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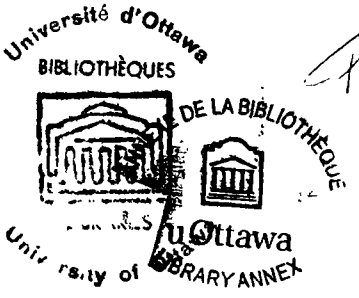
ADVERTISING AND INDUSTRIAL CONCENTRATION IN CANADIAN MANUFACTURING INDUSTRIES

by P.J. Delmas

Thesis presented to the Faculty of Social Sciences of the University of Ottawa as partial fulfillment of the requirements for the degree of Master of Arts



Ottawa, Ontario, 1968

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The aim of this study is to determine, using Canadian data, whether in the consumer-oriented manufacturing industries, advertising expenditures beyond those necessary for the provision of consumer information tend to enhance industrial concentration. The consumer-good manufacturing industries have been chosen rather than all manufacturing industries in order to limit the study to those industries where advertising may be considered as the major determinant of concentration.

This study on the relationship between advertising and concentration is a result of a suggestion made by Professor O.J. Firestone in, The Economic Implications of Advertising[1] that a study should be done on the claim that advertising expenditures are a significant factor in the creation of industrial concentration in Canada.

Studies dealing with the question of the relationship between advertising and industrial concentration have been done in the United States where the necessary data are readily available from government sources. No such work has been done in Canada, however, the most obvious reason being the lack of adequate data.

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1 O.J. Firestone, The Economic Implications of Advertising, Toronto, Metheun Publications, 1967, p. 30.

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INTRODUCTION

In this thesis an attempt is made to fill a gap of knowledge in this area by using advertising data obtained from a private source and by using a method of analysis appropriate to the statistics obtainable in Canada.

The study is divided into four parts. The first part, consisting of the first two chapters, deals with the theoretical aspects of advertising and concentration and with the question of applying the results obtained in this paper to the broader question of the relationship between advertising and competition.

The second part, Chapters III and IV, deals with the methods and problems of measurement. The third part, Chapters V, VI and VII, is concerned with the presentation of the data and analysis of the findings. In Chapter V, concentration in the consumer-good industries is compared with that in the other manufacturing industries. In Chapter VI, the Canadian data are compared with that in the United States.

The third part of the thesis contains the two appendices, the first of which explains the sources and limitations of the data while the second is a statistical appendix.

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CHAPTER I

THEORETICAL ASPECTS OF CONCENTRATION

The term concentration, as it is used by economists, has been considered by J.S. Bain[1] to refer to the ownership or control of a large proportion of "some aggregate of economic resources or activity" either by a small proportion or by a small absolute number of economic units. As suggested by Professor Kaysen[2], such concentration may refer to control by particular financial interest groups in the economy as a whole or to control by plants or firms in a particular industry. As such, in the former case concentration refers to size in absolute terms whereas, in the latter case it refers to size relative to customers or competitors[3].

The usual aggregates with respect to which the concentration of ownership or control are normally measured are:

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1 Joe S. Bain, Industrial Organization, New York, John Wiley and Sons, Inc., 1959, p. 85.

2 U.S. Congress, Senate, Committee on the Judiciary, Economic Concentration, Hearings, before the Subcommittee on Antitrust and Monopoly, Senate, 89th Cong., 1st sess., 1965, p. 540.

3 M.A. Adelman, "The Measurement of Industrial Concentration", The Review of Economics and Statistics, November 1951, Vol. XXXIII, No. 4, p. 269.

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business assets, business income or value of goods sold and labour force employed[4]. Although the various aggregates may be used for the same or diverse purposes, the several resulting types of concentration measure are primarily considered to be relevant to a corresponding variety of issues, i.e., in the case of assets, measurement is considered to be that of the concentration of productive wealth and producing capacity, whereas, business sales, income and employment are considered as measures of the volume of productive activity.

As suggested by Bain[5], the concept of concentration does not refer to a qualitative state respecting ownership or control, such that situations are classified as being 'concentrated' or 'unconcentrated'. Rather, concentration refers to the "degree of ownership" or control and, as such, is a variable which may assume any of a number of values. And since the value of the variable may differ between particular situations, relative degrees of concentration may be compared.

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4 Eugene Singer, "The Structure of Industrial Concentration Indexes", The Antitrust Bulletin, Vol. X, Nos. 1 and 2, Jan.-Apr. 1965, p. 75.

