed from the consumer, evidence of acting in the public interest by the exertion of power would seem less likely.

Product range and the relative dependency on negotiations is another factor for expecting retailers often to be better off in terms of power even when the bi-lateral market structure in terms of concentration is symmetric. For example, even if the biscuit market has three firm

concentration ratios of eighty percent on both the retailer and manufacturer side, it is highly likely that the retailers will be more diversified in terms of markets and hence less dependent on negotiations. One could quite rightly argue that such a conclusion results out of the "wrong" definition of the market for the retailer, however as there will rarely be a congruent fit between manufacturer and retailer markets applied work has to take account of such a mis-match. If one envisages retailer manufacturer interaction in terms of a variable sum game, the result of such diversification is to weight the pay-off matrix towards the retailer. This would certainly seem to be true in the convenience good sector where the total range of products the retailer has makes the retailer better off in terms of dependency on negotiation, i.e. the manufacturer will have a stronger adversity to a negotiation stalemate.

This perhaps illustrates how the traditional models that incorporate retailer power highlight the need for a complimentary analysis of conduct and industry specific features.

2.1.6. THE OTHER TRADITIONAL MODELS.

From this analysis it should be clear that the two remaining scenarios (a monopoly seller versus oligopoly buyers and oligopoly sellers versus a monopoly buyer) will likewise yield no precise predictions as to price and output without some knowledge of strategy or conduct.

2.2. COUNTERVAILING POWER.

Before examining the marketing literature on bargaining

power in the marketing channel, it is worthwhile examining one more structure orientated theory, namely the "theory of countervailing power" (Galbraith 1952). Like a lot of Galbraith's work it must be seen in a different light from most micro economic theory in that instead of building a logical precise model from theoretical assumptions his theories tend to be drawn from (percieved) historical observation of business behaviour. Whether one method of formulating theory is preferable to another is a logically indeterminate issue, however what is important is to recognize the different methodology involved.

His theory of countervailing power is an interesting variant on the "invisible hand" of market forces. The traditional view of competition being that, if one creates the conditions of perfect competition, the pursuit of self interest will yield a "desirable" pareto optimal outcome. Pareto optimality being reached where no one can be made better off without some-one being made worse off. Galbraith argues that the self generating force of countervailing power is also of great importance in regulating economic power. He suggests that a structure with strong sellers will "as a common rule" beget strong buyers by giving buyers an incentive for organisation that neutralizes the power of the sellers. Such a theory is analogous to Schumpeter's rejection of classical competition in his theory of "creative destruction" (Schumpeter 1942) in which it is suggested that competition is a force that results in and then destroys monopoly.

Galbraith, as one might expect, does not argue that countervailing power arises in every case of monopoly power

but contends that state intervention and industrial policy should encourage the conditions that enable countervailing power to work. In particular he observes that countervailing power does require a certain minimum opportunity and capacity for organisation.

How far Galbraith's theory is operational in terms of testing its validity, given the paradox between a self generating force and one that requires a particular legal framework and threshold of organisational ability, is questionable. What is certain however is that the theory of countervailing power like the traditional models of competition give only a limited insight into the process of competition between manufacturers and retailers without the incorporation of other variables and a theory of bargaining.

2.3. THE NATURE OF BARGAINING POWER.

Though the economic literature does not develop a theory of bargaining power between retailer and manufacturer beyond the formal models, the literature on marketing channels does provide such a theory.

El-Ansary and Stern (1972) define a marketing channel as:

"an interorganisational system made up of a set of interdependent institutions and agencies involved with the task of moving things of value (ideas, products, services) from points of conception, extraction or production to points of consumption".

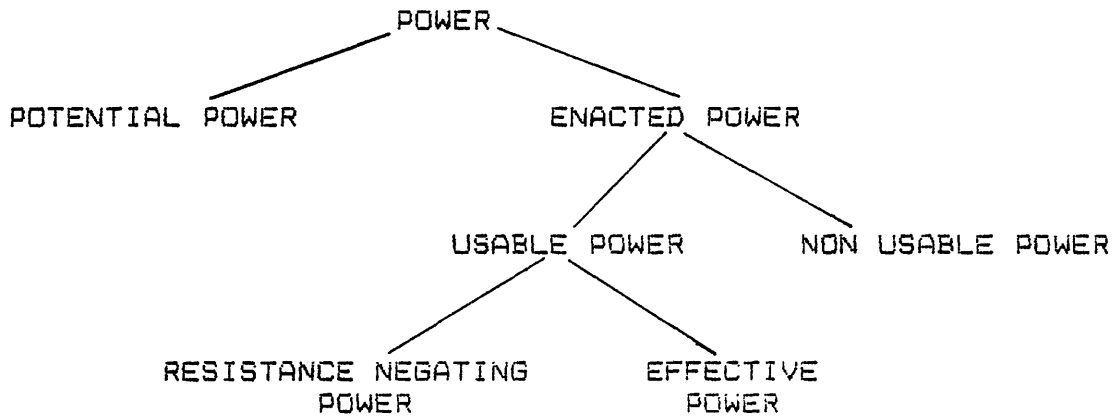
Power within the marketing channel is defined by El-Ansary and Stern (1972) as:

"the ability of one firm at a given stage of production or distribution to influence decision variables of another at a different stage of production or distribution."

It might be reasonable following Diamantopoulos'

classification of power (shown in figure 2.5) to say that such a definition is really a definition of potential power since it is defined in terms of "the ability" to exert power.

FIGURE 2.5: A CLASSIFICATION OF POWER.



Source: Diamantopoulos (1985).

The amount of "enacted power" is not necessarily equal to the amount of "potential power" because a firm may not have to use all its power to achieve its desired objective and indeed the firm's objectives may not require the use of any of it in relation to another particular firm. Furthermore as Diamantopoulos observes, the use of power in one area may preclude its use in another so that some power may be unusable. Out of the usable power some will be used up negating the power used by the other firm leaving a residual of power that is effective in changing the behaviour of the other firm.

French and Raven (1959) classify five sources of power which are now well established in the literature: rewards, coercion, expertise, identification and legitimacy.

2.3.1. REWARD POWER.

Reward power is based on the belief of a firm B that another firm A will reward it if it complies with A. Since the power is based on a "belief" this belief may change over time depending on the behaviour of firm A. The "weight" or degree of power of A over B will increase if rewards are actually given though as Beier and Stern (1969) note continual use of the same reward will cause a decline in the weight of power over time since B will gradually perceive the reward to be the norm. The power of rewards will also be a function of the size of reward.

2.3.2. COERCIVE POWER

Coercive power is based on the perception that B has of A's ability to punish him. Punishment might be in terms of reduced margins or could be the withdrawal of rewards. As is often pointed out (e.g. Kelman 1961) the use of coercive power may result in resentment and lead to non-compliance in the long run.

2.3.3. EXPERT POWER.

Expert power is based on B's perception that A has special knowledge which B does not possess and which B cannot economically obtain. This power base is liable to be a very short term one if B gains expertise for the future by the use of A's specialist knowledge in the present. It will be longer lasting if A's knowledge derives from an informational advantage regarding an ever changing system. As Stern and El-Ansary note such power could be broadly viewed as information power rather than expert power.

2.3.4. IDENTIFICATION.

Identification, sometimes called referent power, can be the most long lasting of power sources.

It is defined by French and Raven (1959) in the following terms:

"The referent power of A over B has its basis in the identification of B with A. By identification, we mean a feeling of oneness of B to A, or a desire for such an identity..... If A is an attractive group, B will have a feeling of membership or a desire to join. If B is already closely associated with A he will want to maintain their relationship."

Such power will disappear only if A's behaviour causes dissonance for B or if B's values change.

2.3.5. LEGITIMACY.

In many ways legitimacy is sociologically the most interesting power base in that it stems from the perception by B that A has a "right" to exercise power over B. This "right" may be perceived because of a law or trademark, because of the norms that B has come to accept or because of a latent threat of coercive power.

2.4. A REFORMULATION OF BARGAINING POWER THEORY.

It is important to remember that the sources of power that French and Raven (1959) identify will interact and that the amount of power that can be used may be greater or less than "the sum" of the individual parts.

In some ways French and Raven's standard classification of power though complete is not very operational for the basis of empirical work because of the difficulty in measuring the sources of power and assessing the degree of interactive effects. In this section some of the structural factors influencing the balance of power in the marketing

channel will be identified along with the areas of French and Raven's classification that will be largely independent of structure. A diagrammatic synopsis of the structural influences on bargaining power is provided in figure 2.6.

2.4.1. MANUFACTURER AND RETAILER SIZE.

A key structural determinant of bargaining power is the size of the retailer and manufacturer. Absolute size will yield a number of positive sources of potential bargaining power such as greater resources and greater negotiating skill.

Greater resources can be expected to yield more bargaining power because it will allow greater scope for reward (reward power) and greater ability to punish the other party (coercive power).

Greater negotiating skill can be expected to derive from size given that size enables greater specialization. Skill of negotiation may not technically lead to greater potential power but it will lead to greater enacted power. Though greater negotiating skill may increase the use of all sources of power it is essentially expert power.

2.4.2. DIVERSIFICATION.

The degree of diversification is another potential source of power. The degree to which a manufacturer or retailer is dependent on a particular order (or sequence of orders) will have a bearing on the amount of power that can be obtained. Thus in the two way relationship of power, diversification will reduce the flow of power (resistance) coming back at the firm from the other.

Diversification will be a particularly important weapon for the manufacturer if it goes into markets in which the retailer is involved but has little market share.

2.4.3. SUBSTITUTABILITY.

The other main identifiable structural source of power is the notion of substitutability which arises both from the structure of the market and the consumer buying process prevalent in that market. As with size considerations the main implications are for the degree of reward and coercive power.

The degree to which a firm can be substituted (or the degree to which a firm is dependent) depends on a number of factors.

Taking the degree to which a manufacturer can be substituted first.

The number of other manufacturers making a similar product is an important factor in determining the degree to which a manufacturer's brand can be substituted. Though a retailer will only need one alternative brand the opportunity of procuring such a brand will depend on the number and size distribution of manufacturers. If the composition of the market is concentrated enough then oligopolistic recognition of interdependence amongst the manufacturers might prevent "mutually destructive competition".

A factor likely to be important in the degree to which bargaining power exerted by the retailer affects the manufacturer is the degree of consumer loyalty. The likelihood of a consumer accepting an alternative brand to the preferred brand is greatest if the good is a convenience

or low involvement good being sold in an outlet where the aim is to buy a basket of goods rather than one particular type of one good. For "shopping goods" or high involvement goods the consumer is likely to put up with high search costs in order to purchase the brand that is preferable on other criteria. Porter (1974) suggests such behaviour for convenience goods will be true for low to moderately differentiated products but adds the caveat that the occurrence of chain stores will have little effect on highly differentiated products. This he suggests is because:

"where the manufacturer has a brand image established, the persuasion necessary to convince retailers to stock the product is minimal."

(Porter 1974).

In the light of the retail environment and the high retail concentration discussed in chapter one the relevance of such a view would appear highly questionable. Porter's reasoning was based on the fact that because convenience outlets had little sales assistance the amount of manufacturer advertising was all important. Whilst this may be true in comparison to goods sold through non-convenience outlets it is based on the assumption of an atomistic retail structure, the very factor which Porter condemns the empirical literature for invariably assuming. Since a highly concentrated retail sector for a convenience good will give the retailer a substantial influence over the consumer must be considerably less than in an environment with an atomistic retail structure. Hypotheses concerning the degree to which manufacturers will advertize in the face of differing potential concentration will be developed in chapter five.

The degree to which a retailer can be substituted by a

manufacturer is slightly different, though it is again a function of size and the consumer buying process. The manufacturer will lose bargaining power if by not selling to that retailer he will lose sales. The number of potential sales lost is dependent on the size of the order and the degree to which consumers would seek out the product at an alternative retailer. The latter is affected by the degree of differentiation and also the geographical distribution of retailers. As was noted above for convenience goods the likelihood of seeking out another store for a product as opposed to accepting a substitute is much lower than for shopping goods.

2.4.4. STRATEGIC CONSIDERATIONS.

It can be seen that structural features of the marketing channel are going to have a strong influence on coercive, reward and expert power. However, in specific instances small firms (manufacturer, wholesaler or retailer) may dominate the marketing channel by the use of legitimate, referent and expert power (Little 1970). This will be particularly true of new products where legitimate, referent and expert power are likely to be at their greatest (Borden 1968).

It is important to bear in mind that, though a firm may have limited scope for altering the "structural" environment in which it is in (particularly in the short run), it will have a great deal of scope in "enacting" the power at its disposal. The structure-conduct-performance paradigm in which the empirical part of this study is rooted assumes away such considerations by implicitly assuming that the firm will adopt the most rational strategy for its environment, i.e.

will enact the power available to it. Such an assumption may be defensible in terms of a "theoretical" long run equilibrium but for a broader insight it is worthwhile examining some of the strategies by which manufacturer and retailers can enact such power.

For the retailer, a way of enacting power deriving from the relative size of the order (assuming this is comparatively unimportant) is to group orders together to accentuate the importance of the order for the manufacturer. Such a phenomena was observed as long ago as 1953 by Andrews (1953).

The manufacturer on the other hand could gain power by aiming to increase the degree of product differentiation (Porter 1976a). The variables that the manufacturer has available for enhancing product differentiation are the four P's of the marketing mix (McCarthy 1960): product, place, promotion and price. Of the four, product and promotion are going to have particular importance for manufacturers aiming at (and already established in) the mass market. These will be discussed in more detail in chapter five which considers the effects on advertising and brand variety on retail concentration and own label.

2.5. REVIEW OF PREVIOUS EMPIRICAL WORK.

The amount of empirical work on structures that has taken into account buying power (or its proxy buying concentration) is to date small despite the large volume of empirical work dealing with seller structure (a very conservative estimate of the number of studies relating seller concentration to seller profitability would be sixty). This is particularly

surprising given that models of monopsony and bi-lateral monopoly are taught to virtually every student of economics.

The work that has been done has tended to be orientated towards profitability, mainly one suspects because of the historically strong pre-occupation with the equilibrium price models within the economic literature. Examples of these studies are Brooks (1973), Lustgarten (1975), Porter (1974,1976), McGuckin and Chen (1976) and Clevenger and Campbell (1977).

Though Lustgarten (1975) is the only study to date to examine the effects of buyer concentration on advertising it is worthwhile examining the handful of studies that have examined the effect of buyer concentration on profitability as well. The purpose of doing this is to show the empirical evidence for buyer structure having an effect on manufacturer performance.

It is perhaps worth examining Lustgarten's study first as it is the only study to date that explicitly relates buyer concentration to advertising albeit for producer goods.

The study used input-output data on 327 U.S. manufacturing industries for 1963. Lustgarten found that advertising intensity was related to the four firm seller ratio (CR4), value of shipments (VS), the ratio of consumption final demand to total output (CTO) and several measures of buyer concentration. The measures of buyer concentration were the weighted average buying industry concentration ratio, the degree of industry dispersion and order size. The weighted average buying concentration ratio (BCR) used the four firm concentration ratio of consuming industries weighted by the sales of producing industries. The

degree of industry dispersion (DSPH) was defined as the range of sectors in which the goods were sold and order size was measured by the average annual firm purchase of consuming industries (AAFP).

Lustgarten's results on advertising expense are presented in table 2.2. His results show that advertising is negatively related to the buyer structure variables but also positively related to the four firm seller ratio. The inclusion of industry dispersion in equations (3) and (4) re-enforces the coefficients of the other variables according to Lustgarten although it should be noted that there is a degree of correlation between the independent variables which would really require further tests before such a conclusion can be assessed.

TABLE 2.2: LUSTGARTEN'S RESULTS RELATING ADVERTISING EXPENSE TO SELLER CONCENTRATION AND BUYER CONCENTRATION FOR PRODUCER INDUSTRIES.

	Intercept	log (VS)	CTO	AAFP	CR4	BCR	DSPH	Rsq
(1)	-7.04	1.33 (20.70)	.016 (7.63)	-.082 (3.18)	1.13 (4.45)	/	/	.680
(2)	-6.50	1.10 (23.54)	.014 (6.80)	/	1.30 (5.22)	-1.95 (5.41)	/	.697
(3)	-6.85	1.15 (21.26)	.018 (8.46)	-.106 (4.05)	1.22 (4.86)	/	-.734 (3.45)	.691
(4)	-6.10	1.09 (23.84)	.016 (7.76)	/	1.36 (5.58)	-2.19 (6.07)	-.724 (3.91)	.709

Notes: t ratio shown in parentheses.
 Dependent variable is the log of advertising expense.
 F test result not given (not in the original).

Source: Lustgarten (1975).

On the same sample Lustgarten (1975) examined the effects of retail structure on the selling industry price cost margin (PCM), indeed this was the prime objective of the study. The results are presented below in table 2.3. where abbreviations are as before except for the addition of KS for capital output.

The main feature of the results is the negative effect of each buyer variable on the price cost margin when entered separately in equations (2) to (5). When BCR and DSPH are included together the result is more powerful than when included separately, which as Lustgarten observes, suggests that they are complimentary variables.

TABLE 2.3. LUSTGARTEN'S RESULTS RELATING PRICE COST MARGINS TO MEASURES OF BUYER STRUCTURE.

	Intercept	KS	CR4	BCR	AAFP	RBFS	DSPH	Rsq.
(1)	.163	.101 (6.43)	.097 (5.98)	/	/	/	/	.233
(2)	.174	.107 (6.88)	.109 (6.71)	-.075 (3.83)	/	/	/	.266
(3)	.181	.108 (7.03)	.107 (6.72)	/	-.005 (4.47)	/	/	.278
(4)	.165	.100 (6.40)	.098 (6.08)	/	/	-.040 (2.26)	/	.245
(5)	.176	.098 (6.19)	.100 (6.16)	/	/	/	-.025 (2.10)	.243
(6)	.205	.102 (6.69)	.120 (7.46)	-.111 (5.28)	/	/	-.051 (4.16)	.304
(7)	.223	.104 (6.96)	.123 (7.80)	-.049 (1.84)	-.006 (3.73)	/	-.063 (5.03)	.333

Notes: t ratio shown in parentheses.
Price cost margin is dependent variable.

Source: Lustgarten (1975).

An earlier study that had incorporated a similar measure of buyer concentration into a model examining manufacturer profitability was Brooks (1973). This was again a study in the U.S.A. using input-output data (for 1963) and simply included a four firm seller concentration ratio, a weighted buyer concentration index and an estimated advertising-sales ratio (to act as a proxy for barriers to entry). Buyer concentration was found to be significantly and negatively related to manufacturers return on assets (table 2.4. equation (1)).

Clevenger and Campbell (1977) reworked Brooks' model on 1967 data and found that as specified the model performed poorly in comparison to the earlier sample.

TABLE 2.4: RESULTS OF BROOKS (1973) AND CLEVINGER AND CAMPBELL (1977) ON STRUCTURAL DETERMINANTS OF MANUFACTURER RETURN ON ASSETS.

		SC	I/S	BE	BC	adj	Rsq	
1963:								
(1)	Brooks (1973).	5.48 (4.80)	0.14 (5.07)	/	0.28 (3.20)	-0.10 (2.97)	.71	a
(2)	Clevenger and Campbell (1977)	5.92 (5.39)	0.13 (5.13)	0.12 (1.79)	0.29 (3.54)	-0.12 (3.55)	.75	a
1967:								
(3)	Clevenger and Campbell (1977)	10.86 (5.78)	0.03 (0.72)	/	0.33 (2.48)	-0.09 (1.71)	.21	c
(4)	Clevenger and Campbell (1977)	9.41 (5.08)	0.05 (1.21)	1.55 (2.05)	0.25 (1.79)	-0.07 (1.46)	.34	-

Notes: Figures in parentheses are t values.
a = significant at 99% level, b = 95%, c = 90%.
There were 20 observations for each year.
SC = Seller Concentration (CR 4)
I/S = % change in Inventories / % change in Shipments
BE = Barriers to Entry.
BC = Buyer Concentration.

Source: Clevenger and Campbell (1977)

For the 1967 time period the Brooks model shows a reduction in overall explanatory power and a reduction in the significance of buyer concentration and seller concentration.

To improve the Brooks model Clevenger and Campbell (1977) introduced a variable to account for demand growth. This is the I/S variable which measures the change in inventories over the change in shipments. Such a variable leads, according to the authors, to an increase in the statistical significance of seller concentration for both 1963 and 1967. Whilst this is true they fail to comment on the fact that for the 1967 sample the inclusion of the I/S variable does in fact make the whole regression estimate less than 90% significant.

McGuckin and Chen (1976) found that buyer concentration was significantly related to manufacturer price cost margins in a negative log-linear manner for both consumer and producer industries when included with manufacturer concentration. The main feature of this study is perhaps the log-linear nature of the relationship as it is the only study of the impact of retail structure on manufacturer profit that reports testing for a logarithmic relationship. The process implied is that retail concentration has a negative impact on the price cost margins of manufacturers but with the degree of effect declining at high levels of retail concentration.

Though a number of studies in the empirical literature have divided industries into producer and consumer to assess whether this has an effect on their models (e.g. Collins and Preston (1969), Porter (1974)) only a few of these have incorporated buyer concentration measures (Brooks (1973), Porter (1976), McGuckin and Chen (1976), Clevenger and

Campbell (1977)).

Porter provides the leading work on the impact of retail structure on manufacturer profit for consumer goods (Porter 1974, 1976). This he does by dividing his sample of consumer goods between convenience and non-convenience goods. A convenience good defined as a good sold predominantly through convenience outlets and a non-convenience good defined as a good sold predominantly through non-convenience outlets. His reasoning for expecting a different effect on profitability of variables such as manufacturer concentration, minimum efficient scale, advertising sales ratio and absolute capital requirements between convenience and non-convenience goods centered on the degree of influence that the retailer has on the consumer's brand choice.

The results of Porter (1974) are reproduced in table 2.5. The results are persuasive evidence for Porter's assertion that the structure-conduct-performance paradigm, at least as espoused in models such as Comanor and Wilson (1967) and Esposito and Esposito (1971), is of particular relevance to convenience industries.

Porter (1976) extended his earlier study in a number of ways though the results announced in the earlier study remained central to his arguments. One notable extension particularly for this study was his attempt to introduce measures of retail structure as an explanation of manufacturer profit rates for convenience goods.

There are so many measures of retail structure used by Porter (1976) that they are best presented in table form (table 2.6).

TABLE 2.5: RESULTS OF PORTER (1974) - EQUATIONS EXPLAINING PROFIT RATES.

	int	CR 8	MES	A/S	GR	RD	ACR	ad. Rsq
All Consumer Industries (n = 42)								
(1)	54b (2.0)	-.502 (1.93)	.017c (1.67)	.523a (3.70)	.021b (1.73)	17.0 (.975)	.0007a (2.97)	.477 a
(2)	46b (1.7)	/	.006 (.666)	.449a (3.19)	.025b (2.01)	1.16 (.073)	.0005b (2.24)	.437 a
(3)	89a (5.1)	-.578b (2.20)	.014 (1.37)	.630a (4.82)	/	16.2 (.901)	.0010a (4.62)	.448 a
(4)	70a (2.8)	-.251 (1.15)	/	.527a (3.63)	.018 (1.43)	.620 (.042)	.0007a (2.71)	.450 a
Convenience Goods Industries (n = 19)								
(5)	52c (1.7)	-.632b (2.62)	.015c (1.53)	.591a (5.15)	.026b (1.95)	9.69 (.698)	.0018a (2.68)	.813 a
(6)	61b (2.3)	-.583b (2.58)	.011c (1.44)	.600a (5.36)	.024b (1.88)	/	.0019a (3.16)	.821 a
(7)	11 (.35)	/	.014 (1.22)	.517a (3.85)	.040a (2.79)	-.94 (.059)	.0012c (1.55)	.729 a
(8)	102a (6.2)	-.830a (3.45)	.007 (.671)	.717a (6.85)	/	4.31 (.288)	.0022a (3.56)	.774 a
(9)	81a (3.4)	-.624b (2.47)	/	.623a (5.25)	.017 (1.35)	-3.97 (.356)	.0022a (3.56)	.794 a
Non convenience Goods Industries (n = 23)								
(10)	77b (2.0)	.153 (.244)	-.001 (.155)	.224 (.336)	.009 (.34)	/	.0005 (1.159)	.155
(11)	78b (2.1)	.125 (.346)	/	.219 (.341)	.009 (.371)	/	.0005 (1.289)	.202 c
(12)	92a (4.5)	.255 (.435)	-.002 (.106)	/	/	/	.0005 (1.649)	.220 c
(13)	90a (5.8)	.096 (.278)	/	.349 (.669)	/	/	.0006b (2.34)	.238 c
(14)	88a (4.2)	.162 (.266)	-.003 (.133)	.352 (.657)	/	/	.0006b (1.74)	.196 c

Key: CR 8 = 8 Firm Concentration Ratio, MES = Minimum Efficient Scale, A/S = Advertising Sales Ratio, GR = Growth, RD = Regional Dummy, ACR = Absolute Capital Requirements.

Notes: Figures in parentheses are t values.

TABLE 2.6: DEFINITIONS OF RETAIL STRUCTURE VARIABLES USED BY PORTER (1976)

VARIABLE	DEFINITION
Number of Establishments	The number of retail establishments in the dominant retail outlet class selling the product.
Number of firms	The number of largest retail firms with 50% of retail sales in the dominant retail outlet class.
Total Number of retail buyers	The sum of the number of largest retail firms accounting for 50% of retail sales for each retail class selling a significant portion of retail sales of the product.
Weighted number of firms.	The weighted average (using percent of total retail sales of the product) of the above variable.
High buyer concentration (d)	A dummy variable sorting industries into high or lower buyer concentration based on a composite of the above three measures.
Average retail firm size	The average firm size of the largest firms accounting for 50% of retail sales in the dominant retail outlet class.
Weighted average firm size	Same procedure as above: also computed for all retail firms as well as largest ones accounting for 50% of retail sales.
Breadth of product line	An index measuring the number and relative shares of merchandising lines carried by the dominant retail outlet class selling the product.
H - Index of multiple outlet selling.	An index measuring the number and relative shares of outlet classes.
Retail advertising to sales ratio.	For the dominant retail outlet class.
Retail profit on equity.	Profit on equity for the dominant retail outlet class.

To explore the effects of retail structure using the macro-perspective of government statistics means that the results must be treated with a good deal of circumspection but even so the results are of a great deal of interest. The results are again divided into convenience and non convenience goods. The tests which show results of significance are shown in tables 2.7. and 2.8. Care should be taken when analysing these tables as all the manufacturer variables have been excluded even though they were included in every test. This policy was adopted by Porter (1976) for the sake of clarity but unfortunately means the initial impression from a casual glance of high explanation by retail structure variables is a misleading one.

TABLE 2.7: RESULTS OF PORTER (1976) - THE EFFECTS OF BUYER STRUCTURE ON PROFIT RATES FOR CONVENIENCE GOODS.

....	CR 4	NUMBER OF FIRMS	RETAIL A/S	HIGH BUYER CONC.	adj Rsc
(1)	-.604 (1.80)	-.001c (1.69)	/	/	.86 a
(2)	-.371 (1.10)	/	.291b (1.82)	/	.86 a
(3)	-.733 (1.98)	/	/	-19.0c (1.33)	.93 a

Notes: Figures in parentheses are t values.

a = significant at 99% level.

b = significant at 95% level.

c = significant at 90% level.

Manufacturer structural variables on their own yielded a adjusted R squared of .83 a.

Source: Porter (1976).

TABLE 2.8: RESULTS OF PORTER (1976) - THE EFFECTS OF BUYER STRUCTURE ON PROFIT RATES FOR NON-CONVENIENCE GOODS.

....	TRB	WNF	ARFS	WAFS	WARFS	BPL	adj Rsq
(1)	-.0007 _b (2.04)	/	/	/	/	/	.82 a
(2)	/	-.002 _b (1.97)	/	/	/	/	.82 a
(3)	/	/	.00005 _c (1.60)	/	/	/	.81 a
(4)	/	/	/	.003 _b (2.16)	/	/	.83 a
(5)	/	/	/	/	.0002 _b (2.56)	/	.84 a
(6)	/	/	/	/	/	-.423 _a (3.59)	.82 a

Key (in conjunction with table 2.6.):

- TRB = Total Number of Retail Buyers.
- WNF = Weighted Number of Firms.
- ARFS = Average Retail Firm Size.
- WAFS = Weighted Average Firm Size.
- WARFS = Weighted Average (all Retail) Firm Size.
- BPL = Breadth of Product Line.

Notes: Figures in parentheses are t values.

a = significant at 99% level, b = 95%, c = 90%.

Manufacturer structural variables on their own yielded a adjusted R squared of .68 a.

Source: Porter (1976).

For the convenience good sector which is of prime interest for this study Porter (1976) found that the number of firms (i.e. the number of retailers in the dominant outlet class accounting for 50% of sales), the retailer advertising sales ratio and the high buyer concentration dummy all to be of significance when included with the manufacturer structural variables. In terms of increasing the statistical explanation of the manufacturer orientated model of table

2.5. the dummy variable of buyer concentration and the estimated retail advertising sales ratio would appear to be of note.

Porter's findings (Porter 1976) on the non-convenience sector showed a range of retail structure variables to be significant; namely the weighted number of firms, average retail firm size (weighted and unweighted), weighted average firm size and breadth of product line.

Porter (1976) rightly suggests that his findings are evidence that retail structure has a significant effect on manufacturer profitability. His main assertion being that the effects of retail structure are of particular importance in the non-convenience sector on the grounds that the retailer has minimal influence on the consumer in convenience goods. Such an assertion seems slightly surprising given that his own results find significant effects of retail structure on manufacturer profitability within the convenience sector even if not of the same magnitude as the non-convenience sector. Whilst this study is not going to replicate Porter's work and compare convenience to non-convenience sectors, a central aim of this thesis is to explore the U.K. convenience sector and assess whether in regard to manufacturer advertising and brand variety retail variables have a significant effect. In the light of the retail change discussed in chapter one and of the theory and evidence (including Porter's) discussed in this chapter, there seems good reason to think, in regard to manufacturer behaviour and performance in general, that retail structure will have a significant effect.

CHAPTER THREE: FACTORS DETERMINING THE AMOUNT OF ADVERTISING.

3.0. OBJECTIVES.

- 3.1. THE RELATIONSHIP OF MARKET CONCENTRATION AND ADVERTISING.
 - 3.1.1. The Marginalist Approach to Advertising.
 - 3.1.2. Behavioural and Game Theory Predictions.
 - 3.1.3. The Empirical Evidence.
- 3.2. THE RELATIONSHIP OF PROFITABILITY AND ADVERTISING.
- 3.3. THE RELATIONSHIP OF SALES AND ADVERTISING.
- 3.4. THE RELATIONSHIP OF GROWTH AND ADVERTISING.
- 3.5. THE RELATIONSHIP OF PRODUCT VARIETY AND ADVERTISING.
- 3.6. THE NATURE OF THE PRODUCT AND ITS RELATIONSHIP WITH ADVERTISING.
- 3.7. SUMMARY.

3.0. OBJECTIVES.

This chapter sets out to give a brief review of the existing theory and evidence in regard to the determinants of advertising aside from retail power.

The purpose of this is to provide the backcloth for the first major hypothesis of this work, namely that retail structure has an influence on the degree of manufacturer advertising. For, in order to test the hypotheses concerning the effect of retail structure on advertising, it is necessary to assess which other variables should be included. Chapter four will examine the existing theory and evidence in regard to product variety so as to provide the backcloth for the second major hypothesis that retail structure has a negative influence on the amount of product variety.

The hypotheses on how retail structure affects manufacturer advertising and brand variety will themselves be discussed in chapter five.

3.1. THE RELATIONSHIP OF MARKET CONCENTRATION AND ADVERTISING.

This section aims to summarize the different schools of thought on the relationship between market concentration and

advertising and to review the evidence for such a relationship.

3.1.1. THE MARGINALIST APPROACH.

Before the advent of models such as Buchanan (1942) and Dorfman and Steiner (1954) advertising had little part in neo-classical theory. The main reason for this was that the benchmark of neo-classical theory, perfect competition, has no role for advertising either as an instrument of information or persuasion.

Perfect competition cannot by its assumptions of perfect knowledge and costless entry have a role for advertising. The assumption of perfect information is breached if there are any costs to any consumer of receiving the information that advertising contains. Furthermore, because consumers' preferences have to be perfectly specified at the outset of the model there can be no role for persuasive advertising. The assumption of free entry would be also breached if advertising was a significant cost of entry.

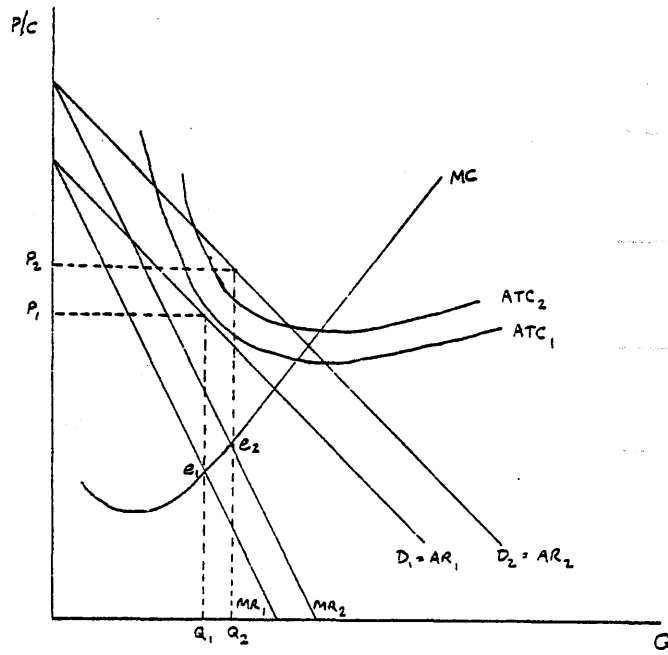
Thus most economists would agree that advertising has no role in the model of perfect competition although true to form there are some who (quite wrongly) suggest it has e.g. Savage (1971). Great controversy however reigns over whether advertising is informative or persuasive. Some authors such as Stigler (1961) argue that advertising is informative and brings the market nearer the ideal of perfect competition. Likewise Nelson (1974) argues that advertising is purely information whereas Galbraith (1979) sees advertising as creating wants which are not distinguished, by modern society, from basic needs. This controversy however should

logically be distanced from the model of perfect competition since having a degree of the attributes of perfect competition (be it good information or no advertising) is not evidence that a market structure is any more desirable than a market structure with fewer of the attributes of perfect competition. As Lipsey and Lancaster (1956) demonstrated the desirability of perfect competition is dependent on all of its conditions holding absolutely and simultaneously.

Whether or not advertising brings a real world economy "nearer" to the model the fact remains that the model itself does not have a role for advertising. The other traditional models of the firm enable advertising to be incorporated but only in passing and not in a manner that makes a definitive prediction of a relationship between concentration and advertising. The first model of the firm that enabled selling costs to be incorporated was Chamberlin's theory of monopolistic competition (Chamberlin 1933). The model has serious flaws in it as Demsetz (1968) notes, e.g. the incompatibility of totally free entry, selling costs and product differentiation, but it can be used to illustrate how advertising can be incorporated into the traditional models of the firm. The effect of advertising on a monopolistic competitor is shown diagrammatically in figure 3.1. Prior to advertising the demand curve is D_1 , and the profit maximising ($MC=MR$) quantity is at e , with a price of P .

With advertising demand shifts to D_2 and the average total costs shift from ATC_1 to ATC_2 . For ease of exposition advertising has been treated as not varying with quantity, this is however not a necessary condition.

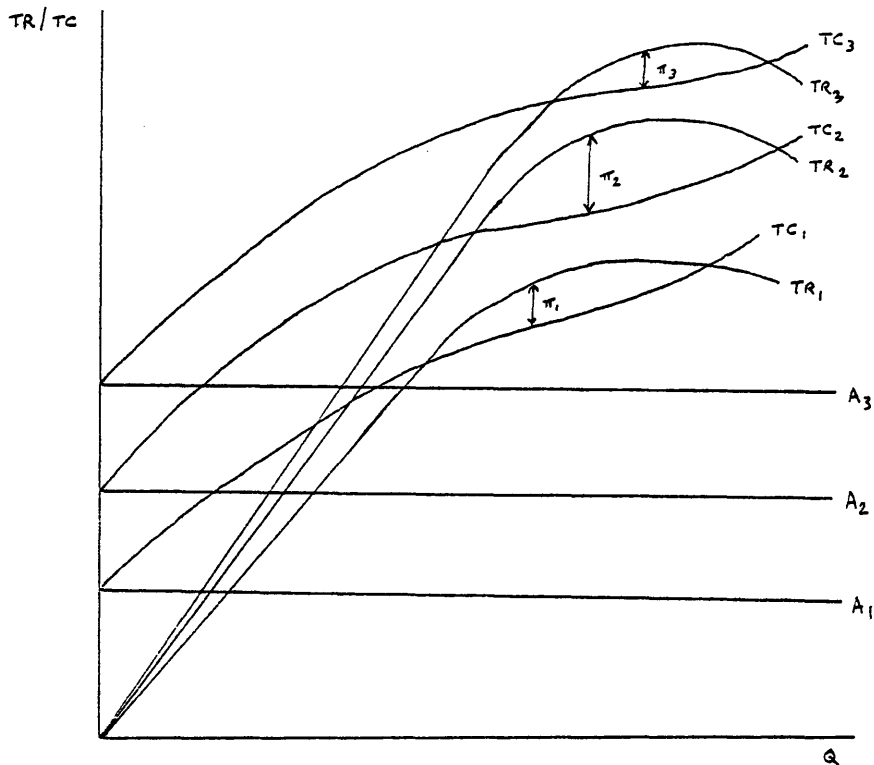
FIGURE 3.1: THE EFFECT OF ADVERTISING ON A MONOPOLISTIC COMPETITOR.



In figure 3.1. advertising increases demand sufficiently that the firm increases sales, increases price and increases profit. As figure 3.2. illustrates (in terms of total revenue curves) this is not always the case as it is quite possible that the cost of advertising will not be met by increased demand.

Figure 3.2. illustrates three levels of advertising expenditure (A_1 , A_2 and A_3) and the corresponding revenue, cost and profit levels. In this case A_2 yields the greater profit and illustrates the expectation that the effect of advertising on profit after a certain point will be negative.

FIGURE 3.2. : THE EFFECTS OF ADVERTISING ON PROFIT.



The economic theory regarding advertising existed in this imprecise state until Buchanan (1942) and later Dorfman and Steiner (1954) formalised this expectation in a mathematical theorem.

Though there are variations and elaborations on what has come to be known as the Dorfman and Steiner theorem the basic model is in essence extremely simple. Firms will manipulate price and advertising up to the profit maximising point which is where the advertising sales ratio equals the elasticity of advertising over the price elasticity of demand. This in itself leads to no direct hypothesis between concentration and advertising but it does show that profit margins and advertising are positively related. If profit margins are positively related to concentration as the traditional theory predicts then this in turn will mean that there will be a positive relationship between concentration and advertising.

3.1.2. BEHAVIOURAL AND GAME THEORY PREDICTIONS.

Though the marginalist approach is one method of relating advertising to market structure it is by no means the only one. Furthermore it has a number of disadvantages.

It assumes that advertising (and price) can be changed smoothly and continuously which is clearly unrealistic given the discrete nature of the cost structure of advertising. This does not invalidate the model in terms of being used as a basis for empirical tests but on a priori grounds it suggests a better model could be developed.

The model takes no account of reactions by rivals, which are likely to be important given that their reactions will affect the potential sales gain. Whilst Schmalensee (1972) develops the model to include the elasticity of demand with respect to other firms and the elasticity of response of other firms advertising with respect to the firm's own advertising it does not relate these to market structure.

To explore the relationship between concentration and advertising it is necessary to spell out the behavioural assumptions in regard to advertising that seem most plausible under the different forms of market structure.

There are two incentives for firms to advertise: to increase market demand or to increase (maintain) market share. Such incentives can be expected to vary with differing levels of market concentration.

In low concentration industries the benefit that will accrue to the individual firm from advertising that increases the overall level of market demand will clearly be very small. This is simply because the individual market shares of firms will be very low. The likelihood of an isolation

paradox also will be high in an atomistic market. For though all firms may be better off if they all advertise, the difficulty of collusion and the appeal of free rider effects (i.e. gaining from the actions of others without incurring their costs) will mean that the potential benefit will not be realized.

Firms in low concentration industries may also have a fairly weak ability to gain market share from other firms due to the difficulty in differentiating their advertising and product from that of other firms. This difficulty may be enhanced if there are economies of scale in advertising that are unobtainable for these relatively small firms. A topic enlarged upon in section 3.3.

Firms in industries which are of medium to high concentration will be more likely to engage in combative advertising to gain market share from rivals than firms in low concentrated industries or monopoly.

A pure monopolist will have every incentive to increase the market demand as all gains will accrue to it. Combative advertising will be used only as a deterrent to potential entrants.

From this simplistic analysis one would expect a positive relationship between concentration and advertising if one excludes a monopoly situation. If one were to include monopoly and possibly market structures approaching it (where firms are likely to act as a monopolist) then one would expect a quadratic relationship. The extent of the quadratic element will however depend on the assumptions regarding possible collusion. This is an area on which game theory

sheds some light.

For the prisoner's dilemma is an example of what may occur in regard to advertising in an oligopolistic market. The best solution of the pay-off matrix of advertising to all firms may be when advertising is relatively low but with a lack of collusion the result may be much higher advertising expenditure than it need be. The reason for suspecting this might be a common occurrence is that a high amount of advertising expenditure is unlikely to lose sales to a competitor. However if one reduces the number of firms the chances of collusion increases. Information flow between firms will increase and the ability to respond quickly may mean that for high levels of oligopoly the dilemma is "solved".

As was shown in chapter two dynamic game theory may mean that each firm has the chance to acquire better information over time. This would seem particularly applicable in terms of advertising due to the cyclical "campaigns" that are a feature of the advertising world. Due to firms often viewing advertising in terms of campaigns (i.e. an objective and task method) this may be grounds for suggesting that firms will view advertising competition as a series of battles rather than a long war to be won or lost. If this is the case then the opportunity for co-operation in terms of limiting the nature or frequency of battle seems to be likely when there are only a limited number of firms involved.

One counter argument to viewing oligopoly advertising as a prisoners' dilemma is however that to the extent that advertising is a creative and nebulous art, firms may view advertising as a war they can win. If this is the case the

firms will perceive asymmetric pay-offs, over-rating their own ability and under-rating the opposition, and will not be looking for collusion. It would still seem implausible that if indeed over firms did not "win" that they would not be drawn to collusion through experience.

The notions of prompt information and repetition over time that game theory highlights therefore enhance the belief that advertising will be a quadratic function of concentration.

3.1.3. THE EMPIRICAL EVIDENCE.

In the same way that there is little consensus in the theory as to the nature of a relationship between concentration and advertising there is considerable diversity in the empirical results and considerable argument over the specification of relationships.

A number of studies have looked at the concentration / advertising relationship from the perspective of testing for causation running from advertising to concentration. The importance of these studies from the point of view of this study is that if there is such an underlying relationship it would suggest that inter-dependence might be a problem when testing for a relationship between concentration and advertising. Ordinary least square studies that have found no evidence of a relationship between advertising and concentration include Telser (1964), Ekelund and Gramm (1970,1971) for the U.S. and Doyle (1968) and Schnabel (1970) for the U.K. The most quoted study in support of a relationship between advertising and concentration is perhaps that of Mann, Henning, and Meehan (1967). It however came in

for a large amount of criticism, most notably from Telser (1969) and Ekelund and Maurice (1969).