5 Bain, Industrial Organization, p. 87.

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Thus, since one situation may be said to be more concentrated than another on the basis of the extent to which a small number of economic units in each situation account for a large proportion or absolute amount of some aggregate, differences in concentration will depend both on the number of control units and on the relative distribution of control amongst the economic units. The degree of concentration therefore, refers to both the number of economic units and the size of the control group measured on the basis of the proportion of the aggregate owned or controlled by the particular control group[6].

There are, however, certain problems in the interpretation of concentration computed on the basis of both absolute size and relative distribution of sizes[7]. Given the two criteria, one industry may be more concentrated than another in terms of absolute numbers, but less concentrated than the other in terms of the extent of variation in the relative sizes of the population of sellers in question.

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6 Adelman, The Measurement of Industrial Concentration, p. 269.

7 Singer, The Structure of Industrial Concentration Indexes, p. 80.

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Further, since the relative dispersion of control may not be the same for different absolute numbers of control groups, the relative rankings of some industries on the basis of concentration may be changed as industries are compared on the basis of different absolute numbers of control groups.

However, such anomalies may be expected to be encountered in a relatively small number of cases[8]. Thus, an index of concentration referring simply to the percentages of the aggregate controlled by a given number of control units (such as the largest four or eight firms in dealing with individual industries) is generally used giving relative concentration rankings to each case roughly similar to those by indicies referring to other absolute numbers of control units.

Broadly speaking, there are three sorts of concentration measures generally considered as relevant to the study of Industrial Organization[9]. The first of these measures relates to the degree of concentration of the ownership of business wealth, or assets as among individuals within the

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8 Bain, Industrial Organization, p. 88.

9 Ibid., pp. 89-90.

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the economy as a whole. In such a measure the emphasis is on the personal distribution of business wealth and income, as distinguished from these among business enterprises or firms. In such analysis the identity of individual stockholders is considered in order to determine the extent to which business assets and business income are distributed amongst various groups of individuals[10].

A second measure of concentration is concerned with the control of decision-making power over business assets or income within the economy as a whole or within a particular sector of the economy. Since in each separate enterprise there is a single group, i.e., the management, whereas ownership may be multiple within most corporate enterprises, control is generally more concentrated than ownership. Thus, what is involved in this measure is the identification of each separate enterprise as a single control or decision-making unit, and the ascertainment of the number and size distribution of all such enterprises within the economy, size being measured by either assets held or income received[11]. With respect to the business corporations

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10 Ibid.

11 Ibid.

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which control a preponderant share of all business assets and income, this implies considering each corporation a separate enterprise and control unit, subject to the condition that any holding company and all its subsidiaries be considered a single corporate unit.

The number and size distribution of business firms within the whole economy is thus an approximate measure of the general concentration of control over business wealth and activity[12]. And, as such, may be considered especially significant in the appraisal of the distribution of economic power, or of the degree of discretionary control over the course of economic activity in general[13].

A third measure of concentration is that which is concerned with the control of enterprise activity within an individual industry as defined in terms of product-substitutability and therefore areas of direct economic competition.

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12 Adelman, The Measurement of Industrial Concentration, p. 270.

13 Tibor Scitovsky, "Economic Theory and Concentration Measurement", Business Concentration and Price Policy, A Conference of the Universities-National Bureau Committee for Economic Research, Princeton, Princeton University Press, 1955, pp. 103-106.

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As pointed out by Baumol[14], the determination of prices and output levels in a particular industry is affected by the competitive structure of the market. And, the number and relative size distribution of firms in an industry, i.e., the degree of concentration in the industry is, along with the degree of product differentiation and the conditions of entry into the industry, a significant determinant of the character and intensity of competition in an industry[15]. It is on the basis of concentration that industrial structures are primarily differentiated as to whether or not they are "atomistic", "oligopolistic" or "monopolistic".

As pointed out by Caves[16], business units in the economy come in contact with one another in markets with firms operating in different markets not competing with each other except in the distant and dilute sense that all of them

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14 William J. Baumol, Economic Theory and Operations Analysis, Englewood Cliffs, Prentice-Hall Inc., second edition, 1965, p. 311.

15 Bain, Industrial Organization, p. 28.

16 Richard Caves, American Industry: Structure, Conduct, Performance, Englewood Cliffs, Prentice-Hall Inc., 1964, p. 5.

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are trying to attract buyers' dollars. And thus, competition in the more direct and relevant sense occurs when some firms offer, to a common group of buyers, a group of products which are close enough substitutes for each other that noticeable changes in the selling price of any one of the group of products will significantly affect the selling prices or sales volume of the others[17]. Given this criterion, the total output of enterprises in general is actually broken up into a large number of product groups, with direct competition or close substitutability among the products within each group, but without direct competition between the products of different groups.

Further, insofar as individual firms specialize in supplying one or a few products, each firm may compete directly with only a limited number of other firms in the one or more groups of competing products in which it offers an output. Correspondingly, the economy-wide complex of enterprises may be broken into a large number of separate "industries" of competing firms, the concentration within

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17 Joe S. Bain, "Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940", The Quarterly Journal of Economics, Vol. LXV, No. 3, August 1951, p. 298.

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each of which is of primary importance in influencing the character and results of inter-firm competition.

As suggested by Fellner[18], the main questions posed concerning such concentration are whether the number of the sellers in the industry is large or small; whether the shares of the market controlled by some or all sellers are large enough that an oligopolistic interdependence of their price, output and related policies in the market may be presumed to exist; and if oligopolistic interdependence does exist, how strong it is as determined by the sizes of the market shares of some or all sellers. That is, in a particular industry, do some or all of the sellers individually control sufficient proportions of the market that they have a recognized inter-dependence, adjusting their prices and outputs on the assumption that rivals will react to these adjustments in systematic ways, with the possible result that patterns of collective or joint action of rival sellers will emerge. And, conversely, in a particular industry, do all sellers control sufficiently small proportions of the market that each will assume that

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18 William Fellner, Emergence and Content of Modern Economic Analysis, New York, McGraw-Hill Inc., 1960, pp. 226-232.

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his own price or output adjustments will induce no reactions from rivals, with the result that each will act independently in adjusting price or output? This is the general distinction between "oligopoly" and "atomism" on the basis of market conduct.

As pointed out by Miller[19], the specific question relative to statistical concentration measures is: how high does seller concentration, as measured, have to be before oligopolistic interdependence of sellers is discernable, and how low does it have to be before sellers neglect rivals' reactions and act independently?

On the basis of microeconomic theory[20], oligopolistic interdependence is considered to exist if each of two or more sellers in an industry has a large enough market share that a small proportional increase in his own volume of sales

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19 John Perry Miller, "Measures of Monopoly Power and Concentration: Their Economic Significance", Business Concentration and Price Policy, a Conference of the Universities-National Bureau Committee for Economic Research, Princeton, Princeton University Press, 1955, pp. 130-134.

20 Richard H. Leftwich, The Price System and Resource Allocation, New York, Holt, Rinehart and Winston, third edition, 1966, p. 212.

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made at the expense of all other sellers in the industry, results in a noticeable and identifiable proportional decrease in the sales of the other seller or sellers.

In this light, determining whether an industry is oligopolistic or atomistic on the basis of concentration alone is simple as long as extreme cases of either few large sellers or many small sellers is chosen. There is, however, a problem of interpretation with the in-between cases of moderately few sellers, or of moderate but not large market proportions held by the larger sellers[21]. As there is no simple quantitative answer to this problem, it is not possible to draw any precise and meaningful quantitative line between oligopolistic and atomistic markets. On this basis it is not possible to have a simple two-fold classification as between oligopoly and not-oligopoly, or as between monopoly and competition.

Further, oligopolistic interdependence of sellers is not a qualitative state[22], but something that varies by degrees, being in general stronger as seller concentration

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21 Miller, Measures of Monopoly Power and Concentration: Their Economic Significance, p. 130.

22 Bain, Industrial Organization, p. 123.

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something that varies by degrees, being in general stronger as seller concentration is higher. Thus, as Bain has further suggested[23], among the market situations considered as oligopolistic, there are considerable differences in the degree of oligopolistic interdependence of sellers. Moreover, these differences among different sorts of oligopoly, according to Bain[24], are probably more important than the difference between a "low-grade" oligopoly (with slight oligopolistic interdependence) and an atomistic industry.

Although, as indicated by Miller[25], industrial performance and conduct are not capable of being completely predicted on the basis of the degree of concentration alone, this variable does contain certain important information which, when combined with information on the ease of entry, collusion, flexibility of prices and the level of capacity, can lead to useful predictions of the "pressures for internal efficiency" existent in the industry. And, as Miller has further pointed out[26], the degree of concentration may indicate, in the case

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23 Ibid.

24 Ibid., p. 124.

25 Miller, Measures of Monopoly Power and Concentration: Their Economic Significance, p. 130.

26 Ibid.

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of low concentration, "a number of points of initiative and the existence of numerous alternatives available to buyers", and thus, indicates that the range of discretion open to any one firm "consistent with survival" will be narrow.