Studies using simultaneous equation models which have included a two-way relationship between concentration and advertising, e.g. Greer (1971), Strickland and Weiss (1976), Martin (1979), Gupta (1983) and Buxton et al. (1984), have generally found however some form of relationship between advertising and concentration. The implications of these results for this study will be considered at the end of this section.

Evidence for testing a relationship between concentration and advertising on the other hand is more mixed with evidence falling into three categories for both general and constrained samples: no relationship, a linear relationship or a quadratic relationship.

Evidence for suggesting that there is a significant linear relationship lies in studies by Rees (1975), Ornstein (1976) and Brush (1976).

Each of these studies is however of limited value in suggesting that the relationship is a general one. Ornstein's study of 328 four digit American industries finds a significant linear relationship at the five percent level but the power of explanation is limited given the .03 correlation coefficient. Brush (1976) finds some significance between concentration and advertising but interestingly this significance disappears when growth, size of the market and product character are included. Rees (1975) in a paper commenting on Sutton's quadratic results (Sutton 1974, discussed below) shows the strongest evidence for a linear relationship (shown in table 3.1).

TABLE 3.1: RESULTS OF REES (1975) EXAMINING THE EFFECT OF CONCENTRATION ON ADVERTISING INTENSITY.

	Constant	CR 5	CR 5 sq	N	Rs _q
A/S =	-0.550	0.0764 (1.5)	-0.00030 (0.7)	36	.62
A/S =	0.255	0.0411 (4.5)	/	36	.61

Note: Figures in parentheses are t values.

Rees (1975).

His results are evidence of a linear relationship but whether they refute the evidence of Sutton's quadratic is debateable. For as Sutton (1975) points out, in Rees' study (Rees (1975) the use of the industry advertising sales ratio for each product group will tend to "flatten out" any relationship. The allowance for tax and duties on Sutton's sample made by Rees (1975) does however make the quadratic term less important (though still significant).

The evidence for non-linear relationships between concentration and advertising is slightly more robust, particularly when limited to heavily advertised products. Greer (1971) was the first person to provide evidence for a quadratic relationship which he does in a three equation model that shows concentration is a significant influence on advertising as well as vice versa. The work that Greer (1971) cites as the theoretical underpinning of a quadratic relationship is Fellner (1965) which though predicting tacit collusion of non-price variables restricts such collusion to "completely mature monopolies". As Koutsoyannis (1981) observes this is rather a shaky theoretical foundation for his empirical work. Slightly more serious however is

Koutsoyannis' criticism that Greer's results are dependent on one observation to keep it within the five percent significance level. Other studies (which Koutsoyannis (1981) omits from her summary) are however consistent with Greer's findings.

Cable (1973) finds evidence for a quadratic relationship using a sample of 26 low priced convenience goods in narrowly defined U.K. markets. Cable uses the H-Index as the measure of concentration and finds the maximum advertising intensity at an H-Index level of 0.403. Within the sample Cable finds that four sectors (toothpaste, lipstick, face powder and toilet soap) which are "close to sensitive psychological drives" do not follow the relationship but that otherwise there was strong support for such a relationship. The relationship held both for the ratios of straightforward advertising to sales and for goodwill (an estimate of the stock of advertising) to sales.

Similarly Sutton (1974,1975) finds evidence of a quadratic relationship for 25 U.K. consumer industries in 1963 although the same model was not significant for producer industries. Sutton (1974) uses a five firm concentration ratio to measure manufacturer concentration and found that the peak for advertising intensity occurred when the concentration ratio was 63.5 per cent.

TABLE 3.2: CONCENTRATION AND ADVERTISING - THE QUADRATIC
FOUND BY SUTTON (1974).

$$A/S = -3.15 + 0.1914 CR 5 - 0.0015 CR 5 \text{ squared.}$$

(1.34) (0.0516) (0.0004)

$$R \text{ squared} = .39$$
$$N = 25$$

Note: Figures in parentheses are standard errors.

Sutton (1974).

Cable and Sutton's results (Cable 1973, Sutton 1974) are compatible with earlier work yet still leave questions unanswered. If the relationship is indeed a quadratic one then both linear and curvi-linear tests may still prove significant if the sample industries are not highly concentrated ones. Furthermore the fact that it is in the area of highly advertised convenience goods in the 1960's that the quadratic relationship has proved significant promotes a new area of interest. For it prompts the question of why is sample selection and the dividing of goods between producer and consumer so important. A very plausible answer is the differing nature of the buyers (both intermediate and final) and the promotional mix that is required to appeal to such buyers. If this is the case then it would seem that buyer variables which can be expected to have an effect on the manufacturer promotional mix e.g. retail concentration and own label penetration, should be included. The division between producer and consumer industries would therefore appear to be only the very first step towards a better specification of the structural influences on manufacturer advertising.

Though Cable (1973) and Sutton (1974) are perhaps the

leading works on the possibility of a relationship between concentration and advertising due to their tightness of definition this is not the only work supporting such a relationship.

Rees (1975) found evidence for a linear relationship and suggests that the linear relationship is to be preferred over the quadratic since the relationship is "somewhat unclear at high levels of concentration". His basis for saying this was that in Sutton's original sample three industries were deliberately left out since they had high advertising intensity. Sutton (1975) however refutes this (as mentioned above) and suggests that the findings of both Rees (1975) and Reekie (1975) do not invalidate his original findings provided that the original restrictions were observed. Reekie's study (Reekie 1975) is slightly unusual in that it uses a sample of 63 consumer goods but uses brand concentration rather than firm concentration. He found no evidence of either linear or curvilinear correlation. One of Sutton's counter arguments (Sutton 1975) to these findings is that using brand share data is inappropriate since it is unlikely that brand managers will necessarily engage in advertising that is damaging to the firm's other brands. This sounds intuitively very plausible.

Brush (1976) also finds evidence for linear and quadratic relationships but interestingly both lose significance when growth, size of market and product character (durable/non durable) are included.

Strickland and Weiss (1976) in an often quoted study use a simultaneous approach to determine the relationships between advertising, concentration and profitability. Amongst

other relationships this study provided more evidence for a quadratic relationship between concentration and advertising.

Buxton et al (1984) in an interesting variation on the Cable and Sutton approach of constraining the sample to consumer goods industries have a wide sample with estimates of sales to consumers and producers rather than a division into consumer and producer industries. Their results provide evidence for this "alternative" quadratic which suggests that the relationship between concentration and advertising in respect to sales to consumers is highly significant.

A larger more recent study by Uri (1987) provides more evidence for a quadratic relationship of the Buxton variety using 301 U.S. industries.

One aspect that crops up in a number of the studies mentioned above is disagreement over the correct econometric method to use. Some authors (e.g. Schmalensee 1972, Gupta 1983) are critical of the use of the ordinary least squares method since estimates are likely to be over-stated if there are simultaneous relations. Whilst this is correct, the studies that have used both ordinary least squares and simultaneous approaches in regard to concentration and advertising (e.g. Greer 1971, Strickland and Weiss 1976, and Buxton et al. 1984) have found that the models have produced similar results and that the simultaneous effects have been small. This suggests that any bias in this study from using a single stage model in relation to manufacturer concentration and advertising is likely to be small.

A potential weakness of all the studies mentioned is under specification due to their failure to explicitly take into account the effect of buyer structure. The one model

that has done is Lustgarten (1975) which found buyer concentration to be significantly and negatively related to manufacturer advertising whilst re-enforcing the relationship between manufacturer concentration and advertising. It should be remembered however that Lustgarten's large sample was limited to producer industries so the area of consumer goods and convenience goods in particular still needs to be explored.

3.2. THE RELATIONSHIP BETWEEN PROFITABILITY AND ADVERTISING.

There are a number of ways that the profitability of a firm might be expected to influence the level of advertising.

Actual reported profit may be expected to affect the level of advertising according to the observation in the marketing literature that the advertising budget may be determined by an "all we can afford approach" (Seligman 1956).

The potential profit or the general affluence of the firm may also be expected to affect the degree of advertising according to the managerial theories of the firm e.g. Marris (1964) and Williamson (1963).

According to basic marketing texts the setting of advertising budgets on the basis of affordability is, despite a complete misconception of advertising, common (Kotler 1984, Cannon 1986). If this is indeed the case one would expect a positive relationship between profitability and advertising.

The managerial theories of the firm cover a wide range of theories but are held together by the concept that the firm tries to meet a minimum performance constraint rather than profit maximization for the owners. Any "profit" or "slack"

above this can be spent by groups within the firm in areas that yield utility to these groups providing they have sufficient approval from the other groups in the firm.

One such area of expenditure that will yield managerial utility is advertising, a fact recognised but not emphasised in the preamble to Marris' model (Marris 1963) and in Williamson (1969) but ignored by Baumol (1962). Just as sales yield managerial satisfaction so will advertising since managerial status will be enhanced. Thus the greater the scope for managerial slack the greater one would expect the level of advertising to be. An interesting area of further research would be to explore whether the scope for managerial slack is related to manufacturer concentration. A priori one might expect slack to be positively related to firm size. This is because one might expect it to be harder to disguise slack in a smaller firm than in a larger one.

In the subsequent empirical analysis in this thesis profitability is omitted as a determinant of the advertising level for practical expediency. To the extent that profitability and potential profitability are determined by manufacturer concentration and sales then the detrimental effect of this may be limited. The empirical evidence for the relationship between concentration and profitability is controversial. Comanor and Wilson (1967) provide the main evidence in support of such a relationship with Weiss (1969), Bloch (1974) and Ayanian (1976) showing contrary findings.

The hypothesized relationship between profit margins and the advertising sales ratio has limited support from the three equation models of Strickland and Weiss (1976) and Martin (1979).

3.3. THE RELATIONSHIP OF SALES AND ADVERTISING.

It may appear surprising to hypothesize a relationship between sales and advertising when the conventional wisdom is that advertising results in sales rather than the other way around but there is evidence to suggest a two way relationship. Though most marketing textbooks (e.g. Kotler 1984, Pride and Ferrell 1987) suggest that setting the advertising budget by an "objective and task method" is the most logical method to adopt, all refer to the percentage of sales method in their description of how budgets are set. Indeed Pride and Ferrell (1987) suggest that the percentage of sales approach is a more widely used approach than the objective and task approach.

The reasons managers might give for the appeal of the percentage of sales approach are ease of calculation and financial conservatism.

An explanation of why firms might set advertising budgets as a function of sales (which may or may not be a straightforward percentage) can be found in Kay's work on research and development within the firm (Kay 1979). Kay (1979) develops the ideas of Chamberlain (1968) and Emery (1969) who suggest that a steady state (or harmony) is the objective of managerial allocation in a changing environment.

Kay suggests:

"Stable parameters (some possibly defined in terms of rates of change) are operating in the environment of the firm and require the firm to allocate certain proportions of funds to various subsystems if steady state is to be achieved."

Marketing theorists would however be at pains to point out that such practice ignores the fact that advertising can be used to increase sales and that to set the budget on a

percentage of sales precludes counter-cyclical advertising and exacerbates cyclical fluctuations.

If advertising were set as a fixed percentage of sales this would lead to a positive linear relationship between sales and advertising, however the degree of such a rule and the resulting relationship are essentially empirical questions.

Else (1966), Doyle (1968) and Brush (1976) are three studies that all predict a negative relationship between sales and the advertising-sales ratio. All three suggest that the occurrence of economies of scale in advertising would lead one to expect such a relationship. Both Doyle (1968) and Brush (1976) also attempt to suggest that there will be a negative relationship on the grounds that large markets will be characterized by frequently purchased goods and that frequently purchased goods are less susceptible to the influence of advertising. This is a slightly dubious argument on two counts. First, the degree to which a large market will be indicative of frequently purchased goods is reliant on assuming price variance and the number of customers to be either constant or allowed for in the model. Admittedly price variance is allowed for in Doyle's model but neither studies allow for the number of customers or make explicit their assumption in regard to it. Second, to measure the effects of the nature of a product through the proxy of market size would appear at best a little ambitious.

The relationship between the level of advertising and sales is not one that has been subject to much empirical work. The reason for this is that one would expect the causality to be two way and so it would be difficult to

determine whether advertising is high because sales are high or vice versa.

Empirical studies (all for the U.K.) that have included sales as a possible explanation of the advertising sales ratio are Else (1966), Doyle (1968), Cable (1973) and Brush (1976).

Else (1966) on data for 1951 and 1958 found that the size of the market had a large negative impact on the degree of advertising intensity with a curvi-linear relationship yielding correlation coefficients of 0.85 and 0.80 when included with the number of advertised products. However the results are of limited value as t tests and F tests were not undertaken.

Doyle (1968) finds similar results when including sales with price and a product character dummy variable. The R squared being .77 and the sales variable being significant at the 99% confidence level.

Brush (1976) included sales along with the variables of manufacturer concentration, growth and product character (durable / non-durable) and found it to have a negative linear relationship with the degree of advertising for a 1958 sample.

Cable (1973) who uses the most recent sample however finds no evidence of a relationship between sales and the advertising sales ratio.

3.4. THE RELATIONSHIP BETWEEN GROWTH AND ADVERTISING.

An important aspect that will affect the intensity of advertising is the amount of market/product growth. It is a common feature of the marketing literature to suggest that

marketing and promotional strategy should change over the product life cycle. In terms of advertising two hypotheses derive from the literature, that the advertising/sales ratio can be expected to decline over the product life cycle whilst advertising per se can be expected to rise and then tail off. The reasons for these expectations will now be expanded upon.

Buzzell (1966) suggests that promotional expenditure as a percentage of sales will be highest at the introductory stage of the product life cycle:

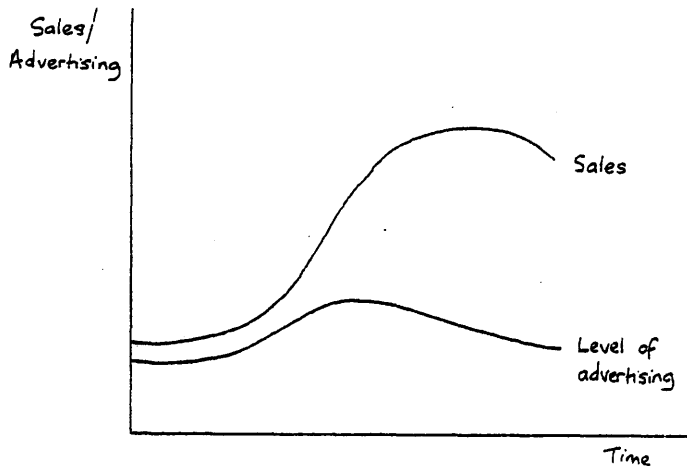
"because of the need for a high level of promotional effort to (1) inform potential customers of the new and unknown product, (2) induce trial of the product, and (3) secure distribution in retail outlets."

In accordance with this Pride and Ferrell (1987, p253) observe that for the growth stage a falling advertising sales ratio should contribute significantly to increased profits. Whether the maturing stage of the life cycle will see an increase in advertising is debateable, for though consumer loyalty will be important firms will probably tend to rely on the stock of advertising already built up. In Boston Box terms (Boston Consulting Group 1970) firms will be thinking in terms of milking these cash cows and will tend to be unwilling to engage in further investment.

Thus there are grounds for expecting the advertising sales ratio to be high early in the life cycle and then to gradually decline. Thus in terms of a hypothesis one would expect the change in sales to have a negative influence on the change in the advertising sales ratio.

In the declining stage of the life cycle, promotion will have very little importance in the marketing mix with emphasis placed on price and distribution.

FIGURE 3.3. : ADVERTISING AND THE PRODUCT LIFE-CYCLE.



One of the reasons underlying such a hypothesized decline in the advertising sales ratio in respect to growth is the very nature of advertising itself. Advertising creates a stock of information which although decaying exists across time (this is exemplified in the model of Vidale and Wolfe 1957). Thus for a product to enter into the consciousness of the consumer intensive (and repetitive) advertising is often necessary. In the militaristic words of Dean (1951):

"Each advertising attack starts from ground that was taken in previous forays, and where no single onslaught can overcome the inertia of existing spending patterns, the hammering of repetition often overcomes skepticism by attrition".

Over time as one proceeds through the product life cycle the profitability of advertising decreases. This is partly because there is already a stock of advertising and partly because advertising has less of a monopoly over the consumer's information source. As more people try a product, factors such as peer group pressure and product quality in determining the likelihood of a re-purchase.

It is important to remember however that promotional strategy will not be determined in isolation from the other components of the marketing mix. Kotler (1984) identifies

four broad strategies that a firm might adopt, all of which have different implications for the marketing mix: rapid skimming, slow skimming, rapid penetration and slow penetration. For convenience goods however it seems likely that the gains from a high profile, associated with a rapid strategy, are so important that a slow strategy will not be feasible and the general relationship outlined can be expected. Slow strategies being defined by Kotler as those in which promotion is low key. An element that will play a part in affecting the relationship is the nature of the buyer i.e. the place or distribution aspect of the marketing mix. For if the retail sector is fairly concentrated then gaining market share rapidly and becoming a brand leader early will probably have a marked effect on the life time profitability of a product. Thus one would expect retail concentration to re-enforce the positive relationship with growth particularly if products in the introductory stage are excluded.

Possibly due to the economic pre-occupation with manufacturer concentration the empirical work that has been done on growth as a determinant of advertising has been strictly limited. The work that has been done gives ambiguous evidence with Greer (1971) and Brush (1976) providing contrary findings.

Greer (1971) in a three equation model, as well as finding manufacturer concentration having a quadratic effect on the advertising sales ratio found growth to have a negative linear effect on it as well.

Brush (1976) finds evidence for growth having a positive linear relationship with the advertising sales ratio when included with market size and product character but not

manufacturer concentration.

3.5. THE RELATIONSHIP BETWEEN VARIETY AND ADVERTISING.

As was shown in the preceding section advertising will be greatest when there is a high degree of consumer inertia to be overcome. This inertia of buying behaviour will not only be affected by the stage in the product life cycle but also by the amount of product variety. If there are already a large number of advertised products then one might expect the amount of advertising needed to be successful to increase.

A force working in the opposite direction however is the fact that in a market with a large number of products advertising will be less successful per pound spent in terms of gaining sales than in a market with a lesser number of products. The degree that advertising can sway the consumer will therefore be a negative function of the number of products and thus advertising will be less profitable for firms the more the number of products. Which one of these two opposing forces is likely to dominate a priori is difficult to judge although it is possible that the profitability of advertising will be the stronger influence. The only work to date that has included a measure of variety is Else (1966). However this study has two major shortcomings. First, the measure of variety is liable to be inaccurate. Grounds for saying this are the fact that it is calculated on the number of brand names advertised rather than on a measure of the number of brands. Second, as mentioned in the previous section no F test or t tests were conducted. These (major) shortcomings aside the study does show a positive relationship between variety and advertising intensity.

3.6. THE NATURE OF THE PRODUCT AND THE DEGREE OF ADVERTISING.

Though every good or service can be promoted, the degree that a product is intrinsically "advertisable" must vary if the consumer uses a variety of decision making processes or if the consumer attaches differing weights to factors within the decision making process e.g. peer group pressure.

One of the most useful and elementary classifications of decision making processes is the division between high involvement and low involvement processes. Involvement in this case being the degree of involvement with the conscious part of the brain. Krugman (1979) suggests that there is persuasive evidence that the "information" used for low involvement decisions is stored in the form of holistic images on the right side of the brain without being subjected to the conscious thought processes of the left. Ignoring the physiological debate the evidence of a decision making process that uses little conscious thought (Olshavsky and Granbois 1979) has important consequences for advertising. For the most important part of the low involvement process is for the product to enter the long term memory (Krugman 1979). The ability for a brand to enter the long term memory, assuming that basic non-compensatory criteria are met, is principally determined according to Engel and Blackwell (1982) by four factors. These are name registration, memorability, source credibility and repetition.

As advertising (and television advertising in particular) is useful for these factors clearly one might expect advertising to play more of a part in low involvement decisions than in high involvement decisions. In high involvement decisions more "objective" information will be

sought and sources other than manufacturer advertising will be used.

In the empirical part of this thesis only low involvement goods will be used to try and reduce the amount of variety in the amount goods can be advertised. High involvement goods will vary a lot more across markets in the extent that they can be advertised.

3.7. SUMMARY

This chapter has highlighted the influences on advertising aside from the retail variables which will be derived in chapter five. The purpose of this is to highlight the variables that should be included along with the retail variables in the empirical analysis of chapter seven. This should allow a better specification of the model of the structural determinants of advertising and will show the importance of including retail variables in future work on advertising.

CHAPTER FOUR: THE DETERMINANTS OF PRODUCT VARIETY.

- 4.0. OBJECTIVES.
- 4.1. MANUFACTURER STRUCTURE AND PRODUCT VARIETY.
 - 4.1.1. BEHAVIOURAL MODELS.
 - 4.1.2. ECONOMIES OF SCALE / SCOPE.
 - 4.1.3. EVIDENCE.
- 4.2. MARKET SIZE AND PRODUCT VARIETY.
 - 4.2.1. ACTUAL SIZE.
 - 4.2.2. GROWTH.
 - 4.2.3. EVIDENCE.
- 4.3. THE NATURE OF THE PRODUCT AND PRODUCT VARIETY.
- 4.4. A FIRM'S MARKET SHARE AND PRODUCT VARIETY.
- 4.5. SUMMARY.

4.0. OBJECTIVES.

The objective of this chapter is to review the existing theory and evidence of the determinants of the level of product variety in order to set the scene for the theoretical and empirical analysis of the effect of retail variables on product variety. The structural determinants of product variety which are identified and reviewed in this chapter are manufacturer structure, market size, market growth and the nature of the product.

4.1. THE RELATIONSHIP BETWEEN MANUFACTURER STRUCTURE AND PRODUCT VARIETY.

The question of which market structure produces the optimum level of product variety is one to which economists have devoted considerable time and attention to in the last two decades.

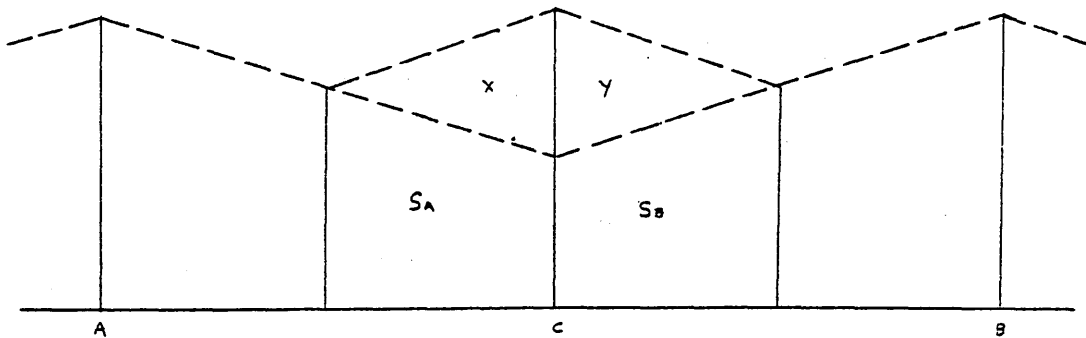
The standard approach has been to compare monopolistic competition with monopoly. This has been done both through equilibrium analysis of the welfare implications (e.g. Spence 1970, Dixit and Stiglitz 1977 and Scherer 1979, 1980) and by examination of the dynamics of competition in product variety (e.g. Lerner and Singer 1937 and Brander and Eaton 1984). The

conclusion that is normally drawn from such comparisons is "that a greater variety of substitute products is likely to appear under monopolistic competition with entry open than under monopoly with closed entry" (Scherer 1980). Such a conclusion is however dependent on various assumptions made towards behaviour and cost structure. The following three sub-sections examine such assumptions in order to derive possible hypotheses between concentration and the level of variety.

4.1.1. BEHAVIOURAL ASSUMPTIONS: KNOWLEDGE AND SEQUENCE OF ENTRY.

Scherer's model (Scherer 1979, 1980) arrives at the above conclusion by using an analysis of product space analogous to Hotelling's classic analysis of spatial competition (Hotelling 1929). A summary of Scherer's exposition follows which is aided by figure 4.1.

FIGURE 4.1: PRODUCT LOCATION.



Scherer (1979).

In Figure 4.1 there are two products on the market, A and B, made by one (profit maximizing) company. For simplification the horizontal axis represents a one dimensional product attribute (or perceived attribute). Consumers preferences are assumed to be spread evenly across this attribute.

The vertical axis represents the integral under the inverse demand function for all consumers with the price of the goods and substitutes being fixed. The dotted line represents the producer surplus.

If a new good were to be introduced under these assumptions it would be introduced at the mid-point between A and B assuming that variable and distribution costs were the same for all three goods.

With the introduction of the new product, C, the producer gains surplus X and Y regardless of whether he is the producer of A and B as well. If the producer of C is not the producer of A and B then the product will be introduced if $SA + SB + X + Y$ exceed the cost. SA and SB are the surplus that has been gained from products A and B. The monopolist on the other hand already producing A and B will only be gaining X + Y which might not cover costs.

It should be clear from Figure 4.1 that a big influence on the amount of variety will be the slope of the surplus function which is determined by the degree of substitutability between products. This caveat notwithstanding one might (wrongly) be tempted to conclude that if manufacturing concentration increased the amount of product variety would decrease. However the model above is dependent on its specific assumptions particularly in regard

to entry.

For if in the case of monopoly (one producer) entry is blockaded then the only consideration will be if X and Y (the flow of rent) exceed the cost of introduction. If however entry is open then the monopolist may introduce product C to pre-empt entry by a newcomer since entry would entail a loss of $SA + SB$ to the (former) monopolist.

Other authors show how the amount of variety is also dependent on the assumptions regarding knowledge and sequence of entry giving rise to a number of predictions which are only indirectly related to concentration. Most of such authors use duopoly as the basic model following from Hotelling's (1929) seminal work.

Hotelling (1929) had suggested that if a third firm located in the market it would not locate between the first two but close to A or B in an open segment of the market. Chamberlin (1933) however pointed out that this would mean that there would be an incentive to leapfrog to the outside until equilibrium was reached with two firms at one quartile and one at the other. Lerner and Singer (1937) extended this by introducing a fourth firm which they suggested would join the single firm.

The process of leapfrogging however has been shown to occur only under very limiting assumptions most notably a small number of firms (Eaton and Lipsey 1975, Graitson 1982).

Hay (1976) suggests that because the costs of relocating can be assumed to be prohibitively high leapfrogging would be uneconomic. This he demonstrates would lead to an even spread of firms under conditions of sequential entry and evenly spread demand. More importantly for the purposes of this

study he demonstrates that sequential entry would lead to spacing greater than the minimum market. It is reasonable to assume that the minimum market solution would occur if a large number of firms entered the market simultaneously. If one were liable to get a higher incidence of simultaneous entry in less concentrated industries (in terms of number and size of firms) than in concentrated industries then this might suggest a negative relationship between concentration and product variety. The main reason for suspecting that simultaneous entry is more likely in less concentrated industries is that it is more likely that costs and time of entry are greater the larger the level of initial concentration.

A static model of multi-product firms that has more explicit inferences for the relationship between manufacturer concentration and variety is that of Raubitschek (1987). This is a model of product proliferation with multi-product firms in which there is constant elasticity of substitution and no entry. There are two key behavioural assumptions that are made in this model.

First, brand managers behave as monopolistic competitors and do not take account of the fact that gains for their brand may be at the expense of the firms other brands.

Second, new product introduction managers play a Cournot game in products - that is to say they assume in terms of product offering the other firms will not reposition existing products or offer new ones as a result of entry.

The result of this model is that the number of brands each firm has in equilibrium is inversely related to the cost of introducing a new brand and to the number of firms in the

market. More importantly the model concludes that the greater the number of firms the higher the total number of products in the market. Despite this positive conclusion the model may be of limited generality because of the heroic assumptions regarding brand managers, constant elasticity of substitution and the lack of entry deterring behaviour.

Other models that explore sequential entry assumptions, contrary to Raubitschek (1987), do not suggest there is a relationship between concentration and the level of variety (except through the cost structure).

Brander and Eaton (1984) (whilst acknowledging the part played by costs) state "Our basic message is that recognising the sequential nature of decision making is important in understanding product line rivalry". They demonstrate how segmenting the market amongst firms is not always the most rational strategy since a potential entrant might be deterred from entry in an interlaced market when it would enter a segmented market. To demonstrate this they use a model of three stage duopoly in which there are two firms each with two products. The model shows that when scope (how many products to produce), line (which products to produce) and output decisions are made sequentially then the incumbents may recognise that a non-cooperative line decision may prevent entry by outsiders but at the same time avoid price competition.

Such a mode of behaviour is at the heart of an earlier study by Schmalensee (1978) into the ready to eat cereals market. Both imply that because oligopolistic firms have an incentive to fill product space that variety may be independent of concentration.

Eaton and Lipsey (1975) suggest that despite the rigorous models if one increases the number of firms and use a wide range of bounded and unbounded linear and two dimensional markets then one cannot generalize about the location of firms: each result depends critically on the detailed specification of firms' behaviour, the nature of the market space and the distribution of consumers. This is supported by Archibald and Rosenbluth (1975) who similarly demonstrate that when using Lancasterian models (i.e. based on characteristics rather than attributes) with four or more characteristics the average brand might have a large number of competitors. Similarly, in her review of spatial competition a la Hotelling, Graitson (1982) suggests that in many cases, contrary to Hotelling's model, there is strong expectation for firms to fill product space when they can. Thus one has to conclude that in terms of demand conditions product variety will be independent of concentration. The only real reason for doubting this prediction would be if there is wider spacing under a higher degree of concentration caused by a relationship between concentration and the propensity for sequential entry as opposed to simultaneous entry.

4.1.2. ECONOMIES OF SCALE / SCOPE.

As well as the work mentioned above that looks at the demand (incentive) side of variety, a large number of studies have investigated the supply (ability) side relationship between economies of scale and variety. This side of the relationship gives a much clearer prediction of manufacturer concentration having an impact on variety. The interaction of

economies of scale and the product life cycle will be discussed in section 4.2.

Rosen (1974) and Visscher (1975) show that in perfect markets when economies of scale are unimportant product space is filled by a complete spectrum of product varieties to satisfy each consumer. When economies of scale do exist however there is a requirement to limit variety to make full use of these economies, not to do so incurs a cost (Dixit and Stiglitz 1977). This is also demonstrated by Meade (1974) who goes on to show how cost considerations will have more weight than the degree of substitutability.

A point not discussed in these two works is the fact that economies of scale may be to some extent transferable to related products. For example in the ready to eat cereal market it would be plausible to assume that cost economies in the production of "Bran Flakes" would enable cost reductions in the production of "Bran Flakes with Raisins". Furthermore as Bailey and Friedlander (1982) observe in an extension of Panzar and Willig (1975, 1981) economies of scope may play an important role of extending the models of multi-product firms. Economies of scope exist where, as in the example above, a single firm can produce a given level of output of each product line more cheaply than a combination of separate firms, each producing a single product at the given output level.

Thus though variety and economies of scale must be regarded as a trade-off this relationship will be weakened by the presence of economies of scope. The extent to which economies of scale / scope are related to concentration will thus be a prime factor in determining any relationship

between concentration and variety.

4.1.3. EVIDENCE OF A RELATIONSHIP BETWEEN MANUFACTURER CONCENTRATION AND VARIETY.

The few studies that give evidence of a link between concentration and product variety have approached the problem by examining behaviour in specific markets, often as part of (or arising from) government investigations into monopolistic practices.

Such studies have been prompted by the theoretical models and have addressed the question of whether oligopoly results in "product proliferation" or "competitive leapfrogging". If "product proliferation" and "competitive leapfrogging" are incompatible (which is probable in reality but not a necessary logical condition) then studies of this sort give an insight into the specification of the relationship between manufacturer concentration and product variety.

For if there is "brand proliferation" by oligopolists this implies there is more variety than one would expect for that amount of concentration. The use of the word "proliferate" means that the users of the word (e.g. Schmalensee 1978, Scherer 1979) perceive that such oligopolists are offering more brands than they would otherwise expect or define as desirable. How many brands would "normally" be expected is not spelt out in such studies but the implication is that if an "oligopolistic" firm has more brands than a "competitive" equivalent then this acts as an entry barrier and protects profits. If proliferated oligopoly is not widespread then one would expect a negative relationship between product variety and manufacturer concentration on the basis that fewer firms will mean fewer

brands.

On the other hand evidence of "proliferated" oligopoly would suggest that any negative relationship between concentration and variety is likely to be much weaker.

Prime examples of studies of variety that have been spin-offs of Government investigations are Schmalensee (1978) and Scherer (1979). These studies investigated the U.S. Ready To Eat Cereals industry as a direct result of the Federal Trade Commission's action against the four largest U.S. manufacturers of RTE cereals (FTC v Kellogg et al, docket no. 8883). The action centered on the charge that the "practices of proliferating brands, differentiating similar products and promoting similar trademarks through intensive advertising result in high barriers to entry into the RTE cereal market".

Schmalensee (who provided evidence for the FTC) argues (Schmalensee 1978) that in oligopolistic markets, except in periods of unforecast or rapid growth, the incumbent firms will engage in the above behaviour to prevent further entry.

If Schmalensee's generalization were true then a hypothesized negative relationship between concentration and variety will only be true to the extent that product spacing is wider the higher the degree of concentration and to the extent that a monopoly does not proliferate products to the same degree as an oligopoly.

Central to Schmalensee's argument is the premise that "established firms crowd economic space with brands before the threat of entry appears". This is because product proliferation is sinking a cost of fighting entrants before they appear which removes any doubt in a potential entrant's mind over whether incumbents will react to entry. The concept

of sinking costs to warn potential entrants that incumbents will resist attempts at entry is a more credible threat than any expressed threat of ex post action and is well developed in the theory (e.g. Buchanan 1942, Yamey (1972) and McLeod (1987). Schmalensee (1979) is however the first to relate this concept to product variety. Schmalensee also points out that such a brand proliferation strategy appears to be a plausible and effective deterrent against own label entry as well as "branded" entry. His reasoning being that since there are increasing returns at small levels of output for individual brands, own brand entry is most attractive when there are a few large brands that can be imitated since it is more likely that production efficiency will be attained.

Given such an argument it will be particularly important that growth is taken into account as well as market concentration in the empirical analysis of the work. Furthermore as will be discussed in chapter five the degree of retail concentration will play an important part in determining whether "Schmalensee's strategy" of product proliferation is a viable one to a manufacturer in a unconcentrated environment.

Scherer (1979) though more concerned with the consumer welfare considerations of product variety and with demonstrating that there is too much variety in the RTE cereals market also supports the view that high concentration has enabled such "proliferation" to come about.

In one of the few case studies to examine whether oligopoly results in clustering or proliferation Shaw (1983) examines the U.K. fertilizer industry and suggests that the competition for market share resulted in product

proliferation rather than in the competitive leapfrogging behaviour predicted in the more restrictive models.

Though few works have examined expressly product variety and concentration, a large number of strategy orientated case studies contain some useful insights into the relationship.

Bevan (1974) traces the U.K. potato crisp industry between 1960 and 1972 and shows how the virtual monopoly of Smiths crisps collapsed. His main suggestions for collapse are myopia and lack of investment in a growth market. Interestingly he does not address the concept of variety but if one examines the market history as Bevan does it is interesting that Smiths fall and biggest change in market concentration occurs before the interest in product proliferation (flavours). After the boom in product numbers 1966-69 concentration remains fairly static. This suggests a number of useful hypotheses for further study.

First of all it suggests that the strategic variable of product variety is necessary to maintain high market share in the absence of other entry barriers but that it is not necessary to obtain it in the first place. This means one would expect market concentration, growth and variety to be linked over time.

The effect of sales growth will be discussed more fully in the next section.

Furthermore the study suggests that market leaders and followers may pursue differing strategies in regard to the extent of brand variety, which is discussed in section 4.3.

The factor that all of the above studies have not addressed is the influence of the retailer on the effectiveness of brand proliferation as a barrier to entry

which may alter expectations over these relationships. This will be discussed in the next chapter.

4.2. MARKET SIZE AND THE RELATIONSHIP WITH PRODUCT VARIETY.

There are two aspects of market size that can be expected to have an effect on the level of variety, the actual size of the market and the degree to which it is expanding or contracting. These are examined in turn.

4.2.1. ACTUAL SIZE.

One relationship that might be expected to be dominant in determining the amount of product variety is the relationship between sales and variety. One might expect more variety in a large market simply because, even if consumer preferences are spread in the same distribution as they are in a small market, each potential niche will yield more revenue. Furthermore, it maybe reasonable to expect consumer preferences to be spread wider the larger the market, in which case it would accentuate the trend for more variety in a larger market.

4.2.2. SALES GROWTH.

Though this relationship between market size and variety may be a strong general relationship it is important to note, as was touched upon in the above discussion of Schmalensee (1978) and Bevan (1972), the amount of growth and the stage in the product life-cycle is crucial to the amount of product variety one might expect.

As Spence (1979) notes constraints on growth and the timing of entry put firms in an asymmetrical position with respect to investment. Spence does not specifically address

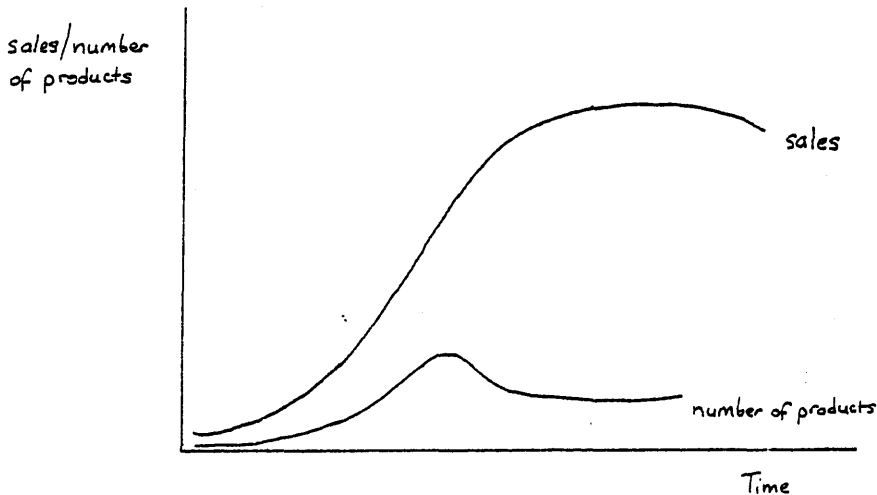
the issue of variety but suggests (Spence 1977, 1979) that capacity acts as a deterrent to make the market look unattractive to the potential entrant. In other words the sooner a market is stopped from looking like a new or expanding market the less entry is likely. Justification for this can be seen from the high profile that the "Boston Box" receives in the marketing literature, in which an industry's attractiveness is measured by the perceived growth rate and by the perceived market share that can be obtained. This suggests that product proliferation by firms early in a market's life will make the market unattractive for latter potential entrants. As the market enters a period of maturity then products will be falling into the categories of "cash cows" or "dogs". The latter category would normally mean divesting which would leave product variety the same or would see a fall in numbers.

An interesting digression to this argument and a paradox for the "Boston Box" would be whether "dogs" can be a useful competitive weapon by stopping other firms achieving cash cows. An example in this category would be an oligopoly's loss leader. Clearly it is partly a question of "Strategic Business Unit" definition and partly an illustration that the Boston Box ignores other businesses.

Though it may be strategically advantageous for firms to proliferate early there are limits to how early variety can start. For though firms may invest heavily in market and product research the firm still has to foresee how the market is going to develop if money invested in launching a new product is not going to be wasted. Thus in terms of the product life cycle (figure 4.2) one might expect the number

of products to be greatest in number at the fastest rate of growth rather than at the highest level of sales.

FIGURE 4.2: MARKET LIFE CYCLE AND PRODUCT VARIETY.



For it is at this stage that incumbents most need to proliferate in order to forstall entry and at this stage that (percieved) product space is opening up and offering firms (incumbents and entrants) new opportunities for launching "star products".

That the level of variety is going to be related to the "area" or "volume" of product space is supported by the literature on timing of entry. Bain (1959, p256) first observed "that the advantage to established sellers accruing from buyers preferences for their products as opposed to potential entrant products is on average larger and more frequent in occurence at large values than any other barrier to entry". Bain does not exactly spell out why there should be a loyalty to the first brand but does suggest it is not because of advertising.

Schmalensee (1982) however picks up Bain's observations

and develops a model to give some insights into why this should be the case.

At the centre of this model of experience goods is the notion that quality uncertainty is the dominant feature in the purchase decision and that "when consumers become convinced that the first brand in any product class performs satisfactorily, that brand becomes the standard against which subsequent entrants are rationally judged". In other words the decision making process is a low involvement one in which once the quality threshold has been reached there is little search or testing of alternatives. This he suggests means that the second brand may not be able to dislodge the first brand's position particularly if it is a "Me Too" product. A "Me Too product" he defines as being a product offering the same attributes but at a lower price. He also suggests that economies of scale (and presumably learning curve economies) will accentuate the advantage of the first firm.

Schmalensee (1982) characterizes successful entrants (i.e. not the first firm) as generally having differentiated themselves sufficiently from their predecessors as to appear "pioneering" to at least a sizeable segment of buyers.

If Schmalensee is correct in his general hypothesis, and it is essentially an empirical question to assess whether he is, then the logical conclusion is that the first into a market niche (whether the first into the market as a whole or not) is likely to be successful. The implications for variety and growth being that variety is likely to peak early in the growth stage when perceptions of the evolving market are certain enough for a firm to gamble on investment in a product (or extra product) but uncertain enough that a

proportion of these products will not survive when the market matures. In the maturity stage of the market perceptions are likely to be more accurate and well grounded with the incidence of new brands being outweighed by the incidence of earlier brands who mis-read the market. Though one would expect brand exit to be higher than brand entry it should be noted that brand entry may still be contemplated by firms trying to prolong or rejuvenate the market with new brands (particularly spin-offs or developments of market leaders e.g diet coke, baked beans with baconburgers etc).

4.2.3. EXISTING EVIDENCE.

There is scant evidence on the amount of variety and its relationship with market size and growth at a market level and no systematic study of the subject. A number of case studies however show how there are advantages of being the first established firm and show the success of proliferating heavily advertised brands early in the market life cycle. These studies indirectly suggest that brand variety is likely to be high in the early stages of growth as firms attempt to gain the all so important early advantage.

In the unique area of prescriptive drug markets, Bond and Lean (1977) and Gorecki (1986) show evidence of "a substantial and enduring sales advantage" to the first established firm. Bond and Lean's study also gave an observation that "the trademark protection of brand names appears to bar the success of low priced substitute brands and within the framework of the present drug distribution system, that barrier appears to be far more powerful than patent protection".

Whitten (1979) in a long term historical study of the U.S. cigarette industry suggests that advantages seem to accrue to first entrants.

Shaw and Shaw (1982) similarly find in a study of the Western Europe synthetic fibres industry that early entrants who established market leadership relatively early in the growth stage maintained their lead nearly twenty years later.

Fortune (23, February 1981) traces how Procter and Gamble survive as market leader in the washing powder market through their strategy of product proliferation and intensive advertising.

Bevan (1974) is an interesting contrast to the monopoly orientated studies in that the market leader (Smiths) crashes. One plausible explanation of this crash which is not refuted by the evidence is that Smiths crashed because of their failure to proliferate - the first firm to do so became the market leader. Such an explanation is clearly oversimplistic in that it ignores Smiths more general failure to forecast and invest but it does suggest that market variety and growth will follow a similar trend even if the market leader is slow in introducing varieties.

Thus in total there is a good deal of case study evidence in support of the advantage accruing to the first established firm in the market which may be aided by product proliferation and advertising. Such evidence is consistent with the hypothesis of a positive relationship between variety and growth on which there has been no direct empirical work.