As suggested above, given free entry and the absence of restrictive agreements, which, according to Stigler[27], are less likely with many than with few sellers, it would be reasonable to assume pressure on individual firms to be efficient in production, procurement and marketing, and for profits to flow in response to profit differentials. But, as concentration is a one variable structural measure, as explained by Levin[28], the degree of concentration is not capable of distinguishing the kinds of competition, i.e., between situations where competition takes the form of rivalry in price and those where it takes the form of sales effort or product differentiation. And, given the performance

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27 George J. Stigler, "A Theory of Oligopoly", The Journal of Political Economy, Vol. LXXII, No. 1, February 1964, pp. 44-46.

28 Harvey J. Levin, editor, Business Organization and Public Policy, a Book of Readings, New York, Rinehart and Company, Inc., 1958, pp. 37-40.

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criteria for "workable competition" as first put forward by J.M. Clark[29], the degree of concentration is not indicative of the opportunities and incentives to add to the body of knowledge or to develop resources.

As indicated by Miller[30], the most that can be assumed is that resources are responding to profit opportunities and that "incentives to efficient use of resources within the firm are strong". Thus, whether the competitive environment promotes economic progress or whether it fosters "wasteful" non-price competition is not determinant. How "workable" or "desirable" is the competition will depend upon the values of all the variables affecting market structure, conduct and performance.

In the case of high concentration, as indicated above, given the "state of ferment" of available theory of oligopoly[31], differentiation of industries as to the particular

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29 J.M. Clark, "Toward a Concept of Workable Competition", American Economic Review, Vol. XXIII, No. 1, June 1940, pp. 241-256.

30 Miller, Measures of Monopoly Power and Concentration, p. 131.

31 Scitovsky, Economic Theory and Concentration Measurement, p. 103.

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form that the oligopoly in an industry will take is not possible on the basis of the degree of concentration alone.

However, given the limitation of a one variable structural measure, there is "an influential body of opinion" that holds that there is at least a rough correlation between the degree of concentration and the character of competitive forces at work in a particular sector of the economy such that a "combination of high concentration of output in a market with a large size" will generally be associated with monopoly or oligopoly rather than with competition[32].

The importance of concentration and its measurement on the basis of the proportion of total industry output accounted for by the largest economic units in the industry (i.e., the "concentration ratio") is illustrated by the merger guidelines published by the United States Department of Justice[33]. Market structure measured on the basis of

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32 Miller, Measures of Monopoly Power and Concentration, p. 131.

33 United States, Department of Justice, Merger Guidelines, issued by the United States Department of Justice, Washington, May 30, 1968, p. 2.

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concentration ratios is the focus of that Department's merger policy "chiefly because the conduct of the individual firms in a market tends to be controlled by the structure of that market"[34]. On this basis, the Antitrust Division of the United States Department of Justice concluded that a concentrated market structure, where a few firms account for a large share of the sales, or other measure of industry output tends to discourage vigorous price competition by the firms in the market and to encourage other kinds of conduct, such as use of inefficient methods of production, of an economically undesirable nature. As a result, it is considered by that Department, on the basis of past experience, that emphasis on market structure, as measured in terms of the concentration ratio, yields sufficient information to determine whether an industry is monopolistic, oligopolistic or competitive[35].

In this light then, although as pointed out above, that concentration alone is not the only variable determining the nature of market conduct and performance, it is an important one, in that the more concentrated is an industry, the less likely is it that that industry will have conduct and performance in line with those of the competitive ideal.

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34 Ibid.

35 Ibid., p. 3.

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CHAPTER II

THE THEORETICAL IMPLICATIONS OF ADVERTISING

Advertising has been defined by Professor Harry G. Johnson to mean "the use of messages conveyed by the seller to the buyer by such media as newspapers and magazines, radio and television, billboards and signs, and direct mail, aimed at inducing the buyer to purchase what the seller has to sell".[1]

Professor O.J. Firestone[2] has considered advertising to involve "a process of communicating to a large number of people" in order to achieve one of the following objectives:

(a) to promote directly the merits of goods and services for sale;

(b) to enhance the image of the seller with the alternate objective of improving his economic position; or

(c) to achieve acceptance of proposals put forward by producers and distributors or by governments.

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1 Harry G. Johnson, The Canadian Quandry: Economic Problems and Policies, Toronto, McGraw-Hill Company of Canada Limited, 1963, p. 269.