4.3. PRODUCT CHARACTERISTICS AND PRODUCT VARIETY.

It could be argued that the degree of variety is not just a function of market structure (be it size, growth, concentration or whatever) or of market strategy but will depend on the particular market under consideration since the possible characteristics or attributes of products will vary. Theoretically the number of different characteristics or attributes a product can have probably tends towards infinity but aside from our market structure and strategy variables this will be limited by two factors - market definition and consumer taste.

By adopting a narrow market definition it would seem reasonable to assume that there is less room for variety than a larger definition. For example there is less possibility of variety in the salt market than in the seasoning market.

Consumer demand might be more widely regarded as a bigger limit to variety and it could be argued that for some products there is a greater range of acceptable varieties e.g. the flavours of the crisp or preserve market compared to the sausage market. Though the number of varieties of any product is in theory almost unlimited consumer demand will limit the range if there are identifiable product clusters i.e. demand for characteristics is not evenly distributed over the whole possible range. Such clustering of demand can be mapped, for example Johnson (1971) shows how preference density can be mapped in the case of the U.S. beer market on such variables as bitterness and strength.

Just how much diversity of variety is due to inherent differences in demand is difficult to assess and accordingly in order to assess the impact of structural variables it is

necessary to standardize the type of market under consideration. Thus the markets one would use in any empirical study must not be widely different in terms of value or in terms of buyer.

4.4. A FIRM'S MARKET SHARE AND PRODUCT VARIETY.

An area of interest that arises from the theory and evidence discussed in section 4.2. is whether there will be differences in policy of the market leader as compared to firms with smaller market shares. As has already been identified there is evidence of the high rate of success of the first firm to enter the market remaining the market leader, particularly when the firm produces a range of products early in the growth cycle.

The interesting question that then arises is: though there is plenty of evidence to show that firms with the highest market share have a range of products, do firms with a smaller market share compete against the whole range or do they aim for selected markets? A priori, one would expect the answer to this question to be affected by the retail structure that manufacturers face. For, as will be discussed in the next chapter, high retail concentration may re-enforce the security of a manufacturers market share from horizontal brand competition and re-enforce the manufacturers' desire for market segmentation.

The convenience sector does not easily lend itself to the product spacing type of analysis done by Shaw (1981) on the fertilizer industry (in which there is evidence of clustering), but the brand policy of different ranking manufacturers can be observed by number of products. This

(simple) type of analysis is to my knowledge new and will shed some light on the general effect of retail structure on brand ranges of convenience good manufacturers.

4.5. SUMMARY.

The bulk of the economic literature on product variety is not concerned with what determines it but is more concerned with the specific area of oligopoly behaviour and product variety. The bulk of the marketing literature on brands on the other hand is aimed at brand management and portfolio analysis. This chapter has reviewed this literature in the wider context of structural determinants of product variety. Manufacturer concentration and market size would on the basis of the existing work seem to be the most likely chief influences. In the empirical work later in this thesis hypotheses concerning these variables will be tested. The central focus of this thesis is however the effects of retail concentration and own label penetration and as will be shown in the next chapter this can be expected to manifestly alter manufacturer strategy in regard to variety and advertising.

CHAPTER FIVE: THE PREDICTED EFFECTS OF RETAIL CONCENTRATION
AND OWN LABEL PENETRATION ON ADVERTISING AND
PRODUCT VARIETY.

- 5.0. OBJECTIVES.
- 5.1. ADVERTISING - A BRIEF RECAPITULATION.
- 5.2. PRODUCT VARIETY - A BRIEF RECAPITULATION.
- 5.3. THE DIRECT EFFECTS OF RETAIL STRUCTURE ON ADVERTISING
AT MARKET LEVEL.
 - 5.3.1. RETAIL CONCENTRATION
 - 5.3.2. OWN LABEL
- 5.4. THE DIRECT EFFECTS OF RETAIL STRUCTURE ON PRODUCT
VARIETY AT MARKET LEVEL.
 - 5.4.1. RETAIL CONCENTRATION.
 - 5.4.2. OWN LABEL.
- 5.5. THE INDIRECT EFFECTS OF RETAIL STRUCTURE ON ADVERTISING
AT MARKET LEVEL.
 - 5.5.1. MANUFACTURER CONCENTRATION.
 - 5.5.2. PROFITABILITY.
 - 5.5.3. SALES.
 - 5.5.4. PRODUCT VARIETY.
- 5.6. THE INDIRECT EFFECTS OF RETAIL STRUCTURE ON PRODUCT
VARIETY AT MARKET LEVEL.
 - 5.6.1. MANUFACTURER CONCENTRATION.
 - 5.6.2. SALES.
- 5.7. EFFECTS OF RETAIL STRUCTURE ON ADVERTISING AT FIRM
LEVEL.
 - 5.7.1. RETAIL CONCENTRATION.
 - 5.7.2. OWN LABEL.
- 5.8. EFFECTS OF RETAIL STRUCTURE ON PRODUCT VARIETY AT FIRM
LEVEL.
 - 5.8.1. RETAIL CONCENTRATION.
 - 5.8.2. OWN LABEL.
- 5.9. SUMMARY.

5.0. OBJECTIVES.

The objective of this chapter is to develop testable hypotheses of how retail structure affects the level of advertising intensity and the degree of product variety.

Such hypotheses have to be considered in conjunction with the other variables that might influence advertising intensity and product variety. These were considered in chapters three and four and are briefly summarized in

sections 5.1. and 5.2. below.

Sections 5.3. to 5.6. develop the retail hypotheses from the market perspective whereas sections 5.7. and 5.8. form hypotheses for the firm perspective. The latter is examined due to the differing effects one might expect on firms of different size, market share or sales ranking.

5.1. ADVERTISING - A BRIEF RECAPITULATION.

In chapter three the existing literature on the determinants of advertising intensity was reviewed. It is worthwhile just recapitulating this literature to identify some of the variables that should be included in this study.

The main thrust of the literature was concerned with establishing whether or not there was a link between manufacturer concentration and advertising. As was noted the controversy over such a link rages as strongly as any other within economic literature. There are three main (and diverse) standpoints into which most authors fall.

First, there are those who refute any such relationship. The main study supporting this viewpoint is by Reekie (1975).

Second, there are those who support a positive linear relationship. Rees (1975), Brush (1976) and Ornstein (1976) provide supporting evidence.

Third, there are those who find evidence for non-linear relationships. The majority of these studies find evidence for a non-linear relationship in the quadratic or inverted "u" form rather than the more elementary curvilinear relationships. Support for a quadratic relationship comes from both single equation models e.g. Cable (1973) and Sutton (1974) and from the multi-equation models e.g. Strickland and

Weiss (1976) and Buxton et al (1984).

Manufacturer concentration has been regarded as one of the possible determinants of the degree of advertising intensity. Given the disagreement over the form of its relationship both in theory and in empirical work tests for linear, loglinear and quadratic relationships will be undertaken. As was shown in chapter three it is only one of a number of factors that may influence the degree of advertising intensity. The extent of other barriers to entry is clearly one factor that could affect the amount of advertising (Ferguson 1974). For if there are high barriers e.g. scale economies or a hard to copy product, then the need to advertise to protect or increase market share will be reduced.

Another possible determinant that has been tested is that of profitability (Strickland and Weiss 1976). This has widespread appeal due to its compatibility with some of the rules of thumb that managers use in setting advertising budgets e.g. "the all you can afford approach". It is also consistent with the managerial / satisficing theories of the firm that suggest that managers will gain utility from large amounts of advertising (e.g. Cyert and March 1963 and Williamson 1969). Although the variable of profitability is appealing, it is not tested in this study due to the difficulty of its measurement. The difficulty arises from the conceptual difference of reported profit and a more nebulous measure of real well being. The latter would in an ideal world be the appropriate measure and would take account of the degree of managerial slack and financial resources. Not only would using a measure of reported profit be a poor

approximation of "real profit" but data collection at sector level would be a task approaching the herculean.

A variable that one would expect to yield a high correlation with the advertising level is that of sales. Sales will thus be included in preliminary tests on the industry level of advertising as an independent variable. As, however, the main objective of this work is to understand the factors affecting the intensity of advertising rather than the absolute level of advertising, sales will be incorporated through the dependent variable in the advertising sales ratio for the subsequent market tests.

5.2. VARIETY - A BRIEF RECAPITULATION.

Chapter four reviewed the existing literature on product variety and identified some of the main determinants of variety.

An important observation in the chapter was that the nature of the product and the consumer buying process were likely to have a very strong influence on the levels of variety across industries. In order to avoid such-a--de-stabilizing effect on testing for other possible determinants of the level of variety the sample was limited to convenience goods where the buying process is more homogeneous.

Sales were also identified as likely to be a strong influence on the degree of variety. Sales would be an important influence both in terms of absolute size of the market and in terms of the stage of growth of the market.

The main thrust of the literature was however the role of manufacturer structure which is examined mainly through models that are developed without regard to the marketing

channel as a whole. Due to the problems of variations in product characteristics and buying processes no econometric studies of product variety have been undertaken and as was shown the "evidence" of influences on product variety has to date come from case study approaches of different markets.

5.3. THE DIRECT EFFECTS OF RETAIL STRUCTURE ON ADVERTISING AT MARKET LEVEL.

Retail structure may affect the amount of advertising and brand variety in a number of ways either directly or indirectly. The direct effects are the influence of retail structure on the strategy of manufacturers whilst the indirect effects are the influence on other variables that in turn may affect manufacturer strategy. In this section the direct effects of retail structure on advertising will be examined. The two "measures" of retail structure that will be used are retail concentration and own label penetration. It may be argued that own label penetration is indeed not a structural variable at all but a retail performance variable. The importance of such a distinction will be relevant to empirical analysis, for if there is a relationship between retail concentration and own label penetration then problems of multicollinearity may result. For the time being however such a distinction will be ignored although the relationship between retail concentration and own label penetration is fully discussed in appendix B.

5.3.1. THE DIRECT EFFECTS OF RETAIL CONCENTRATION ON MANUFACTURER ADVERTISING:

The main effect of an increase in retail concentration will be to reduce the potency of manufacturer advertising. This is because advertising to consumers will become less

important relative to other aspects of the promotional mix like trade marketing. The reason is simply that gaining shelf-space with large retailers will be more important than promoting consumer awareness for convenience products. Underpinning such an assumption is that for most convenience products the ease of purchase has become more important than individual brand selection. Such an assertion for grocery products at least, dates back to the observation by Naden and Jackson (1953) that people are primarily interested in purchasing a basket of grocery products and that brand decisions are subservient to the initial decision of store choice for the basket as a whole. The social and economic change that has seen a growth in such a decision making process was shown in chapter one. Thus as concentration grows the importance of retailer relations will accordingly grow for the manufacturer.

The potency of manufacturer advertising may also have been affected by the growth of promotion activity by retailers which has been facilitated by the growth in retail concentration. Large retail chains may have been able to take advantage of economies of scale in promotion. The presence of such economies of scale are widely quoted by in the retail field, e.g. McClelland (1966), Dawson and Shaw (1987), and can arise in three ways. First, in terms of media selection, large scale advertising can lead to more efficient means of advertising becoming viable e.g. television (Porter 1975b). Second, a larger scale of operations can lead to specialization in the labour force. The larger companies can employ specialists in areas such as merchandising and promotion. Third, scrambled merchandising which has been

associated with U.K. retail change (Dawson and Shaw (1987) means that the costs of corporate or store promotion are spread over a larger turnover. The result of increased retail promotion, for convenience goods at least, is to re-enforce the general effect on the consumer decision making process of making store choice for a selection of goods a higher priority than the choice of individual brands. It may even be possible to make the generalization that with the increase in income more products are thought of as convenience goods.

The growth of such processes leads to a decrease in the potency of manufacturer advertising which can be expected to have an effect on the degree of manufacturer advertising. It means that the amount of advertising needed by manufacturers to have the same effect as previously will increase. This will increase the rate of substitution of advertising for other components of the promotional mix. Thus such activities as trade marketing and in store promotion can be expected to increase.

A priori therefore, overall expectations are for a positive relationship between retail concentration and manufacturer advertising.

5.3.2. THE DIRECT EFFECTS OF OWN LABELS ON MANUFACTURER ADVERTISING.

An often quoted reason for the decline in manufacturer advertising, particularly by the manufacturers themselves is the growth in own label. The degree of own label penetration may directly affect manufacturer advertising in both a positive and a negative manner. The forces that encourage increased expenditure arise from the need to maintain a perceived quality difference to maintain the price

differential between manufacturer and retailer brands. The greater own label penetration becomes the more important it is to have a higher quality image. To be perceived as the same quality as an own brand is catastrophic for a manufacturer brand because own brands have inherent price advantages (mainly deriving from promotional advantages). The more own label penetration increases however the more doubts about own label quality are erased. This will be true both within a sector and across all sectors. Therefore there is a force acting on the manufacturer to increase differentiation of their products as own label penetration increases. One means of doing this is to increase advertising expenditure. If there were no other forces one would thus expect a positive linear relationship between own label penetration and advertising.

One counter-acting force that may distort such a relationship is that at low levels of penetration heavy advertising may be used to deter entry, the incentive for which will diminish as own label share increases.

Furthermore the increase in own label penetration, along with the increase in retail concentration is likely to reduce the amount of variety and reduce the number of firms in a market. Both of these effects would be likely to lead to a decrease in manufacturer advertising. The mechanisms of these indirect effects will be discussed in section 5.5.

5.4. THE DIRECT EFFECTS OF RETAIL STRUCTURE ON PRODUCT VARIETY AT MARKET LEVEL.

The variety of products offered by manufacturers can, like manufacturer advertising, be expected to be affected by retail concentration and own label.

5.4.1. THE DIRECT EFFECTS OF RETAIL CONCENTRATION ON PRODUCT VARIETY.

The direct effect of retail concentration on brand variety should be negative possibly in a log linear fashion. The justification for such a hypothesis is that because of economies in supply and promotion (e.g. lower transaction costs and economies of display) large retailers will prefer to stock only a few leading brands in a sector. From a retailers point of view product variety is costly if the total market does not increase as a result. Underpinning such an assumption is that by not offering a wide product range there is no detrimental competitive effect in relation to other leading retailers. The evidence of the period 1970 - 1981 in the U.K. is that product range within sectors was not used as a competitive weapon by retailers and it is only since 1981 as competition between large retailers has got more intense that attention has been paid to variety as a competitive weapon. Retail competition between the larger players has become more intense as obtaining market share has become more difficult. Large gains from the independents are at an end and opportunities are diminishing for local out of town monopolies end with the advent of retail saturation.

That large multiple retailers during the period were not interested in widening product range only leads to the hypothesed relationship if there has not been a countervailing boom in the product range of other surviving retailers. Due to the high rate of exit of smaller retailers it would seem that any growth in product range amongst small retailers is unlikely to outweigh the decline in heterogeneity of products likely to be found with a more atomistic retail

structure.

Though one may expect a negative relationship between retail concentration and brand variety for the reasons stated above there is a force operating in the opposite direction. For in some markets at least "following" firms will have to offer the same variety as market leaders in order to offer a viable alternative to the retailer. For leading manufacturers an increase in brand variety may offer a chance to increase bargaining power over the retailer as was mentioned in chapter two. If leading manufacturers were able to adopt this strategy then it is possible that followers would imitate them if aiming at the same market. Such potential behaviour between manufacturers of differing market position is examined in section 5.8.1. although without the empirical analysis of chapter eight predictions in this area are likely to be inconclusive.

5.4.2. THE DIRECT EFFECTS OF OWN LABEL PENETRATION ON PRODUCT VARIETY.

One would expect the degree of own label penetration to have a marked negative effect on the number of manufacturer brands available. This is because own labels where offered, in particular those belonging to multiple retailers, have been targeted (during the period under review) at the low price end of the market. The reduction in opportunity for low price brands will have led to a number being withdrawn. Due to their inherent promotional advantages own labels have also been able to offer in many cases, quality comparable to much higher priced brands making the competitive environment for many manufacturer brands much harder. Manufacturers may retaliate to such a threat by increasing product development

so that they offer something that own label brands do not but it must be remembered that in most cases the pay-back time will be shortened because if they are successful they will attract own label imitation.

The specification of the relationship is likely to be non-linear on the grounds that most low priced or low image brands will be eliminated after a certain threshold of own label penetration has been reached and that brand leaders are unlikely to face elimination in the face of own label competition.

5.5. THE INDIRECT EFFECTS OF RETAIL STRUCTURE ON ADVERTISING.

As well as identifying the direct effects that retail concentration and own label penetration have on advertising it is worth considering some of the indirect effects that may be present. Indirect effects are the effects on variables that may in turn determine the degree of advertising. When it comes to testing for such effects using ordinary least squares regression one has to be careful to identify multicollinearity since strong indirect effects may upset multiple variable testing. An example of this would be if one were hypothesizing a strong relationship between retail concentration and manufacturer concentration then the inclusion of both retail and manufacturer concentration in explaining variation in advertising would, a priori, be likely to lead to multi-collinearity. Tests of this nature however are still of benefit because they help to identify the effects that are present even if the extent of them would require further analysis.

5.5.1. MANUFACTURER CONCENTRATION.

It might be expected that an increase in retail concentration and the reduction of buying points that it entails would lead to an increase in the concentration of brand manufacturers. Fewer buying points and the greater standardization of such buying points (in terms of requirements) mean that fewer manufacturers will be successful in negotiation. Fewer manufacturers will be able to meet the requirements of these now all important buyers for a variety of reasons including costs of providing for these buyers and the fact that buyers may only be interested in brand leaders.

The advent of own labels in the convenience sector has undoubtedly given some of the smaller manufacturers a chance to expand. This however will not be reflected in the concentration of branded manufacturers, indeed to the extent that it encourages small branded manufacturers to abandon branded goods completely the effect of own labels will be to increase concentration.

It would appear that manufacturer concentration (whether branded or total market) has increased due to the decline in the numbers of small firms. There are grounds for suspecting that the decline in the firm population is a direct result of retail change given the centralized sourcing policy of the multiples. There might be a case for expecting a non-linear relationship between retail concentration and manufacturer concentration on the basis that over a certain threshold variety will play a part in inter-multiple competition, whereas below such a threshold multiple gains come from the small independents and are largely independent of brand or

firm variety.

If retail concentration is positively associated with manufacturer concentration the problem of identifying the end result on manufacturer advertising still remains. For as was shown in chapter 3 the relationship between manufacturer concentration and advertising is disputed. In chapter 8 therefore it is proposed to test whether there is, first, a relationship between retail concentration and manufacturer concentration and secondly whether the latter is correlated with advertising intensity.

Thus though a positive relationship might be expected between retailer and manufacturer concentration the expected effect on advertising is dependent on which model one prefers.

5.5.2. PROFITABILITY.

One way that retail concentration might affect advertising levels is by affecting manufacturer profitability. As was evident in chapter two a growth in retail concentration leads to a reduction in bargaining power for the manufacturer. In U.K. investigations, initiated by the government into discounts to large retailers it was found that manufacturers margins had suffered (Monopolies and Mergers Commission 1981 and the Office of Fair Trading 1985). No action was recommended by these reports on the basis that the savings were being passed to the consumer. Though these reports give anecdotal evidence of increasing retail concentration having an adverse affect on manufacturer profitability there is no empirical evidence of a widespread fall in profits.

The fact that there has been a decrease in manufacturer bargaining power is beyond dispute but this does not necessarily mean that one would expect a fall in reported profits. The reason for this is twofold. First, the decrease in bargaining power might not affect reported profits but might affect the long term profitability of the firm if the pressure is absorbed by managerial slack. This managerial or organisational slack (Cyert and March 1963) is the degree to which management has discretionary power to follow objectives other than corporate profit. Secondly, if profit is determined by factors other than bargaining power then changes in bargaining power may not play a significant role. In terms of our analysis in chapter two such a consideration may seem surprising but it is important to realise that the structural determinants of bargaining power are determinants of potential power rather than actual (or enacted) power. Thus to the extent that enacted bargaining power does not reflect potential power profitability will be unaffected. If profitability (whether reported profit or general well being) is affected then one may get an effect on advertising intensity. The reasoning behind a link between advertising and profit principally derives from observation that many managers and executives seem to form (or amend) an advertising budget on a "what can we afford basis". Empirical evidence on a relationship between profitability and advertising is predictably ambiguous. Comanor and Wilson (1967) provide the main evidence in support of a positive relationship with Weiss (1969), Bloch (1974) and Ayanian (1976) finding no evidence of a relationship.

5.5.3. SALES.

One possible effect of increasing retail concentration in theory at least is an increase in demand. Given that there are economies of scale in mass merchandising methods it seems fair to assume that with increased retail concentration one will get increased retail promotion at least up to a certain threshold. If this is the case then total demand should rise subject to the demographic constraint identified in chapter one. Promotion is effective as it seems inconceivable that all gains from promotion come at the cost of other retailers in the same sector.

A counter argument to the assertion that the increase in retail concentration has led to an increase in retail promotion is that the line of causality runs the other way. That is to say that it is increased promotion (particularly advertising) that begets high concentration and not the other way around. This important point is well discussed in Fulop (1984) who argues that it is the structural features in retailing which have been the chief determinants of an increase in advertising. Fulop (1984) suggests that retail advertising is not a viable barrier to entry given the multi-causal factors of growth such as "innovative forms of retailing and retail technique; entrepreneurial skills; more convenient locations; immediate availability of merchandise; wider choice, either from larger shops or specialization; lower prices; longer opening hours".

It would therefore seem that retail concentration has an effect on retail promotion which in turn increases sales which in turn is one factor positively affecting the level of manufacturer advertising. The extent of such an effect

through such a chain is likely to be limited and is likely to be obscured by other related effects. These other effects will include the degree to which retail promotion changes the consumer decision making process and reduces the effectiveness of manufacturer advertising. As will be discussed in chapter seven the sample will be limited to convenience goods where it can be expected that decision making processes are homogeneous and where the effects of retail concentration are uniform.

One aspect of retail change which will affect the level of sales adversely is the growth of own labels. This is because own labels are characterized (or at least were originally characterized) by being low price substitutes for lower products. If this is indeed the case and one is measuring sales by total value then a move to own labels will reduce the total value of the market. If retail concentration leads to cheaper prices as it seems to have done then this too will reduce the market size, although at very high levels of concentration one would expect prices to increase. Given that the size of the market is likely to be an important determinant of the level of advertising such a change should not be ignored. To some extent it is a nominal change in that the measure of total market is likely to be a proxy measure for the potential market size as perceived by manufacturers.

5.5.4. PRODUCT VARIETY.

As was demonstrated in sections 5.4.1. and 5.4.2. one would expect retail concentration and own labels to have a direct negative effect on product variety.

As was shown in chapter three it might be expected that

the degree of product variety would have a negative effect on the amount of advertising simply because there are fewer brands to advertise and with which to compete.

Given these two expected relationships it follows that one can expect an indirect negative effect on manufacturer advertising from retail concentration and own label penetration through their influence on product variety.

5.6. THE INDIRECT EFFECTS ON PRODUCT VARIETY OF RETAIL STRUCTURE.

Just as retail concentration and own label penetration will have indirect effects on advertising they will have indirect effects on product variety.

5.6.1. MANUFACTURER CONCENTRATION.

As was demonstrated in section 5.5.1. one might expect a positive effect on manufacturer concentration of increased retail concentration or own label penetration. In chapter four it was suggested on the basis of previous studies that manufacturer concentration would be negatively related to product variety or alternatively that it might take the form of a "U" shaped relationship. Therefore there may be a case for an indirect relationship between retail structure and variety.

5.6.2. SALES.

In section 5.5.3 it was suggested that there might be a weak positive relationship between retail concentration and sales. In chapter four it was suggested that one would expect a strong positive relationship between sales and variety because of increased volume and because of an increased range

of tastes.

5.7. THE EFFECTS OF CHANGING RETAIL STRUCTURE ON ADVERTISING AT FIRM LEVEL.

In the following section the notion of market leaders and market followers will be introduced. The reason for doing so is that retail structure can be expected to have differing effects on firms with different market positions e.g. a high degree of retail concentration will have a different effect on the advertising strategy of a "large" firm aiming at the mass market compared to the advertising strategy of a "small" manufacturer aiming at a specialised niche.

Whilst the distinction between leaders and followers can be thought of in terms of sales rank within a market (with perhaps the leading two firms in each market being regarded as leaders) other measures will be explored as well in the empirical analysis of chapters seven and eight. Among these measures the measure of percentage market share will be used on the basis that after a critical share of the market a firm may be regarded as a leader. The advantage of this measure is that it allows for a different number of leaders in different markets which accords with the observation that in this period the number of firms that had products on the shelves of leading multiples varied from market to market. Another measure that will also be used is the straightforward measure of firm sales in case it is the absolute size of the firm rather than the percentage size that is prevalent in the selection process by the retailer.

5.7.1. THE EFFECTS OF RETAIL CONCENTRATION ON FIRM ADVERTISING.

Retail concentration can be expected to affect manufacturers' advertising of differing rank in a different

manner. Market leaders who will be more likely to benefit from retail concentration will be most likely to devote attention to trade marketing. Leaders can gain market share with less advertising by making sure that they are stocked by the large multiples unless advertising is important in the retailers decision to stock a product. The evidence for the period in question is that variety on the shelves of the multiple was less than in the market as a whole. Followers however will find it harder than leaders to gain shelf space on the grounds of image and will tend to gain market share by competition on price or by appealing to the specialist market.

Table S.1. reflects how one might expect the advertising strategy of firms to differ under various degrees of retail concentration. The table is an over simplification in that it is possible for leaders or followers to pursue strategies other than those mentioned or to use different marketing tools. This diagram however is based on the assumption that being a market leader or follower tends to warrant a certain focus in the firms operations and lead to a certain marketing mix to cope with various levels of retail concentration.

One of the more controversial aspects of this assumption implicit in the table is that a market leader does not focus on a specialist market. Whilst there is nothing to stop a market leader from doing this there may be a case for saying that the market follower may naturally be more geared for looking at small niches in the market and even that the leader is disadvantaged from looking at small segments within the market.

TABLE 5.1.: THE EFFECTS OF RETAIL CONCENTRATION ON FIRM LEVEL ADVERTISING FOR CONVENIENCE GOODS.

MARKET POSITION	FOCUS	RETAIL CONC.	ADVERTISING INTENSITY	OTHER PRIME WEAPONS
Leader	Market Share	Low	High	-
		Medium	Medium	Trade Marketing
		High	Medium	Trade Marketing
Follower	Market Share (Broad Market)	Low	High	-
		Medium	Medium	Price / TM
		High	-	Price / TM
Follower	Specialized	Low	Medium	Public Relations
		Medium	Medium	Public Relations
		High	Medium	Public Relations
Follower	Convenience	Low	Low	Unimportant
		Medium	Low	Distribution/TM
		High	Low	Distribution/TM

There are two reasons for suspecting a disadvantage. First, the company name will be associated with the mass market and will not be an advantage for a more specialised market. For example the name of Brooke Bond Oxo Ltd will not be an advantage in attracting the tea connoisseur if only because the tea connoisseur is looking for a specialized image from the tea that he/she consumes. Of course the company can enter the market under a different name although this in itself will incur cost. Secondly, due to the different marketing skills needed for the specialised market any learning advantages from the mass market are unlikely to be transferable to the specialised market. Indeed in relation to the second point the market leader may have been so preoccupied with the mass market that the specialised markets that tend to grow around it will have been entered earlier by the "followers".

If one accepts the premise in table S.1 that being a market leader leads to different advertising strategy at various levels of retail concentration compared to other firms then it is worth examining the implied hypotheses in the table. In regard to the market leader one might expect a dichotomous effect of rising retail concentration on advertising and trade marketing. On the one hand the need to promote to the consumer dwindles as store choice etc. becomes of more importance in the decision making process and on the other there is an increasing need to overcome the gatekeeper to the consumer, namely the retailer. Overall one might expect a negative relationship between the advertising of the market leader and retail concentration. This relationship may be linear or curvi-linear as a priori it is hard to assess whether advertising will tail off at high levels of concentration. It may even be that at very high levels of concentration because one would expect product variety to become a competitive weapon between multiples that the relationship may become quadratic. Whether this latter effect will be shown on this sample is however dubious given that retail concentration figures do not reach very high levels.

For other firms however it is unclear what the overall effect will be. For firms following a market penetration strategy advertising will be quickly substituted for trade marketing and price competition as retail concentration increases. At high levels of retail concentration consumer advertising is not going to be worthwhile for convenience goods since the retailer will be all important.

For followers that are pursuing a policy of aiming at specialist niches advertising will be largely independent of

retail concentration. The reason for this is that the product will still be foremost in the consumers decision making process regardless of retail concentration. Advertising of such products is clearly very important but because the markets are so focused the overall expenditure will not be very high compared to mass markets.

For followers aiming at the convenience store market (which will only be important at a moderate level of concentration) the role of advertising is relatively minor compared to the attention that needs to be paid to physical distribution and trade marketing. Both of these latter areas will be important whether distribution is direct to the stores or through the intermediary of a wholesaler.

5.7.2. THE EFFECTS OF OWN LABEL ON FIRM ADVERTISING.

Firms can adopt a variety of strategies to own label: defence, passive, image or adoption.

The defence strategy is that of trying to prevent own label penetration into the market. This should be distinguished from the image strategy in which the advent of own labels is regarded as inevitable but every effort is made to differentiate the product offering from the own label offering.

Adoption is the strategy of producing own label for retailers whether continuing to produce brands or not.

The passive strategy on the other hand is the acceptance of own labels without any action being taken to combat them. Such a strategy is really only applicable to market leaders whose brands may actually gain from increased own label share.

Each will have different consequences for advertising but the likelihood of adopting any particular strategy will be partially dependent on market position. It should also be borne in mind that strategies may not be mutually exclusive but are in practice of differing relevance at various levels of own label share.

Table 5.2. shows the need for advertising for each of these strategies and the likelihood of adoption by leaders and followers at differing levels of own label share.

TABLE 5.2. : THE EFFECTS OF OWN LABEL ON FIRM LEVEL ADVERTISING.

STRATEGY	ADVERTISING IMPORTANCE	OWN LABEL PENETRATION	PROBABILITY OF LEADER	STRATEGY BY: FOLLOWER
Defence	High	Low	High	Nil
		Medium	Medium	Nil
		High	Nil	Nil
Passive	Low	Low	High	Nil
		Medium	High	Nil
		High	Low	Nil
Image	High	Low	Low	High
		Medium	Medium	High
		High	High	High
Adoption	Nil	Low	Medium	High
		Medium	Medium	High
		High	Low	High

It is worthwhile examining the various segments of the table before trying to ascertain the observable features of firm advertising by market position.

The defence strategy is only really relevant to market leaders when there is a low amount of own label penetration. In some ways it is merely an extreme form of the image strategy but because it reflects a different philosophy towards own label it is included as a different strategy. It

requires a high level of advertising and the belief that other firms will not make an own label product that can challenge on quality.

The image strategy is founded on the goal of making the brands distinguishable from own label substitutes. Such a policy again requires a high level of advertising but for the market leader this requirement will heighten with own label penetration. For the follower on the other hand a high degree of advertising is required at all levels of penetration since they have to distinguish themselves from the main brands as well as own labels.

The adoption strategy is again going to have different appeal to firms in different market positions. Followers will be very eager to pursue such a strategy as their survival may depend on it. Leaders may be more mixed in their desire to engage in own label manufacture having to weigh up whether entry is a more profitable overall strategy than purely concentrating on brands.

The passive strategy is one of the most interesting as it is only an option to the market leader. Allowing own labels to grow to eliminate rivals is risky in that it is reliant on having a good market position to start and on being right in forecasting that the competitiveness of the own labels will be felt mainly by rivals. It involves no or very little advertising since the distinction over own label has to be already firmly established.

The overall effect on advertising of firms of differing position is essentially an empirical question however the above analysis suggests a few guidelines. The analysis suggests the hypothesis that advertising strategy by

"following" firms is independent of own label share. For leaders it would appear that the strategy adopted is crucial in assessing the level of advertising although it may well be that own label share has a systematic effect on the strategy adopted. If this were the case and there was a switch from a defence to an image strategy as own label share increased then one would expect a quadratic "U" shaped relationship between own label share and advertising.

5.8. THE EFFECTS OF RETAIL STRUCTURE ON PRODUCT VARIETY AT FIRM LEVEL.

Just as retail structure can be expected to have differing effects on the advertising strategies of market leaders and followers it can be expected to have related effects on brand policy.

5.8.1. THE EFFECTS OF RETAIL CONCENTRATION ON PRODUCT VARIETY AT FIRM LEVEL.

Brand variety can be expected to vary in response to change in retail concentration in a variety of ways depending on firm position and strategy.

TABLE 5.3: THE EFFECTS OF RETAIL CONCENTRATION ON BRAND VARIETY AT FIRM LEVEL FOR CONVENIENCE GOODS.

MARKET POSITION	FOCUS	RETAIL CONC.	PRODUCT VARIETY.
Leader	Market Share	Low Medium High	Low Medium High
Follower	Market Share (Broad Market)	Low Medium High	Low Medium High
Follower	Specialized	Low Medium High	High High High
Follower	Convenience Stores	Low Medium High	Medium Low Low

For the market leader looking to maximize market share one may expect an extension to brand variety in response to an increase in retail concentration. The reason for this is that the retailer will be looking to gain from transaction cost economies by dealing with fewer firms. Before dealing with fewer firms the retailer will want to ensure that at least a minimum acceptable level of variety is offered to the consumer even though the overall level of variety may be negative or quadratic by dealing with fewer firms.

The follower pursuing a broad market approach may similarly increase variety in response to retail concentration. The reason being that in order to offer the retailer a viable alternative to the market leader the follower must offer a similar product range. In assessing the impact of retail concentration on leaders and followers one must take into account that followers will tend to switch to either specialised markets or own label manufacture in response to an increase in retail concentration. The former should re-enforce a positive effect on individual firms' brand variety in response to retail concentration. The entering into own label manufacturing is unlikely to have any effect on brand policy if brands are still made. For one might expect the firm to pursue a cogniscent approach to brands whether or not own labels are manufactured.

5.8.2. THE EFFECTS OF OWN LABEL ON PRODUCT VARIETY AT FIRM LEVEL.

The effect of own label penetration on a firm's brand variety should differ noticeably by market position and strategy. A synopsis of the effects are shown in table 5.4.

The market leaders, who will almost uniformly pursue a

broad market approach, will have a brand range that may be expected to increase with own label share. The rationale being that though the leader's main brands are likely to be largely unaffected by own label growth, evidence for which is provided by Ramsbottom 1982, they will strive both to limit the extent of own label share and expand the price and quality end of the market. This will be done mainly through product development and achieving the desire to offer a more "sophisticated" product. One of the ways such sophistication may manifest itself is by an increase in the number of products, flavours etc on offer. To the extent that this and the assumption that the leading firms are unlikely to have brands directly threatened by own label are true one would expect a positive relationship between variety and own label share.

TABLE 5.4.: THE EFFECTS OF OWN LABEL ON THE DEGREE OF PRODUCT VARIETY AT FIRM LEVEL (FOR CONVENIENCE GOODS).

MARKET POSITION	OWN LABEL	PRODUCT VARIETY
Leader	Low Medium High	Low Medium High
Follower (Broad Market)	Low Medium High	High Medium Low
Follower (Specialist)	Low Medium High	High High High

It is also probable that the incidence of market leaders following a strategy aimed at the specialist markets will be low and will not affect the dominance of the above

relationship. The justification for this as mentioned earlier is that mass market orientation, image and lack of competitive advantage will discourage the large firms from entering the specialist market.

Effects on a "follower" pursuing a similar broad market approach however may be less simple. This is because despite the same desire to keep ahead of own label by product development they are more likely to have to withdraw brands from the "lower" end of the market where competition with own labels will be fiercest.

The "follower" who pursues a policy of aiming for the specialist outlets however will on the whole be totally unaffected by own label growth and will try to offer a constantly high variety of products.

To the extent that the incidence of own label will encourage followers to follow a specialist strategy the amount of variety may be a positive function of own label share.

The overall expectation will therefore be that one would expect a positive effect by own label share on the brand variety of market leaders but that the effect on the brand variety of other firms is likely to be the result of a number of conflicting forces.

5.9. SUMMARY.

This chapter has shown how retail concentration and own label share may be expected to affect manufacturer advertising and brand variety.

At the industry level retail concentration will affect the potency of advertising by the manufacturer due to the

increased importance of store choice relative to brand choice. This will increase the degree of advertising needed to overcome the gatekeeper of the retailer to maintain the same degree of effect although this will be offset by the rise in attractiveness of trade marketing and in-store promotion.

Retail concentration will also affect the level of brand variety in a negative manner. This can be expected because of the pressure on shelf space and the desire on the part of the large retailer not to replicate products will lead to retailers wanting to deal only with a few firms. The relationship may be log-linear since retailers will always want a certain number of manufacturers from which to choose in order to balance gains from transaction costs with loss of bargaining power through dependence on one supplier.

Retail concentration may also have a number of indirect effects on variety and advertising. The prime mechanism for these indirect effects would appear to be through the possible relationship between retail concentration and manufacturer concentration.

Own label will at industry level be expected to have a negative effect on the amount of manufacturer advertising. This will be because of the reduction in the number of firms with which a brand has to compete and the benefits an advertising campaign would give to own label substitutes in terms of demand and price. That is to say whereas an increase in advertising will increase demand against another brand it may not increase demand by so much against an own label "imitation".

Own label will be expected to have a negative effect on

brand variety since it will have a large competitive advantage on price and distribution.

At the individual market level it can be expected that retail concentration and own label will have differing effects on market leaders compared to either following firms or the market taken as a whole.

Retail concentration may be expected to have a positive linear effect on the advertising of market leaders but because of more variety in possible strategies available to followers this will not be reflected as strongly (if at all) in tests on following firms.

The effect of own label on advertising is also ambiguous. It would seem likely that the advertising of following firms is largely independent of own label share whereas a "U" shaped relationship may be found for the market leaders.

Retail concentration can be expected to have a marked effect on the variety of market leaders compared to following firms. The leader may be expected to have to offer more variety in order to yield transaction economies for the retailer and bargaining power gains for itself as concentration increases. Following firms who pursue a strategy of being a substitute for market leaders will have a similar relationship although the bulk of such firms will pursue strategies for which there is no change of brand policy as a result of changes in concentration.

Growth in own label share will have a positive effect on the brand numbers of market leaders whilst having a negative effect on the brand range of followers attempting to address the broad market. This will as was shown be primarily a function of market position and the ability of leaders to be

CHAPTER SIX: SOURCES AND METHODS OF DATA COLLECTION.

- 6.0. OBJECTIVES.
- 6.1. DATA REQUIREMENTS.
- 6.2. DATA COLLECTION AND SAMPLE CONSTRUCTION.
- 6.3. VARIABLES USED.
 - 6.3.1. PRODUCT VARIETY.
 - 6.3.2. ADVERTISING.
 - 6.3.3. SALES.
 - 6.3.4. OWN LABEL PENETRATION.
 - 6.3.5. MANUFACTURER CONCENTRATION.
 - 6.3.6. RETAIL CONCENTRATION.
- 6.4. SUMMARY.

6.0. OBJECTIVES.

The prime objective of this chapter is to explain in detail the construction of the data sample that will be used in testing the hypotheses developed in the previous chapters.

Section one outlines the data that are needed and the possible sources of such data. Section two describes the broad method of constructing the sample whilst section three (in conjunction with appendix E) describes in detail how estimates of the variables were obtained.

6.1. DATA REQUIREMENTS.

In order to test thoroughly the effects of retail concentration and own label penetration on manufacturer advertising and variety within the convenience sector certain data are required at various levels of aggregation.

The hypotheses derived in chapter five concerned two levels of aggregation: market and firm level. Market is defined in narrow terms, e.g. the biscuit market, washing powder market, etc. Firm is defined as a firm in a particular market with no account being taken of diversity across markets.

At the market level measures of manufacturer

concentration, own label penetration, buyer concentration, advertising, number of brands and sales were required and collected. In an ideal world perhaps a measure of profitability of the market would also have been of benefit.

At the firm level a number of variables were needed: market share, sales, advertising and the number of brands. In addition, the number and size of buyers would have been of enormous benefit.

There were three potential sources for the above data: Government statistics, the firms themselves and market reports.

The U.K. Government statistics can be described as poor for manufacturing and even worse for retailing. There are two reasons that they could not be used. For the market level analysis the statistics are too aggregated and for the firm level data are non-existent.

Obtaining data from firm or trade associations was a slightly more serious contender for testing the hypotheses derived in the previous chapter. The main drawback for such a method is that though firms will have such data for themselves they are very unlikely to reveal such sensitive data to a student. Even if the problem of confidentiality could be overcome there is the problem of the amount of time involved in identifying all the firms in a particular market and persuading them to reveal the data they have on themselves and competitors.

The third alternative, which was the one selected, was to obtain data from market research reports. The time involved in collecting such data should not be underestimated and the possibility for a large sample is low for an organization let

alone an individual. Despite the deficiencies in such data (discussed below), this method was chosen as the best method available to answer the questions posed by the hypotheses. Data are available at both a market and firm level.

6.2. DATA COLLECTION AND SAMPLE CONSTRUCTION.

In order to test the hypotheses derived in the previous chapters, two time periods were chosen to represent the early 1970s and the early 1980s. 1970 and 1981 were selected as there were marginally more data available for these years than for the years immediately surrounding them. The two samples were used for cross section analysis at both market and firm level. In addition a cross section comparative analysis was undertaken at market level to assess the hypotheses regarding change. This was not repeated at firm level as information was only available for market leaders at this level. A time series analysis would have been more desirable than a comparative cross section analysis but there was not sufficient market information.

Having explained why secondary data and market reports are the only feasible method of data collection for an investigation into the convenience good market, it is now appropriate to identify the particular sources used and the general problems in using them.

Information on sales, manufacturer concentration, retail concentration and own label penetration were all collected from market reports. The reports used were Keynote, Market Research G.B., Mintel Market Intelligence, Mintel Retail Intelligence, Neilson Market Reports and Retail Business, as

well as various I.G.D. publications. Information from United Biscuits Plc and Chivers Hartley Plc was also used.

Though specific problems of particular variables will be discussed in the next section it is worth discussing briefly the reliability of the sources. Despite the fact that the research organizations that publish these reports have a large amount of dealing with firms in the various markets, small variations in estimates between reports were not uncommon. In an attempt to get as reliable data as possible, figures were only used when there was evidence from more than one source. Where estimates conflicted the average was used. Using such a technique implicitly assumes that the sources were of equal reliability which may be a questionable assumption. Faced with the problem of deciding which were the more reliable sources this however seemed the best method to use, particularly when there were three sources of information for a lot of the markets. By using such a method the risk of a widely inaccurate estimate was not high.

The actual choice of markets to use within the convenience sector was purely pragmatic; where reliable data were obtainable then a market would be included. Such an approach does however open up a potential source of bias since it would appear that some markets are more prone to investigation than others. Coffee or tea for example are far more likely to have more market reports on them than say matches or yoghurt. This has the effect that large markets or markets with a high profile may have more accurate estimates than smaller, lower profile markets and indeed may lead to a number of convenience markets not being included in the sample. Given the impossibility of extending the sample from

the data sources used such a potential bias could not be corrected in the study and must be regarded as a constraint on drawing inferences from the study's findings.

The size of sample is clearly limited by the choice of data source and mode of collection. Though some data was collected for a total of 31 sectors for both time periods the amount of complete data meant that for one or two tests the sample size dipped to 14. Given the low sample sizes for some tests it is important to regard the findings as tentative rather than definitive. Though the sample size varied between tests, wherever possible, related tests were re-run with a constant sample size to highlight any observable bias in sample selection.