2 O.J. Firestone, Broadcast Advertising in Canada: Past and Future Growth, Ottawa, University of Ottawa Press, 1966, p. 7.

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As suggested by Professor Firestone[3], advertising may also be classified by type of advertiser or recipient of advertising messages. With respect to advertisers he has distinguished among:

(a) Business advertising which includes "product" and "corporate" advertising designed to build up brand names and business images;

(b) Government and institutional advertising which includes advertising done at the three levels of government and by non-profit institutions in order to serve "public" or "semi-public" purposes.

With respect to type of recipient, advertising may be classified among:

(a) Consumer advertising which is addressed directly to the public and designed to inform the consumer and, if possible, to persuade him to choose the product or products of the advertiser in preference to those of the advertiser's competitors;

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3 Ibid., p. 8

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(b) Industrial advertising which is directed at the industrial users of goods and services, which advertising is done mainly through business publications and direct mail advertising; and

(c) Trade advertising which is directed at wholesale and retail distributors of goods and services mainly through trade magazines and direct mail advertising.

As pointed out by Professor Johnson[4], however, advertising and advertising expenditures are not evenly distributed amongst the five above-noted classifications. Rather, they tend to be concentrated in business advertising to consumers.

The reasons for this, as suggested by Johnson[5] are the limitations of the media as message carriers, together with the high total cost of intensive advertising. Since, for intensive advertising to be worth its cost to the advertiser, the advertised item must either be one that is purchased frequently, or one that yields a high profit per unit sold, and in either case purchasers must be sensitive to advertising

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4 Harry Johnson, The Canadian Quandry, p. 273.

5 Ibid., p. 272.

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appeals and not highly sensitive to price. This in turn implies goods with special characteristics: in general, goods and services which will repay heavy advertising must be either items of common use, whose cost is small in comparison with the average consumer budget, such as breakfast foods or cigarettes, or items whose use involves some psychically or socially oriented purpose whose achievement can be promised persuasively by the advertiser, such as cosmetics, patent medicines, and liquor; or items so complex that the consumer cannot judge their quality for himself, and is prepared to pay for the reassurance of buying from an established manufacturer, such as automobiles and electrical appliances.

It is the concentration of advertising on these particular types of goods, as indicated by Professor Johnson[6], that has prompted most of the important criticisms of advertising, criticisms directed at the nature of its appeals, the kinds of demands it stimulates, its effect on the cost of living, and its potentialities for enhancing or at least supporting monopolistic market organization[7]. It

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6 Ibid., p. 273.

7 O.J. Firestone, The Economic Implications of Advertising, Toronto, Methuen Publications, 1967, pp. 19-31.

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is with the empirical validity of this latter criticism that this thesis is concerned.

As Professor Jules Backman[8] has indicated, advertising is but one of a number of selling tools; it is part of a broad marketing process. Other techniques available for building up sales are: product planning, pricing varying channels of distribution, personal selling, promotions, packaging, display materials, and servicing[9]. Generally speaking, then, competitive activities between firms may be distinguished as being on the basis of price, advertising, servicing, promotion and packaging. However, as pointed out above, in certain industries advertising is the major form of competition and it is with these industries that this thesis is primarily concerned.

In general terms, as pointed out above, advertising is considered by economists to perform two functions. It may

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8 Jules Backman, Advertising and Competition, New York, New York University Press, 1967, pp. 17-21.

9 Neil H. Borden, "The Concept of the Marketing Mix", in Science in Marketing, edited by George Schwartz, New York, John Wiley and Sons, Inc., 1965, pp. 389-390.

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be a vehicle for the provision of information or for the purposes of persuasion and in most cases, given imperfect markets, performs both functions at the same time. As Stigler has pointed out[10], certain advertising is necessary to identify sellers and their offers owing to the fact that they may change over time or more so because of the turnover of buyers in the market or to refresh the knowledge of infrequent buyers. In fact, as both Stigler[11] and Kaldor[12] have suggested, the informative element is such that were it not 'subsidized' by the seller, it would be readily paid for by the buyer.

The existence of advertising on the part of individual firms in an industry, whether it be informative or persuasive, is considered to be a characteristic of imperfectly competi tive markets. The reason being that purely competitive markets

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10 George J. Stigler, "The Economics of Information", The Journal of Political Economy, Vol. LXIX, No. 3, June 1961, p. 220. See also, Ozga, S.A., "Imperfect Markets Through Lack of Knowledge", Quarterly Journal of Economics, Vol. LXXIV, No. 1, February 1960, pp. 43-50.

11 Stigler, The Economics of Information, p. 222.

12 Nicholas H. Kaldor, "The Economic Aspects of Advertising", The Review of Economic Studies, Vol. XVIII, No. 45, 1950-1951, p. 5.

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are so defined to include only those firms sufficiently small relative to the total market of homogeneous products that they are able to sell all they can produce without incurring the extra costs inherent in sales efforts.

Thus, as Telser has suggested[13], for a firm to benefit from advertising, it must be sufficiently large relative to the market that any expected increase in its sales as a result of increased industry sales would be large enough to justify the added costs, whatever the benefits to competitors. Moreover, if the firm is able to distinguish its output in the eyes of buyers from that of its competitors, it would be able to increase the benefits accruing to it by restricting the proportion of added sales going to its competitors.

The benefits of the information conveyed by advertising to buyers and sellers in imperfect markets result from

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13 Lester G. Telser, "Advertising and Competition" The Journal of Political Economy, Vol. LXXII, No. 6, December 1964, p. 551.

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the disseminating of information on the nature of offers with respect to price, quality and terms of sale and thus increase the market opportunities for both buyers and sellers.

However, it has been suggested that the existence of heavy advertising expenditures in an industry, as opposed to merely the provision of information, such as through classified advertisements, price lists, catalogues and notices of price and quality changes, far from broadening the market, tend to narrow it on the sellers' side by enhancing industrial concentration. This may result either from the effects of advertising expenditures on the size distribution of firms presently in the industry or from its effects on firms wishing to enter.

With respect to the effect on firms in the industry, as Mann, Henning and Meehan[14] have pointed out, the initial size distribution in an industry adopting advertising expenditures as a means of competition may be expected to be changed as a result of the advertising efforts of some sellers attracting greater customer allegiance than that of others,

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14 H.M. Mann, J.A. Henning and J.W. Meehan Jr., "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. XVI, No. 1, November 1967, p. 34.

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causing the relative market shares of the successful advertisers to increase at the expense of the less successful. Such increased market shares, moreover, may not have the same beneficial effects as might be expected with the introduction of new products or lower production costs.

Kaldor has further suggested[15] that the resultant changes in relative market shares tends to work in favour of the larger firms in the industry insofar as the pulling power of larger expenditures is more than proportional to the amount spent. In addition, this tendency would be further enhanced if, as Turner has stated[16], large firms are able to provide more messages per dollar through volume discounts, at least in the medium of television, and, as has been found to be the case in at least one Canadian manufacturing industry, the national media are superior to the local in promoting product allegiance[17]. Such being the case, it is reasonable to

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15 Kaldor, The Economic Aspects of Advertising, p.13

16 Donald F. Turner, "Advertising and Competition", Federal Bar Review, Vol. XXVI, No. 1, Spring 1966, p. 95.

17 J.C.H. Jones, "Mergers and Competition: The Brewing Case", The Canadian Journal of Economics and Political Science, Vol. XXXIII, No. 4, November 1967, p. 559.

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expect the larger firms to gain at the expense of the smaller ones, or, even if at the start, firms were more or less of equal size, those that move ahead would increase their lead, as the additional sales generated enabled them to increase their outlays still further.

Further, given that average variable costs of production are constant throughout a firm's normal operating range[18] and that the optimum size of enterprises in an industry covers a wide range of output allowing firms to expand their output over wide ranges without meeting increasing average costs of production[19], the question may not be so much why concentration should occur as a result of advertising but why it should come to a halt.

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18 Tibor Scitovsky, Welfare and Competition: The Economics of a Fully Employed Economy, London, Unwin University Books, 1952, p. 309.

19 George J. Stigler, "The Economies of Scale", The Journal of Law and Economics, Vol. I, No. 3, October 1958.

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Kaldor has suggested[20] the reason to be that, whereas in the early stages of the concentration process the disappearance of the small firms may proceed automatically as a result of increasing unprofitability on account of the rise in costs due to advertising and the fall in sales due to more powerful advertising by others, the later stages are apt to take on the character of competitive war as suggested by the presently available theory of oligopolistic strategy with each firm jealously guarding its own territory and being prepared, if necessary, to incur heavy losses in order to repel any attempt at intrusion by others. Hence, the ultimate effect of the concentration process would more likely be some form of oligopoly rather than monopoly. However, the particular form that the oligopoly will take is not predictable[21], nor is it predictable whether the dominant firm or firms will retain its or their relative positions[22].