6.3. VARIABLES USED:

The variables used in the empirical analysis at market level were: advertising, brand variety, sales, own label penetration, manufacturer concentration and retail concentration. At firm level the variables used were advertising, brand variety, sales and market share along with the market figures for own label penetration and retail concentration.

6.3.1. PRODUCT VARIETY:

Data on product variety were obtained from two trade sources: "The Grocer Price List" and "Shaws Guide to Recommended Prices". The reason for using two sources was to ensure as much reliability as possible. The aim of both publications is to give grocers as full a listing as possible of brands (and prices). Neither source however can be definitively regarded as covering all brands particularly as

regional brands are on the whole excluded. Interviews with the compiler of the Grocer Price List however tended to suggest that there had been no policy change over the period in question and that the Grocer Price List for groceries at least could be regarded as fairly comprehensive.

The amount of manufacturer brands on offer was calculated from the number of brands listed. A separate brand was held to exist if it was in some way different from other brands whether by name, trademark or flavour. The only exception to this was in terms of size. Size variations were not taken to constitute separate brands thus a 300g packet of McVites plain chocolate digestive biscuits was taken to be the same brand as a 200g packet of the same biscuits but not the same as a 300g packet of McVites milk chocolate digestive biscuits.

Though size considerations were not included in this study an interesting area for further research would be to document the explosion in product sizes that would appear to have occurred during this time period in the grocery sector. The price lists used to calculate the amount of variety were the June issues though both the May and July issues were referred to to make sure there had been no accidental omissions. The reason for choosing the June issue was to avoid seasonal fluctuations caused by Christmas and Easter as well as September which is a traditional high spot for product launches.

6.3.2. ADVERTISING.

Annual figures for advertising by sectors and brand were obtained from the MEAL quarterly and monthly digest for the

years 1970-1982. These were then deflated by the general retail price index to give advertising expenditure at 1970 prices.

For the market wide analysis a three year average was used rather than just the annual total. The reason for doing this was to make the results less susceptible to the expected volatility of the advertising market caused by new product launches, new campaigns etc. As it happened for the period in question yearly advertising totals did not show any signs of substantial fluctuation.

For the firm analysis firm advertising in a sector was calculated from the brand advertising data. Ownership of brands being determined by market reports and by reference to "Who owns Whom" 1970 and 1981. Figures were not deflated as comparative analysis was not undertaken at the firm level.

6.3.3. SALES.

The sales figures are taken from the industry reports mentioned above. For the industry analysis the market totals are deflated by the retail price index for food or consumer goods to give the market values in 1970 prices. To eliminate exceptional fluctuations a three year average was once again used.

6.3.4. OWN LABEL PENETRATION:

Figures on own label penetration are contrary to popular belief diverse and as hard to find as figures on brand penetration. The figures used in this work are derived from numerous individual market reports and from the same sources as the amount of brand share. The degree of penetration by percentage of market value is used in preference to volume

for a number of reasons.

The main reason is that volume of one product may not be comparable to the volume of another even in the same market. For example, in the washing up liquid market comparing 30 fluid ounces of "highly concentrated" liquid with 30 fluid ounces of "ordinary" liquid will introduce a bias in the measure.

Another disadvantage of using volume figures however comes in the differences between products caused by fluctuations in price. If one is comparatively cheap compared to another then clearly volume share may be higher purely as a result of pricing strategy.

A more pragmatic reason for the choice is however that value figures are more easily available than volume figures.

6.3.5. MANUFACTURER CONCENTRATION:

Manufacturer concentration figures are derived from the market share figures of the branded sector and do not include figures on the composition of the own label sector. Two measures of manufacturer concentration are used in the sample. The more straight forward of these is the three firm concentration ratio which is simply the percentage share of the branded market held by the largest three firms. Though this ratio is easy to calculate it has two drawbacks. First, it ignores the number and size of firms outside the top three and second it ignores the size distribution within the top three firms.

The other measure used is the H - Index. The H - Index is the measure developed independently Herfindahl (1950) and Hirschman (1945) and is the sum of the squared market shares

of all firms. This gives a figure between 0 and 1 representing the amount of concentration. The index is a popular one and its relationship with the concentration ratio is discussed in Sleuwaegen and Dehandschutter (1986) who emphasize the need for using both measures.

It has the advantage over a concentration ratio of taking into account the size and distribution of firms outside the top three. The measure does contain however an implicit and undefended value judgement as how to weight the larger firms in relation to the smaller ones. There is no proffered reason as to why squaring market share is a more valid way of weighting than, for example, cubing or raising to the power of a half. By their very nature summary measures of concentration are going to be only approximate in nature and thus it is important to use more than one measure where possible.

For this sample two estimates of the H - Index had to be constructed in addition to the three firm concentration ratio figure. The reason for this is that the H - Index is reliant on the unrealistic assumption of complete knowledge of the market shares of all firms. The market reports from which the sample is drawn tended to have the market shares of firms down to at least the five percent level however beyond this the reports were sketchy. In order to use the H - Index on a sample like this it was necessary to calculate the two points between which the actual H - Index could lie given the data available. The highest estimate was simply the index calculated on the assumption that there was a firm (or firms) with the largest market share possible that did not exceed the market share of the smallest firm stated. The lowest

estimate was simply the H - Index for all firms stated which would equate to there being an infinite number of small firms with a very small market share. The two estimates were used for all tests although it should be borne in mind that given that less weighting is paid to small firms by the index that variations between the two estimates were not very great. Appendix E shows examples of how the H - Index estimates were calculated.

For the firm level analysis a firm's percentage share of the branded market was used.

6.3.6. RETAIL CONCENTRATION:

Retail concentration figures are not figures that are widely used and some reservations must be held over the figures used in this work. The various markets reports that give retail distribution figures often do so in a slightly aggregated form e.g. food multiples 25% etc. From such figures it was possible to derive an estimated 10 firm retail concentration ratio. Such derivations were made with the help of more general retail data on such topics as the percentage of the total grocery sector held by the leading food retailers etc. Appendix E shows specific examples of how this is done.

6.4. SUMMARY.

Though every attempt has been made to collect a sample that is as accurate a reflection as possible of U.K. manufacturer and retailer structure it has to be recognized that such a sample has a number of short comings, as those familiar with collecting U.K. retail data will be aware. The result of such deficiencies is that the empirical results and

general theme of this work have in many ways to be regarded as tentative first steps towards a fuller understanding of retailer-manufacturer interaction rather than immutable evidence.

THE INTENSITY OF ADVERTISING AT MARKET LEVEL
THE INTENSITY OF ADVERTISING AT MARKET LEVEL
CHANGES IN THE INTENSITY OF ADVERTISING.

EMPIRICAL TESTS

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The researcher is concerned principally with the
aspects involved in chapter five regarding the
cooperation and own label concept
advertising using the sample case
In order to do so it is necessary
other determinants of manufacturer
chapter three. The result of doing so
conceptual model of the determinants
advertising for convenience goods.

CHAPTER SEVEN: ANALYSIS OF THE EFFECT OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION ON ADVERTISING.

7.0. OBJECTIVES.

7.1. MARKET LEVEL TESTS.

7.2. THE LEVEL OF ADVERTISING AT MARKET LEVEL.

7.2.1. THE LEVEL OF ADVERTISING AT MARKET LEVEL 1970.

7.2.2. THE LEVEL OF ADVERTISING AT MARKET LEVEL 1981.

7.2.3. CHANGES IN THE ADVERTISING LEVEL AT MARKET LEVEL.

7.3. THE INTENSITY OF ADVERTISING AT MARKET LEVEL.

7.3.1. THE INTENSITY OF ADVERTISING AT MARKET LEVEL 1970.

7.3.2. THE INTENSITY OF ADVERTISING AT MARKET LEVEL 1981.

7.3.3. CHANGES IN THE INTENSITY OF ADVERTISING.

7.4. FIRM LEVEL TESTS.

7.5. THE LEVEL OF ADVERTISING AT FIRM LEVEL.

7.5.1. THE LEVEL OF ADVERTISING AT FIRM LEVEL 1970.

7.5.2. THE LEVEL OF ADVERTISING AT FIRM LEVEL 1981.

7.6. THE INTENSITY OF ADVERTISING AT FIRM LEVEL.

7.6.1. THE INTENSITY OF ADVERTISING AT FIRM LEVEL 1970.

7.6.2. THE INTENSITY OF ADVERTISING OF FIRM LEVEL 1981.

7.7. SUMMARY.

7.0. OBJECTIVES.

This chapter is concerned principally with testing the hypotheses derived in chapter five regarding the impact of retail concentration and own label penetration on manufacturer advertising using the sample described in chapter six. In order to do so it is necessary to take account of the other determinants of manufacturer advertising described in chapter three. The result of doing so is to move closer to an economic model of the determinants of manufacturer advertising for convenience goods.

An exhaustive list of the results for all tests undertaken is given in appendix A but those of interest are reproduced in this chapter.

The chapter is divided into two main parts. The first

part (sections 7.2. and 7.3.) examines the results of the market level tests whilst the second part (sections 7.5. and 7.6.) looks at the results of the firm level tests.

7.1. ANALYSIS AT THE MARKET LEVEL.

Sections 7.2. and 7.3. are concerned with looking at the effects of retail concentration on advertising from a market perspective. Thus the various markets within the sample of convenience goods were analysed for trends common to the whole sample.

The main method used for this was ordinary least squares regression and the particular computer package used was SPSSX (Statistical Package for the Social Sciences). The variables used (described in the previous chapter) were used in both ordinary and log form. In specific instances, when there was a theoretical reason for doing so, squared terms were also used.

7.2. THE LEVEL OF ADVERTISING.

A priori, one would expect the level of advertising to be highly related to the level of sales and for the causation to be two way. Such a relationship if it were found to exist could obscure the relationship of other variables with advertising. The tests of 7.2. ignore the possibility of interdependence and attempt to establish whether advertising and sales are indeed correlated. Tests are conducted to see whether the other variables have a significant impact on the level of advertising without a simultaneous allowance for the sales effect and the dual causality that may be associated with it. Section 7.3. combats the possibility of dual causation by using the advertising sales ratio as the

dependent variable.

7.2.1. THE LEVEL OF ADVERTISING 1970.

In chapters three and five our hypotheses were that the level of advertising was a function of:

- (1) Retail concentration
- (2) Sales
- (3) Product variety
- (4) Own label penetration
- (5) Manufacturer concentration.

A summary table of the results of tests for a linear relationship on the 1970 sample are given in table 7.1.

When incorporating all the variables (equation 1) there is a high degree of fit for the regression as a whole (R squared .90). The sales coefficient is significant at the 99% level with manufacturing concentration, product variety and own label penetration at the 95% level.

Omitting product variety and using the larger sample however leaves only sales having a significant impact on the level of advertising (equations three and four). The larger sample result has to take precedence over the smaller sample result and thus sales must be regarded as the dominant variable.

When each variable is included as a sole independent variable sales and own labels are significant. The former is significant at the 99% level with an r squared of .46 and the latter at a 90% level with an r squared of .13). This suggests that sales is such a dominant explanatory variable that the other variables are dwarfed by it in terms of relative statistical significance. The results for the log-linear tests are given in table 7.2. and are in many ways similar to the linear tests.

TABLE 7.1: ADVERTISING LEVEL 1970 - LINEAR REGRESSION.

	CONS	MANUF.	PV.	RET	OWN	SALES	N	Rsq	adj R sq
(1)	-6120b (2184)	50.44b (17.93)	-4.95b (1.73)	64.17 (36.93)	-96.38b (33.98)	45.33a (7.01)	15	.90a	.85
(2)	-3586c (1782)	57.66b (19.12)	-3.95c (1.79)	/	-77.65c (35.33)	37.86a (6.06)	15	.87a	.81
(3)	145 (2730)	22.84 (28.33)	/	13.31 (36.92)	-73.00 (59.42)	5.87a (1.77)	22	.52	.41
(4)	590 (2375)	23.72 (27.54)	/	/	-61.96 (49.67)	5.64a (1.61)	22	.52a	.44
(5)	1691a (445)	/	/	/	/	6.50a (1.49)	24	.46a	.44
(6)	1862b (758)	/	2.44 (3.06)	/	/	/	17	.04	.02
(7)	3832a (867)	/	/	/	-105.7c (60.64)	/	22	.13c	.09

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 PV = Product Variety.
 RET = Retail Concentration.
 OWN = Own Label Penetration.
 SALES = Sales.
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Note: As with all the results of this author figures in parentheses are standard errors.

As with all the results in the thesis the following symbols are used to indicate significance with t or F tests:

- a = significant at 99% level.
- b = significant at 95% level.
- c = significant at 90% level.

TABLE 7.2: ADVERTISING LEVEL 1970 - LOG LINEAR REGRESSION.

	CONS	MANUF.	PV.	RET	OWN	SALES	N	R sq	adj. R sq
(1)	-2.39 (1.77)	2.44b (.828)	-.153 (.221)	/	-.360c (.176)	.857b (.333)	15	.70b	.58
(2)	-2.05 (2.63)	2.59b (.965)	-.146 (.258)	-.552 (.887)	/	.830c (.419)	15	.59b	.43
(3)	-1.09 (1.68)	1.69c (.830)	/	/	-.027 (.183)	.603a (.206)	22	.43b	.34
(4)	-2.63 (1.63)	1.73b (.736)	/	.739c (.354)	/	.739a (.188)	23	.53a	.45
(5)	2.04a (.345)	/	/	/	/	.637a (.190)	24	.34a	.31
(6)	.007 (1.82)	1.66c (.951)	/	/	/	/	23	.13c	.09
(7)	-1.10 (1.57)	1.68b (.796)	/	/	/	.603a (.190)	23	.42a	.36
(8)	3.43a (.244)	H-Index .492 (.463)	/	/	/	/	23	.05	.00

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 PV = Product Variety.
 RET = Retail Concentration.
 OWN = Own Label Penetration.
 SALES = Sales (£m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Note: As with all the results of this author figures in parentheses are standard errors.
 As with all the results in the thesis the following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

Once again the main explanatory variable would appear to be sales as equations five and seven suggest, with manufacturer concentration, as measured by the three firm concentration ratio, also having a significant relationship.

Retail concentration seems to have a positive relationship (albeit significant at the 90% level) when included with sales and the three firm concentration ratio (equation four). This suggests that retail concentration has been a significant factor in determining the level of manufacturer advertising. Interestingly the relationship with the level of advertising seems to be positive for the 1970 sample i.e. the total amount of manufacturer advertising is higher the higher the degree of retail concentration. As will be shown this contrasts with the 1981 sample for which there would appear to be a negative relationship. This suggests that the two conflicting forces identified in the hypothesis of chapter six are of differing importance in the two time periods. For the 1970 sample the incentive to gain customer support overrides the decrease in the profitability of advertising.

Also of interest, the significance of the manufacturer concentration measure is dependent on whether one uses the three firm concentration ratio or the H - Index. For when using the H - Index the variable is not significant even when included with sales. This suggests that the level of advertising is not significantly influenced by concentration as a whole but that it is influenced by the market share of the top three firms. This can be further explored when examining the advertising behaviour at firm level but it tentively suggests that advertising increases in a curvilinear fashion as the market share of the leading firms

increases.

7.2.2. THE MARKET LEVEL OF ADVERTISING 1981.

The results shown in table 7.3 are similar to the linear tests on the earlier sample in the sense that sales is once again a major "statistical determinant" of the level of advertising. This is evident from equations one and three.

A difference from the early sample is that when the variables are included with sales they are not significant but they are significant on their own (with the exception of the measures of manufacturer concentration). This is not just a problem of sales being far more significant but is a classic example of multi - collinearity. Sales is correlated with each of the variables as is demonstrated by the simple correlation matrix of equation one shown in table 7.4. This leads to an increase in the standard error of the variables (including sales) and makes it hard to assess the importance of the variables other than sales. This can be avoided by regressing the intensity of advertising (the advertising sales ratio) instead of the level of advertising. This is done in section 7.3.

Despite the major problems of multi-collinearity an interesting feature of these results is equation (4) which shows how retail concentration has a negative relationship with the advertising level.

TABLE 7.3: ADVERTISING LEVEL 1981 - LINEAR REGRESSION.

	CONS	MANUF.	PV.	RET	OWN	SALES	N	Rsq	adj Rsq
(1)	395.8 (3120)	21.68 (51.48)	-4.48 (2.46)	4.51 (27.31)	-94.19b (30.17)	40.70a (8.96)	12	.96a	.93
(2)	-2953 (4776)	99.71 (64.95)	/	-32.92 (28.65)	-81.74 (57.82)	6.84b (2.53)	22	.61a	.51
(3)	1595a (519.5)	/	/	/	/	9.99a (2.18)	24	.49a	.46
(4)	5992a (1913)	/	/	-54.82c (30.53)	/	/	23	.13c	.09
(5)	4770a (1033)	/	/	/	-120.1b (48.14)	/	25	.21b	.18
(6)	1174 (967)	/	8.30b (3.44)	/	/	/	15	.31b	.26

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 PV = Product Variety.
 RET = Retail Concentration.
 OWN = Own Label Penetration.
 SALES = Sales (\$m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Note: figures in parentheses are standard errors.
 symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

TABLE 7.4: CORRELATION MATRIX OF TABLE THREE EQUATION ONE VARIABLES.

	ADV	SALES	RET	OWN LAB	PV	CR3
ADV	1	.912	-.646	-.604	.540	.019
SALES	.912	1	-.686	-.377	.771	-.064

The log linear results for 1981 (shown in table 7.5) again confirm the importance of the sales variable. It is highly significant in equation two although insignificant in the small sample of equation one. On its own it achieves a 99% level. Given the generally lower significance of the log-linear relationship between sales and advertising compared to the linear model, the latter should be preferred.

TABLE 7.5: ADVERTISING LEVEL 1981 - LOG LINEAR REGRESSIONS

	CONS	MANUF.	PV.	RET	OWN	SALES	N	Rsq	adj Rsq
(1)	.848 (4.47)	-.798 (2.32)	-.272 (.474)	.826 (1.74)	-.804 (.542)	1.13 (.863)	12	.57	.20
(2)	.796 (1.59)	-1.06 (1.09)	/	.430 (.685)	-.288 (.303)	.807b (.307)	22	.43b	.30
(3)	1.76a (.412)	/	/	/	/	.794a (.229)	24	.35a	.32

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 PV = Product Variety.
 RET = Retail Concentration.
 OWN = Own Label Penetration.
 SALES = Sales (£m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Note: figures in parentheses are standard errors.
 symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

Though table 7.5. seems to confirm the importance of sales it must be noted that none of the other variables are significant in any form.

7.2.3. CHANGES IN THE ADVERTISING LEVEL.

Though the difficulty in (accurate) data collection prohibits a detailed time series analysis, using a comparative framework (i.e. the changes between the two time periods) may realise some indication as to the importance of our selected variables over time.

TABLE 7.6: CHANGES IN THE LEVEL OF ADVERTISING 1970 - 1981
- LINEAR REGRESSION RESULTS.

	CONS	MANUF.	PV.	RET	OWN	SALES	
(1)	-1.17 (23.26)	-.104 (.116)	.556b (.171)	-.532 (.575)	-.029 (.137)	-.280 (.558)	N = 12 R sq = .76c adj R sq = .57
(2)	14.87 (30.41)	-.191 (.229)	/	.537 (.570)	-.086 (.148)	.822 (.675)	N = 21 R sq = .22 adj R sq = .02
(3)	15.96 (17.26)	/	/	/	/	.294b (.114)	N = 24 R sq = .23b adj R sq = .20
(4)	-34.00b (13.11)	/	.536a (.085)	/	/	/	N = 15 R sq = .76a adj R sq = .74

Note: Variables are defined in terms of percentage change, i.e. MANUF = % change in the three firm concentration ratio from 1970-1981.

In contrast to the cross section results of the advertising level it is the variable of product variety that dominates these tests (equation one and four). That the change in product variety is positively correlated to the change in the level of advertising is particularly

interesting given that the measure of sales is not of overwhelming importance. The power of explanation of equation (4) is such that it suggests product variety should become a standard variable to be included in future advertising studies despite the small and limited nature of the sample.

The log linear tests on changes in the level of advertising appear to be less of an explanation than the linear tests given the reduced r squared and the smaller significance of the same variables. The exceptions are the tests with the manufacturer concentration variable which has a significant negative relationship with the level of advertising (equations 2,5 and 6). Interestingly the H Index measure provides a better fit than the three firm cocentration ratio which suggests that it is the overall market concentration rather than the share of market leaders that is important.

Both changes in retail concentration and changes in own label share are found not to be significant explanations of the changes in the advertising level, contary to theoretical expectations.

Table 3. Log Linear Regression: R Squared.

Table 3 shows the R squared values for the log linear regressions. The R squared values are presented in terms of 0.0001. The values in parentheses are standard errors. The values in boldface are used to indicate significant regressions at the 10% level. The values in italics are significant at the 5% level. The values in regular font are significant at the 10% level.

TABLE 7.7: CHANGES IN THE LEVEL OF ADVERTISING: LOG - LINEAR REGRESSION RESULTS.

	CONS	MANUF.	PV.	RET	OWN	SALES	N	Rsq	adj Rsq
(1)	4.04 (2.86)	-.556 (.386)	1.09b (.390)	-1.11 (.831)	.176 (.365)	-.699 (.696)	12	.75c	.54
(2)	4.31 (2.25)	-.753c (.421)	/	-.419 (.606)	.010 (.299)	.025 (.506)	21	.26	.07
(3)	.899 (.508)	/	/	/	/	.545b (.252)	24	.18b	.14
(4)	-.609 (.555)	/	1.15a (.252)	/	/	/	15	.62a	.59
(5)	3.46 (.646)	-.750b (.322)	/	/	/	/	23	.20b	.17
(6)	4.69 (1.36)	CR3 -1.35c (.677)	/	/	/	/	23	.16c	.12
(7)	.899 (.508)	/	/	/	/	.545b (.252)	24	.18b	.14

Key: CONS = Intercept.
 MANUF = Manufacturer H-Index.
 PV = Product Variety.
 RET = Retail Concentration.
 OWN = Own Label Penetration.
 SALES = Sales (£m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Note: variables are expressed in terms of % change.
 figures in parentheses are standard errors.
 symbols are used to indicate significance with
 t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

7.3. THE INTENSITY OF ADVERTISING AT MARKET LEVEL.

Due to the problems of identifying the direction of causality between sales and advertising and because of the high degree of association between the two (for 1970 and 1981) it is sensible to conduct further tests on the determinants of the advertising sales ratio.

7.3.1. THE INTENSITY OF ADVERTISING AT MARKET LEVEL 1970.

For the 1970 sample the only linear relationship that proved significant (at the 10% level) was when retail concentration and own label penetration were the two explanatory variables.

TABLE 7.8: ADVERTISING INTENSITY 1970 - LINEAR REGRESSION.

$$A/S = 0.39 + .105b \text{ RET.CONC} - .130c \text{ OWN LAB}$$

(2.25) (.052) (.076)

N = 24
Rsq = .19c
adj Rsq = .12

Note: Figures in brackets are the standard errors of the parameter estimates. a = significant at 1%, b = 5%, c = 10%.

There are a number of important aspects to this result. First, the variables of manufacturer concentration (whether using the H-index or the 3 firm concentration ratio) and product variety did not have any statistically significant linear relationship with the advertising - sales ratio. Secondly, the result suggests that jointly the degree of retail concentration and own label penetration do at least explain 19% of the fluctuation in the advertising sales ratio. Not too much emphasis should be put on the extent of this observation however, as the simple correlation matrix shows a negative correlation of .492 between own label

penetration and retail concentration.

Interestingly the very evidence of such multi - collinearity demonstrates the existence of a relationship between own labels and retail concentration that though intuitively plausible has until now been rejected in the literature on the subject (e.g. Cook and Schutte (1967)). The evidence for this relationship is discussed in appendix B.

Another interesting finding of the 1970 tests on the advertising sales ratio, which is again subsidiary to the main objective of the tests, is the lack of evidence for the quadratic relationship between manufacturer concentration and advertising intensity found by Cable (1973) and Sutton (1974). Tests for a quadratic using both the three firm concentration ratio and the H Index showed no evidence of such a relationship.

TABLE 7.9: ADVERTISING INTENSITY 1970: TESTS FOR A QUADRATIC RELATIONSHIP BETWEEN MANUFACTURER CONCENTRATION AND THE ADVERTISING SALES RATIO.

(1)	A/S	=	1.68	-	.010 CR3	+	.0004 CR3 squared.	
			(12.6)		(.364)		(.0025)	N = 23
								R sq = .05
								adj. R sq = .05
(2)	A/S	=	.545	+	32.78 H Index	-	49.77 H Index squared.	
			(4.07)		(25.71)		(37.92)	N = 23
								R sq = .08
								adj. R sq = .00

For the log linear tests on the 1970 sample the variables of manufacturer concentration, retail concentration, own label penetration, sales and product variety all prove to have some significance as table 7.10. shows.

TABLE 7.10: ADVERTISING INTENSITY 1970 - LOG LINEAR RESULTS.

	CONS	SALES	CR3	PV	RET	OWN	Rsq	adjR	N
(1)	1.04a (.345)	-.363c (.190)	/	/	/	/	.14c	.10	24
(2)	-2.84c (1.65)	/	1.69c (.856)	/	/	/	.16c	.12	23
(3)	1.16a (.349)	/	/	-.397c (.191)	/	/	.24c	.18	16
(4)	-1.01c (.589)	/	/	/	.885b (.365)	/	.21b	.18	24
(5)	.386b (.192)	/	/	/	/	.036 (.199)	.00	-.05	22
(6)	-2.12b (.804)	/	/	/	1.80a (.568)	-.484b (.232)	.35b	.28	22
(7)	-4.41a (1.56)	/	1.75b (.753)	/	.909a (.339)	/	.38a	.32	23
(8)	-5.03a (1.53)	/	1.56b (.721)	/	1.72a (.521)	-.427b (.214)	.48b	.40	22
(9)	-3.46b (.188)	/	2.43c (.832)	-.225 (.170)	/	-.370 (.188)	.66a	.56	14
(10)	-3.63b (1.63)	-.261 (.188)	1.73b (.736)	/	.739b (.354)	/	.44b	.35	23
(11)	-4.19 (1.58)	-.269 (.178)	1.54b (.696)	/	1.53a (.519)	-.439b (.207)	.55a	.44	22
(12)	-3.29 (2.50)	/	2.52b (.964)	-.199 (.203)	-.443 (.822)	/	.54b	.40	14
(13)	-4.43c (2.29)	/	2.41b (.855)	-.194 (.180)	.630 (.914)	-.471c (.243)	.67b	.53	14

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 PV = Product Variety.
 RET = Retail Concentration.
 OWN = Own Label Penetration.
 SALES = Sales (£m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Note: figures in parentheses are standard errors.
 symbols are used to indicate significance with t or F tests:

a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

Retail concentration would appear to have a significant positive log linear relationship with the advertising sales ratio. This is demonstrated when retail concentration is the sole explanatory variable (equation 4, table 7.10) and when it is included with manufacturer concentration and own label penetration jointly and severally (equations 6, 7 and 8). Such a relationship suggests that manufacturers increase advertising as retail concentration rises but that as retail concentration reaches high levels the rate of increase declines.

Manufacturer concentration has a similar relationship with the advertising sales ratio although with not quite as high a level of significance as the retail concentration variable (equations 1, 6 and 7).

Own label penetration also has a significant impact on the advertising sales ratio although as was predicted this is negative, i.e. the greater the degree of own label penetration the less the advertising intensity. One of the problems of measuring its significance is however its strong (positive) correlation with retail concentration for which the simple correlation coefficient is .527.

The size of the market (sales) has a significant positive relationship with advertising intensity when it is the only explanatory variable. This rather weak relationship however disappears completely when the other explanatory variables are included.

Before examining the 1981 sample it was worthwhile summarizing the findings of the empirical analysis on the 1970 sample. The main finding of the analysis is that the retail variables of retail concentration and own label share

have a statistically significant correlation with the intensity of manufacturer advertising. This re-enforces the theoretical and a priori predictions discussed in chapters two and five that retail structure is an important feature in determining manufacturer behaviour in general and advertising intensity in particular. Such a conclusion is of importance for future economic studies attempting to derive a structural model of the determinants of advertising. As was emphasized in the introduction and in chapter five it is important to remember that the specification of the model is likely to be unique to the area of convenience goods in which the consumer buying process and promotional mix are standardized. The 1970 sample provides evidence for both a linear and a logarithmic relationship between the retail variables and the manufacturer advertising sales ratio although it is the logarithmic form that provides a substantially higher degree of explanation.

The 1970 results as well as providing evidence for the need to include retail variables in models of manufacturer behaviour also throws further light on variables traditionally used to "explain" the intensity of manufacturer advertising. Manufacturer concentration was found to have a positive log linear relationship with the degree of advertising. Tests for both a linear and a quadratic relationship however were negative. This contrasts to the evidence for a linear relationship provided by authors such as Ornstein (1976) and Brush (1976) and to the evidence of an inverted "U" e.g. Cable (1973), Sutton (1974) and Uri (1987).

The innovative measure of product variety is found, contrary to expectations, to have no impact on the level or

degree of advertising for the 1970 sample.

7.3.2. THE INTENSITY OF ADVERTISING AT MARKET LEVEL 1981.

The results of both linear and non-linear tests on the 1981 sample provide an interesting contrast to the earlier time period.

In the tests for linear relationships as with the 1970 sample measures of manufacturer concentration and product variety are not significant. Contrary to the earlier sample however retail concentration is not significant either. The one variable that does have a significant impact is the market share of own label.

TABLE 7.11. ADVERTISING INTENSITY 1981 - LINEAR REGRESSION.

A/S	=	5.49a	- .114c	OWN LAB.	N = 26
		(1.23)	(.060)		R sq = .13c

Given that own labels were found to have a negative linear association with advertising intensity in the early sample (albeit when included with the retail concentration variable) this finding is important. For although own label share is "only" significant at the 90% level, it is evidence that this retail variable does have a significant impact on manufacturer advertising intensity. Furthermore the "traditional" variable of manufacturer concentration is found to have no relationship for the latter time period either in the form of a three firm ratio or a H Index measure. Tests for a quadratic relationship between manufacturer concentration and the advertising sales ratio also result in no evidence of a relationship (table 7.12).

TABLE 7.12: ADVERTISING INTENSITY 1981: TESTS FOR A QUADRATIC RELATIONSHIP BETWEEN MANUFACTURER CONCENTRATION AND THE ADVERTISING SALES RATIO.

(1)	A/S =	-4.46 (17.38)	+	.202 CR3 (.458)	-	.001 CR3 Squared. (.003)		N = 24 R sq = .01 adj. R sq = -.08
(2)	A/S =	26.22 (11.33)	-	125c H-Index (67)	+	168c H-Index squared. (96)		N = 24 R sq = .18 adj. R sq = .10

The absence of a quadratic relationship between manufacturer concentration and the advertising sales ratio for this time period and the previous one must through doubt on how robust the findings of Cable (1973) and Sutton (1974) are through time.

Whether the lack of significance of manufacturer concentration is the result of the changing retail environment is not demonstrated by the results. The only empirical indicator is that manufacturer concentration is not significant for the latter sample when included with the retail measures of retail concentration and own label penetration or when it is the sole independent variable.

For the 1981 sample log linear tests do not repeat the results of the earlier time period and none of the variables prove a satisfactory explanation of the advertising - sales ratio. The fact that results for the second time period do not match those of the first period does not invalidate the first set of results but it does suggest that the model, as it stands, cannot be used for the second time period. It may be that some dormant variable comes into play for the second period that is missing from the model, e.g. inflation, or it

may be that individual markets have become more prone to individual forces.

7.3.3. CHANGES IN THE INTENSITY OF ADVERTISING AT MARKET LEVEL 1970 - 1981.

As well as cross - section analysis of the two samples it is important (especially given the differing results) to analyse the change between 1970 and 1981.

The only two variables that are significant in linear tests on changes in the advertising sales ratio are changes in product variety and changes in market size. These are not significant on their own but are complimentary variables that provide a fair degree of explanation when included together (equation 1, table 7.13).

TABLE 7.13. CHANGES IN ADVERTISING INTENSITY 1970 - 1981. LINEAR REGRESSIONS.

	CONS	CH. SALES	CH. CR3	CH. PV	CH. RET	CH. OWN	Rsq	adjR	N
(1)	-28.3 (18.4)	-.395b (.131)	/	.519b (.192)	/	/	.46b	.36	14
(2)	24.88 (16.50)	-.136 (24.88)	/	/	/	/	.07	.02	24
(3)	-2.22 (21.0)	/	/	.025 (.131)	/	/	.00	-.08	14

In a similar fashion regressions on the log forms yield significance when the change in sales is included with the change in product variety (table 7.13, equation 1).

An interesting feature of both sets of results is that the apparent relationship between sales and advertising intensity (the advertising sales ratio) is negative. The explanation for this lies in the fact that the advertising

sales ratio is the dependent variable and sales is an independent variable. Whilst it is often stated in the econometric literature (e.g. Kuh and Meyer 1955) that using a ratio for the dependent variable which includes an independent variable as a component will not cause spurious correlation if the original hypothesis is formulated in terms of a ratio, the correlation in this case highlights the danger of this "working rule". For the a priori hypotheses (chapter three) derived from the market life cycle literature suggested that both the advertising sales ratio and the level of advertising would be affected by the changes in sales. The tests on the changes in the level of advertising (section 7.2.3.) however found changes in sales to have no effect on advertising. This suggests that the negative relationship found in this case may simply reflect the independency of advertising and sales.

TABLE 7.14. CHANGES IN ADVERTISING INTENSITY 1970 - 1981.
LOG LINEAR REGRESSIONS.

	CONS	CH. SALES	CH. CR3	CH. PV	CH. RET	CH. OWN	Rsq	adjR	N
(1)	2.90 (.508)	-.455c (.252)	/	/	/	/	.13c	.09	24
(2)	1.18 (.798)	/	/	.327 (.358)	/	/	.07	.01	14
(3)	1.54b (.653)	-1.01b (.364)	/	1.10b (.400)	/	/	.45b	.35	14

In summary the analysis of changes in advertising levels and intensities suggest that, of the variables tested, only changes in product variety that a significant and positive effect. A change in product variety thus results in a

proportionate change in advertising. Despite the strong a priori reasoning the measures of retail concentration and own label penetration were found to have a significant correlation with the change in advertising across the two time periods. Whether this is because of the poor quality of measurement, conflicting forces within the measures of retail change or because retail change has no effect can only be resolved by further research.

7.4. FIRM LEVEL ANALYSIS.

As well as examining the broad effects of retail concentration and own label at market level it is worthwhile exploring the possibility of differing effects on manufacturers of differing market positions. Such analysis across so many markets must be regarded as tentative but such an approach may yield conclusions of more generality regarding own label market share and retail concentration than a case study approach of individual markets.

One source of potential bias in the sample is that firm data are only available for firms with at least one percent of market share by value.

7.5.1. THE LEVEL OF ADVERTISING AT THE FIRM LEVEL 1970.

The correlation between sales and advertising that was found at market level was found to exist at firm level as well. In other words the amount of advertising undertaken by a firm was correlated to the level of its sales (table 7.15). This once again leaves an unanswered question as to the direction of causality and the possibility of simultaneous bias that arises from it. Though subject to the possibility of bias the tests on the level of advertising highlight a

number of interesting relationships. Though sales has a strong degree of correlation with the level of advertising table 7.15 also highlights how the market level of retail concentration, the market level of own label penetration and the relative position in the market have a significant effect on a firm's level of advertising.

TABLE 7.15. : 1970 FIRM LEVEL ADVERTISING.

	CONS	SALES	RANK	RETAIL	OWN	N	R sq	adj. R sq
(1)	573479 (103087)	.0037a (.0007)	/	/	/	60	.31a	.30
(2)	624055 (352756)	.0037a (.0007)	/	-1096 (7302)	/	60	.31a	.28
(3)	932200 (155925)	.0032a (.0007)	/	/	-21612a (7359)	60	.40a	.38
(4)	2078085a (42334)	/	-293456a (80464)	-15108b (7462)	/	60	.20a	.17
(5)	1768236 (240958)	/	-260993a (80464)	/	-28098a (7719)	60	.30a	.28
(6)	751387b (333384)	.0034a (.0007)	/	4354 (7084)	-22827a (7659)	60	.40a	.37
(7)	2102130a (394385)	/	-272306a (81059)	-7835 (7332)	-25329 (8133)	60	.32a	.28
(8)	1418480a (227191)	.0029a (.0007)	-202412a (72010)	/	-21603a (6950)	60	.47a	.44
(9)	1299406 (418881)	.0032a (.0007)	-212379a (79089)	-4669 (7060)	/	60	.39a	.35

Key: CONS = Intercept.
 SALES = Sales (£).
 RANK = Rank by Sales.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

When included with the absolute level of sales, which is the dominant statistical "explanation" of advertising, both own label and sales rank are significant (equation 8).

Own label is the degree of own label penetration that a firm faces in that particular market. That this should have a negative correlation with advertising once the absolute level of sales and the sales rank of a manufacturer are taken into account emphasizes the influence of the retail environment on firms.

The "negative" correlation between sales rank and advertising gives a slightly misleading impression in that numerically the order of rank is the opposite to the common perception of number being the "highest". Thus the relationship is as predicted with the leading firms (by sales) having the highest amount of advertising.

Though sales rank is found to be correlated to the level of advertising it must be remembered that the hypotheses derived in chapter five were derived in terms of a dichotomous classification between market leaders and market followers rather than a continuous relationship marking the "degrees" of leadership. For this reason tables 7.16 and 7.17 present the results of tests on the two different groups. Market leaders are defined as the top two firms by sales in a market with followers being all other firms in the sample.

The reasoning for this division can be defended on both structural and behavioural grounds.

Structurally many of the markets in the sample are characterized by the top two firms having considerably more market share than any of the other firms.

Some researchers (a.g. Henly Centre for Forecasting 1982,

Davies, Gilligan and Sutton 1986) have suggested that during the period in question large retailers were only prepared to stock the leading two brands in any market. If brands are defined strictly as unique products e.g. Heinz tomato soup or Ariel washing powder, then a more accurate phrasing of such an observation is that large retailers with constraints on shelf space and a desire for bargaining power tended towards dealing with the two largest manufacturers in any market.

There are two important features to the results of the division between leaders and followers (tables 7.16 and 7.17).

The first feature is that the positive relationship between a firm's sales and a firm's advertising is stronger for market followers compared to market leaders. This may occur for a number of reasons including the possibility that market leaders may follow "objective and task" advertising more than followers.

The second feature of the two sub-samples is the differing significance of own label penetration. The level of advertising by market leaders is found to be significantly and negatively correlated to the level of own label competition that they face (table 7.16, equations 2,3 and 5). A much weaker and less significant relationship is however found between the level of advertising by market followers and own label penetration. This is consistent with the hypothesis in chapter five that followers are more likely to follow different strategies from leaders in avoiding the threat of own labels.

TABLE 7.16. : THE LEVEL OF ADVERTISING OF MARKET LEADERS 1970.

	CONS	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	925701 (581493)	.0032a (.0010)	-2986 (11625)	/	36	.30a	.26
(2)	1257498a (230049)	.0027a (.0008)	/	-27998b (10548)	36	.43a	.39
(3)	1033784 (536353)	.0029a (.0009)	5151 (11124)	-29418b (11108)	36	.43a	.38
(4)	1888152a (571382)	/	-19800 (11869)	/	36	.08	.05
(5)	1567377a (238515)	/	/	-37457a (11530)	36	.24a	.21

TABLE 7.17. : THE LEVEL OF ADVERTISING OF MARKET FOLLOWERS 1970.

	CONS	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	-179511 (260772)	.0359a (.0074)	5421 (5112)	/	24	.55a	.51
(2)	181302 (136691)	.0296a (.007)	/	-5052 (5695)	24	.54a	.50
(3)	-89415 (277469)	.0336a (.0078)	5742 (5131)	-5464 (5673)	24	.57a	.51
(4)	619821 (286577)	/	-6885 (6298)	/	24	.05	.00
(5)	547620 (140371)	/	/	-14192c (7000)	24	.16c	.12

Key: CONS = Intercept.
 SALES = Sales (£).
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

Furthermore the division of the 1970 sample between leaders and followers has no influence on the apparent absence of a relationship between retail concentration and advertising. The lack of such a relationship at firm level is slightly surprising although it should be remembered as was evident in chapter five that the effects of retail concentration can be expected to create conflicting incentives in regard to advertising. Thus it might be reasonable to infer from the results that retail concentration has not had a significant uni-directional effect on firm advertising.

7.5.2. THE LEVEL OF ADVERTISING AT FIRM LEVEL 1981.

Table 7.18. presents the results of tests on the advertising levels of firms for the 1981 sample which are broadly similar to the results on the earlier sample.

The level of sales is again the dominant explanatory variable but rank, the degree of retail concentration and the degree of own label penetration are all significant.

Interestingly the variable of retail concentration is significant when included with sales rank which suggests that the two are complimentary variables. The negative relationship of retail concentration in these cases (equations 4, 7 and 9) suggests that as retail concentration increases manufacturer advertising decreases.

The fact that both sales rank and retail concentration are correlated without the inclusion of the sales variable indicates the dominance of the market structure and in particular the retail market structure.

TABLE 7.18. : 1981 FIRM LEVEL ADVERTISING.

	CONS	SALES	RANK	RETAIL	OWN	N	R sq	adj. R sq
(1)	1790991a (332227)	.008a (.0012)	/	/	/	86	.37a	.36
(2)	3420134a (1133618)	.0077a (.0012)	/	-26194 (17809)	/	86	.39a	.37
(3)	2902883a (681691)	.0074a (.0012)	/	/	-62653c (33720)	86	.40a	.38
(4)	8639492a (1425506)	/	-1122093a (288863)	-54099a (19524)	/	86	.22a	.20
(5)	7508818a (917993)	/	-1024132a (232925)	/	-136486a (34740)	86	.29a	.27
(6)	4372338a (1246673)	.0070a (.0013)	/	-24047 (17623)	-60391c (34858)	86	.41a	.39
(7)	10310554a (1408050)	/	-1163067a (269223)	-45239b (18350)	-125322a (35231)	86	.34a	.31
(8)	5199842a (890361)	.0064a (.0011)	-756672a (205491)	/	-76948b (31665)	86	.48a	.46
(9)	5801569a (1291807)	.0068a (.0011)	-811598a (247948)	-31115c (16838)	/	86	.46a	.44

Key: CONS = Intercept.
 SALES = Sales (£).
 RANK = Rank by Sales.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

Own label penetration is shown to have a significant negative correlation with manufacturer advertising which is consistent with the 1970 findings. As with retail concentration the significance increases with sales rank (equations 5, 7 and 8 compared to equation 3 and 6).

When the sample is split between market leaders (table 7.19) and market followers (table 7.20) sales remains highly significant for both sub-samples.

Own label penetration however whilst having a negative association with the advertising level of market leaders has a much weaker relationship with the advertising of market followers.

Retail concentration on the other hand does not have an impact on either market leaders or followers when included with sales. It does however have a very weak relationship on its own with market leader advertising.

			41	109
			36	107
			32	111
			41	109

TABLE 7.19. : THE LEVEL OF ADVERTISING OF MARKET LEADERS 1981.

	CONS	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	2699253a (515898)	.0070a (.0014)	/	/	45	.38a	.37
(2)	4387756b (1643582)	.0066a (.0014)	-27602 (25317)	/	45	.40a	.37
(3)	4467751a (1056898)	.0060a (.0014)	/	-96015c (50527)	45	.43a	.41
(4)	5809110a (1797285)	.0058a (.0014)	-23187 (24819)	-91249c (52194)	45	.44a	.40
(5)	7029479a (1892912)	/	-55008c (30213)	/	45	.07c	.05
(6)	6680978a (1091437)	/	/	-174447a (55758)	45	.19a	.17

TABLE 7.20. : THE LEVEL OF ADVERTISING OF MARKET FOLLOWERS 1981.

	CONS	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	652856c (367269)	.0157 (.0035)	/	/	41	.35a	.33
(2)	1820197 (1459914)	.0145a (.0040)	-19225 (22802)	/	36	.36a	.32
(3)	947243 (817633)	.0151a (.0039)	/	-16270 (40261)	41	.35a	.32
(4)	2251134 (1748083)	.0136a (.0045)	-20261 (23187)	-19959 (43258)	36	.37a	.31
(5)	4296547a (1502801)	/	-49760 (24681)	/	36	.11c	.08
(6)	2701829 (794678)	/	/	-84264c (42283)	41	.09c	.07

7.6. THE INTENSITY OF ADVERTISING AT FIRM LEVEL.

As with the market wide tests, tests for possible determinants of advertising intensity (i.e. the advertising sales ratio) were undertaken.

7.6.1. THE INTENSITY OF ADVERTISING AT FIRM LEVEL 1970.

Table 7.21. shows how no linear relationship existed between the advertising sales ratio and sales, sales rank, the percentage of market share within a market, or the degree of own label penetration for the 1970 sample.

The degree of retail concentration is the only variable to show a significant linear association with the advertising sales ratio (equation 9). This is a positive relationship which suggests that the greater the degree of retail concentration the greater the resulting intensity of advertising.

Tables 7.22 and 7.23 present the results of splitting the sample into market leaders and market followers. This division does not affect the absence of linear relationships between the variables tested and advertising intensity. The retail concentration variable keeps its positive association for both samples with similar levels of significance although its association is slightly stronger for the sample of followers than for the sample of leaders.

TABLE 7.21: ADVERTISING INTENSITY AT FIRM LEVEL 1970.

	CONS	SALES	RANK	MSP	RETAIL	OWN	N	R sq	adj. R sq
(1)	-6.53 (8.10)	-2.6 E-9 (1.8 E-8)	/	/	.347b (.168)	/	60	.08c	.05
(2)	7.25 (3.96)	-1.2 E-8 (1.8 E-8)	/	/	/	.135 (.187)	60	.02	-.01
(3)	-1.97 (8.96)	/	-1.82 (1.84)	/	.338b (.158)	/	60	.10c	.07
(4)	11.65 (5.64)	/	-2.34 (1.88)	/	/	.173 (.181)	60	.04	.01
(5)	-6.76 (8.23)	-2.1 E-9 (1.8 E-8)	/	/	.337c (.175)	.041 (.189)	60	.08	.03
(6)	-2.03 (9.04)	/	-1.87 (1.86)	/	.321c (.168)	.060 (.186)	60	.10	.05
(7)	13.68b (6.06)	-1.6 E-8 (1.8 E-8)	-2.68 (1.92)	/	/	.135 (.186)	60	.05	.00
(8)	-.122 (10.1)	-7.5 E-9 (1.8 E-8)	-2.02 (1.91)	/	.313c (.170)	/	60	.10	.05
(9)	-7.00 (7.40)	/	/	/	.355b (.157)	/	60	.08b	.07
(10)	6.35c (3.71)	/	.162 (.181)	/	/	/	60	.01	.00
(11)	4.35 (4.02)	/	/	.173 (.124)	/	/	60	.03	.00
(12)	-9.90 (7.76)	/	/	.145 (.122)	.335b (.157)	/	60	.10b	.07
(13)	1.76 (4.94)	/	/	.174 (.125)	/	.164 (.180)	60	.05	.01
(14)	-10.10 (7.86)	/	/	.146 (.123)	.320c (.167)	.053 (.185)	60	.10	.06

Key: CONS = Intercept.
 SALES = Sales (£).
 RANK = Rank by Sales.
 MSP = Market Share Percentage.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

TABLE 7.22: ADVERTISING INTENSITY OF MARKET LEADERS 1970.

	CONS	SALES	MSP	RETAIL	OWN	N	R sq	adj. R sq
(1)	-8.36 (14.4)	-3.2 E-9 (2.4)	/	.426 (.288)	/	36	.08	.03
(2)	8.23 (6.41)	-1.4 E-8 (2.3 E-8)	/	/	.231 (.294)	36	.04	.00
(3)	-8.81 (14.6)	-1.8 E-9 (2.5 E-8)	/	.392 (.303)	.123 (.303)	36	.09	.00
(4)	-9.32 (12.23)	/	/	.443 ^c (.255)	/	36	.08 ^c	.05
(5)	6.64 (5.80)	/	/	/	.279 (.280)	36	.03	.00
(6)	5.75 (9.90)	/	.140 (.242)	/	/	36	.01	-.02
(7)	-13.07 (14.79)	/	.110 (.236)	.434 (.259)	/	36	.09	.03
(8)	1.85 (10.71)	/	.130 (.243)	/	.273 (.283)	36	.04	-.02
(9)	-13.05 (14.98)	/	.109 (.240)	.393 (.280)	.124 (.299)	36	.09	.00

Key: CONS = Intercept.
 SALES = Sales (£).
 MSP = Market Share Percentage.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

TABLE 7.23: ADVERTISING INTENSITY OF MARKET FOLLOWERS 1970.

	CONS	SALES	MSP	RETAIL	OWN	N	R sq	adj. R sq
(1)	-3.44 (6.11)	4.2 E-8 (1.7 E-7)	/	.206 (.120)	/	24	.14	.06
(2)	8.28b (3.36)	-1.5 E-7 (1.7 E-7)	/	/	-.090 (.140)	24	.04	-.05
(3)	-1.72 (6.55)	-2.8 E-9 (1.8 E-7)	/	.212c (.121)	-.105 (.134)	24	.17	.04
(4)	-2.51 (4.63)	/	/	.192c (.102)	/	24	.14c	.10
(5)	6.44b (2.58)	/	/	/	-.044 (.129)	24	.01	-.04
(6)	1.82 (3.26)	/	.422 (.310)	/	/	24	.08	.04
(7)	-6.28 (5.25)	/	.415 (.293)	.190c (.099)	/	24	.21c	.14
(8)	1.86 (4.38)	/	.421 (.328)	/	-.002 (.131)	24	.08	-.01
(9)	-5.46 (5.59)	/	.374 (.309)	.203c (.105)	-.064 (.127)	24	.22	.11

Key: CONS = Intercept.
 SALES = Sales (£).
 MSP = Market Share Percentage.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

7.6.2. THE ADVERTISING INTENSITY AT FIRM LEVEL 1981.

In contrast to the earlier sample, tests on the 1981 sample find several variables associated with advertising intensity (table 7.24). The variables of sales, retail concentration and own label share when included together yield the greatest degree of correlation (equation 6).

Own label penetration has a negative relationship with advertising intensity which is significant at the 99% level when included with any of the other variables.

Similarly retail concentration is positively significant at the 99% level when included with any of the other variables. This finding is of particular importance given that it was significant associated to the advertising sales ratios of firms in the earlier period as well.

Sales, whilst not significant when it is the sole independent variable (equation 1) has a significant negative relationship when included with retail concentration and own label share (equation 6). In other words the advertising sales ratio decreases as the level of a firm's sales rise which may purely be a function of the definition rather than of an underlying relationship.

The two measures of firm position, sales rank and the percentage of market share, have no linear relationship with advertising intensity. As the hypotheses regarding firm position in chapter five were stated in terms of a dichotomy between leaders and followers the division of the sample by sales rank is still worthwhile and is shown in tables 7.25 and 7.26.

TABLE 7.24: ADVERTISING INTENSITY AT FIRM LEVEL 1981.

	CONS	SALES	RANK	MSP	RETAIL	OWN	N	R sq	adj. R sq
(1)	13.16 (2.55)	-1.3 E-8 (8.9 E-9)	/	/	/	/	86	.02	.01
(2)	-9.37 (8.31)	-6.3 E-9 (9.0 E-9)	/	/	.364a	/	86	.11	.09
(3)	29.55 (4.94)	-2.3 E-8 a (8.8 E-9)	/	/	/	-.923a	86	.17a	.15
(4)	-11.23 (9.33)	/	-.003 (1.89)	/	.384a (.128)	/	86	.11b	.08
(5)	23.66a (6.38)	/	.068 (1.61)	/	/	-.715a (.241)	86	.10b	.07
(6)	5.94 (8.41)	-1.7 E-8c (8.6 E-9)	/	/	.398a (.119)	-.971a (.235)	79	.28a	.25
(7)	-.156 (9.20)	/	-.274 (1.76)	/	.443a (.120)	-.274 (1.76)	79	.24a	.21
(8)	32.42a (6.95)	-2.4 E-8a (9.0 E-8)	-.948 (1.60)	/	/	-.941a (.247)	86	.17a	.14
(9)	-11.23 (7.85)	/	/	/	.384a (.127)	/	79	.11a	.09
(10)	23.84 (4.60)	/	/	/	/	-.716a (.240)	86	.10a	.09
(11)	11.58a (4.10)	/	/	.016 (.148)	/	/	86	.00	-.01
(12)	-10.86 (8.26)	/	/	-.023 (.150)	.387a (.129)	/	79	.11b	.08
(13)	23.67a (5.66)	/	/	.007 (.142)	/	-.716a (.241)	86	.10b	.07
(14)	-.099 (8.23)	/	/	-.047 (.140)	.449a (.121)	-.832a (.230)	79	.24a	.21

Key: CONS = Intercept.
 SALES = Sales (£).
 RANK = Sales Rank.
 MSP = Market Share Percentage.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

TABLE 7.25: ADVERTISING INTENSITY BY MARKET LEADERS 1981.

	CONS	SALES	MSP	RETAIL	OWN	N	R sq	adj. R sq
(1)	12.82 (3.54)	-1.0 E-8 (9.3 E-9)	/	/	/	45	.03	.01
(2)	-9.988 (11.16)	-7.1 E-9 (9.7 E-9)	/	.218 (.172)	/	43	.06	.02
(3)	32.66a (6.70)	-2.1 E-8b (8.9 E-9)	/	/	-1.07a (.320)	45	.23a	.20
(4)	16.57 (11.05)	-1.79 E-8c (9.08 E-9)	/	.272c (.153)	-1.13a (.321)	43	.29a	.23
(5)	-3.81 (10.42)	/	/	.247 (.166)	/	43	.05	.03
(6)	24.85a (6.15)	/	/	/	-0.800a (.314)	45	.13b	.11
(7)	8.59 (8.82)	/	.079 (.239)	/	/	45	.00	-.02
(8)	-4.35 (12.20)	/	.023 (.255)	.243 (.175)	/	43	.05	.00
(9)	23.37a (10.22)	/	.041 (.226)	/	-0.796b (.319)	45	.13c	.09

Key: CONS = Intercept.
 SALES = Sales (£).
 RANK = Sales Rank.
 MSP = Market Share Percentage.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

TABLE 7.26: ADVERTISING INTENSITY BY MARKET FOLLOWERS 1981.

	CONS	SALES	MSP	RETAIL	OWN	N	R sq	adj. R sq
(1)	14.51a (3.91)	-4.3 E-8 (3.7 E-8)	/	/	/	41	.03	.01
(2)	-21.98 (13.80)	-3.5 E-9 (3.8 E-8)	/	.586b (.216)	/	36	.21b	.16
(3)	32.51a (8.07)	-8.5 E-8b (3.8 E-8)	/	/	-.995b (.398)	41	.17b	.13
(4)	-2.73 (15.31)	-4.5 E-8 (4.0 E-8)	/	.540b (.203)	-.891b (.379)	36	.33a	.26
(5)	-22.57c (12.02)	/	/	.593a (.197)	/	36	.21a	.19
(6)	22.59a (7.06)	/	/	/	-.610 (.376)	41	.06	.04
(7)	9.79 (7.00)	/	.301 (.631)	/	/	41	.01	-.02
(8)	20.41 (9.65)	/	.209 (.622)	/	-.598 (.382)	41	.07	.02
(9)	-16.99 (14.27)	/	.355 (.607)	.629a (.191)	-.680c (.346)	41	.31a	.24

Key: CONS = Intercept.
 SALES = Sales (£).
 RANK = Sales Rank.
 MSP = Market Share Percentage.
 RETAIL = Retail Concentration of Market.
 OWN = Own Label Share of the Market.

Note: Figures in parentheses are standard errors.
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

The most noticeable aspect of dividing the sample by firm position is the small effect of retail concentration on the advertising intensity of market leaders as compared to its effect on market followers. The positive effect on market followers is such that just by itself it has a 21% statistical "explanation" of the variance of advertising intensity (equation 5 of table 7.26). The effect on market leaders is much weaker with retail concentration only having an effect when included with sales and own label (equation 4 of table 7.25). The parameter estimate in this case being lower and less significant than in the same equation for the sample of market followers (table 7.26). Thus there is evidence to suggest that whilst retail concentration has a positive effect on the advertising intensity of all firms in the sample the effect is more marked on the advertising of firms which are "followers" as opposed to "leaders".

Own label penetration which is found to have a negative impact on the whole sample has a greater impact on the advertising intensity of leaders as opposed to followers. This can be seen from comparing both the parameter estimates of own label share and their significance between the two sub-samples (e.g. equation 4 of tables 7.25 and 7.26).

The implication of the impact of retail concentration and own label penetration on firms of differing market position is that high retail concentration and own label share have increased the advertising intensity of market followers more than the advertising intensity of leaders.

7.7. SUMMARY.

This chapter has contained a wide range of tests on the level and intensity of advertising at both market and firm level. The overall conclusion, despite mixed results, must be that retail concentration and own label penetration cannot be ignored in tests for structural determinants of advertising.

The market tests on the level of advertising were dominated by a correlation with the level of sales. Given the strong possibility of two way causality between these two variables it was necessary to make the advertising sales ratio the dependent variable to have a potentially more robust model.

At the market level own label penetration was found to have a significant negative linear impact on the intensity of advertising for both time periods. Indeed it was the only variable found to have a significant correlation with the advertising sales ratio for the 1981 sample either in a linear or logarithmic fashion.

For the early time period retail concentration was also found to have a significant relationship with advertising intensity although in this case the relationship was positive. The logarithmic form was found to be of stronger significance and explanation which suggests that after a certain threshold of retail concentration the resulting increase in the advertising sales ratio is less than at lower levels of concentration.

Manufacturer concentration is found to have a similar positive logarithmic relationship with advertising intensity which adds to the empirical evidence on manufacturer

concentration and advertising intensity being related. Of some importance for other studies is that retail concentration and manufacturer concentration are found to be (weak) complimentary variables i.e. the inclusion of retail concentration actually improves the significance of manufacturer concentration.

Tests on changes in advertising intensity at market level between the two time periods showed changes in product variety and changes in sales to be the only two variables to be correlated. These were found to be complimentary variables and when both variables were included together variety was found to be positively related and sales was found to be negatively related. Thus a rise in variety was associated with a fall in the market advertising sales ratio whilst a rise in sales was associated with a drop in the ratio.

At the firm level both the retail concentration and the own label penetration that firms faced were found to have a significant influence on an individual firm's advertising sales ratio.

Retail concentration was significant for both time periods in a positive linear fashion. For the latter period it was found to have a greater effect on the advertising of market followers than for market leaders.

Own label penetration was found to be significantly correlated to the degree of advertising intensity for the later period. This strong negative linear relationship was likewise found to have more effect on the advertising of followers compared to leaders.

CHAPTER EIGHT: PRODUCT VARIETY - ANALYSIS AND RESULTS.

8.0. OBJECTIVES.

8.1. ANALYSIS OF PRODUCT VARIETY AT MARKET LEVEL.

8.1.1. PRODUCT VARIETY - THE TRENDS.

8.1.2. THE DEGREE OF PRODUCT VARIETY 1970.

8.1.3. THE DEGREE OF PRODUCT VARIETY 1981.

8.1.4. CHANGES IN VARIETY 1970 - 1981.

8.2. ANALYSIS OF PRODUCT VARIETY AT FIRM LEVEL.

8.2.1. THE LEVEL OF PRODUCT VARIETY 1970.

8.2.2. THE LEVEL OF PRODUCT VARIETY 1981.

8.2.3. THE PERCENTAGE OF PRODUCT VARIETY IN A MARKET 1970.

8.2.4. THE PERCENTAGE OF PRODUCT VARIETY IN A MARKET 1981.

8.3. SUMMARY.

8.0. OBJECTIVES.

This chapter is concerned with testing the hypotheses regarding product variety which were derived in chapter five. The full list of the results of these tests is given in appendix A but those of most interest are reproduced and discussed in this chapter.

8.1. ANALYSIS OF PRODUCT VARIETY AT MARKET LEVEL.

This section considers the determinants of product variety from a market perspective. Thus, as was done in the preceding chapter, the various markets within the sample of convenience goods were analysed for trends common to the whole sample. The discussion is in four sections: the first gives an overview of trends in branded product variety; the second and third provide the results of cross section analysis for the 1970 and 1981 samples respectively; and the fourth section examines the changes in product variety between 1970 and 1981.

8.1.1. PRODUCT VARIETY - THE TRENDS.

Before more sophisticated techniques are employed some insight into the levels of product variety as measured by

branded products can be gained from examining the change in brand numbers over time for a selected number of markets (table 8.1.).

TABLE 8.1: NUMBER OF BRANDS PER MARKET 1970 - 1981.

MARKET:	YEAR												%ch
	70	71	72	73	74	75	76	77	78	79	80	81	
Biscuits	851	822	811	817	851	895	670	733	624	694	711	723	-15%
Brk. Cereal	37	43	40	39	41	46	42	51	59	52	56	52	119%
Choc Con.*	342	367	383	401	410	413	425	450	487	549	591	634	85%
Ins. Coffee	20	22	23	24	28	27	32	30	25	24	27	40	100%
Crisps	63	76	89	105	95	111	111	144	149	155	216	223	254%
Custard Po	18	13	13	11	12	9	9	9	11	13	17	17	-6%
Flour	48	42	41	26	24	28	28	23	26	26	27	24	-50%
Fruit (Can)	181	153	153	118	124	96	74	47	66	92	128	190	5%
Fruit Ju	31	47	63	81	126	97	102	81	93	133	157	179	477%
Honey	152	167	190	211	91	84	81	103	110	108	100	109	-28%
Jellies	43	42	37	31	28	26	25	23	20	19	25	33	-23%
Matches*	34	34	36	26	20	21	21	23	22	23	15	16	-53%
Preserves	338	384	326	293	286	287	287	284	262	270	222	248	-27%
Soup (Can)	348	357	358	215	281	271	257	289	251	239	267	335	-4%
Toothpaste	41	47	42	41	45	44	44	47	46	62	55	53	75%
Wash Up Liq	16	16	22	16	15	19	27	29	26	22	23	25	56%

Source: Grocer Price Lists (June)
 (* = Shaws Guide to Prices)

Visual inspection of table 8.1. shows how product variety has followed constant trends for the majority of sectors between 1970 and 1981. Vast fluctuations from year to year are not very common but the level of variety across the sectors is very diverse.

8.1.2. THE DEGREE OF PRODUCT VARIETY 1970.

The hypotheses in chapter five stated that, once the nature of the product had been standardized in terms of low value convenience goods, the degree of product variety would be a function of:

- (1) Retail Concentration
- (2) Manufacturer Concentration
- (3) Sales
- (4) Own Label Penetration
- (5) Advertising Intensity

Table 8.2. shows a summary of the results of ordinary least squares regressions for linear relationships.

The only variable that is significantly correlated to product variety in a linear fashion is that of sales (equation 6). This is significant at the 99% level of confidence and explains 36% of the variation in the level of brand variety. It is related positively i.e. the greater the level of sales the greater the number of brands. The other measures were not significant either jointly or severally in these linear tests.

Table 8.3. presents the results of tests for log-linear relationships. Once again sales is the dominant explanatory variable although the degree of fit of the regression line is only marginally higher than the linear equation (i.e. an R squared of .45 as opposed to .41).

Manufacturer concentration, as measured by both the three firm concentration ratio and the H index, shows a degree of negative correlation at the 90% level when included on its own (equations 2, 8 and 9). This suggests that the greater the degree of concentration amongst brand manufacturers the smaller the number of brands available becomes. The logarithmic nature of the relationship suggests that the ratio of decline in brand numbers decreases with higher degrees of concentration. Such a finding would have an implication for public policy if the finding proved robust. In this sample the relationship however, appears to be weak as equation 7 shows the significance of manufacturer concentration disappears when included with sales.

TABLE 8.2: PRODUCT VARIETY 1970 - TESTS FOR LINEAR RELATIONSHIPS:

	CONS	MANUF.	A/S	RET.	OWN	SALES	R sq	adj. R sq	N
(1)	-194 (413)	-1.72 (3.93)	-5.40 (18.4)	6.95 (6.68)	.330 (7.61)	2.61b (1.06)	.50	.22	15
(2)	257 (148)	-340 (370)	/	/	/	/	.05	.01	17
(3)	220 (82.8)	/	-18.9 (14.1)	/	/	/	.11	.05	16
(4)	293 (233)	/	/	-3.59 (4.84)	/	/	.03	-.03	18
(5)	136 (87.4)	/	/	/	-.550 (5.63)	/	.00	-.07	17
(6)	-.674 (62.1)	/	/	/	/	2.08a (.671)	.41a	.36	16

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Conc. Ratio.
 A/S = Advertising Sales Ratio.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales (& m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

TABLE 8.3. PRODUCT VARIETY 1970 - TESTS FOR LOG LINEAR RELATIONSHIPS:

	CONS	MANUF.	A/S	RET.	OWN	SALES	R sq	adj. R sq	N
(1)	1.35 (3.87)	-.629 (1.66)	-.307 (.460)	.180 (1.34)	-.143 (.361)	.941c (.432)	.58	.34	15
(2)	6.20b (2.24)	-2.32c (1.16)	/	/	/	/	.21c	.16	17
(3)	-.593 (.386)	/	-.593c (.286)	/	/	/	.24c	.18	16
(4)	4.20 (1.74)	/	/	-1.50 (1.05)	/	/	.11	.06	18
(5)	1.75 (.287)	/	/	/	-.023 (.286)	/	.00	-.07	17
(6)	.105 (.493)	/	/	/	/	.992a (.291)	.45a	.41	16
(7)	2.80 (2.12)	-1.42 (.998)	/	/	/	1.01a (.322)	.56a	.48	15
		H - In (1)							
(8)	1.25a (.279)	-1.01c (.530)	/	/	/	/	.20c	.14	17
		H - In (h)							
(9)	1.23a (.279)	-1.06c (.537)	/	/	/	/	.21c	.15	17

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 A/S = Advertising Sales Ratio.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales (£ m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

The lack of significance of manufacturer concentration in equation 7 may be caused by slight multicollinearity between the two variables. Evidence of such multicollinearity is found in the simple correlation coefficient of $-.251$ between manufacturer concentration (CR 3) and sales. The implication of this is that no clear conclusion can be drawn from this sample in regard to the effect of manufacturer concentration on variety other than saying that the evidence does not rule out the possibility of a logarithmic relationship.

8.2.3. THE DEGREE OF PRODUCT VARIETY 1981.

The main result of tests for linear relationships on the 1981 sample re-enforces the main finding of the 1970 sample, namely that sales has a positive relationship with variety. The relationship is found to have a high degree of correlation (61%) and is significant at the 99% level of significance (equation 6 of table 8.4.).

A difference from the earlier sample is the fact that on its own retail concentration is significantly correlated with product variety (equation 4). The relationship is negative which may be the result of two inter-related factors that could work by two different mechanisms.

It may be a result of the alleged policy, discussed in chapter five, of large retailers to stock only the leading brands (Henly Centre for Forecasting 1982). A more general explanation is that the heterogeneity of buying policies that can be expected in markets with a large number of retail firms can be expected to decrease as the number of retailers decrease.

TABLE 8.4: PRODUCT VARIETY 1981 - TESTS FOR LINEAR RELATIONSHIPS:

	CONS	MANUF.	A/S	RET.	OWN	SALES	R sq	adj. R sq	N
(1)	705 (459)	-13.85c (6.37)	-3.43 (16.11)	6.16 (3.76)	2.79 (6.74)	3.03b (.842)	.79b	.61	12
(2)	440b (185)	-761 (493)	/	/	/	/	.16	.09	15
(3)	247 (94)	/	-13.58 (16.15)	/	/	/	.06	-.02	14
(4)	549a (186)	/	/	-5.66b (2.68)	/	/	.26b	.20	15
(5)	208b (96)	/	/	/	-.214 (3.93)	/	.02	-.04	17
(6)	26.7 (54.7)	/	/	/	/	2.06a (.479)	.61a	.57	14
(7)	-94 (266)	/	/	1.65 (3.37)	/	2.31b (.768)	.61b	.52	12
(8)	190 (259)	-1.93 (2.99)	/	/	/	2.03a (.494)	.62a	.55	14

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 A/S = Advertising Sales Ratio.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales (£ m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

These two possible negative relationships between retail concentration and product variety may work in two ways. The effect may be indirect with small manufacturers leaving markets of high concentration and thereby reducing the overall level of variety. The more direct effect would be if high retail concentration was associated with less variety per firm. The possibility of this latter effect will be examined in section 8.3.

Despite the evidence of equation 4 doubt is cast on the explanatory power of retail concentration in explaining the level of variety when it is included with sales (equation 7). For when retail concentration is included with sales the retail variable ceases to be significant. The reason for this could be attributed to two factors. First, the sample size has decreased which could reduce the significance of the retail variable if its significance were dependent on outliers. Second, there could be high multicollinearity between sales and retail concentration.

It turns out that the first possible reason (sample size) can be ruled out because when equation 4 is re-run using the smaller sample the significance and R squared increase. Thus the cause must be multicollinearity between the variables. The evidence for this lies in the simple correlation statistic of $-.686$ between the two variables. Such correlation is slightly surprising and an explanation other than it being a statistical anomaly must rest on the slightly dubious hypothesis that fewer retailers are needed for smaller markets. This hypothesis must be regarded as suspect because even if more outlets are required for a bigger market this is not the same as saying that more firms are required.

Indeed if a bigger market is met through more sales per outlet then potential gains from economies of scale would lead to larger sales acting as a force increasing retail concentration.

The end result of the existence of multicollinearity is however that whether the negative relationship between sales and retail concentration is spurious or not, the extent of the effect of retail concentration when one allows for the influence of sales cannot be assessed from this sample. That the level of sales is a larger and more robust "explanation" of the degree of product variety compared to retail concentration is nevertheless beyond dispute.

The results of the log linear tests on the 1981 sample are presented in table 8.5.

The retail concentration variable is still significant when included in a test for a log linear relationship (equation 4 in table 8.5) but the evidence suggests that the linear relationship is the stronger in terms of explanatory power. As with the linear tests there is a strong degree of multicollinearity between retail concentration and sales, despite both variables being significant on their own neither is significant when included together.

As was the case for the 1970 sample concentration of brand manufacturers is again significantly correlated to product variety in a negative log-linear fashion. Thus there seems robust evidence to suggest that manufacturer concentration is indeed a factor that influences the amount of product variety.

TABLE 8.5: PRODUCT VARIETY 1981 - TESTS FOR LOG-LINEAR RELATIONSHIPS:

	CONS	MANUF.	A/S	RET.	OWN	SALES	R sq	adj. R sq	N
(1)	13.14c (6.11)	-7.95c (3.80)	-.213 (.323)	1.48 (1.32)	-.399 (.512)	1.21 (.543)	.62	.30	12
(2)	1.06b (.476)	-1.76c (.982)	/	/	/	/	.20c	.14	15
(3)	2.04 (.203)	/	-.148 (.308)	/	/	/	.02	-.06	14
(4)	4.34a (1.30)	/	/	-1.35c (.718)	/	/	.21c	.15	15
(5)	1.98a (.333)	/	/	/	-.063 (.269)	/	.00	-.06	17
(6)	.601 (.550)	/	/	/	/	.801c (.314)	.35c	.30	14
(7)	-.203 (.693)	-1.77c (.977)	/	/	/	.761b (.303)	.50b	.40	13
(8)	1.22 (2.42)	/	/	-.298 (.988)	/	.738 (.524)	.31	.16	12

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 A/S = Advertising Sales Ratio.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales (& m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

For the 1981 sample manufacturer concentration is significant both on its own and when included with sales (equations 2 and 7). The negative manner of its association means that the higher the concentration of brand manufacture the lower the number of brands available. The logarithmic form means that after a certain threshold the rate of change decreases in the relationship between the decline in brand numbers and increasing concentration.

Sales is again the most dominant variable in "explaining" the level of variety. Though sales is significant in log-linear form it would appear that the linear relationship has a better fit (an R squared of .61, significant at the 99% level, compared to an R squared of .35, significant at the 95% level).

8.2.4. CHANGES IN VARIETY 1970-1981.

It is worthwhile to identify not only the possible determinants of the level of variety for 1970 and 1981 but also the possible determinants of changes in variety. A feature of analysing changes through time is that all the variables that determine an absolute level do not have to be identified since it is only the variables that are "active" during the period under review that have to be specified. Such a property is both an advantage and a disadvantage since it increases the chance of a higher statistical explanation of the period under review but reduces the likelihood of the model being useful for other time periods due to the possibility of dormant variables.

Table 8.6. shows the summary results of the linear tests on changes in variety.

TABLE 8.6: CHANGES IN VARIETY - TESTS FOR LINEAR RELATIONSHIPS:

	CONS	MANUF.	A/S	RET.	OWN	SALES	R sq	adj. R sq	N
(1)	24.39 (32.59)	.412 (.567)	1.10b (.350)	.776 (.843)	-.059 (.200)	1.92c (.803)	.71	.47	12
(2)	60.6b (20.3)	-.175 (.189)	/	/	/	/	.06	-.01	15
(3)	95.2b (37.1)	/	.122 (.633)	/	/	/	.00	-.08	14
(4)	84.6b (33.7)	/	/	-.795 (.687)	/	/	.10	.03	14
(5)	70.2b (26.5)	/	/	/	-.136 (.177)	/	.04	-.03	15
(6)	64.6a (20.4)	/	/	/	/	.577a (.104)	.72a	.70	14
(7)	60.6a (16.6)	/	.769b (.284)	/	/	.651a (.088)	.83a	.80	14

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 A/S = Advertising Sales Ratio.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales (\$ m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

Formal analysis of the change in product variety between 1970 and 1981 shows the change in variety to be correlated with the change in sales. This is shown by equation 6 of table 8.6. in which variations in sales growth account for 72% of the variation in the change of variety across the two periods. When advertising intensity (as measured by the advertising sales ratio) is added to this the explanation would seem to be even higher (equation 7). A problem with the variable of the advertising sales ratio is that of ascertaining the direction of causality with product variety. For a change in advertising intensity could be caused by a change in the amount of variety and at the same time a change in advertising intensity may result in pressure for brands to be introduced or withdrawn. A priori one would expect the effect of product variety to be stronger in explaining advertising intensity than vice versa but the potential source of bias that arises from dual causality cannot be resolved by single stage least squares and cannot be resolved even by two stage least squares on such a small sample.

The main conclusion that can be drawn is that changes in sales are significantly and highly correlated with changes in product variety in a positive and linear manner.

The subsidiary conclusion is that the null hypothesis of no linear relationship has to be accepted for this sample in respect to changes in product variety and each of the following variables: changes in manufacturer concentration (of branded products), changes in retail concentration and changes in own label market share.

In the tests for log-linear relationships (table 8.7.) the picture is very similar with sales having a positive and

highly significant correlation (equation 6). The difference in the correlation of the linear and log-linear relationships for sales and variety however suggests that the linear relationship is to be preferred.

As before the change in the advertising sales ratio becomes significant when included with changes in sales but must be regarded only as very tentative evidence of a relationship between advertising intensity and product variety.

Changes in the retail variables do not appear to have any significance in explaining changes in product variety.

- # = Intercept.
- * = Manufacturer's Firm Concentration.
- = Advertising Sales Ratio.
- = Retail Concentration.
- = Own Label Market Share.
- 10 = Sales (log).
- = Sample Size.
- () R sq = (adjusted) R squared.

Significance levels are indicated by the following symbols:
a = significant at 1% level.
b = significant at 5% level.
c = significant at 10% level.

TABLE 8.7: CHANGES IN VARIETY - TESTS FOR LOG-LINEAR RELATIONSHIPS:

	CONS	MANUF.	A/S	RET.	OWN	SALES	R sq	adj. R sq	N
(1)	-2.13 (2.92)	.309 (.594)	.489b (.184)	.453 (.641)	-.125 (.257)	1.02 (.536)	.66	.38	12
(2)	2.70a (.515)	-.275 (.255)	/	/	/	/	.08	.01	15
(3)	1.84a (.420)	/	.199 (.218)	/	/	/	.07	.01	14
(4)	3.80a (1.02)	/	/	-.780 (.477)	/	/	.18	.11	14
(5)	2.74a (.510)	/	/	/	-.266 (.227)	/	.09	.03	15
(6)	.916b (.389)	/	/	/	/	.634a (.188)	.49a	.44	14
(7)	-.025 (.464)	/	.370 (.135)	/	/	.749a (.158)	.70a	.64	14

Key: CONS = Intercept.
 MANUF = Manufacturer 3 Firm Concentration Ratio.
 A/S = Advertising Sales Ratio.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales (£ m).
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

8.3. ANALYSIS OF PRODUCT VARIETY AT FIRM LEVEL.

As well as tests on variety at market level analysis at the firm level was undertaken. It should be remembered that, as with the examination of advertising at firm level, the firms included in the sample (appendix d) are limited to those with a large enough market share to be included in market reports. In practice the threshold of market share needed to be included in the market reports ranged between 1% and 5%.

Tests were conducted on possible determinants of both brand numbers and the percentage of brands within a convenience good market for both 1970 and 1981.

8.3.1. THE LEVEL OF VARIETY 1970.

Though the sample of firms was small and constrained to the convenience good sector the level of sales of a firm in a market was found to have a direct positive correlation with the number of brands that a firm offered in a market (equation 2 of table 8.8.).

Specific measures of a firm's position within a market (as opposed to the absolute level of sales) such as percentage market share and sales ranking were found to have no linear relationship with the total number of brands that a firm offered in a market after allowing for the effect of sales (equations 3 and 4).

The degree of retail concentration in a market was found to have no significant linear effect on the level of variety either before or after allowing for the effect of a firms sales (equations 5 and 7).

TABLE 8.8: PRODUCT VARIETY AT FIRM LEVEL 1970 - RESULTS OF LINEAR REGRESSIONS.

	CONS	SALES	MSP	RANK	RETAIL	OWN	N	R sq	adj. R sq
(1)	-.288 (18.6)	6.37E-7a (1.61E-7)	-.431c (.254)	-1.44 (3.52)	.404 (.271)	.079 (.221)	36	.36b	.26
(2)	7.27 (3.37)	4.1E-7a (1.2E-7)	/	/	/	/	36	.25a	.23
(3)	12.3 (4.5)	4.99E-7a (1.30E-7)	-.236 (.144)	/	/	/	36	.31a	.27
(4)	.974 (6.88)	4.64E-7a (1.32E-7)	/	2.25 (2.15)	/	/	36	.28a	.23
(5)	-.48 (12)	4.42E-7a (1.33E-7)	/	/	.161 (.249)	/	36	.26a	.22
(6)	6.86 (4.93)	4.11E-7a (1.26E-7)	/	/	/	.026 (.223)	36	.25a	.21
(7)	22.5 (11.8)	/	/	/	-.178 (.259)	/	36	.01	-.02
(8)	16.8a (4.40)	/	/	/	/	-.157 (.244)	36	.01	-.02

Key: CONS = Intercept.
MSP = Percentage of Brand Market (sales).
RANK = Sales Rank.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

Similarly the degree of own label penetration within a market was found to have no significant linear relationship with the number of brands that an individual firm offered before or after allowing for the effect of a firms sales (equations 6 and 8).

The results of tests in logarithmic form tended to re-enforce the conclusions drawn from the linear tests (table 8.9). Sales is again the dominant variable with retail concentration and own label penetration having no significant impact on the level of brand numbers.

When included with sales the two measures of market position (market share and sales ranking) both have an effect on the level of variety (equations 3 and 4). Interestingly the effect is such that the larger firms are offering less variety than the smaller firms once differences in sales are allowed for. Of the two measures market share has a much more significant impact than the dummy variable of sales rank. An explanation of firms in weaker market positions offering greater variety per pound sterling of revenue is that such firms may have to offer a similar portfolio of variety as market leaders if they hope to expand.

Sub-dividing the 1970 sample between market leaders and market followers did not have any impact on the lack of impact of retail concentration and own label in either linear or logarithmic form (tables 8.10 and 8.11). There was a slight effect on the relationship with sales but the implication of this is ambiguous given that the relationship was stronger for market leaders than followers in linear form but weaker in logarithmic form (equations 1 and 4 of tables 8.10 and 8.11).

TABLE 8.9: PRODUCT VARIETY AT FIRM LEVEL 1970 - RESULTS OF LOG-LINEAR REGRESSIONS.

	CONS	SALES	MSP	RANK	RETAIL	OWN	N	R sq	adj. R sq
(1)	-4.48 (1.59)	.965a (.171)	-1.57a (.360)	-1.13b (.509)	.746 (.522)	-.190 (.127)	36	.57a	.50
(2)	-2.05 (1.02)	.425a (.146)	/	/	/	/	36	.20a	.18
(3)	-3.87 (.965)	.831a (.158)	-.784a (.195)	/	/	/	36	.46a	.43
(4)	-3.45 (1.20)	.596a (.163)	/	.671c (.330)	/	/	36	.29a	.24
(5)	-1.11 (1.64)	.388b (.156)	/	/	-.418 (.568)	/	36	.21b	.16
(6)	-1.76 (1.12)	.397b (.153)	/	/	/	-.103 (.151)	36	.21b	.16

Key: CONS = Intercept.
MSP = Percentage of Brand Market (sales).
RANK = Sales Rank.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

TABLE 8.10: THE LEVEL OF PRODUCT VARIETY OF MARKET LEADERS AND MARKET FOLLOWERS 1970. LINEAR REGRESSION RESULTS.

	CONS	SALES	RET	OWN	N	R sq	adj. R sq
MARKET LEADERS							
(1)	3.42 (5.49)	4.7E-7a (1.6E-7)	/	/	22	.30a	.26
(2)	-13.2 (20.5)	5.5E-7a (1.9E-7)	.324 (.385)	/	22	.32a	.25
(3)	2.31 (7.65)	4.8E-7b (2.6E-7)	/	.063 (.295)	22	.30a	.23
MARKET FOLLOWERS							
(4)	10.31b (3.65)	4.8E-7c (2.6E-7)	/	/	14	.22c	.16
(5)	-2.78 (16.09)	6.3E-7c (3.2E-7)	.282 (.338)	/	14	.27	.14
(6)	9.08 (6.72)	5.0E-7 (2.9E-7)	/	.080 (.363)	14	.23	.09

Key: CONS = Intercept.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

TABLE 8.11: THE LEVEL OF PRODUCT VARIETY OF MARKET LEADERS AND MARKET FOLLOWERS 1970. LOG-LINEAR REGRESSION RESULTS.

	CONS	SALES	RET	OWN	N	R sq	adj. R sq
MARKET LEADERS							
(1)	-3.50b (1.51)	.610a (.210)	/	/	22	.30a	.26
(2)	-2.93 (2.44)	.583a (.233)	-.226 (.748)	/	22	.30b	.23
(3)	-3.23 (1.53)	.592b (.210)	/	-.168 (.164)	22	.33b	.26
MARKET FOLLOWERS							
(4)	-4.00 (1.81)	.744b (.272)	/	/	14	.38b	.33
(5)	-6.15c (3.38)	.895b (.341)	.715 (.942)	/	14	.42c	.31
(6)	-6.53b	1.06b	/	.439	14	.46b	.37

Key: CONS = Intercept.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

8.3.2. THE LEVEL OF PRODUCT VARIETY 1981.

Tests undertaken on the 1970 sample on possible determinants of the level of brand numbers offered by firms were repeated on the later sample. Interestingly the results showed some degree of contrast to the earlier sample particularly in the specification of the relationship with sales.

In the linear tests (table 8.12) sales was not found to be a significant explanation of the degree of variety either on its own or when included with the other variables (equations 1 to 6). Similarly the measures of market position (market share and rank) did not have a significant linear relationship with variety.

The only variable to show an effect on the level of variety was the variable of retail concentration (equation 5). That it does so on its own is slightly surprising in the sense that this is suggesting that the level of variety that a firm offers is more dominated by the retail environment in its specific market than either the scale of the firm's operations (i.e. sales) or by its relative position in its market. Such evidence is not immune from possible methodological criticism that on such a small sample of markets (12) all the retail variable is doing is acting as a proxy for each market having a different underlying possibility for product range and that the degree of firm range is not being explored. Though such a criticism cannot be refuted absolutely the fact that the retail measure has a statistically significant systematic relationship with both firm and market variety (table 8.4) suggests that at the very least the degree of retail concentration is (negatively)

TABLE 8.12: PRODUCT VARIETY AT FIRM LEVEL 1981 - RESULTS OF LINEAR REGRESSIONS.

	CONS	SALES	MSP	RANK	RETAIL	OWN	N	R sq	adj. R sq
(1)	54.6 (23.7)	2.0E-9 (1.1E-8)	.065 (.367)	-.550 (4.35)	-.642a (.234)	.452 (.389)	46	.21	.09
(2)	17.5 (3.5)	1.3E-8 (9.1E-9)	/	/	/	/	46	.05	.02
(3)	17.9a (5.4)	1.4E-8 (9.5E-9)	-.020 (.192)	/	/	/	46	.05	.00
(4)	17.4b (7.3)	1.3E-8 (9.5E-9)	/	.039 (2.35)	/	/	46	.05	.00
(5)	55.2 (13.1)	7.5E-10 (9.4E-9)	/	/	-.548a (.184)	/	46	.21a	.17
(6)	14.2 (6.7)	1.6E-8 (9.9E-9)	/	/	/	.208 (.355)	46	.05	.01
(7)	55.8 (11.0)	/	/	/	-.554a (.163)	/	46	.21a	.19
(8)	19.6 (5.8)	/	/	/	/	-8.9E-4 (.334)	46	.00	-.02

Key: CONS = Intercept.
MSP = Percentage of Brand Market (sales).
RANK = Sales Rank.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

reflecting the scope for brand variety and is tentative evidence that higher retail concentration has a negative effect on brand variety.

Tests for logarithmic relationships shown in table 8.13 provide evidence for both sales and retail concentration having a log linear relationship with variety.

Sales has a positive relationship with variety whereas retail concentration is negatively related. The fact that a logarithmic relationship between a firm's sales and its level of brand variety is significant for both time periods illustrates that the relationship is reasonably robust.

The fact that retail concentration is found to be correlated to the level of variety at the firm level for the later time period only is consistent with a number of explanations. On the one hand it is consistent with the hypothesis that the revolution in the retail environment discussed in chapter one has been such that it is only in more recent years that concentration has been a dominant factor in explaining the level of variety within the convenience good sector. On the other hand the fact that it is only significant for one of the two samples may indicate the lack of a robust relationship.

That the level of own label penetration in a market has no observable effect on the number of brands that a firm offers for either time period is either the result of self cancelling force (discussed in chapter five) or evidence of no influence. In either case it is prima facie evidence to suggest that consumer choice is not being harmed by the rise of own label. Consumer choice may be affected by other factors but not by the rise of own label.

Dividing the sample between market leaders and market followers (tables 8.14 and 8.15) shows how retail concentration has different effects on the two groups. Examining the linear relationship first, the retail variable is found to be negatively related to the number of brands offered by market leaders (equation 4) at the 95% level of significance but to have no significant relationship with the variety of market followers (equation 8). This is consistent with the expectation expressed in chapter five that market leaders would be forced to cut back variety if retail concentration increased. The caveat that perhaps at very high levels of concentration retailers might wish manufacturers to offer more variety was not tested as there were too few observations of very high levels of concentration in the sample and indeed in the time period under observation.