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20 Kaldor, The Economic Aspects of Advertising, p.14.

21 Julian L. Simon, "The Effect of the Competitive Structure upon Expenditures for Advertising", Quarterly Journal of Economics, Vol. LXXXI, No. 4, November 1967, pp. 625-627.

22 Dean A. Worcester, "Why Dominant Firms Decline", The Journal of Political Economy, Vol. 65, No. 4, August 1957, pp. 345-346.

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There might well be a level of concentration where the amount of advertising will be maximized as a result of the nature of oligopolistic strategy[23]. This appears to be borne out in a study done by Kaldor and Silverman in England where it was found that the amount of advertising in industries with eight firms was larger than in those with greater or smaller concentration[24].

The second means by which advertising may promote, or at least maintain, industrial concentration is by creating a barrier to the entry of new firms into the industry. In this way, the performance of firms within an industry is not only related to competition within that industry but also to the possible threat of competition from without[25]. The

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23 Simon, Effect of the Competitive Structure upon Expenditures for Advertising, p. 625.

24 Nicholas H. Kaldor and R. Silverman, A Statistical Analysis of Advertising Expenditures and of the Revenue of the Press, London, Cambridge University Press, 1948, as cited in Simon, "The Effect of the Competitive Structure upon Expenditures for Advertising", p. 625.

25 Joe S. Bain, Barriers to New Competition, Their Character and Consequences in Manufacturing Industries, Cambridge, Harvard University Press, 1956, p. 1-41.

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importance of such potential competition relates to the fact that if it is relatively easy for new firms to establish themselves in a concentrated industry, any excess profits which might be earned as a result of that concentration might be expected to attract new competitors. However, if it is possible for the firms in the industry to have some absolute advantage over those not presently so engaged, by means of lower costs or in the prices they are able to charge, the excess profits, if any, would be protected.

As Chamberlin first explained[26], advertising may be used by sellers to promote the difference between their products and those of their competitors and to enhance the goodwill of the seller in the eyes of the consumer. Insofar as buyers have a preference, transitory or permanent, for some or all of these established products as compared to new-entrant products, the sellers will be protected from competition and thus will have greater scope for decisions on price and output.

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26 Edward H. Chamberlin, The Theory of Monopolistic Competition, a Re-orientation of the Theory of Value, Cambridge, Harvard University Press, 1933, p. 71-190.

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In addition to the use of advertising, however, product differentiation may be promoted by differences in the design or physical quality of competing products through packaging, branding and the offering of auxiliary services to buyers and by sales-promotional efforts designed to win the allegiance and custom of the potential buyer.

Further, product differentiation as a barrier to entry is not equally as important to all industries. As Scitovsky has pointed out[27], the degree of product differentiation in an industry will depend in large part upon the expertness of the buyers in that market, for an expert buyer may insist on comparing rival products before every purchase and by so doing make it profitable for the seller to make his product easily comparable to competing products. In addition, the expert buyer has the technical capacity to make objective evaluations of the intrinsic merits of the products he buys, while the buyer not so technically astute must rely upon other factors such as the size and reputation of the seller and this may have little or no bearing upon the technical substitutability

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27 Tibor Scitovsky, "Ignorance as a Source of Oligopoly Power", American Economic Review, Papers and Proceedings, Vol. XXXX, No. 2, May 1950, p. 49.

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between the products of one firm with those of its competi tors. Although, given the inability of the ignorant buyer to appraise goods on their own merit, this may be the most rational thing that the buyer can do, but it does give an important advantage to the large firm over the small and to the established producer over the unknown newcomer. Further, the more buyers lack the technical knowledge of the goods they purchase, the more they are forced to rely on the producer's good will for judging the quality of his products.

Thus, the information provided by advertising may have two distinct effects. Insofar as the information conveyed by advertising is concerned with objective facts of the seller's offers and the technical attributes of his products, advertising may be considered as a means of increasing the market opportunities of both buyers and sellers, and thus of broadening the market. However, insofar as advertising is concerned with the provision of subjective information used to promote the established good will of the producer as apart from his products and to differentiate his products from those of his competitors other than on the basis of price and quality, advertising may be a means of restricting the market without beneficial effects on consumer welfare.

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That consumer advertising goes beyond what would be necessary to provide consumers with objective choices would appear to be supported by both its volume and content. It is to the extent that it goes beyond this point that advertising is generally considered by many economists to be wasteful[28]. For, as pointed out above, advertising may be used as a means of increasing the market shares of particular firms at the expense of others, not on the basis of a form of competition which would enhance consumer welfare by lowering cost of production and therefore prices or by improving the quality of existing products or by bringing forth new products, but by a means which may increase prices through increased selling costs and greater market power.