The logarithmic tests shown in table 8.15 confirm retail concentration having more effect on the brand (number) policy of leading manufacturers than on smaller manufacturers (equations 4 and 8). Equation 8 however shows that retail concentration is related to the amount of variety a market follower offers. This again is evidence of the retail environment affecting the brand policy of manufacturers.

TABLE 8.13: PRODUCT VARIETY AT FIRM LEVEL 1981 - RESULTS OF LOG-LINEAR REGRESSIONS.

	CONS	SALES	MSP	RANK	RETAIL	OWN	N	R sq	adj. R sq
(1)	-1.27 (2.15)	.564a (.188)	-.663 (.444)	-.558 (.690)	-.767 (.672)	.341 (.208)	46	.37a	.28
(2)	.143 (.246)	.118a (.033)	/	/	/	/	46	.22a	.21
(3)	-2.56 (.888)	.512a (.126)	-.278 (.193)	/	/	/	46	.30a	.26
(4)	.229 (.280)	.116a (.034)	/	-.194 (.295)	/	/	46	.23a	.19
(5)	2.46b (.982)	.082b (.035)	/	/	-1.15b (.473)	/	46	.32a	.29
(6)	.229 (.280)	.116a (.034)	/	/	/	-.194 (.295)	46	.23a	.19
(7)	3.89a (.805)	/	/	/	-1.63a (.448)	/	46	.23a	.21
(8)	1.20a (.174)	/	/	/	/	-.240 (.161)	46	.05	.03

Key: CONS = Intercept.
MSP = Percentage of Brand Market (sales).
RANK = Sales Rank.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

TABLE 8.14: THE LEVEL OF PRODUCT VARIETY OF MARKET LEADERS AND MARKET FOLLOWERS 1981. LINEAR REGRESSION RESULTS.

	CONS	SALES	RET	OWN	N	R sq	adj. R sq
MARKET LEADERS							
(1)	19.71 (5.43)	9.8E-9 (1.0E-8)	/	/	22	.05	.00
(2)	65.31 (19.08)	2.7E-9 (1.0E-8)	-.657b (.266)	/	22	.28b	.20
(3)	21.2 (11.6)	8.9E-9 (1.2E-8)	/	-.083 (.568)	22	.05	.05
(4)	62.5a (15.2)	/	-.623b (.226)	/	22	.27b	.24
MARKET FOLLOWERS							
(5)	17.7 (6.04)	3.9E-8 (4.0E-8)	/	/	20	.08	-.02
(6)	40.2 (30.5)	1.0E-8 (5.5E-8)	-.338 (.440)	/	20	.08	-.02
(7)	8.66 (12.32)	5.9E-8 (4.8E-8)	/	.482 (.606)	20	.08	.03
(8)	44.4 (20.2)	/	-.394 (.317)	/	20	.08	.03

Key: CONS = Intercept.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

TABLE 8.15: THE LEVEL OF PRODUCT VARIETY OF MARKET LEADERS AND MARKET FOLLOWERS 1981. LOG-LINEAR REGRESSION RESULTS.

	CONS	SALES	RET	OWN	N	R sq	adj. R sq
MARKET LEADERS							
(1)	-2.52c (1.34)	.455b (.168)	/	/	22	.27b	.23
(2)	-.270 (2.60)	.322 (.213)	-.673 (.666)	/	22	.31b	.23
(3)	-2.82 (1.97)	.486 (.226)	/	.052 (.253)	22	.27b	.19
(4)	3.40a (.969)	/	-1.30b (.541)	/	22	.22b	.18
MARKET FOLLOWERS							
(5)	-2.65 (1.42)	.490b (.191)	/	/	20	.27b	.23
(6)	-2.16 (4.17)	.462 (.300)	-.156 (1.26)	/	20	.27c	.18
(7)	-3.73c (2.04)	.610b (.253)	/	.204 (.277)	20	.29c	.21
(8)	3.84b (1.52)	/	-1.62c (.855)	/	20	.17c	.12

Key: CONS = Intercept.
RET = Retail Concentration.
OWN = Own Label Market Share.
SALES = Sales.
N = Sample Size.
(adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
The following symbols are used to indicate significance with t or F tests:
a = significant at 99% level.
b = significant at 95% level.
c = significant at 90% level.

8.3.3. THE DEGREE OF PRODUCT VARIETY AT FIRM LEVEL 1970.

As well as examining the possible determinants of the absolute level of variety that a firm offers (regardless of market) it is prudent to examine the possible determinants of the share of brand numbers that a firm has within a market. The advantage of so doing is that it avoids having to explain variance in brand numbers that arise from a different scope between product markets to offer different brands.

Table 8.16 presents the results of linear tests on the percentage of brands offered by firms in 1970. Market position is found to be significantly correlated with percentage variety both in terms of market share (equation 2) and sales rank (equation 4). Of the two elements market share was found to be a better explanation than sales rank (an R squared of .21 significant with 99% confidence compared to an R squared .17 with 95% confidence).

Though market share and sales rank are conceptually different measures of market position regressing them together is not worthwhile given a 93% level of correlation between them.

Introducing the (market) variables of own label share and retail concentration with market share penetration was explored in equations 4 and 5. The percentage share of brand numbers was not affected by the level of retail concentration but the introduction of own label penetration was found to have a negative relationship with the percentage of variety after allowing for firm position. The tentative inference to be made from such an observation is that the relationship with market share is improved once the negative influence of own label share in the market is allowed for.

TABLE 8.16: PERCENTAGE PRODUCT VARIETY AT FIRM LEVEL 1970
 - RESULTS OF LINEAR REGRESSIONS.

	CONS	MSP	RANK	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	13.38 (14.5)	.337c (.197)	-.800 (2.73)	-1.2E-7 (1.3E-7)	-.012 (.211)	-.359b (.172)	36	.32b	.21
(2)	4.81 (3.51)	.311a (.103)	/	/	/	/	36	.21a	.19
(3)	5.00 (3.59)	.330a (.115)	/	-3.9E-8 (1.0E-7)	/	/	36	.22b	.17
(4)	4.62 (8.18)	.311a (.106)	/	/	.005 (.180)	/	36	.21b	.17
(5)	8.58 (3.88)	.324a (.099)	/	/	/	-.309c (.158)	36	.30a	.25
(6)	23.3 (4.14)	/	-4.15b (1.55)	/	/	/	36	.17b	.15
(7)	23.9 (5.5)	/	-4.27b (1.72)	-1.9E-8 (1.1E-7)	/	/	36	.18b	.13
(8)	21.2 (9.46)	/	-4.10b (1.58)	/	.043 (.182)	/	36	.18b	.13
(9)	26.9 (4.58)	/	-4.15a (1.51)	/	/	-.276 (.163)	36	.24b	.19

Key: CONS = Intercept.
 MSP = Percentage of Brand Market (sales).
 RANK = Sales Rank.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales.
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

Thus one could expect the firms with high market share facing high own label competition to have a lower percentage of brand numbers than market leaders facing lower degrees of own label competition. Though there are implications of such evidence for the argument that own label competition benefits market leaders it should be remembered that the evidence is of limited strength.

In the earlier part of the chapter the level of a firms sales was found to be a significant variable in explaining the absolute level of variety, equation three however suggests that it is not a significant determinant of the percentage of brand variety that a firm has in the market.

The logarithmic tests on the 1970 sample (summarized in table 8.17) again show market share in terms of sales to be significantly and directly correlated with market share in terms of brand variety. The power of explanation of the market share percentage is greater in the logarithmic form than the linear which may be a case for preferring the former. Given that both the linear and logarithmic relationships are significant this does however indicate the need for tests on other samples to see which is more robust.

The variable of sales rank is again significant and with a similar correlation coefficient to market share. This suggests that, for this sample, sales rank is acting primarily as a proxy for market share rather than reflecting a more psychological dimension of market position in terms of firm order ranking.

Retail concentration and own label share were not found to have any impact on the correlation with market position.

TABLE 8.17: PERCENTAGE PRODUCT VARIETY AT FIRM LEVEL 1970
 - RESULTS OF LOG-LINEAR REGRESSIONS.

	CONS	MSP	RANK	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	3.68 (1.88)	.015 (.009)	-.088 (.009)	-.296 (.193)	-.535 (.598)	-.204 (.142)	36	.36b	.25
(2)	.264 (.214)	.527a (.157)	/	/	/	/	36	.25a	.23
(3)	1.23 (1.01)	.655a (.205)	/	-.162 (.166)	/	/	36	.27a	.23
(4)	.679 (.780)	.534a (.159)	/	/	-.261 (.471)	/	36	.26a	.21
(5)	.458 (.264)	.487a (.159)	/	/	/	-.158 (.127)	36	.28a	.24
(6)	1.21 (.100)	/	-.857a (.258)	/	/	/	36	.24a	.22
(7)	1.62 (1.11)	/	-.915a (.305)	-.056 (.151)	/	/	36	.25a	.20
(8)	1.66 (.782)	/	-.870a (.262)	/	-.272 (.473)	/	36	.25a	.21
(9)	1.34 (.140)	/	-.795a (.260)	/	/	-.167 (.127)	36	.28a	.24

Key: CONS = Intercept.
 MSP = Percentage of Brand Market (sales).
 RANK = Sales Rank.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales.
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

8.3.4. THE DEGREE OF PRODUCT VARIETY AT FIRM LEVEL 1981.

The tests on possible determinants of a firm's share of variety within a market described in the previous section were replicated on the 1981 sample.

The linear tests reproduced in table 8.18 demonstrate more evidence to support the findings of the 1970 sample.

Market share is again found to be strongly and directly correlated with the share of variety (equation 2).

The relatively weak evidence from the 1970 sample that the level of own label penetration within a market negatively affected the percentage of brands a firm had after allowing for market share was found to be stronger for this sample. The evidence of this effect is shown in equation five where own label penetration is significant when included with market share. Furthermore the coefficient and significance of market share show a small increase. Hardly surprisingly own label penetration is not significantly correlated with a firm's share of brands within the market when included as the sole independent variable.

Variation in rank is found to account for only 8% of the variation in the percentage number of brands and is significant at the 10% level. This suggests that the effect of market position is best reflected by market share rather than by order of ranking. The distinction is important because it suggests that a firm's share of variety is likely to be better represented by a firm's position in terms of percentage of sales rather than by a firm's position in terms of sales relative to the other firms in the market.

TABLE 8.18: PERCENTAGE PRODUCT VARIETY AT FIRM LEVEL 1981
 - RESULTS OF LINEAR REGRESSIONS.

	CONS	MSP	RANK	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	-6.28 (8.81)	.386a (.136)	2.21 (1.62)	1.3E-9 (4.2E-9)	.142 (.087)	-.388b (.145)	42	.39a	.30
(2)	6.23 (2.24)	.244a (.076)	/	/	/	/	42	.21a	.18
(3)	6.14 (2.26)	.229a (.080)	/	2.7E-9 (3.8E-9)	/	/	42	.21a	.17
(4)	5.07 (5.21)	.242a (.078)	/	/	.019 (.078)	/	42	.21b	.16
(5)	10.48 (2.76)	.252a (.072)	/	/	/	-.299b (.124)	42	.31a	.27
(6)	16.68 (2.93)	/	-1.81c (.985)	/	/	/	42	.08c	.06
(7)	15.34 (3.22)	/	-1.56 (1.02)	4.1E-9 (4.0E09)	/	/	42	.10	.08
(8)	14.43 (6.27)	/	-1.77c (1.00)	/	.034 (.083)	/	42	.08	.03
(9)	21.45 (3.55)	/	-1.95b (.943)	/	/	-.297b (.135)	42	.18b	.14

Key: CONS = Intercept.
 MSP = Percentage of Brand Market (sales).
 RANK = Sales Rank.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales.
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

TABLE 8.19: PERCENTAGE PRODUCT VARIETY AT FIRM LEVEL 1981
 - RESULTS OF LOG-LINEAR REGRESSIONS.

	CONS	MSP	RANK	SALES	RETAIL	OWN	N	R sq	adj. R sq
(1)	-2.11 (1.36)	.182 (.281)	-.081 (.437)	.140 (.119)	1.22a (.425)	-.382a (.132)	42	.38a	.29
(2)	.604a (.155)	.287b (.121)	/	/	/	/	42	.12b	.10
(3)	-.378 (.615)	.187 (.133)	/	.144 (.087)	/	/	42	.18b	.14
(4)	.592 (.574)	.287b (.123)	/	/	.007 (.314)	/	42	.12c	.08
(5)	.777 (.163)	.320a (.115)	/	/	/	-.221b (.091)	42	.24a	.20
(6)	1.10 (.086)	/	-.443b (.200)	/	/	/	42	.11b	.09
(7)	-.110 (.716)	/	-.269 (.221)	.150c (.088)	/	/	42	.17b	.13
(8)	.997c (.567)	/	-.445b (.202)	/	.060 (.317)	/	42	.11	.06
(9)	1.31a (.124)	/	-.469b (.192)	/	/	-.205b (.093)	42	.21b	.17

Key: CONS = Intercept.
 MSP = Percentage of Brand Market (sales).
 RANK = Sales Rank.
 RET = Retail Concentration.
 OWN = Own Label Market Share.
 SALES = Sales.
 N = Sample Size.
 (adj) R sq = (adjusted) R squared.

Notes: Figures in parentheses are standard errors.
 The following symbols are used to indicate significance with t or F tests:
 a = significant at 99% level.
 b = significant at 95% level.
 c = significant at 90% level.

8.4. SUMMARY.

The chapter was divided into two parts, the first was concerned with tests on variety at market level and the second at firm level.

At the market level sales was found to be the dominant explanation of the number of brands: the bigger the market the greater the number of brands. Tests on both years found sales to be related in both linear and log-linear forms. For the 1970 sample linear and log-linear forms were found to be of similar levels of explanation but on the 1981 sample the linear relationship proved to be of much greater explanatory power.

Manufacturer concentration was found to have a negative log-linear relationship with product variety for both the 1970 and the 1981 sample. In other words the greater the level of concentration (as measured either by the three firm concentration ratio or by the H - Index) the less the amount of variety but at the same time tending towards a certain minimum level of variety at high levels of concentration. The relationship in both time periods was however not robust in the sense that the variable of manufacturer concentration lost its significance when included with sales.

Despite the strong expectation of retail concentration influencing the level of variety the evidence at the market level was far from conclusive. For the early sample there is no evidence of a significant relationship in either linear or logarithmic form. For the 1981 sample however there is a significant relationship in both forms when retail concentration is the sole explanatory variable. When included with sales however the significance vanishes. This is

probably due to a slight multi-collinearity with sales so that the variation "explained" by retail concentration on its own is hidden by the variation "explained" by the more dominant variable of sales. Thus the robustness of the retail concentration variable cannot be properly ascertained from this sample. The nature of the results using retail concentration as the sole explanatory variable indicates that the linear relationship provides a better degree of fit compared to the logarithmic relationship.

Own label penetration is found to have no relationship with the level of brand variety at market level for either time period.

Similarly the degree of advertising intensity within a market as measured by the advertising sales ratio is not found to influence the level of variety.

In the tests for determinants of changes in product variety between 1970 and 1981 changes in sales were found to be the over-riding explanation. The only other variable found to have significance was the change in the advertising sales ratio. Due to expectations of a two way relationship between it and changes in variety not too much weight could be attached to it particularly as the a priori expectation was for the dominant relationship to run from product variety to the advertising sales ratio rather than vice versa.

At the firm level, tests were divided into those on the absolute level of brand variety firms had within a market and those on the percentage of variety that a firm had within a market.

Firm sales were significantly and positively related to

the number of brands that a firm offered for the 1970 sample in both linear and logarithmic form. The linear relationship had a fractionally higher correlation coefficient. For the 1981 sample sales were not linearly related to brand numbers but were significantly related in logarithmic form.

In the early sample the two measures of market position (sales rank and market share) were significant when included with sales in logarithmic form. Such significance was not however repeated on the later sample.

The 1981 sample however saw retail concentration have a significant impact on a firm's level of variety in both linear and logarithmic tests. The highest level of its explanation coming in log form when it was included with firm sales.

When the sample was sub-divided between market leaders and market followers retail concentration was found to have a negative linear impact on market leaders but no linear impact on the number of brands of the market followers. The logarithmic tests were found to show that retail concentration did have an influence on the brand numbers of followers but that this impact was not as strong as the impact on market leaders.

As was discussed tests on the absolute level of variety rather than the percentage of variety in a market suffer from the criticism that the dominant explanatory factor may be a nebulous measure of differing potential for brand variety between markets.

Tests on the percentage of variety offered in each market avoided such criticism and found that the market position seemed to have an effect on variety. For the 1970 sample both

linear and log forms of market share (and to a lesser extent sales rank) had similar significant positive effects on the share of variety. Furthermore when included with market share own label penetration was found to improve the relationship. Its negative relationship suggesting that the higher the degree of own label share the more equal the division of brand numbers between firms became (allowing for the positive relationship between market share and the percentage of brand numbers).

Such relationships were found to exist in the 1981 sample as well, although in this case the linear form demonstrated noticeably more explanatory power.

CHAPTER NINE: SUMMARY OF FINDINGS.

9.0. OBJECTIVES.

9.1. THE IMPORTANCE OF RETAILING IN DETERMINING MANUFACTURER BEHAVIOUR AND PERFORMANCE.

9.2. MARKET LEVEL TESTS ON ADVERTISING.

9.2.1. THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION.

9.2.2. CONCLUSIONS REGARDING OTHER POSSIBLE DETERMINANTS.

9.3. FIRM LEVEL TESTS ON ADVERTISING.

9.3.1. THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION.

9.3.2. CONCLUSIONS REGARDING OTHER POSSIBLE DETERMINANTS.

9.4. MARKET LEVEL TESTS ON BRAND VARIETY.

9.4.1. THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION.

9.4.2. CONCLUSIONS REGARDING OTHER POSSIBLE DETERMINANTS.

9.5. FIRM LEVEL TESTS ON BRAND VARIETY.

9.5.1. THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION.

9.5.2. CONCLUSIONS REGARDING OTHER POSSIBLE DETERMINANTS.

9.0. OBJECTIVES.

This chapter draws together the main conclusions that arise from this study.

Section 9.1. stresses the importance of considering the retail environment and the buying process in future work on manufacturer behaviour and performance, particularly in a sector such as convenience goods.

Sections 9.2. and 9.3. summarize and interpret the effects on manufacturer advertising of both the retail and non retail variables on manufacturer advertising found in the empirical part of this study.

Similarly sections 9.4. and 9.5. summarize and discuss the effects of the tests on product variety.

9.1. THE IMPORTANCE OF RETAILING IN DETERMINING MANUFACTURER BEHAVIOUR AND PERFORMANCE.

This study has developed the view that the retail environment should be considered as an important determinant of manufacturer behaviour and performance.

Chapter One reviewed the nature of the changing retail environment in the U.K. in the 1970s and the early 1980s and the forces promoting such change. Chapter Two reviewed the established economic models of retailer and manufacturer interaction, the theory of bargaining power and the limited empirical work on the impact of the retail environment on manufacturers. The main conclusion to be drawn from these two chapters is that there is good reason to expect the retail environment and the buying process in general to affect manufacturer behaviour and performance. Irrespective of the specific empirical findings of this study regarding advertising and brand variety, the theoretical justification for examining the effects of the buying process and the retail environment on manufacturers is shown to be important and one that the industrial economics literature can no longer afford to ignore.

9.2. MARKET LEVEL TESTS ON ADVERTISING.

9.2.1. THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION ON ADVERTISING AT MARKET LEVEL.

The market level tests on the 1970 sample provided evidence for both a significant linear and log-linear relationship between retail concentration and the advertising sales ratio. The relationship was positive suggesting that the higher the degree of retail concentration the higher the advertising sales ratio. The stronger degree of explanation

given by the logarithmic form suggests that after a certain threshold of concentration the resulting degree of increase in the advertising sales ratio becomes less. The evidence of a positive relationship runs contrary to the hypothesis that high retail concentration has a negative effect on the advertising sales ratio due to a higher importance of trade marketing. The evidence thus suggests that at this point in time manufacturers faced with high retail concentration spent a higher proportion of sales on advertising than those facing lower retail concentration. The rationale for manufacturers acting in such a manner is presumably to avoid the gatekeeper of the retailer by appealing directly to the final consumer.

The 1981 sample in contrast provided no evidence of a linear or log-linear relationship between retail concentration and advertising intensity. A possible cause of this result compared to the result of the earlier sample is that the later sample contained examples of higher retail concentration than the earlier time period. According to the hypothesis of chapter five, the importance of trade marketing should increase and the importance of advertising should decline at high levels of concentration. However there is no evidence of a quadratic relationship and at high levels of concentration there are a variety of advertising intensities which are not systematically related to retail concentration.

An interesting area for further research would be to examine the different characteristics and strategies employed in the markets facing "very high" retail concentration using a case study approach in an attempt to explain the differences in advertising intensity e.g. comparing the

breakfast cereal and washing powder markets to the canned catfood and canned soup markets. Firms in markets such as the cereal and washing powder market have appeared to use a strategy of product differentiation through high advertising, product proliferation and refusal to make own labels.

9.2.2. CONCLUSIONS REGARDING OTHER POSSIBLE DETERMINANTS OF ADVERTISING INTENSITY AT MARKET LEVEL.

A by-product of the market level tests assessing the impact of retail concentration and own label market share on advertising is further evidence regarding variables that have been included in previous studies.

The main concern of previous studies has been the relationship between manufacturer concentration and the advertising sales ratio. The findings of some studies confined to U.K. convenience goods in the 1960s (e.g. Cable (1973) and Sutton (1974)) have found evidence for a quadratic relationship using both the H index and the three firm concentration ratio although Rees (1975) has argued that Sutton's sample suggests a linear relationship.

Results on the 1970 sample support an argument for a log-linear relationship between manufacturer concentration (as measured by either the three firm concentration ratio or by the H index) and the advertising sales ratio. Tests for both a quadratic and a linear relationship using both measures of concentration provided no significant evidence for such relationships.

For the 1981 sample no linear, log-linear or quadratic relationship was found between manufacturer concentration and the advertising sales ratio.

In tests attempting to identify causes of changes in the advertising sales ratio across time changes in manufacturer concentration were found not to have a significant linear or log-linear relationship.

These findings perhaps highlight the still unresolved nature of the manufacturer concentration advertising relationship and its apparent sensitivity to time periods as well as the sensitivity to product markets identified by Sutton (1975).

The inclusion of market size (sales) was found to have only a minor negative effect on the early sample and no effect on the 1981 sample. Changes in market size however did have a strong significant correlation with changes in advertising intensity when included with changes in product variety.

Product variety which, with the exception of Eise (1966), has not been subjected to empirical tests as a possible determinant of advertising, was found to have a positive log-linear relationship for the 1970 sample. This is not repeated for the 1981 sample but changes in brand variety are found to be strongly correlated with changes in advertising intensity. This suggests that changes in brand numbers are a strong explanation of changes in advertising intensity. The important caveat for the tests on product variety in this study is that the small sample size necessitates that any conclusions should be regarded as tentative.

9.3. FIRM LEVEL TESTS ON ADVERTISING.

9.3.1. THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION ON ADVERTISING INTENSITY AT FIRM LEVEL.

The effect of retail concentration on the advertising intensity of firms is found to be positive for both 1970 and 1981. For the 1981 sample the positive linear effect of retail concentration on a firm's advertising sales ratio is found to be significantly greater on the group of firms classified as followers than on the market leaders (the top two firms in a market). This suggests that it is this group of firms who feel the effects of retail concentration most acutely and this group that has to work harder at gaining acceptance by the leading retailers.

For the early sample the degree of retail concentration that a firm faces is found to have a positive effect on firms (significant at 90%) but the difference between leaders and followers is more ambiguous. Though the retail variable has greater explanatory power for the group of followers the value of the retail coefficient is higher for the group of leaders. This suggests that a percentage change in concentration affects market leaders more than followers but at the same time that the evidence of a relationship is stronger for the sample of followers. The degree of own label penetration would appear to have a much more unambiguous effect on advertising intensity than the effect of retail concentration. In keeping with the industry conclusions the degree of own label penetration is found to have a negative effect on the degree of advertising intensity of firms in the two time periods. The impact on advertising intensity of own label penetration seems to be more heavily

weighted towards market leaders than market followers for both time periods. In other words the advertising intensity of market leaders is more likely to drop as a result of a change in own label share.

9.3.2. CONCLUSIONS REGARDING OTHER POSSIBLE DETERMINANTS OF ADVERTISING INTENSITY AT FIRM LEVEL.

Other than the variables of retail concentration and own label penetration only the level of sales had a significant effect on determining the intensity of advertising. This is found to have a negative linear influence when included with the two retail variables for the 1981 sample.

The variables of market position (i.e. market share and sales rank) are found to have no effect on advertising intensity apart from through the dichotomous division between leaders and followers outlined above.

9.4. MARKET LEVEL TESTS ON BRAND VARIETY.

The variable that is found to have a significant correlation with brand numbers is that of market size (sales). A strong linear relationship between sales and variety is found for both time periods. Such a relationship implies that the larger the market the greater the number of brands. The fact that the linear relationship has a stronger explanatory power than the logarithmic relationship in 1981 and a similar relationship in 1970 suggests that the number of brands increases proportionately with market size.

Manufacturer concentration is found to have a negative correlation with the level of variety for both time periods. For the early sample this correlation with the level of

variety loses its significance when included with sales but for the later period it retains significance. The extent to which this is evidence of a negative relationship suggests that either the strategy, discussed in chapter four, of product proliferation in highly concentrated markets to deter entry (Schmalensee 1982) is not widespread or that if it is the positioning in product space is wider than in less concentrated markets. Either way product variety in highly concentrated markets, in terms of the number of brands, is not as high as in less concentrated markets. This could be an important ingredient in the debate on monopoly policy if the findings are proved robust in future work and if the number of products is a good proxy for consumer choice. For if concentration is negatively related to brand numbers then excluding (potentially important) barrier to entry considerations it is prima facie evidence of a detrimental effect on consumer choice.

9.5. FIRM LEVEL TESTS ON PRODUCT VARIETY.

9.5.1. THE EFFECTS OF RETAIL CONCENTRATION AND OWN LABEL PENETRATION.

The degree of own label penetration in a market was found (for 1970 and 1981) to have a negative linear effect on the percentage of variety that a firm had in a market after allowing for the positive effect of market share. Thus though market share was a dominant force in increasing the brand numbers of firms there was a market wide influence of own label share that stemmed such an increase.

There was no evidence of retail concentration having an effect on the percentage of variety a firm had even after allowing for a firm's market position.

9.5.2. CONCLUSIONS REGARDING OTHER POSSIBLE DETERMINANTS OF
PRODUCT VARIETY AT FIRM LEVEL.

A firm's position in the market seems to play an important role in determining the percentage of brand numbers a firm has within a market. For both samples market share percentage and sales rank were correlated with the bigger firms offering more products than smaller ones.

The absolute level of a firm's sales were found to have no effect on the company's percentage of variety.

CHAPTER TEN: RELATING BACK TO THE THEORY AND AREAS FOR FURTHER RESEARCH.

10.0. OBJECTIVES.

10.1. ADVERTISING AT THE MARKET LEVEL.

10.1.1. FURTHER EVIDENCE OF THE RELATIONSHIP BETWEEN MANUFACTURER CONCENTRATION AND ADVERTISING ?

10.1.2. THE IMPACT OF THE RETAIL ENVIRONMENT ON MANUFACTURER ADVERTISING. ANOTHER CRISIS FOR ECONOMIC THEORY ?

10.2. ADVERTISING AT THE FIRM LEVEL.

10.2.1. STRUCTURAL INFLUENCES ON FIRM BEHAVIOUR.

10.2.2. ADVERTISING STRATEGY IN THE FACE OF THE CHANGING RETAIL ENVIRONMENT.

10.3. PRODUCT VARIETY AT THE MARKET LEVEL.

10.3.1. THE STRUCTURAL DETERMINANTS OF PRODUCT VARIETY.

10.3.2. DOES THE RETAIL ENVIRONMENT HAVE AN EFFECT ON THE AMOUNT OF VARIETY OFFERED.

10.4. PRODUCT VARIETY AT THE FIRM LEVEL.

10.5. AREAS FOR FURTHER RESEARCH.

10.6. MANAGERIAL IMPLICATIONS.

10.0. OBJECTIVES.

The objective of this chapter is to relate the empirical findings of this study back to the theoretical analysis of manufacturer advertising and product policy. From this the current position of the theory will be ascertained and the possible areas for future research and managerial action identified.

10.1. ADVERTISING AT THE MARKET LEVEL.

This section relates the tests on advertising at the market level back to the theoretical processes and to previous empirical work.

10.1.1. FURTHER EVIDENCE OF THE RELATIONSHIP BETWEEN MANUFACTURER CONCENTRATION AND ADVERTISING ?

As was shown in chapters seven and nine the findings of the tests on the 1970 sample suggested that manufacturer concentration had a significant positive log linear impact on manufacturer advertising. Leaving aside (until the next

section) the major implications of considering the retail environment it is worth discussing the implications of such a finding and the apparent absence of a relationship for the 1981 sample, particularly as the bulk of previous empirical work on advertising has been concerned with this relationship.

Previous tests on links between concentration and advertising have sometimes made the leap between the neo-classical models and a hypothesis suggesting a relationship between concentration and advertising (e.g. Greer 1971). However as Koutsyannis observes the link between the industrial empiricists and the industrial theorists is sometimes a "heroic" leap and deriving theoretical expectations of a relationship are particularly dependent on the type of oligopolistic behaviour that is postulated.

If the 1970 finding is robust then a plausible explanation of the link is that in very unconcentrated markets firms have little ability to alter demand curves. As concentration increases the ability to alter demand increases until such a point of concentration is reached that oligopolists begin to recognize inter-dependence and so the rate of increase in advertising expenditure tails off.

This is not inconsistent with the traditional models of the firm but as was highlighted in chapters two and three the traditional models and indeed the game theory models give only a very limited (or uni-dimensional) insight into the expected behaviour of firms. The need for further behavioural work with structural underpinning is however of great importance if the different streams of industrial economic thought identified by Hay and Morris (1979, p6) are to gain

from each other.

The results of the 1970 study show some consistency with previous work in that a relationship is found. The form of this relationship however contrasts to previous studies in that as well as finding retail environment variables to have a significant effect on the advertising sales ratios of manufacturers the relationship between concentration and advertising is found to be log-linear. Evidence for a linear relationship, e.g. Ornstein (1974), Rees (1975), and Brush (1976), and evidence for a quadratic relationship, e.g. Cable (1973), Sutton (1974), Buxton et al. (1984) and Uri (1987), is not supported by this study.

Given that the sample is limited to convenience goods it is perhaps sensible to compare the findings to work that has been similarly constrained to convenience goods e.g. Cable (1973) and Sutton (1974). Both these studies found evidence for a quadratic relationship based on samples from the mid nineteen sixties. The contrast between the 1970 study of this work and work on earlier time periods by Cable (1973) and Sutton (1974) could arise from two causes.

First, it could be from under specification of the model. If there are missing variables such as retail concentration then this may cause conflicting results.

Secondly, it could arise from sampling error. All three samples (Cable (1973), Sutton (1974) and the early sample in this study) are small samples. As was mentioned in chapter three Sutton (1974) was criticised by Rees (1975) for the quadratic nature of the function being dependent on few high concentration values. Given the difficulty of obtaining large samples in this field the only way of establishing a

relationship beyond reasonable doubt is by a larger number of studies.

The 1981 findings pose further problems for those advocating a relationship between manufacturer concentration and manufacturer advertising. The evidence of the 1981 sample is that there is no such relationship. This divergence from the earlier findings may arise from some dormant variable (again possibly connected with the retailer environment) becoming active or from problems with an unrepresentative sample. One possible source of measurement error on top of those identified earlier is the divergence between advertising card rates and the amount actually paid for advertising. If the practice of discounting has become more common between 1970 and 1981 then this would explain the models poor performance on the latter sample.

One cannot however rule out the possibility that the 1981 results arise not from measurement error but from there being no relationship between manufacturer concentration and advertising. This latter interpretation would of course be consistent with the findings of Reekie (1975).

10.1.2. THE IMPACT OF THE RETAIL ENVIRONMENT ON MANUFACTURER ADVERTISING. ANOTHER CRISIS FOR ECONOMIC THEORY ?

Though most of the economic literature on the structural determinants of manufacturer advertising has been concerned with the relationship with manufacturer concentration, the main thrust of this thesis has been to suggest that the retail environment has important effects on manufacturer behaviour and performance.

As was shown in chapter two the theoretical models of

manufacturer performance say very little about the impact of differing retail environments on manufacturer performance other than demonstrating that retail structure can be expected to affect manufacturer price. Given the plausibility of retail structure having an effect on other aspects of manufacturer performance there seems to be a need to develop models that can generate greater understanding as to the magnitude and method of that effect. That such models will have to make a methodological departure from the rigour of the formal economic models and from the prescriptive emphasis of the marketing literature to form "softer" more qualitative models (e.g. the model of bargaining power derived in chapter two) is evident from chapter two.

For many economists such a methodological departure to models that are not "definitive" statements of what will happen under certain structural conditions, but are plausible statements as to the types of strategy that will occur in certain structural conditions will be regarded as a regressive step but as Kornai (1974) observes:

"The peak reached by the equilibrium theory is extremely impressive, and, perhaps its present-day adherents are capable of building a look-out tower on this peak. Still we think that we should descend from the peak to the plains and begin again from a much lower level to climb another steeper and higher peak."

The empirical tests shown in chapter seven on the effect of retail concentration and own label on advertising give limited support to the assertion that the retail environment influences manufacturer performance. That the support is only "limited" is due to the fact that for the latter time period retail concentration is not found to be significant whilst own label is found only to have a small (but significant)

effect on the advertising intensity of manufacturers in the 1981 sample. Though the limited nature of these findings should be recognized both the strong evidence for the earlier sample and the poor availability of data on the retail environment highlight the need for further studies and a thorough exploration of the economics of the marketing channel.

10.2. ADVERTISING AT THE FIRM LEVEL.

The tests for structural influences on advertising at the firm level provided a number of interesting although tentative results.

10.2.1. STRUCTURAL INFLUENCES ON FIRM BEHAVIOUR.

Of particular interest tests to find a relationship between various measures of market position and a firm's advertising sales ratio proved insignificant. Such a finding prompts the question of whether firms of different market positions pursue broadly similar strategies as regards the intensity of advertising or (more probably) whether the relationship between market position and advertising intensity is a discontinuous one. Future work is needed (perhaps using a case study approach) to shed some light on identifying whether strategies are more likely to occur in one form of structure than another.

10.2.2. ADVERTISING STRATEGY IN THE FACE OF THE CHANGING RETAIL ENVIRONMENT.

The degree of advertising intensity was found to be positively related to retail concentration. This might be regarded as adding weight to the argument for including the retail environment in models seeking to explain manufacturer

behaviour and performance. One important caveat to this is however that the retail concentration and own label variables used were market not firm variables thus there is the possibility of the variables reflecting the different market settings of the firms and not specifically the different retail environments that these firms face.

10.3. PRODUCT VARIETY AT THE MARKET LEVEL.

10.3.1. THE STRUCTURAL DETERMINANTS OF VARIETY.

One of the novel features of this work has been the attempt to empirically identify the structural determinants of product variety.

The main finding for both samples is that market size has a positive linear relationship with brand numbers and that manufacturer concentration has a negative relationship. That market size influences the amount of variety is not particularly surprising since with a sample of convenience goods (low in price) size by value will reflect size in terms of volume. In terms of the theoretical trade off between variety and economies of scale (discussed in chapter four and characterized by Meade (1974)) this finding is consistent with the view that in larger markets the threshold for economical production will be met for more brands than in smaller markets. This will arise because there will be greater volume of demand at any one point on the preference map if one assumes there to be a uniform spread and there is likely to be a greater volume of demand even if the spread is uneven.

The finding of a negative linear relationship between manufacturer concentration and product variety is one that

has implications for competition policy and the literature pertaining to it.

It is prima facie evidence that the consumer gets more choice in an unconcentrated market. The argument for going on to say that this is socially desirable then rests on deciding whether such choice is of benefit to the consumer and whether the limitation of choice in more concentrated markets is more than offset by cost economies in such markets.

In regard to Scherer (1979) and Schmalensee (1974) who talk of "brand proliferation" by oligopolists (to deter entry) this evidence suggests that either such proliferation is not very common or that compared to unconcentrated markets such "proliferation" is small. This leads to the unenviable situation for the oligopolist who may be accused on the one hand of brand proliferation deterring entry and on the other hand of not offering more choice to the consumer. The implication of this is a re-enforcement of the belief that the brand policies of oligopolists have to be examined on a case by case basis and that economies of scale together with the desirability of choice may be of the most importance in justifying brand policy.

10.3.2. DOES THE RETAIL ENVIRONMENT HAVE AN EFFECT ON THE AMOUNT OF VARIETY OFFERED ?

Despite the strong a priori expectations that retail concentration and own label share would affect the level of variety on offer, the empirical results of this study suggest that there is no linear or log-linear relationship between these variables and the number of manufacturer brands available in a market.

In terms of the general effects of increasing retail concentration it is important to realize that this conclusion does not necessarily mean that retail concentration is not affecting consumer choice. The justification for saying this is that even given the results of these tests it is still possible that brand numbers may be unevenly spread across retail outlets with the result that overall numbers are unchanged whilst there is an increase in usage of large multiple outlets. The brand variety of such multiples is likely to be less than the variety of the equivalent number of small shops needed to serve that demand (even though it may offer more variety in one particular location). A tangential area for research would be tracing the level of variety that some of the major chains offer over time.

10.4. PRODUCT VARIETY AT THE FIRM LEVEL.

The main finding of the firm level tests was the positive association found between the percentage of market share and the percentage of variety within a market. The interesting aspect of this result is that it suggests that the incidence of market leaders with a small number of brands is low and that therefore as suggested earlier product proliferation is a requirement for success.

The other finding with implications for management is that for the 1981 sample retail concentration was found to have an impact on brand numbers (particularly in log form when included with sales). This impact was found to be greater on brand leaders. This suggests that brand leaders especially are tailoring their product policy to meet the demands of the retail environment that they are in. Given the lack of

evidence at a market level of such an effect this evidence does not support interventionist action on the grounds of consumer choice but suggests that at a more micro level the retail environment is affecting brand numbers.

10.5. AREAS FOR FUTURE RESEARCH.

The study of the effects of retail concentration and own label penetration on manufacturer advertising and product variety has promoted a number of areas that warrant further investigation.

The main area for future research is perhaps the importance of incorporating the retail environment into future structural work. Two dimensions to the retail environment need to be explored: the effects of differing retail structures and the effects of differing buying processes. Both can be expected to alter retail power vis-a-vis the manufacturer and hence alter manufacturer behaviour and performance. This study has analysed two aspects of the retail stage, concentration and own label share, with respect to manufacturer advertising and brand variety of convenience goods. Within this (still large area) there is scope for further empirical study to find how robust the findings of this study are and scope for case study analysis to examine traits in firm strategies across markets.

Other areas of manufacturer behaviour and performance which could be examined such as profitability are only constrained by the poor nature of retail data and the difficulty of matching classifications of markets across the retailer manufacturer interface.

10.7. MANAGERIAL IMPLICATIONS.

For the manager this study has suggested how structural forces are an important influence on performance. This not only re-enforces the basic marketing premise that strategy should be formed in the light of the prevailing environment but also suggests that time should be spent considering the processes of structural change (in particular retail change).

The increase in the number of products that are becoming "convenience" products is one such structural change that needs to be identified particularly for goods presently on what may be termed the periphery of convenience. That is to say goods that are increasingly becoming routine purchases with little sales assistance required. Such goods might include chemist products, D.I.Y. goods and soft furnishings. Firms involved in these markets need to be aware that these goods are becoming increasingly convenience in nature and that similar structures to the grocery sector may emerge in these areas.

APPENDIX A: MARKET LEVEL RESULTS.

- A1. 1970 CROSS SECTION RESULTS ON THE ADVERTISING SALES RATIO.
 - A1.1. LINEAR RESULTS.
 - A1.2. LOG-LINEAR RESULTS.
- A2. 1981 CROSS SECTION RESULTS ON THE ADVERTISING SALES RATIO.
 - A2.1. LINEAR RESULTS.
 - A2.2. LOG-LINEAR RESULTS.
- A3. RESULTS ON CHANGES IN THE ADVERTISING SALES RATIO.
 - A3.1. LINEAR RESULTS.
 - A3.2. LOG-LINEAR RESULTS.
- A4. 1970 CROSS SECTION RESULTS ON PRODUCT VARIETY.
 - A4.1. LINEAR RESULTS.
 - A4.2. LOG-LINEAR RESULTS.
- A4. 1981 CROSS SECTION RESULTS ON PRODUCT VARIETY.
 - A4.1. LINEAR RESULTS.
 - A4.2. LOG-LINEAR RESULTS.
- A5. RESULTS ON CHANGES IN PRODUCT VARIETY.
 - A5.1. LINEAR RESULTS.
 - A5.2. LOG-LINEAR RESULTS.

A1. 1970 CROSS SECTION RESULTS ON THE ADVERTISING/SALES RATIO.

A1.1. LINEAR RESULTS.

CONS	H-IN(L)	PV	RET	OWN	SALES	R	adj R	N
6.88 (7.17)	9.11 (9.86)	-0.003 (0.007)	-.028 (.158)	-.227 (.131)	-.016 (.027)	.39	.03	15
4.56 (5.63)	-2.58 (9.11)	-0.005 (.005)	.059 (.141)	-.133 (.148)	/	.15	.19	15
5.63 (5.45)	-2.35 (9.03)	-0.005 (.005)	.001 (.12)	/	/	.08	-.17	15
6.40c (3.36)	-0.96 (7.92)	-0.005 (.005)	/	-.105 (.123)	/	.14	-.10	15
1.49 (2.70)	-3.61 (4.81)	/	.113b (.05)	-.143c (.08)	/	.22	.10	24
1.13 (2.59)	-1.72 (4.83)	/	.070 (.044)	/	/	.10	.01	25
5.06b (2.29)	-1.60 (5.10)	/	/	-.067 (.08)	/	.04	-.05	24
3.91c (1.94)	-0.85 (4.95)	/	/	/	/	.00	-.04	25
4.08 (2.17)	.737 (5.73)	/	/	/	-.003 (.003)	.06	-.03	23

/cont. Advertising Sales Ratio 1970 linear tests.

CONS	H-IN(H)	PV	RET	OWN	SALES	R	adjR	N
4.47 (5.66)	-1.26 (9.18)	-.005 (.005)	.050 (.14)	-.133 (.15)	/	.15	-.19	15
5.52 (5.48)	-0.86 (9.08)	-.005 (.005)	.008 (.12)	/	/	.08	-.17	15
6.02 (3.43)	.130 (7.96)	-.005 (.005)	/	-.108 (.13)	/	.14	-.10	15
1.33 (2.76)	-3.05 (4.99)	/	.112b (.05)	-.141c (.08)	/	.21	.09	24
0.93 (2.66)	-1.04 (4.99)	/	.069 (.04)	/	/	.10	.02	25
4.80b (2.38)	-0.91 (5.26)	/	/	-.066 (.076)	/	.04	-.06	24
3.69c (2.03)	-0.24 (5.11)	/	/	/	/	.00	-.04	25
3.76 (2.26)	1.53 (5.89)	/	/	/	-.003 (.003)	.07	-.03	23

CONS	CR3	PV	RET	OWN	SALES	R	adjR	N
-.514 (7.56)	.109 (.062)	-.002 (.006)	-.007 (.128)	-.214 (.118)	-.015 (.024)	.49	.21	15
-1.84 (7.40)	.086 (.073)	-.003 (.005)	.014 (.121)	-.134 (.138)	/	.25	-.05	15
-.655 (7.27)	.085 (.072)	-.004 (.005)	-.042 (.107)	/	/	.18	-.04	15
-1.41 (6.06)	.088 (.067)	-.004 (.005)	/	-.127 (.116)	/	.25	.05	15
-2.36 (4.25)	.035 (.045)	/	.098c (.053)	-.120 (.078)	/	.22	.10	24
-3.16 (4.19)	.046 (.045)	/	.065 (.044)	/	/	.14	.06	25
.311 (4.23)	.048 (.047)	/	/	-.056 (.074)	/	.07	-.01	24
-.584 (2.17)	.058 (5.73)	/	/	/	-.004 (.003)	.13	.04	23

/cont. Advertising Sales Ratio 1970 linear tests.

CONS	CR3	PV	RET	OWN	SALES	R	adjR	N
-6.88 (3.94)	.051 (.046)	/	/	/	/	.05	.01	25
4.36 (5.35)	/	-.005 (.005)	.042 (.122)	-.131 (.141)	/	.15	-.09	15
4.89 (4.85)	/	-.005 (.005)	-.005 (.100)	/	/	.07	-.07	16
6.07a (1.88)	/	-.005 (.005)	/	-.107 (.118)	/	.14	-.01	15
0.39 (2.25)	/	/	.105b (.052)	-.130c (.076)	/	.19c	.12	24
0.56 (1.99)	/	/	.068 (.042)	/	/	.10	.06	26
4.43a (1.13)	/	/	/	-.064 (.073)	/	.03	-.01	24
4.26a (.789)	/	/	/	/	-.003 (.003)	.06	.02	24
1.63 (2.32)	/	/	.056 (.046)	/	-.002 (.003)	.12	.04	24

A1.2. 1970 ADVERTISING SALES RATIO - LOG-LINEAR RESULTS.

CONS	H-IN(L)	PV	RET	OWN	SALES	R	adj R	N
1.84 (2.06)	.977c (.459)	-.198 (.254)	.074 (1.07)	-.451c (.241)	-.151 (.425)	.62c	.40	15
1.23 (1.71)	.976c (.448)	-.268 (.193)	.416 (1.02)	-5.34c (.269)	/	.60c	.42	15
2.75 (1.74)	.949c (.510)	-.287 (.219)	-.792 (.936)	/	/	.65	.25	15
1.90a (.417)	1.00b (.425)	-.286 (.180)	/	-.469b (.207)	/	.59b	.47	15
-1.92b (.810)	.417 (.340)	/	1.81a (.560)	-.470	/	.40b	.30	22
-0.83 (.613)	.452 (.359)	/	.908b (.368)	/	/	.27b	.20	23

/cont. Advertising Sales Ratio 1970 log-linear tests.

CONS	H-IN(L)	PV	RET	OWN	SALES	R	adj R	N
.584b (.273)	.423 (.415)	/	/	.050 (.120)	/	.05	-.05	22
1.33a (.421)	.417 (.375)	/	/	/	-.402 (.204)	.20	.12	23
.603a (.218)	.409 (.400)	/	/	/	/	.05	.00	23
CONS	H-IN(H)	PV	RET	OWN	SALES	R	adj R	N
1.81 (2.04)	1.01c (.467)	-.200 (.252)	.069 (1.07)	-.438 (.240)	-.127 (.420)	.62c	.41	15
1.23 (1.71)	.977b (.448)	-.268 (.193)	.416 (1.02)	-.534c ()	/	.60c	.42	15
2.75 (1.74)	.949c (.510)	-.287 (.219)	-.792 (.936)	/	/	.42	.25	15
1.90a (.416)	1.00b (.425)	-.285 (.180)	/	-.470b (.207)	/	.59b	.47	15
-1.92b (.810)	.417 (.340)	/	1.81a (.560)	-.470c (.229)	/	.40b	.30	22
-.830 (.613)	.452 (.359)	/	.908b (.368)	/	/	.27b	.20	23
.584b (.273)	.423 (.415)	/	/	.050 (.200)	/	.05	-.05	22
1.35a (.417)	.498 (.395)	/	/	/	-.398c (.202)	.22c	.14	23
.603a (.218)	.409 (.400)	/	/	/	/	.05	.00	23
CONS	CR3	PV	RET	OWN	SALES	R	adj R	N
-4.05 (2.40)	2.41b (.867)	-.154 (.230)	.404 (.941)	-.410c (.218)	-.080 (.377)	.69b	.52	15
-4.43c (2.29)	2.41b (.855)	-.194 (.180)	.630 (.914)	-.471c (.243)	/	.67b	.53	15
-3.29 (2.50)	2.52b (.964)	-.199 (.203)	-.443 (.822)	/	/	.54b	.40	15

/cont. Advertising Sales Ratio 1970 log-linear tests.

CONS	CR3	PV	RET	OWN	SALES	R	adj R	N
-3.46b (.188)	2.43c (.832)	-.225 (.170)	/	-.370 (.188)	/	.66a	.56	15
-5.03a (1.53)	1.56b (.721)	/	1.72a (.521)	-.427b	/	.48a	.40	22
-4.41a (1.56)	1.75b (.753)	/	.909a (.339)	/	/	.38a	.32	23
-3.00c (1.73)	1.75c (.887)	/	/	.072 (.187)	/	.17	.08	22
-2.84c (1.65)	1.69c (.856)	/	/	/	/	.16c	.12	23
-2.10 (1.57)	1.68b (.795)	/	/	/	-.397b (.190)	.31b	.24	23
.447 (1.96)	/	-.396c (.215)	.716 (1.19)	-.516 (.316)	/	.39	.20	14
1.83 (1.75)	/	-.399c (.218)	-.412 (.963)	/	/	.22	.09	15
1.59a (.469)	/	-.433b (.200)	/	-.400 (.243)	/	.37c	.25	14
-.326 (.786)	/	/	.726c (.379)	/	-.246 (.190)	.27b	.20	24
1.21b (.478)	/	/	/	-.065 (.196)	-.412c (.222)	.15	.07	22
-2.12b (.804)	/	/	1.80a (.568)	-.484b (.232)	/	.35b	.28	22
-1.01c (.589)	/	/	.885b (.365)	/	/	.21b	.18	24
.386b (.192)	/	/	/	.036 (.199)	/	.00	-.05	22

A2. 1981 CROSS SECTION RESULTS ON THE ADVERTISING SALES RATIO.

A2.1. LINEAR RESULTS.

CONS	HIN(L)	PV	RET	OWN	SALES	R	adjR	N
10.41 (6.31)	-2.96 (17.9)	-.003 (.009)	.028 (.106)	-.280c (.128)	-.009 (.031)	.53	.13	12

/cont. Advertising Sales Ratio 1981 linear tests.

CONS	HIN(L)	PV	RET	OWN	SALES	R	adjR	N
9.73 (6.70)	-4.76 (20.2)	-.005 (.007)	.003 (.084)	-.179 (.150)	/	.26	-.16	12
10.17 (6.85)	-15.17 (18.7)	-.005 (.007)	-.003 (.085)	/	/	.11	-.22	12
9.54 (5.26)	-5.33 (16.2)	-.004 (.005)	/	-.157 (.117)	/	.27	.03	13
5.89c (2.92)	-9.62 (8.92)	/	.052 (.041)	-.137c (.072)	/	.18	.06	24
4.64 (3.02)	-7.48 (9.38)	/	.021 (.040)	/	/	.03	-.06	24
6.88b (2.78)	-4.37 (7.88)	/	/	-.108c (.062)	/	.14	.05	25
5.36c (8.20)	-5.36 (2.76)	/	/	/	/	.02	-.02	25
6.82 (2.91)	-7.59 (8.45)	/	/	/	-.004 (.003)	.08	-.01	23
CONS	HIN(H)	PV	RET	OWN	SALES	R	adjR	N
10.51 (6.29)	-5.74 (18.9)	-.004 (.010)	.039 (.107)	-.273c (.127)	-.006 (.033)	.53	.14	12
10.52 (6.87)	-8.28 (19.9)	-.005 (.007)	.008 (.082)	-.170 (.146)	/	.27	-.14	12
10.89 (7.03)	-17.18 (18.9)	-.005 (.007)	.002 (.083)	/	/	.13	-.19	12
10.44c (5.4)	-8.14 (16.29)	-.005 (.005)	/	-.150 (.113)	/	.29	.05	13
7.13b (3.13)	-13.41 (9.22)	/	.056 (.039)	-.138c (.070)	/	.21	.10	24
5.88c (3.27)	-11.53 (9.78)	/	.026 (.039)	/	/	.06	-.03	24
8.16b (3.04)	-8.08 (8.42)	/	/	-.115c (.061)	/	.16	-.08	25
6.76b (3.04)	-9.26 (8.73)	/	/	/	/	.05	.01	25

/cont. Advertising Sales Ratio 1981 linear tests.

CONS	HIN(H)	PV	RET	OWN	SALES	R	adjR	N
6.82c (2.91)	-7.59 (8.49)	/	/	/	-.004 (.003)	.08	-.01	23
CONS	CR3	PV	RET	OWN	SALES	R	adjR	N
10.10 (13.0)	.005 (.215)	-.002 (.010)	.014 (.114)	-.289 (.126)	-.013 (.037)	.53	.13	12
14.11 (15.2)	-.071 (.193)	-.005 (.005)	.005 (.081)	-.181 (.139)	/	.27	-.15	12
16.93 (15.7)	-.131 (.196)	-.004 (.007)	.014 (.083)	/	/	.09	-.25	12
7.18 (7.36)	.009 (.082)	-.004 (.005)	/	-.183c (.098)	/	.28	.06	14
9.62 (7.08)	-.079 (.091)	/	.049 (.042)	-.138c (.073)	/	.16	.04	24
6.63 (7.30)	-.049 (.095)	/	.016 (.040)	/	/	.01	.08	24
4.74 (5.03)	.008 (.057)	/	/	-.113c (.062)	/	.13	.06	26
2.05 (5.14)	.026 (.062)	/	/	/	-.003 (.003)	.05	-.04	24
1.78 (4.99)	.021 (.060)	/	/	/	/	.01	-.04	26
8.92 (5.40)	/	-.004 (.006)	-.005 (.072)	-.194 (.127)	/	.26	-.02	12
7.14 (5.64)	/	-.004 (.007)	-.036 (.074)	/	/	.04	-.17	12
7.97a (2.20)	/	-.004 (.005)	/	-.183c (.093)	/	.28	.15	14
3.82c (2.20)	/	/	.032 (.037)	-.127c (.072)	/	.13	.05	24
3.08 (2.27)	/	/	.007 (.036)	/	/	.00	-.04	24
5.49a (1.23)	/	/	/	-.114c (.060)	/	.13c	-.06	26

/cont. Advertising Sales Ratio 1981 linear tests.

CONS	CR3	PV	RET	OWN	SALES	R	adjR	N
5.18a (1.55)	/	-.004 (.008)	/	/	.0007 (.0222)	.06	-.12	14
3.47 (2.54)	/	/	.012 (.039)	/	-.003 (.003)	.05	-.05	22
7.44 (1.45)	/	/	/	-.172b (.067)	-.006c (.003)	.27b	.20	24

A2.2 1981 ADVERTISING SALES RATIO - LOG-LINEAR RESULTS.

CONS	HIN(L)	PV	RET	OWN	SALES	R	adjR	N
.239 (4.60)	-.497 (2.25)	-.232 (.465)	.703 (1.78)	-.794 (.546)	.060 (.860)	.31	-.27	12
.578 (2.73)	-.278 (1.84)	-.234 (.381)	.680 (1.38)	-.855 (.647)	/	.29	-.19	12
.928 (2.86)	-.823 (1.89)	-.108 (.388)	.392 (1.17)	/	/	.08	-.32	12
1.07 (1.03)	-.343 (1.53)	-.148 (.313)	/	-.454 (.322)	/	.26	-.02	12
-5.38 (1.36)	-.739 (.982)	/	.467 (.712)	-.230 (.287)	/	.05	-.10	22
-.110 (1.24)	-.603 (.958)	/	.115 (.555)	/	/	.02	-.08	22
.362 (.505)	-.442 (.861)	/	/	-.168 (.196)	/	.05	-.04	23
.491 (.637)	-.460 (.863)	/	/	/	-.178 (.239)	.04	-.05	23
.148 (.436)	-.521 (.850)	/	/	/	/	.02	-.03	23
CONS	HIN(H)	PV	RET	OWN	SALES	R	adjR	N
-.152 (4.47)	-.798 (2.32)	-.272 (.474)	.826 (1.74)	-.804 (.543)	.133 (.863)	.31	-.26	12
.454 (2.62)	-.475 (1.85)	-.243 (.383)	.707 (1.36)	-.853 (.636)	/	.29	-.18	12
1.01 (2.73)	-.849 (1.93)	-.114 (.391)	-.438 (1.12)	/	/	.08	-.32	12

/cont. Advertising Sales Ratio 1981 log-linear tests.

CONS	HIN(H)	PV	RET	OWN	SALES	R	adjR	N
1.03 (1.03)	-.459 (1.59)	-.154 (.312)	/	-.451 (.314)	/	.26	-.02	12
-.799 (1.26)	-1.22 (1.04)	/	.489 (.667)	-.218 (.277)	/	.09	-.06	22
-.458 (1.18)	-1.15 (1.03)	/	.173 (.528)	/	/	.06	-.04	22
.106 (.538)	-.959 (.958)	/	/	-.150 (.194)	/	.09	-.01	23
.220 (.653)	-.997 (.956)	/	/	/	-.164 (.234)	.08	-.01	23
-.102 (.459)	-1.07 (.939)	/	/	/	/	.06	.01	23
CONS	CR3	PV	RET	OWN	SALES	R	adjR	N
5.46 (9.66)	-2.86 (5.98)	-.317 (.481)	.976 (1.73)	-.862 (.553)	.232 (.892)	.33	-.24	12
3.80 (8.67)	-1.61 (.381)	-.250 (.381)	.726 (1.35)	-.879 (.626)	/	.30	-.17	12
4.62 (9.23)	-1.57 (4.86)	-.100 (.390)	-.551 (1.07)	/	/	.07	-.33	12
.605 (3.60)	.334 (172)	-.131 (.297)	/	-.496 (.284)	/	.28	.04	13
1.96 (4.76)	-1.02 (2.67)	/	.365 (.729)	-.222 (.296)	/	.03	-.13	22
1.32 (4.62)	-.496 (2.54)	/	.014 (.552)	/	/	.00	-.10	22
-.691 (2.64)	.666 (1.36)	/	/	-.180 (.193)	/	.06	-.03	24
-.927 (2.60)	.882 (1.34)	/	/	/	-.209 (.233)	.05	-.04	24
-1.26 (2.56)	.862 (1.34)	/	/	/	/	.02	-.03	24
.826 (2.03)	/	-.227 (.351)	.626 (1.24)	-.877 (.585)	/	.28	-.02	12

/cont. Advertising Sales Ratio 1981 log-linear tests.

CONS	DR3	PV	RET	OWN	SALES	R	adjR	N
1.72 (2.09)	/	-.077 (.361)	-.646 (.966)	/	/	.05	-.18	12
1.29c (.663)	/	-.149 (.268)	/	-.507c (.264)	/	.27	.13	13
.180 (.957)	/	/	.242 (.639)	-.192 (.279)	/	.02	-.08	22
.742 (.689)	/	-.109 (.345)	/	/	-.043 (.466)	.02	-.16	14
.888 (1.20)	/	/	-.129 (.541)	/	-.154 (.277)	.02	-.09	22
1.14b (.505)	/	/	/	-.248 (.191)	-.277 (.232)	.11	.02	24
.435 (.871)	/	/	-.026 (.500)	/	/	.00	-.05	22
.598b (.219)	/	/	/	-.194 (.188)	/	.05	.00	24
.756 (.415)	/	/	/	/	-.206 (.229)	.04	-.01	24

A3. RESULTS ON CHANGES IN THE ADVERTISING SALES RATIO (1970-1981)

A3.1. LINEAR RESULTS.

CONS	H-IN	PV	RET	OWN	SALES	R	adjR	N
-.140 (23.7)	-.171 (.118)	.574b (.174)	-.539 (.585)	-.004 (.140)	-1.36b (.568)	.75c	.53	12
-9.68 (32.4)	-.083 (.161)	.447 (.232)	.333 (.643)	-.225 (.202)	/	.50	.16	12
-15.2 (32.5)	-.097 (.163)	.412 (.234)	.090 (.615)	/	/	.39	.13	12
-10.2 (27.6)	-.057 (.159)	.390 (.237)	/	-.125 (.193)	/	.34	.09	12
11.7 (28.6)	-.222 (.206)	/	.378 (.529)	.088 (.141)	/	.10	-.06	21

/cont. Changes in the Advertising Sales Ratio Linear Tests.

CONS	H-IN	PV	RET	OWN	SALES	R	adjR	N
18.94 (21.4)	-.197 (.200)	/	/	.119 (.136)	/	.07	-.02	22
CONS	DR3	PV	RET	OWN	SALES	R	adj R	N
-.095 (24.5)	-.477 (.377)	.566b (.180)	-.569 (.603)	-.003 (.144)	-1.35c (.587)	.73c	.50	12
-9.73 (32.7)	-.204 (.501)	.449 (.237)	.305 (.643)	-.226 (.204)	/	.49	.15	12
-15.29 (32.8)	-.250 (.507)	.412 (.239)	.060 (.613)	/	/	.38	.12	12
-9.76 (27.6)	-.200 (.494)	.384 (.239)	/	-.125 (.192)	/	.34	.10	12
11.29 (29.0)	-.527 (.638)	/	.361 (.536)	.088 (.143)	/	.07	-.09	21
18.47 (21.6)	-.492 (.617)	/	/	.118 (.137)	/	.06	-.04	22
-10.33 (30.63)	/	.479c (.212)	.234 (.581)	-.233 (.191)	/	.47	.25	12
-16.26 (31.15)	/	.447c (.217)	-.036 (.553)	/	/	.36	.20	12
-12.68 (25.32)	/	.418c (.213)	/	-.139 (.179)	/	.33	.18	12
-28.30 (18.40)	/	.519b (.192)	/	/	-.395b (.131)	.46b	.36	14
13.16 (28.66)	/	/	.301 (.526)	.066 (.140)	/	.03	-.07	21
23.25 (26.19)	/	/	.091 (.501)	/	-.509 (.573)	.05	-.05	22
18.59 (21.63)	/	/	/	.074 (.138)	-.427 (.574)	.05	-.05	22
18.12 (21.4)	/	/	/	.096 (.133)	/	.03	-.02	22
24.88 (16.50)	/	/	/	/	-.136 (.109)	.07	.02	24

A3.2. RESULTS ON CHANGES IN THE ADVERTISING SALES RATIO - LOG LINEAR RESULTS.

CONS	H-IN	PV	RET	OWN	SALES	R	adjR	N
6.04c (2.86)	-.556 (.386)	1.09b (.390)	-1.11 (.831)	.176 (.365)	-1.70b (.696)	.71	.47	12
.995 (2.76)	-.145 (.513)	.881 (.540)	-.065 (1.01)	-.239 (.554)	/	.43	.06	12
.897 (2.59)	-.201 (.467)	.861 (.506)	-.192 (.904)	/	/	.42	.17	12
.790 (.494)	-.196 (.489)	.799 (.494)	/	-.095 (.494)	/	.34	.09	12
2.87c (1.47)	-.390 (.405)	/	-.087 (.626)	.056 (.320)	/	.06	-.11	21
3.01c (1.37)	-.343 (.357)	/	-.143 (.560)	/	/	.05	-.05	22
2.58c (.828)	-.405 (.394)	/	/	.105 (.301)	/	.05	-.05	22
5.12a (1.43)	-.698c (.380)	/	/	/	-.875c (.455)	.19	.11	23
2.68a (.702)	-.335 (.350)	/	/	/	/	.04	-.00	23
CONS	CR3	PV	RET	OWN	SALES	R	adjR	N
6.73 (3.65)	-.886 (.863)	1.10b (.416)	-1.13 (.890)	.143 (.388)	-1.67c (.761)	.67	.40	12
.719 (3.28)	.024 (1.02)	.932 (.546)	-.104 (1.01)	-.281 (.554)	/	.43	.04	12
.712 (3.10)	-.092 (.940)	.910 (.515)	-.260 (.910)	/	/	.40	.14	12
.802 (2.58)	-.202 (.960)	.833 (.496)	/	-.129 (.489)	/	.33	.08	12
3.04 (1.95)	-.433 (.840)	/	-.059 (.639)	-.007 (.319)	/	.02	-.15	21
3.05 (1.86)	-.363 (.746)	/	-.142 (.571)	/	/	.02	-.09	22
2.96c (1.56)	-.526 (.809)	/	/	.050 (.298)	/	.02	-.08	22

/cont. Changes in the Advertising Sales Ratio Log-linear Tests.

CONS	DR3	PV	RET	OWN	SALES	R	adjR	N
6.13b (2.33)	-1.22 (.830)	/	/	/	-.854c (.486)	.15	.06	23
2.84c (1.46)	-.418 (.726)	/	/	/	/	.02	-.03	23
.764 (2.46)	/	.927c (.479)	-.101 (.929)	-.279 (.500)	/	.43	.18	12
.530 (2.32)	/	.926c (.458)	-.278 (.836)	/	/	.40	.25	12
.371 (1.48)	/	.869c (.440)	/	-.153 (.449)	/	.32	.17	12
1.54b (.653)	/	1.10b (.400)	/	/	-1.01b (.364)	.45b	.35	14
2.33 (1.35)	/	/	-.084 (.624)	-.055 (.299)	/	.00	-.11	21
3.77b (1.66)	/	/	-.337 (.571)	/	-.524 (.436)	.07	-.02	22
3.19b (1.25)	/	/	/	-.097 (.292)	-.492 (.458)	.06	-.04	22
2.37c (1.19)	/	/	-.163 (.558)	/	/	.00	-.05	22
2.03a (.622)	/	/	/	-.008 (.281)	/	.00	-.05	22
2.90a (.508)	/	/	/	/	-.456c (.252)	.13c	.09	24

A4. 1970 CROSS SECTION RESULTS ON PRODUCT VARIETY.

A4.1. LINEAR RESULTS.

CONS	H-IN(L)	ADSA	RET	OWN	SALES	R	adjR	N
382 (282)	-252 (477)	-15.7 (15.97)	-1.85 (7.34)	.037 (7.81)	/	.14	-.17	16
382 (270)	-252 (454)	-15.7 (14.48)	-1.84 (6.36)	/	/	.14	-.07	16

/Cont. Product Variety 1970 Linear Tests.

CONS	H-IN(L)	ADSA	RET	OWN	SALES	R	adjR	N
330c (183)	-311 (399)	-16.45 (15.10)	/	-.800 (6.79)	/	.14	-.08	16
351 (266)	-237 (459)	/	-3.25 (6.95)	1.70 (6.64)	/	.07	-.15	17
338 (252)	-249 (441)	/	-2.43 (5.97)	/	/	.06	-.07	17
254 (160)	-343 (388)	/	/	.285 (5.74)	/	.05	-.08	17
141 (172)	-8.11 (396)	/	/	/	2.08b (.775)	.40b	.30	15
257 (148)	-340 (370)	/	/	/	/	.05	-.08	17
-351 (324)	-310 (455)	/	8.31 (6.97)	1.89 (6.22)	2.81 (.950)	.49	.29	15
-362 (307)	-299 (435)	/	8.93 (6.38)	/	2.81a (.910)	.49b	.35	15
-29.4 (182)	-76.3 (419)	/	/	4.08 (6.06)	2.18b (.807)	.42c	.26	15
CONS	HIN(H)	ADSA	RET	OWN	SALES	R	adjR	N
383 (283)	-246 (479)	-15.39 (15.97)	-1.94 (7.32)	.045 (7.81)	/	.14	-.17	16
383 (270)	-246 (457)	-15.42 (14.50)	-1.92 (6.33)	/	/	.14	-.07	16
328 (184)	-307 (403)	-16.02 (15.17)	/	-.838 (6.79)	/	.14	-.08	16
354 (265)	-255 (460)	/	-3.13 (6.93)	1.64 (6.64)	/	.07	-.14	17
342 (251)	-267 (442)	/	-2.33 (5.95)	/	/	.07	-.07	17
262 (163)	-358 (389)	/	/	.273 (5.73)	/	.06	-.08	17
264 (150)	-355 (371)	/	/	/	/	.06	-.01	17

/Cont. Product Variety 1970 Linear Tests.

CONS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
-194 (413)	-1.72 (3.93)	-5.40 (18.4)	6.95 (6.68)	.330 (7.61)	2.61b (1.06)	.50	.22	15
490 (386)	-1.94 (4.33)	-12.35 (17.49)	-3.06 (6.60)	.705 (7.83)	/	.14	-.18	16
486 (367)	-1.91 (4.14)	-12.87 (15.86)	-2.82 (5.78)	/	/	.14	-.08	16
405 (329)	-2.41 (4.07)	-12.89 (16.87)	/	-.763 (6.92)	/	.12	-.10	16
551 (354)	-3.24 (3.73)	/	-3.46 (6.20)	1.84 (6.50)	/	.10	-.10	17
538 (339)	-3.28 (3.60)	/	-2.65 (5.32)	/	/	.10	-.03	17
459 (305)	-3.84 (3.48)	/	/	.170 (5.63)	/	.08	-.05	17
460 (293)	-3.83 (3.33)	/	/	/	/	.08	.02	17
372 (273)	/	-15.50 (15.47)	-3.75 (6.20)	.437 (7.54)	/	.12	-.10	16
330 (249)	/	-15.05 (13.76)	-2.97 (5.17)	/	/	.10	-.02	17
225c (124)	/	-17.17 (14.85)	-1.55 (6.62)	/	/	.09	-.05	16
-304 (265)	/	/	5.83 (4.95)	/	2.60a (.796)	.46b	.38	16
343 (258)	/	/	-5.02 (5.88)	2.04 (6.43)	/	.05	-.09	17
-359 (315)	/	/	6.26 (6.13)	1.55 (6.05)	2.77a (.925)	.47c	.33	15
-55.8 (106)	/	/	/	3.81 (7.11)	2.22a (.753)	.42b	.32	15
293 (233)	/	/	-3.59 (4.84)	/	/	.03	-.03	18
136 (87.4)	/	/	/	-.550 (5.63)	/	.00	-.07	17

/Cont. Product Variety 1970 Linear Tests.

CONS	DR3	ADSA	RET	OWN	SALES	R	adjR	N
-.674 (62.1)	/	/	/	/	2.08a (.671)	.41a	.36	16

A4.2. 1970 PRODUCT VARIETY - LOG-LINEAR RESULTS.

CONS	HIN(L)	ADSA	RET	OWN	SALES	R	adjR	N
3.90 (2.32)	-.033 (.819)	-.629 (.453)	-1.04 (1.43)	-.173 (.421)	/	.35	.09	15
4.18c (2.13)	-.130 (.754)	-.529 (.368)	-1.35 (1.17)	/	/	.34	.16	15
2.33b (.767)	-.100 (.796)	-.690 (.435)	/	-.335 (.348)	/	.32	.13	15
3.61 (2.21)	-.779 (.586)	/	-1.45 (1.33)	.175 (.311)	/	.26	.09	17
3.08 (1.94)	-.834 (.564)	/	-1.05 (1.10)	/	/	.25	.14	17
1.25a (.378)	-1.01c (.549)	/	/	-.005 (.265)	/	.20	.08	17
1.25a (.279)	-1.01c (.530)	/	/	/	/	.20c	.14	17
CONS	HIN(H)	ADSA	RET	OWN	SALES	R	adjR	N
3.88 (2.33)	-.060 (.848)	-.619 (.458)	-1.02 (1.44)	-.170 (.418)	/	.35	.09	15
4.15c (2.15)	-.153 (.785)	-.522 (.375)	-1.34 (1.17)	/	/	.34	.16	15
2.30b (.773)	-.139 (.822)	-.676 (.441)	/	-.330 (.346)	/	.32	.13	15
3.53 (2.21)	-1.40 (1.34)	/	-1.40 (1.34)	.164 (.311)	/	.27	.10	17
3.02 (1.93)	-.882 (.573)	/	-1.03 (1.10)	/	/	.25	.15	17
1.24a (.374)	-1.06c (.556)	/	/	-.013 (.263)	/	.21	.09	17
1.23a (.279)	-1.06c (.537)	/	/	/	/	.21c	.15	17

/Cont. Product Variety 1970 - Log-Linear Tests.

CONS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
1.35 (3.87)	-.629 (1.66)	-.307 (.460)	.180 (1.34)	-.143 (.361)	.941c (.432)	.58	.34	15
4.69 (4.17)	-.403 (1.94)	-.560 (.522)	-1.06 (1.42)	-.150 (.423)	/	.35	.10	15
5.41 (3.49)	-.618 (1.77)	-.461 (.423)	-1.36 (1.11)	/	/	.35	.17	15
2.95 (3.39)	-.302 (1.89)	-.668 (.491)	/	-.335 (.335)	/	.32	.13	15
8.03a (2.66)	-1.95 (1.21)	/	-1.62 (1.24)	.165 (.303)	/	.30	.14	17
7.78a (2.56)	-2.06c (1.16)	/	-1.26 (1.03)	/	/	.29c	.18	17
6.25 (2.34)	-2.33 (1.20)	/	/	-.044 (.263)	/	.21	.10	17
6.20b (2.24)	-2.32c (1.16)	/	/	/	/	.21c	.16	17
3.94c (2.03)	/	-.640 (.336)	-1.04 (1.36)	-.178 (.384)	/	.35	.17	15
4.19b (1.69)	/	-.577c (.280)	-1.32 (1.02)	/	/	.32	.22	16
2.42a (.373)	/	-.726b (.311)	/	-.353 (.303)	/	.32c	.20	15
5.00b (1.99)	/	/	-2.10 (1.27)	.244 (.315)	/	.16	.04	17
.755 (1.92)	/	/	-.349 (.993)	/	.947a (.327)	.46b	.38	16
4.20b (1.74)	/	/	-1.50 (1.05)	/	/	.11	.06	18
1.75a (.287)	/	/	/	-.023 (.286)	/	.00	-.06	17
.105 (.493)	/	/	/	/	.992a (.291)	.45a	.41	16

A4. 1981 CROSS SECTION RESULTS ON PRODUCT VARIETY.

A4.1. LINEAR RESULTS.

CONS	HIN(L)	ADSA	RET	OWN	SALES	R	adjR	N
718.4b (301.7)	-514.0 (896.6)	-14.09 (19.15)	-4.02 (4.14)	-1.94	/	.31	-.04	13
696.6b (273.5)	-556.4 (833.6)	-11.95 (16.25)	-4.14 (3.89)	/	/	.30	.07	13
607.8b (277.8)	-1032 (724)	-15.41 (18.45)	/	-.848 (6.87)	/	.21	-.02	14
598.7b (224.7)	-395.3 (723.9)	/	-4.47 (3.72)	.913 (6.08)	/	.28	.06	14
597.8b (214.4)	-344.1 (609.4)	/	-4.46 (3.56)	/	/	.28	.15	14
447.2b (192.0)	-902.4 (608.4)	/	/	2.35 (5.57)	/	.17	.03	15
440.0b (185.1)	-761.0 (492.5)	/	/	/	/	.16	.09	15
CONS	HIN(H)	ADSA	RET	OWN	SALES	R	adjR	N
742.1b (315.6)	-558.6 (910.6)	-14.78 (19.2)	-3.98 (4.09)	-2.19 (7.60)	/	.31	-.03	13
-50.2 (249)	-1197c (599)	/	5.57 (3.70)	4.19 (4.78)	2.83a (.739)	.75b	.61	12
-5.17 (240)	-1062c (570)	/	5.56 (3.65)	/	2.68a (.707)	.72b	.62	12
715.4b (285.9)	-591.2 (856.2)	-12.34 (16.32)	-4.16 (3.83)	/	/	.31	.07	13
637.0c (294.9)	-1058.8 (746.2)	-16.63 (18.51)	/	-1.32 (6.79)	/	.21	-.02	14
606.9b (230.7)	-392.6 (726.8)	/	-4.53 (3.68)	.780 (5.99)	/	.28	.06	14
605.6b (219.9)	-350.6 (621.7)	/	-4.51 (3.51)	/	/	.28	.15	14
454.2b (202.1)	-890.2 (624.3)	/	/	2.02 (5.54)	/	.16	.02	15
447.2b (194.3)	-768.0 (509.5)	/	/	/	/	.15	.08	15

/Cont. Product Variety 1981 Linear Tests.

CONS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
705 (459)	-13.9c (8.37)	-3.43 (16.11)	6.16 (3.76)	2.79 (6.74)	3.03b (.842)	.79b	.61	12
941.2 (724.2)	-4.13 (9.20)	-14.38 (19.40)	-4.46 (3.98)	-2.72 (7.62)	/	.30	-.05	13
903.0 (680.6)	-4.18 (8.75)	-11.19 (16.37)	-4.78 (3.69)	/	/	.29	.05	13
600.5 (424.0)	-3.61 (4.62)	-13.42 (18.58)	/	-3.90 (6.69)	/	.10	-.14	15
788.1 (610.6)	-3.32 (8.22)	/	-4.82 (3.65)	-1.168 (5.53)	/	.27	.05	14
790.9 (575.8)	-3.37 (7.65)	/	-4.84 (3.42)	/	/	.27	.14	14
540.2 (362.3)	-3.99 (4.17)	/	/	-1.84 (4.69)	/	.08	-.06	16
515.7 (345.9)	-4.11 (4.04)	/	/	/	/	.07	.00	16
639.6b (258.3)	/	-13.30 (18.38)	-5.33 (3.33)	-2.77 (7.27)	/	.28	.04	13
597.5b (223.2)	/	-10.05 (15.6)	-5.66c (3.07)	/	/	.27	.12	13
299.9 (175.3)	/	-14.51 (18.23)	/	-3.73 (6.57)	/	.05	-.10	15
558.0b (195.9)	/	/	-5.43c (2.91)	-1.14 (4.23)	/	.26	.14	15
-94.45 (265)	/	/	1.66 (3.37)	/	2.31b (.768)	.61b	.52	12
-6.34 (97.72)	/	/	/	1.65 (3.94)	2.11a (.511)	.61a	.54	12
-118 (289)	/	/	1.45 (3.61)	1.73 (5.42)	2.36b (.822)	.61b	.46	12
548.8a (185.9)	/	/	-5.66b (2.68)	/	/	.26b	.20	15
208.0b (96.4)	/	/	/	-.214 (3.93)	/	.02	-.04	17

/Cont. Product Variety 1981 - Linear Tests.

CONS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
26.72 (54.73)	/	/	/	/	2.06a (.479)	.61a	.57	14

A4.2. 1981 PRODUCT VARIETY - LOG-LINEAR RESULTS.

CONS	HIN(L)	ADSA	RET	OWN	SALES	R	adjR	N
2.23 (2.65)	-1.41 (1.69)	-.260 (.408)	-.257 (1.40)	-.313 (.642)	/	.28	-.13	12
2.52 (2.46)	-1.44 (1.60)	-.162 (.338)	-.657 (1.07)	/	/	.25	-.03	12
1.17 (.959)	-1.94 (1.37)	-.212 (.371)	/	-.057 (.377)	/	.22	-.04	13
2.99 (2.21)	-1.18 (1.33)	/	-.980 (1.11)	.110 (.457)	/	.28	.06	14
2.92 (2.09)	-1.13 (1.26)	/	-.854 (.940)	/	/	.27	.14	14
.869 (.740)	-1.92 (1.12)	/	/	.106 (.305)	/	.21	.07	15
1.06b (.476)	-1.76c (.982)	/	/	/	/	.20c	.14	15
CONS	HIN(H)	ADSA	RET	OWN	SALES	R	adjR	N
2.15 (2.53)	-1.61 (1.69)	-.277 (.403)	-.231 (1.36)	-.346 (.634)	/	.30	-.10	12
2.53 (2.32)	-1.58 (1.61)	-.162 (.335)	-.692 (1.02)	/	/	.27	-.01	12
1.16 (.952)	-2.05 (1.43)	-.222 (.370)	/	-.083 (.370)	/	.22	-.04	13
2.94 (2.12)	-1.32 (1.33)	/	-.968 (1.09)	.094 (.449)	/	.29	.07	14
2.85 (1.99)	-1.28 (1.26)	/	-.853 (.897)	/	/	.28	.15	14
.872 (.733)	-2.01 (1.16)	/	/	.086 (.300)	/	.21	.08	14
1.02c (.488)	-1.88c (1.03)	/	/	/	/	.20c	.14	15

/Cont. Product Variety 1981 - Log-Linear Tests.

CDNS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
13.14c (8.11)	-7.95 (3.80)	-.213 (.323)	1.48 (1.32)	-.399 (.512)	1.21 (.543)	.62	.30	12
10.93 (7.56)	-4.08 (4.23)	-.284 (.403)	-.253 (1.35)	-.436 (.642)	/	.30	-.10	12
10.52 (7.28)	-3.58 (4.03)	-.148 (.338)	-.872 (.958)	/	/	.25	-.03	12
6.43c (3.43)	-2.14 (1.77)	-.199 (.363)	/	-.255	/	.17	-.08	14
10.84 (8.33)	-3.75 (3.58)	/	-.933 (1.09)	3.24 (.445)	/	.30	.08	14
10.84c (8.04)	-3.75 (3.40)	/	-.933 (.835)	/	/	.30	.17	14
6.94c (3.07)	-2.55 (1.57)	/	/	-.134 (.275)	/	.17	.05	16
-.203 (.693)	-1.77c (.977)	/	/	/	.761b (.303)	.50b	.40	13
6.64b (2.92)	-2.47 (1.52)	/	/	/	/	.16	.10	16
3.85c (1.77)	/	-.251 (.400)	-.773 (1.23)	-.331 (.629)	/	.21	-.09	12
4.19 (1.58)	/	-.148 (.334)	-1.21 (.870)	/	/	.18	.00	12
2.33b (.518)	/	-.263 (.367)	/	-.222 (.360)	/	.05	-.12	14
4.45a (1.44)	/	/	-1.46 (.933)	.092 (.402)	/	.22	.09	15
1.22 (2.42)	/	/	-.298 (.988)	/	.738 (.524)	.31	.16	12
4.34a (1.30)	/	/	-1.35c (.718)	/	/	.21c	.15	15
1.98a (.333)	/	/	/	-.063 (.269)	/	.00	-.06	17
.601 (.550)	/	/	/	/	.801c (.314)	.35c	.30	14

AS RESULTS ON CHANGES IN VARIETY.

AS.1. LINEAR RESULTS.

CONS	H-IN	ADSA	RET	DWN	SALES	R	adjR	N
60.48 (37.5)	-.013 (.219)	.869C (.433)	-.530 (.861)	.138 (.238)	/	.43	.11	12
68.00c (33.7)	-.032 (.207)	.783c (.390)	-.340 (.763)	/	/	.41	.18	12
64.23 (27.8)	-.099 (.195)	.668 (.385)	/	.007	/	.32	.10	13
84.03b (37.1)	-.122 (.217)	/	-.594 (.892)	-.042 (.226)	/	.13	-.13	14
92.73b (34.9)	-.116 (.205)	/	-.678 (.737)	/	/	.14	-.03	14
73.38b (26.9)	-.172 (.192)	/	/	-.132 (.178)	/	.10	-.05	15
60.59b (20.3)	-.175 (.189)	/	/	/	/	.06	-.01	15
CONS	CR3	ADSA	RET	DWN	SALES	R	adjR	N
-24.39 (32.59)	.412 (.567)	1.10b (.350)	.776 (.843)	-.059 (.200)	1.92c (.803)	.71	.47	12
60.16 (37.41)	-.156 (.666)	.845c (.431)	-.480 (.850)	.133 (.236)	/	.44	.12	12
67.36c (33.62)	-.206 (.631)	.764c (.389)	-.302 (.754)	/	/	.41	.19	12
64.37b (27.60)	-.349 (.605)	.655 (.387)	/	.005 (.201)	/	.33	.11	13
82.30c (37.01)	-.479 (.669)	/	-.560 (.881)	-.039 (.222)	/	.15	-.11	14
72.67 (26.58)	-.603 (.597)	/	/	-.126 (.177)	/	.12	-.03	15
60.55a (20.01)	-.628 (.585)	/	/	/	/	.08	.01	15
60.52 (35.09)	/	.877b (.384)	-.548 (.750)	.140 (.220)	/	.43	.22	12

/Cont. Changes in Variety - Linear Tests.

CONS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
68.38c (31.77)	/	.801b (.353)	-.380 (.678)	/	/	.40c	.27	12
61.98b (26.36)	/	.721c (.357)	/	.002 (.194)	/	.30	.17	13
60.60 (16.57)	/	.769b (.284)	/	/	.651a (.088)	.83a	.80	14
85.39b (35.93)	/	/	-.753 (.820)	-.023 (.216)	/	.10	-.06	14
70.20b (26.49)	/	/	/	-.136 (.177)	/	.04	-.03	15

AS.2. CHANGES IN VARIETY - LOG-LINEAR RESULTS.

CONS	H-IN	ADSA	RET	OWN	SALES	R	adjR	N
2.37 (1.43)	-.110 (.301)	.350 (.205)	-.340 (.593)	.025 (.291)	/	.44	.12	12
2.39 (1.32)	-.107 (.280)	.347 (.191)	-.325 (.529)	/	/	.44	.23	12
2.13b (.889)	-.164 (.283)	.312 (.185)	/	-.105 (.254)	/	.36	.15	13
4.05a (1.13)	-.194 (.266)	/	-.626 (.579)	-.082 (.273)	/	.23	.00	14
4.03a (1.08)	-.195 (.255)	/	-.705 (.495)	/	/	.22	.08	14
3.19a (.688)	-.247 (.255)	/	/	-.243 (.229)	/	.16	.02	15
2.70a (.515)	-.275 (.255)	/	/	/	/	.08	.01	15
CONS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
-2.13 (2.92)	.309 (.594)	.489b (.184)	.453 (.641)	-.125 (.257)	1.02 (.536)	.66	.38	12
2.76 (1.64)	-.336 (.573)	.348 (.198)	-.316 (.585)	.031 (.286)	/	.46	.15	12
2.78 (1.52)	-.329 (.533)	.346 (.184)	-.298 (.522)	/	/	.46	.25	12

/Cont. Changes in Variety - Log-Linear Tests.

CONS	CR3	ADSA	RET	OWN	SALES	R	adjR	N
2.55c (1.29)	-.369 (.545)	.314 (.180)	/	-.108 (.249)	/	.37	.16	13
4.53a (1.37)	-.474 (.568)	/	-.606 (.577)	-.065 (.272)	/	.24	.02	14
4.53a (1.31)	-.485 (.541)	/	-.665 (.497)	/	.24	.10	2.03	14
3.78 (1.12)	-.562 (.540)	/	/	-.226 (.230)	/	.17	.03	15
3.46a (1.07)	-.650 (.532)	/	/	/	/	.10	.03	15
2.21 (1.29)	/	.370c (.187)	-.378 (.551)	-.011 (.272)	/	.43	.22	12
2.23c (1.19)	/	.369c (.174)	-.370 (.491)	/	/	.43c	.30	12
1.81c (.672)	/	.344c (.170)	/	-.138 (.239)	/	.34	.20	13
-.025 (.464)	/	.370 (.135)	/	/	.749a (.158)	.70a	.64	14
3.82a (1.06)	/	/	-.700 (.557)	-.083 (.267)	/	.19	.04	14
3.80a (1.02)	/	/	-.780 (.477)	/	/	.18	.11	14
2.74a (.510)	/	/	/	-.266 (.227)	/	.09	.03	15
.916b (.389)	/	/	/	/	.634 (.188)	.49a	.44	14

APPENDIX B: A NOTE ON OWN LABELS AND THE RELATIONSHIP WITH
RETAIL CONCENTRATION.

One of the greatest changes in the U.K. economy in the last half century has been the structural change in retailing. One feature of this change has been in the rise of own label penetration in low involvement convenience goods particularly in the grocery sector.

To date little empirical work has been done on the causes of variety in penetration of own labels across markets. The work that has been done has tended to concentrate on the variables of price differentials, manufacturer concentration and the advertising sales ratio e.g. Cooke and Schutte (1967), Morris (1979) and McMaster (1987). It is not the intention of this article to replicate this work but merely to demonstrate that retail concentration would seem to have an effect on own label success. The only prior work that has included retail concentration was the study by Cooke and Schutte (1967) of the U.S. market in the 1960s. This slightly suprisingly showed no relationship between retail concentration and own label penetration. The purpose of this short paper is to show that for the U.K. grocery and household sector in both 1970 and 1981 the degree of retailer concentration was an important factor in explaining the degree of own label penetration.

HYPOTHESES:

Working from within the paradigm that the degree of own label penetration is determined by structural variables the following hypotheses were tested:

Own label penetration is a linear/log linear function of:

- (1) Retailer Concentration
- (2) Advertising-Sales ratio
- (3) Manufacturer Concentration

There are a number of reasons for expecting own label penetration to be influenced by the level of retail concentration.

In order to gain the biggest price difference between own labels and manufacturer brands the retailer needs a large amount of bargaining power over the own label manufacturer. Though there are a number of sources of such bargaining power absolute size of the retailer and size of the retailer within the market will both be positive influences on this power (chapter two).

For the retailer to gain valuable public relations coverage a certain threshold in sales of own labels is likely to exist. Press coverage will tend to be restricted to own labels that have national coverage and that belong to retailers who are familiar names. The degree of retail concentration should be a proxy for such characteristics.

Related to the likelihood of press coverage of own labels being greater at high levels of concentration is the likelihood of retailers in highly concentrated markets using own labels for promoting the image of their stores and as a competitive weapon against other retailers.

The reason for including hypotheses (2) and (3) is to indicate the robustness of the retail concentration measure when included with other measures. There is a risk of multicollinearity in the multiple regressions using the advertising sales ratio since it may be influenced by the level of manufacturer concentration e.g. Sutton (1974) or by retail concentration. The relationship of retail

concentration and own label share can however reasonably be expected to be found despite such problems.

The sample consists of 29 markets within the grocery and household sector. Information on these markets were obtained from a variety of market reports. Given the nature of secondary market reports it is important to exercise caution on any analysis based on them for two reasons. First, the figures quoted in such reports are often merely estimates based on trade sources. Second, the selection of markets that research companies chose to investigate may not be representative of the population within a particular sector.

To reduce the likelihood of wayward estimation influencing the figures used, more than one source was used where possible. This however leaves the problem (and to some extent exacerbates the problem) of the sample being representative. Due to the fragmentation of information in this area increasing the sample size is not very feasible. Given this problem any conclusions based on such a sample should be regarded with caution and regarded as persuasive only.

The measure of retail concentration is that of the concentration ratio (i.e. market share) of the largest 10 retailers estimated from market reports. Though subject to some degree of error in estimation such error as it turns out would have to be quite large to have a significant effect on the results.

The measures of manufacturer concentration used are two estimates of the H-Index and the share of the largest three manufacturers for the branded market.

TABLE B.1: 1970 SAMPLE.

Product	O.L.	H-Ind.	CR3	R-CR10	Ad-Sales	
Batteries	0	.4992	.4992	88	10	.49
Baked Beans	26	.5576	.5576	99	60	1.96
Biscuits	17	.3308	.3325	81	45	1.76
Brk. Cereal	4	.4159	.4160	94	50	9.70
Catfood (c)	6	.4115	.4148	91	60	2.83
Choc Confec	1	.2118	.2138	77	20	3.47
Cigarettes	1	.5163	.5164	99	20	.68
Coffee (ins)	23	.5066	.5077	98	50	3.03
Crisps	8	.2959	.2976	84	28	1.88
Custard	2	.6540	.6542	96	49	/
Dogfood (c)	10	.5364	.5368	98	60	3.83
Fish (c)	5	.2029	.2052	65	40	.33
Flour	16	.3359	.3372	90	45	3.05
Fruit (c)	14	.0575	.0610	35	50	.39
Jellies	29	.4381	.4502	95	59	/
Light Bulbs	4	.2668	.2698	86	10	/
Paint	3	.1841	.2100	69	27	1.84
Razors	0	.3200	.3600	90	40	13.84
Soap (t)	16	.1086	.1354	54	70	7.72
Soup (c)	10	.5150	.5214	92	60	2.25
Squash	35	.1401	.1552	63	36	/
Tea	29	.3890	.3906	96	65	2.51
Toothpaste	5	.3181	.3206	95	55	9.47
Washing Powd	2	.4905	.4906	99	53	7.76
Wool	0	.0926	.1046	43	11	/
Yoghurt	17	.3451	.3452	86	54	2.34

O.L. = % Own Label Share of Total Market.
H-Ind. = H Index for Manufacturers (Branded Sector).
CR3 = Three Firm Manufacturer Concentration Ratio.
R-CR10 = Ten Firm Retailer Concentration Ratio.
Ad-Sales = Advertising / Sales Ratio.

TABLE B.2: 1981

Batteries	0	.3572	.3608	82	18	1.72
Baked Beans	29	.3756	.3926	86	75	.92
Biscuits	26	.2849	.2859	80	56	2.16
Brk Cereals	17	.3747	.3783	89	70	6.56
Catfood (c)	12	.4035	.4082	85	65	3.07
Choc Confec	1	.2276	.2582	82	18	3.81
Cigarettes	1	.3432	.3432	90	45	.90
Coffee	30	.4986	.4986	99	65	4.77
Crisps	14	.2172	.2176	72	45	4.29
Custard	8	.3786	.3926	92	88	/
Dogfood (c)	15	.3870	.3974	86	65	3.53
Fish (c)	17	.2592	.3376	78	68	.42
Flour	38	.4573	.4598	97	80	.36
Fruit (c)	30	.2996	.3001	80	85	.24
Honey	47	/	/	/	67	/
Ice Cream	20	.2421	.3266	73	23	.97
Jellies	43	.6234	.6234	99	84	/
Light Bulbs	8	.2164	.2274	77	23	/
Paint	18	.2619	.2788	83	36	5.55
Soap (t)	16	.1807	.2012	67	60	8.47
Soup (c)	16	.4167	.4213	90	85	3.54
Squash	38	.2022	.2182	71	64	/
Tea	27	.3531	.3540	97	80	4.05
Toothpaste	6	.2530	.2534	71	64	16.25
Washing Pow	8	.4874	.4878	99	80	5.60
Wash Up Liq	17	.2830	.2545	78	70	4.30
Wool	0	.1252	.1772	59	16	/
Yoghurt	23	.2806	.2860	78	36	2.32

- O.L. = % Own Label Share of Total Market.
 H-Ind. = H Index for Manufacturers (Branded Sector).
 CR3 = Three Firm Manufacturer Concentration Ratio.
 R-CR10 = Ten Firm Retailer Concentration Ratio.
 Ad-Sales = Advertising / Sales Ratio.

The H-Index has two measures because market report data does not contain data on the market share data of very small firms and thus it was necessary to construct the limits within which the H-Index would fall. One shortcoming of the H-Index is despite its popularity the implicit value judgement of weighting market share by itself. This weighting means that small firms have little impact on the concentration measure. The three firm concentration ratio is a traditional measure of manufacturer concentration and was included for this reason despite its total lack of reflection of the size and distribution of smaller firms.

A priori predicting a positive or negative relationship between manufacturing and own labels is difficult since one might expect two conflicting effects of concentration. First, a low level of concentration might be a proxy for lack of entry barriers in which case one would expect a negative relationship. Secondly, high concentration (particularly if founded on advertising advantage) might indicate an ease of mimicry for an own label, in which case one might expect a positive relationship.

One might expect the degree of advertising to likewise affect the degree of own label success since if advertising leads to perceived product heterogeneity then own labels will be less likely to succeed. Clearly advertising is not the only determinant of the perception of heterogeneity as the physical differences between own labels and brands will be important. The slightly heroic assumption used here is that within the convenience good sector physical differences are minimal compared to the subjective opinion formed by advertising. Ideally, one should include some measure of the

ease of replication but practically such a measure is not feasible as even estimates of the minimum efficient plant scale would be a poor proxy. The measure of advertising intensity used is the advertising sales ratio. Given the likelihood of intense advertising creating a deterrent to entry one would expect a negative relationship with own label penetration. Morris (1979) includes data on the price differential as well as advertising-sales data, though due to the difficulty of obtaining a measurement for it given the variety in price differentials between stores it is omitted from this work.

RESULTS

Table B.3: THE EFFECT OF RETAIL CONCENTRATION ON OWN LABEL PENETRATION - 1970.

	cons	Ret. Con	Man. Con	Adv-Sal	R. sq	adj. R. sq	N
			H-Index(h)				
Linear:	-4.14 (6.51)	.381a (.108)	2.80 (12.1)	-.839c (.473)	.42b	.33	22
			CR 3				
	-8.12 (9.82)	.384a (.107)	.060 (.103)	-.900c (.481)	.43b	.34	22
	-1.33 (4.94)	.297a (.105)	/	/	.24a	.21	27
			H-Index(h)				
Log:	-2.39a (.647)	2.12a (.418)	.108 (.326)	-.402c (.196)	.59a	.52	22
			CR 3				
	-3.09 (1.78)	2.13a (.424)	.325 (.803)	-.424c (.213)	.59a	.52	22
	-1.31b (.529)	1.34a (.330)	/	/	.40a	.37	27

cons = constant
 Ret. Con. = Retail concentration
 Man. Con. = Manufacturer Concentration
 Adv-Sal = Advertising Sales ratio.

Significance :
 a = 99%
 b = 95%
 c = 90%

TABLE B.4: THE EFFECT OF RETAILER CONCENTRATION ON OWN LABEL PENETRATION - 1981

	cons	Ret. Con.	Man. Con.	Adv-Sal	R. sq	adj. R. sq	N
Lin:	10.18 (9.22)	.281b (.102)	H-Index (h) -14.11 (27.14)	-1.21c (.580)	.39b	.29	22
	14.50 (19.00)	.267b (.100)	CR 3 -.100 (.243)	-1.15b (.546)	.38b	.28	22
	1.93 (6.27)	.275b (.100)	/	/	.22b	.19	29
Log:	-1.63 (.997)	1.47a (.447)	H-Index (h) -.477 (.895)	-.153 (.194)	.40b	.30	22
	3.06 (3.68)	1.59a (.438)	CR 3 -2.43 (2.02)	-.137 (.182)	.40b	.30	22
	-1.33b (.646)	1.38a (.372)	/	/	.34a	.31	29

cons = constant

Ret. Con. = Retail concentration

Man. Con. = Manufacturer Concentration

Adv-Sal = Advertising Sales ratio.

Significance :

a = 99%

b = 95%

c = 90%

CONCLUSIONS

The results above show a highly significant relationship between own label penetration and retail concentration for the convenience good sector. Both the linear and log linear relationships would appear to be significant but the log linear model is to be preferred due to the higher correlation. The log form suggesting that at high levels of concentration, the increase in own label associated with a 1 percent rise in concentration is less than the increase at lower levels of concentration.

Such a conclusion thus suggests that structural considerations are of importance in determining market performance. Cooke and Schutte's (1967) dismissal of the importance of retail concentration and bargaining power

would thus appear to be no longer justified. Their main justification for such a dismissal was on the basis, not of rigorous empirical work, but on the observation that some products did not have much own label penetration despite high retail concentration. This latter observation is of course still true (and its limited nature is influential in these results) but it does not negate the concept of bargaining power and concentration acting as a foundation on which marketing strategy is built.

An interesting result is that manufacturer concentration seems to have no effect on the degree of own label penetration regardless of whether the three firm concentration ratio or the H - Index are used.

The results also suggest that advertising intensity is weakly but negatively related to own label success suggesting that advertising may act as a deterrent against own label penetration or at least that high advertising within a market might collectively act as a deterrent against own label.

APPENDIX D: ADVERTISING AT FIRM LEVEL.

Key: MS = Market Share.
 SALES = Annual Sales.
 ADV = Annual Advertising Expenditure.

1970 SAMPLE

BISCUITS	MS	SALES	ADV	%ADV	AD-SALES RATIO (%)
United Biscuits	51	59262000	828500	34	1.40
Assoc. Biscuits	25	29050000	521400	21	1.79
Burtons	5	5810000	-	0	0
Nabisco	5	5810000	28300	1	0.05
Rowntree	4	4648000	21500	1	0.46
Cadbury	4	4648000	278500	11	0.60
Other	6	6972000	782800	32	11.22
Total Brands =		116200000	2461000		2.12
Total Market =		140000000			1.76
(Own Label 17% of total market = 23800000)					

BRK. CEREALS

Kelloggs	57	19526775	2237600	51	11.46
Weetabix	21	7194075	1246500	29	17.33
Nabisco	12	4110900	285600	7	6.95
Quaker	6	2055450	322200	7	15.67
Other	4	1370300	267000	6	19.48
Total Brands =		34257500	4358900		12.72
Total Market =		35500000			12.28
(Own Label 3.5% of total market = 3768325)					

CHOCOLATE CON.

Cadburys	34	90100000	1915900	22	2.13
Rowntree	26	68900000	2630900	30	3.82
Mars	19	50350000	1808600	21	3.59
Other	21	55650000	2396600	27	4.31
		265000000	8752000		3.30

CIGARETTES

Imperial	67	1007700000	3805500	41	0.38
Gallaher	25	376000000	1933500	21	0.51
Carreras	7	105280000	1340900	14	1.27
Other	1	150400000	2223600	24	1.48
		1504000000	9303500		0.62

COFFEE

Nestle	64	34988800	1010300	44	3.50
Gen. Foods	33	18041100	1085100	48	7.29
Other	3	1640100	188400	8	13.93
		54670000	2283800		5.07
		71000000			3.22

(Own Labels 23% of total market = 16330000)

	MS	SALES	ADV	ADV	AD-SALES RATIO (%)
FLOUR					
R. H. M.	51	14437080	410200	45	2.84
Soillers	39	11040120	420600	48	3.91
Frenlite	3	849240	1800	0	0.22
Other	8	2264640	89000	9	3.93
Total Brands =		28308000	921600		3.26
Total Market =		33700000			2.73
(Own Labels 16% of total market = 5392000)					
PAINT					
ICI	31	48472840	677200	25	1.40
WPM	16	25018240	635200	24	2.54
Berger	13	20327320	580100	22	2.85
Household	10	15636400	131700	5	0.84
Other	30	46909200	665100	25	1.42
Total Brands =		136360000	2689300		1.72
Total Market =		161200000			1.67
(Own labels 3% of total market = 4840000)					
POTATO CRISPS					
Golden Wonder	46	27084800	351700	46	1.30
Smiths	29	16486400	257400	34	1.56
Walkers	12	7065600	47200	6	0.67
Tudor	6	3532800	33600	4	0.95
Meredith Drew	6	3532800	70200	9	1.99
Others	2	1177500	2500	0	0.21
Total Brands =		58880000	763000		1.30
Total Market =		64000000			1.19
(Own Labels 8% of total market = 5120000)					
RAZORS, BLADES					
Gillette	40	2800000	687700	43	24.56
Wilkinson	40	2800000	470330	30	16.80
Other	20	1400000	424570	27	30.33
		7000000	1582600		22.61
SOAP					
Unilever	20	5040000	757000	31	15.02
Colgate	19	4788000	334200	14	6.63
Proc & Gamole	14	3528000	794000	32	22.51
Cussons	11	2772000	172600	7	6.23
Other	36	9072000	407400	16	4.49
Total Brands =		25200000	2475200		9.82
Total Market =		30000000			8.25
(Own Label 16% of total market = 4800000)					

	MS	SALES	ADV	ADV	R/S RATIO (%)
SOUP (CANNED)					
Heinz	70	34650000	475400	49	1.37
Campbells	13	6435000	209900	21	3.26
C + Blackwell	9	4455000	201900	21	4.53
Other	8	3960000	89200	9	2.25

Total Brands = 49500000 977400 1.97
 Total Market = 55000000 1.78

(Own label 10% of total market = 55000000)

SQUASH					
Cadbury - Sch	26	13218400	53400	11	0.42
Reckitt (Rob)	20	10168000	93800	18	0.92
Beecham	17	8642800	-	-	-
Batchelors	9	4575600	165500	32	3.62
Affoods	3	1525200	-	-	-
Others	25	12710000	197600	39	1.55

Total Brands = 50840000 512400 1.01
 Total Market = 82000000 0.62

(Own label 38% of total market = 32250000)

TEA					
Brooke Bond	57	56658000	1048900	29	1.85
Tychoo	27	26838000	766900	21	2.86
Lyons	8	7952000	432300	12	5.69
Others	8	7952000	1365700	38	17.17

Total Brands = 99400000 3633800 3.66
 Total Market = 140000000 2.60

(Own label 29% of total market = 40600000)

TOOTHPASTE					
Colgate	38	7942000	736700	41	9.38
Unilever	36	7524000	534500	30	7.10
Beecham	21	4389000	369200	20	8.41
Others	5	1045000	158300	9	15.11

Total Brands = 20900000 1808700 8.65
 Total Market = 22000000 8.22

(Own labels 5% of total market = 11000000)

WASHING UP LIQUID (%)					
Proct & Gamble	55	8712000	811400	46	9.31
Unilever	23	3643200	335300	19	9.20
Colgate Palm	13	2059200	623000	35	30.25
Others	9	1425600	10700	1	0.75

Total Brands = 15840000 1780400 11.24
 Total Market = 22000000 8.09

(Own labels 28% of total market = 61500000)

	MS	SALES	ADV	%ADV	AD/SALES RATIO
WASHING POWDER					
Unilever	51	45981600	4092100	54	8.90
Proc & Gamble	48	43276800	3335400	44	7.71
Other	1	901600	92700	2	10.28
		-----	-----		
Total Brands	=	90160000	7519400		8.34
Total Market	=	92000000			8.17
(Own labels 2% of total market = 1840000)					

YOGHURT					
Express	54	5832000	511400	90	8.77
Unigate	20	2160000	-	0	-
Chambourcy	6	648000	21200	4	3.27
Others	20	2160000	36100	6	1.67
		-----	-----		
Total Brands	=	10800000	568700		5.27
Total Market	=	13500000			
(Own labels 20% of total market = 2700000)					

1981 SAMPLE

	MS	SALES	ADV	%ADV	AD-SALES RATIO
BISCUITS					
Utd Biscuits	45	232430000	7552200	44	3.25
Nabisco	26	134300000	1479600	9	1.10
Rowntree	9	46486800	2255700	13	4.65
Burtens	9	46486800	1064700	6	2.29
Fox's	3	15495600	-	0	-
Cadbury	3	15495600	184100	1	1.19
Oth Brands	5	25826000	4837900	27	18.73
		-----	-----		
Total Brands	=	516520000	17374200		
Total Market	=	698000000			
(Own labels 26% of total market = 181480000)					

BRK. CEREALS

Kelloggs	56	152920000	11177900	53	7.31
Weetabix	22	60075400	5195900	25	8.65
Nabisco	11	30037700	2278300	11	7.58
Quaker	7	19114900	1358100	6	7.10
Oth Brands	4	10922800	1179200	5	10.80
		-----	-----		
Total Brands	=	273070000	21189400		7.76
Total Market	=	329000000			
(Own labels 17% of total market = 55930000)					

CHOC. CONFEC

					(%)
Cadbury's	29	380980000	14280600	27	3.75
Rowntrees	29	380980000	14045500	27	3.69
Mars	24	315300000	16263900	32	5.16
Others	18	236470000	8336500	19	3.53
		-----	-----		
Total Brands	=	1313700000	52926500		4.03
Total Market	=	1327000000			3.99

	MS	SALES	ADV	%ADV	AD-SALES RATIO
CAT-FOOD					
Pedigree	60	138870000	5676600	61	4.09
Soillers	20	46288000	1336700	14	2.89
Heinz	5	11572000	1134900	12	9.81
Others	15	34716000	1107300	13	3.19

Total Brands	=	231440000	9255500		4.00
Total Market	=	263000000			3.52

(Own label 12% of total market = 31560000)

CIGARETTES

Imperial	49	2107000000	14190400	42	0.67
Gallaher	29	1247000000	9514800	28	0.76
Rotmans	12	516000000	3788800	11	0.73
B.A.T.	6	258000000	1250100	4	0.49
Philip Morris	3	129000000	3253500	10	2.52
London Tob	1	43000000	278900	1	0.65

Total Market	=	4300000000	33750700		0.78
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COFFEE (INS)

Nestle	60	141960000	6361600	38	4.48
Gen. Foods	29	68614000	5414800	32	7.89
Brooke Bond	7	16562000	2202200	13	13.30
Other	4	9464000	2782200	17	29.39

Total Brands	=	236600000	16760800		7.08
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Total Market	=	338000000			4.96
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(Own labels 30% of total market = 101400000)

DOG FOOD (CAN)

Pedigree	59	131890000	5513900	87	4.18
Soillers	18	40239000	587300	9	1.46
Quaker	9	20119500	-	0	-
Other	14	31297000	268600	4	0.86

Total Brands	=	223550000	6369800		2.85
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Total Market	=	263000000			2.42
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(Own label share 15% of total market = 39450000)

FISH (CANNED)

Princes	36	43923600	235400	41	0.54
John West	36	43923600	272400	47	0.62
Oth	28	34162800	70900	12	0.21

Total Brands	=	122010000	578800		0.47
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Total Market	=	147000000			0.39
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(Own label share 17% of total market = 24090000)

FRUIT (CANNED)

Del Monte	50	53095000	89700	15	0.17
Libby	19	20176100	16900	3	0.08
Aus Gold	11	11680900	473100	79	4.05
Oth	20	21238000	16900	3	0.08

Total Brands	=	106190000	596700		0.56
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Total Market	=	151700000			0.39
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(Own label share 30% of total market = 45510000)

	MS	SALES	ADV	%ADV	AD-SALES RATIO
FRUIT JUICE					
Del Monte	17	45917000	1100200	20	2.40
Adams	14	37814000	690400	15	1.83
Delora	8	21608000	222300	5	1.03
Libbys	7	18907000	338000	7	1.79
Coca-Cola	4	10804000	744300	16	6.89
Others	50	135050000	1477900	33	1.09

Total Brands = 270100000 4573100 1.69
 Total Market = 365000000 1.25
 (Own label share 26% of total market)

ICE CREAM					
Birds Eye Walls	36	103680000	1775800	63	1.71
Lyons Maid	28	80640000	841000	30	1.04
Otn	36	103680000	222300	7	0.21

Total Brands = 288000000 2839100 0.99
 Total Market = 360000000 0.79
 (Own label share 20% of total market)

PAINT					
ICI	30	59040000	5777200	44	9.79
Crown	20	39360000	3545100	27	9.01
Berger	11	21648000	525200	4	2.43
Macpherson	11	21648000	262600	2	1.21
Other	28	55104000	3019900	23	5.48

Total Brands = 196800000 13130000 6.67
 Total Market = 240000000 1.05
 (Own label share 18% of total market = 54200000)

SHAMPOO					
Unilever	23	14490000	2630400	24	18.15
Beecham	20	12600000	3088500	27	24.51
Proc & Gamble	18	11340000	2494300	22	22.00
Alberto Culver	7	4410000	946100	8	21.45
Colgate Palm	5	3150000	-	0	-
Gillette	4	2520000	-	0	-
Reckitt	2	1260000	568400	5	45.11
Others	21	13230000	1537400	14	11.62

Total Brands = 63000000 11265100 17.88
 Total Market = 75000000 15.02
 (Own label 16% of total market = 12000000)

SOAP					
Lever	32	8064000	1405700	21	17.43
Cussons	18	4536000	632600	9	13.95
Proc & Gamble	17	4284000	1412200	21	32.96
Colgate	14	3528000	457800	7	12.98
Other	19	4788000	2882400	42	60.20

Total Brands = 25200000 6790700 26.95
 Total Market = 30000000 22.64
 (Own label 16% of total market = 4800000)

	MS	SALES	ADV	%ADV	AD-SALES RATIO
SOUP (CANNED)					
Heinz	61	64101240	3347000	75	5.22
Cambelli	15	15762600	496200	11	3.15
Crosse + Black	14	14711760	251900	6	1.71
Baxters	5	5254200	363400	8	6.92
Oth	5	5254200	12600	0.3	0.24

Total Brands	=	105080000	4471200		4.26
Total Market	=	125100000			3.57
(Own label 16% of total market = 20120000)					

SQUASHES					
Robinson	39	61659000	874500	65	1.42
Beecham	24	37944000	-	-	-
Cad-Son	19	30039000	211700	16	0.70
Other	18	28458000	262600	19	0.93

Total Brands	=	158100000	1348800		0.85
Total Market	=	255000000			0.53
(Own label 38% of total market = 96900000)					

TEA					
Brooke Bond	47	125230000	4318100	28	3.44
Lyons Tetley	32	85264000	4285800	28	5.03
Cadbury-Typho	15	39967500	3989900	26	9.98
Oth	6	15987000	2655900	18	16.61

Total Brands	=	268450000	15249700		5.72
Total Market	=	365000000			4.18
(Own label 27% of total market = 101650000)					

TOOTHPASTE					
Colgate	31	19640360	4144800	37	21.10
Beecham	29	18373240	1093400	10	5.95
Gibbs(unilev)	19	12037640	1860500	17	15.46
Proc & Gam	9	5702040	2658100	24	46.61
Stafford Miller	3	1900680	-	0	-
Other	9	5702040	1379400	12	24.19

Total Brands	=	63356000	11136200		17.58
Total Market	=	67400000			16.52
(Own label 6% of total market = 4154000)					

WASHING UP LIQUID					
Proc & Gamble	46	37034600	3386000	70	9.14
Lever	20	16102000	625200	13	3.88
Colgate	12	9661200	102400	2	1.06
Cusson	8	6440800	726800	15	11.28
Other	14	11271400	-	0	-

Total Brands	=	80510000	4840400		6.01
Total Market	=	97000000			4.99
(Own label 17% of total market = 17590000)					

	MS	SALES	ADV	%ADV	AD-SALES RATIO
WASHING POWDER					
Lever	55	130550000	6544600	40	5.01
Proc & Gamble	42	99691200	9890900	60	9.32
Oth	3	7120800	78400	0	1.10

Total Brands	=	237360000	16548100		6.97
Total Market	=	258000000			6.41
(Own label 8% of total market = 21740000)					

YOGHURT					
Express	44	40656000	1092200	48	2.69
Unigate	25	23100000	950400	42	4.11
Chambourcy	10	9240000	150400	7	1.63
Rains	4	3696000	-	0	-
Fruitti	3	2772000	-	0	-
Other	14	12936000	82900	3	0.64

Total Brands	=	92400000	2275900		2.46
Total Market	=	120000000			1.90
(Own label 23% of total market = 38600000)					

MS	SALES	ADV	%ADV	AD-SALES RATIO
4	1370000	10	37	6.10

MS	SALES	ADV	%ADV	AD-SALES RATIO
10	26267300	37	14	1.37
14	73300000			

Total of total market = 37683300				

MS	SALES	ADV	%ADV	AD-SALES RATIO
38	11100000	38	11	0.70
19	12900000	19	6	0.47
19	60330000	32	3	0.17
22	15830000	333	74	3.10

Total = 263000000				

MS	SALES	ADV	%ADV	AD-SALES RATIO
11	10800000	4	28	0.10
11	10000000	1	11	0.11
11	10000000	1	67	0.11

Total = 25000000				

Total = 25000000				

APPENDIX D: PRODUCT VARIETY BY FIRM.

KEY:

MS = % Market share of total brand sales.

PV = Number of brands (inc. flavours).

PV% = % share of brands in market.

%PV/%MS = % of brands per percent of market share.

1970 SAMPLE

	MS	SALES	PV	PV%	%PV/%MS
BISCUITS					
United Biscuits	51	59262000	77	9	0.18
Assoc. Biscuits	25	29050000	30	4	0.16
Burtons	5	5810000	42	5	1.00
Nabisco	5	5810000	24	3	0.60
Rowntree	4	4648000	11	1	0.25
Cadbury	4	4648000	18	2	0.50
Other	6	6972000	649	76	12.7

 Total Brands = 116200000 851
 Total Market = 140000000
 (Own Label 17% of total market = 23800000)

BRK. CEREALS

Kelloggs	57	19526775	15	41	0.72
Weetabix	21	7194075	2	5	0.003
Nabisco	12	4110900	3	8	0.08
Quaker	6	2055450	7	19	0.32
Other	4	1370300	10	27	6.75

 Total Brands = 34257500 37
 Total Market = 35500000
 (Own Label 3.5% of total market = 3768325)

CHOCOLATE CON.

Cadburys	34	90100000	38	11	0.32
Rowntree	26	68900000	19	6	0.23
Mars	19	50350000	32	9	0.47
Other	21	55850000	253	74	3.52
		-----	-----		
		265000000	342		

COFFEE

Nestle	64	28854400	4	22	0.34
Gen. Foods	33	14878050	2	11	0.33
Other	3	1352550	14	67	22.30
		-----	-----		
		45085000	20		
		71000000			

(Own Labels 36.5% of total market = 25915000)

	MS	SALES	PV	%PV	%PV/%MS
FLOUR					
R. H. M.	51	14437080	7	15	0.29
Spillers	39	11040120	3	6	0.15
Frenlite	3	849240	3	6	2.00
Other	8	2264640	35	73	9.13

Total Brands = 28308000 48
 Total Market = 33700000
 (Own Labels 36.5% of total market)

JELLIES					
Rowntrees	59.	/	8	28	0.47
Chivers (cad)	30	/	9	31	1.03
Other	11	/	12	41	3.73
			29		

POTATO CRISPS					
Golden Wonder	46	27084800	6	10	0.22
Smiths	28	16486400	7	11	0.39
Walkers	12	7065600	8	13	1.08
Tudor	6	3532800	8	13	2.17
Meredith Drew	6	3532800	6	10	1.67
Others	2	1177600	28	44	22.00

Total Brands = 58880000 63
 Total Market = 64000000
 (Own Labels 8% of total market = 5120000)

RAZORS, BLADES					
Gillette	40	2800000	6	35	0.88
Wilkinson	40	2800000	7	41	1.03
Other	20	1400000	4	24	1.20
		7000000	17		

SOUP (CANNED)					
Heinz	70	34650000	24	7	0.10
Camobells	13	6435000	24	7	0.50
C + Blackwell	9	4455000	27	8	0.90
Other	8	3960000	273	78	9.75

Total Brands = 49500000 348
 Total Market = 55000000
 (Own label 10% of total market = 5500000)

TOOTHPASTE					
Colgate	38	7942000	3	7	0.18
Unilever	36	7524000	4	10	0.28
Beecham	21	4389000	4	10	0.48
Others	5	1045000	30	73	14.6

Total Brands = 20900000 41
 Total Market = 22000000
 (Own labels 5% of total market = 1100000)

	MS	SALES	PV	%PV	%PV/%MS
WASHING UP LIQUID					
Proct & Gamble	55	8712000	1	6	0.11
Unilever	23	3643200	4	25	1.09
Colgate Palm	13	2059200	1	6	0.46
Others	9	1425600	10	63	7.00

Total Brands =		15840000	16		
Total Market =		22000000			
(Own labels 28% of total market = 6160000)					

WASHING POWDER					
Unilever	51	45981600	10	59	1.16
Proc & Gamble	48	43276800	6	35	0.73
Other	1	901600	1	6	6.00

Total Brands =		90160000	17		
Total Market =		92000000			
(Own labels 2% of total market = 1840000)					

1981 SAMPLE

	MS	SALES	PV	%PV	%PV/%MS
BISCUITS					
Utd Biscuits	45	232430000	87	12	0.27
Nabisco	26	134300000	31	4	0.15
Rowntree	9	46486800	9	1	0.11
Burtons	9	46486800	41	6	0.67
Fox's	3	15495600	85	12	4.00
Cadbury	3	15495600	10	1	0.33
Oth Brands	5	25826000	460	64	12.8

Total Brands =		516520000	723		
Total Market =		698000000			
(Own labels 26% of total market = 181480000)					

BRK. CEREALS					
Kelloggs	56	152920000	17	33	0.59
Weetabix	22	60075400	2	4	0.18
Nabisco	11	30037700	3	6	0.55
Quaker	7	19114900	9	17	2.43
Oth Brands	4	10922800	21	40	10.0

Total Brands =		273070000	52		
Total Market =		329000000			
(Own labels 17% of total market = 55930000)					

	MS	SALES	PV	%PV	%PV/%MS
CHOC. CONFEC					
Cadbury's	29	380980000	56	9	0.31
Rowntrees	29	380980000	48	8	0.28
Mars	24	315300000	53	8	0.33
Others	18	236470000	477	75	4.17
		-----	---		
Total Brands	=	1313700000	634		
Total Market	=	1327000000			

CIGARETTES					
Imperial	49	2107000000	22	15	0.31
Gallaher	29	1247000000	39	27	0.93
Rothmans	12	516000000	30	21	1.75
B.A.T.	6	258000000	9	6	1.00
Philip Morris	3	129000000	23	16	5.33
London Tob	1	43000000	22	15	15.0
		-----	---		
Total Market	=	4300000000	145		

COFFEE (INS)					
Nestle	60	141960000	7	18	0.3
Gen. Foods	29	68614000	4	10	0.3
Brooke Bond	7	16562000	2	5	0.7
Other	4	9464000	27	68	17.0
		-----	---		
Total Brands	=	236600000	40		
Total Market	=	338000000			
(Own labels 30% of total market = 101400000)					

CUSTARD (INS)					
Birds	55	/	5	29	0.53
Brown & Polson	23	/	2	12	0.52
Batch Foods	14	/	1	6	0.43
R.H.M.	5	/	2	12	2.40
Other	3	/	7	41	13.7

			17		

FISH (CANNED)					
Princes	36	43923600	12	5	0.14
John West	36	43923600	48	22	0.61
Oth	28	34162800	163	73	2.61
		-----	---		
Total Brands	=	122010000	223		
Total Market	=	147000000			
(Own label share 17% of total market = 24090000)					

FRUIT (CANNED)					
Del Monte	50	53095000	10	6	0.12
Libby	19	20176100	9	5	0.26
Aus Gold	11	11680900	9	5	0.82
Oth	20	21238000	153	84	4.20
		-----	---		
Total Brands	=	106190000	181		
Total Market	=	151700000			
(Own label share 30% of total market = 45510000)					

	MS	SALES	PV	%PV	%PV/%MS
SOUP					
Heinz	61	64101240	31	9	0.15
Campbell	15	15762600	38	11	0.73
Crosse + Black	14	14711760	60	18	1.29
Baxters	5	5254200	27	8	1.60
Oth	5	5254200	179	53	10.6

Total Brands	=	105080000	335		
Total Market	=	125100000			
(Own label 16% of total market = 20120000)					

TOOTHPASTE					
Colgate	31	19640360	2	5	0.25
Beecham	29	18373240	4	10	0.34
Gibos(unilev)	19	12037640	2	5	0.26
Proc & Gam	9	5702040	4	10	1.11
Stafford Miller	3	1900680	1	3	1.00
Other	9	5702040	28	67	7.44

Total Brands	=	63356000	41		
Total Market	=	67400000			
(Own label 6% of total market = 4154000)					

WASHING UP LIQUID					
Proc & Gamble	46	37034600	2	8	0.17
Lever	20	16102000	4	16	0.80
Colgate	12	9661200	2	8	0.67
Cusson	8	6440800	1	4	0.50
Other	14	11271400	16	64	4.57

Total Brands	=	80510000	25		
Total Market	=	97000000			
(Own label 17% of total market = 17590000)					

	MS	SALES	PV	%PV	%PV/%MS
WASHING POWDER					
Lever	55	130550000	8	47	0.86
Proc & Gamble	42	99691200	6	35	0.83
Oth	3	7120800	3	18	6.00

Total Brands	=	237360000	17		
Total Market	=	258000000			
(Own label 8% of total market = 21340000)					

APPENDIX E: DATA SAMPLE 1970 AND 1981.

1970 Sample.

MARKET	ADV (000)	SALES (£M)	MANUFACTURER		CONC.		PV	R 10	OL
			H Index		Cr1	Cr3			
Batteries	148	30	0.4992	0.4992	69	88	*	10	0
B.Beans	646	33	0.5576	0.5576	72	99	18	60	26
Biscuits	2865	163	0.3308	0.3325	51	81	851	45	17
Br Cereal	4752	49	0.4159	0.4160	59	94	37	50	4
Catfood	1498	53	0.4115	0.4148	57	91	*	60	6
Choc Conf	9568	276	0.2118	0.2138	33	77	342	20	0
Cigarette	9489	1393	0.5163	0.5164	67	99	*	20	0
Coffee	2209	73	0.5066	0.5070	64	98	20	50	23
Crisps	1224	65	0.2959	0.2976	45	84	63	28	8
Custard	*	*	0.6540	0.6542	80	96	18	49	2
Dogfood	2031	53	0.5364	0.5368	70	98	*	60	10
Fish (c)	164	49	0.2029	0.2052	40	65	119	40	5
Flour	1067	35	0.3359	0.3372	45	90	48	45	16
Fruit (c)	290	74	0.0575	0.0610	15	35	181	50	14
Fruit J.	315	11	*	*	*	*	31	39	*
Honey	140	*	*	*	*	*	152	*	*
Ice Cream	1015	82	0.3449	0.3738	43	87	*	12	*
Jellies	*	*	0.4381	0.4502	59	95	43	59	29
Lght Bulbs	*	*	0.2668	0.2698	38	86	*	10	4
Paint	3018	164	0.1841	0.2100	27	69	*	27	3
RazorBl	1661	12	0.3200	0.3600	40	90	17	40	0
Soap (T)	2316	30	0.1086	0.1354	20	54	*	70	18
Soup (C)	1192	53	0.5150	0.5214	70	92	348	60	10
Tea	3268	130	0.3890	0.3906	55	96	*	65	29
Too' paste	2084	22	0.3181	0.3206	38	95	41	55	5
Washing Powder	6753	87	0.4905	0.4906	51	99	19	53	2
Washing Up Liq	1928	25	0.3816	0.3880	56	92	16	50	28
Yoghurt	467	20	0.3451	0.3452	53	86	(15)	54	17

KEY: ADV = Annual advertising expenditure (3 year average)
 SALES = Annual sales (3 year average)
 PV = Number of Brands.
 CONC. = Concentration in the branded sector
 R 10 = % market share of top ten retailers.
 O L = % market share of own labels.

1981 Sample (1970 Prices).

MARKET	ADV	SALES (£M)	MANUFACTURER		CONC.		PV	R 10	OL
	(000)		H	Index	Cr1	Cr3			
Batteries	654	38	0.3572	0.3608	55	82	*	18	0
B. Beans	350	38	0.3756	0.3926	58	86	*	75	29
Biscuits	3759	163	0.2849	0.2858	45	80	727	56	26
Br Cereal	5456	81	0.3747	0.3783	57	89	81	70	17
Catfood	1996	65	0.4035	0.4082	60	85	*	65	12
Choc Con	12985	341	0.2276	0.2582	29	82	634	18	0
Cigarette	9672	1070	0.3432	0.3432	49	90	*	45	0
Coffee	4055	85	0.4990	0.4990	65	99	40	65	30
Crisps	2657	62	0.2172	0.2176	27	72	223	45	14
Custard	*	*	0.3786	0.3926	51	92	17	88	8
Dogfood	2295	65	0.3870	0.3974	59	86	*	65	15
Fish (c)	142	34	0.2592	0.3376	36	78	*	62	17
Flour	125	35	0.4573	0.4598	53	97	28	80	38
Fruit (c)	92	38	0.2296	0.3001	50	80	190	85	30
Fruit J.	978	91	*	*	19	44	179	*	23
Honey	34	*	*	*	*	*	109	57	47
Ice Cream	877	90	0.2421	0.3266	39	73	*	23	20
Jellies	*	*	0.6234	0.6234	77	99	45	84	43
Lght Bulbs	*	*	0.2164	0.2274	30	77	*	23	8
Paint	3276	59	0.2619	0.2788	30	83	*	36	18
RazorBl	727	11	0.3176	0.3192	38	96	34	*	0
Soap (T)	1694	20	0.1807	0.2012	31	67	*	60	16
Soup (C)	1098	31	0.4167	0.4213	61	90	335	85	16
Tea	3642	90	0.3531	0.3540	47	97	*	80	27
Too'paste	2762	17	0.2530	0.2534	33	79	72	70	6
Washing Powder	3752	67	0.4874	0.4878	55	99	19	80	8
Washing Up Liq	1074	25	0.2545	0.2830	46	78	25	70	17
Yoghurt	697	30	0.2806	0.2860	46	78	33	36	23

KEY: ADV = Annual advertising expenditure (3 year average)
 SALES = Annual sales (3 year average)
 PV = Number of Brands.
 CONC. = Concentration in the branded sector
 R 10 = % market share of top ten retailers.
 O L = % market share of own label.

APPENDIX F: PROCEDURE FOR OBTAINING VARIABLE ESTIMATES OF MANUFACTURER AND RETAILER CONCENTRATION.

a) Example of Estimation of the 10 firm Retail Concentration Variable From Market Reports.

The method of deriving an estimate from market reports is best shown by an example. The example is of canned fish the data for which is slightly more aggregated than the sample as a whole.

Canned Fish 1981:

Original Source:	Major Multiples	60
	Minor Multiples	15
	Co-Operatives	12
	Independents	13

Retail Business.

Table of Major Multiples Grocery Sales 81/82.

	Sales £m	% of major multiples	% of all grocery sales.
Sainsbury	2,293.1	19.6	8.7
Tesco	2,276.6	19.5	8.7
Asda	1,519.1	13.0	5.8
Argyll	1,135.5	9.7	4.3
Fine Fare	1,062.0	9.1	4.0
B.A.T.	1,015.5	8.7	3.9
Dee Corp.	910.1	7.8	3.5
Kwik Save	556.2	4.8	2.1
Safeway	507.0	4.3	1.9
Waitrose	412.0	3.5	1.6
	<u>11,687.1</u>	<u>100.0</u>	<u>44.5</u>

Source: I.G.D.

Estimated percentage share of canned fish distribution:

Sainsbury	11.8
Tesco	11.7
Asda	7.8
Argyll	5.8
Fine Fare	5.5
B.A.T.	5.2
Dee	4.7
Kwik Save	2.9
Safeway	2.6
C.R.S.	4.0

Top Ten = 62.0

b) Estimation of H - Index for Manufacturers.

The H - Index is the sum of the squared percentage values of market share. For a number of markets within the sample the market share value of the smaller firms were not available e.g. for the Breakfast Cereal market. In these instances the upper and lower values of the H - Index were calculated.

Example of Breakfast Cereals 1981.

Manufacturer Share:		Squared
Kelloggs	.56	.3136
Weetabix	.21	.0441
Nabisco	.11	.0121
Quaker	.07	.0049
Other	.06	.0036
	---	-----
	1.00	.3747 .3783

Derived from Retail Business,
Mintel Market Intelligence,
Market Research G.B.

The lower estimate (.3747) assumes that there are an infinite number of small firms whereas the upper estimate (.3783) assumes there is just one large firm of six percent.

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