Moreover, insofar as advertising protects firms from the discipline of price competition within an industry by allowing them greater freedom over market decisions as a result of increased concentration of market power resulting from advertising, then advertising may adversely affect the proper allocation of resources by rewarding these firms with profits over and above those which would be necessary to

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28 Tibor Scitovsky, Ignorance as a Source of Oligopoly Power, p. 43.

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maintain them in production. And insofar as entry into the industry by firms from without can only be achieved by means of massive expenditures on advertising or by lowering prices, then the excess profits earned in the industry will be protected to the extent that the selling costs of the new entrant must be increased or his prices lowered in relation to the firms presently located in the industry.

The importance of such effects of advertising lies in the fact that although, as suggested by Johnson[29], it is possible for consumers to evade the costs of advertising in some industries by shopping for unadvertised, lower-priced goods, such choice will be restricted when a monopolistic firm uses heavy advertising expenditures to maintain and expand its market. This will also be the case in the more common situation where the production of a commodity is concentrated in the hands of a few firms, who compete with each other by heavy advertising of trivially differentiated varieties of a product. In these cases, as indicated by Johnson,[30]

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29 Harry Johnson, The Canadian Quandry, p. 281.

30 Ibid.

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advertising clearly involves economic inefficiency and an unnecessary waste of resources, and may contribute to the retardation of technical progress. In this context, advertising poses essentially the same problem for policy as the patent system[31] both are in principle devices for stimulating progress, which may in fact lend themselves to the support of monopoly and resistance to change. The fundamental problem in these cases, however, is not advertising as such but the oligopoly situation which the use of advertising may reinforce. It is this aspect of the economic implications of advertising which is explored in the succeeding chapters of this thesis.

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31 Ibid.

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CHAPTER III

METHODS OF MEASUREMENT

In that advertising is a determinant of industrial concentration, at least in those industrial groups where it forms a significant part of selling costs, it is reasonable to expect industries devoting a larger proportion of sales to advertising to be associated with higher concentration and those which devote a smaller proportion to be associated with lower concentration. Even though, as suggested in Chapter II expenditures on advertising may not increase proportionately beyond certain levels of concentration.

The method which has been chosen for the purposes of measuring the relationship between advertising and concentration in Canada is that of the Spearman test of rank correlation[1]. The available Canadian data, as outlined in Appendix 1, are such as to make it difficult to employ other multi industry measures. Although the test does not permit determination of the exact relationship between advertising and concentration, it does indicate the direction of the

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1 The Spearman test of rank correlation may be defined in terms of the formula $r = 1 - \frac{6\Sigma D^2}{N(N^2-1)}$ where r is the coefficient of rank correlation, D is the difference in rank between paired values of two variables and N is the number of observations. Frederick E. Croxton and J. Dudley, Applied General Statistics, Englewood Cliffs, Prentice-Hall Inc., 1955, pp. 414-416.

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the results which might be expected were the data amenable to more precise measurement. This measure has been further chosen as it most closely approximates the methods of measurement used in the United States in similar tests, and thus may be related to the results obtainable in that country where more comprehensive data are obtainable. And, as suggested in Chapter VI, the results obtained using the above-named method approximate those obtained in the United States.

The studies which have been done in the United States have been based upon both aggregate industry data and on a sample of firms from the various consumer industries with industrial concentration as measured by the percentage of total industry output accounted for by the largest four firms in the industry. These tests include:

1 Correlation between the percentage of industry sales devoted to advertising and industrial concentration for the consumer good industries.

2 Correlation between the percentage of industry sales devoted to advertising and the average profits earned in the industry.

Simple correlations between concentration as measured by the percentage of total industry output accounted for by the largest four firms in the industry and the percentage of

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sales allocated to advertising in the consumer good industries have been done by Lester G. Telser, as reported in, Advertising and Competition[2], and by Lawrence C. Murdoch as reported in, Advertising and Charlie Brown[3]. In both of these tests the coefficients of correlation obtained were less than 0.50. However, in another study by, Mann, Henning and Meehan, in Advertising and Concentration: An Empirical Investigation[4], with the advertising variable based upon a sample of forty-two firms representing fourteen consumer industries and concentration measured as above, the coefficient of correlation obtained was greater than 0.50.

The disparity between the results obtained in these tests is indicative of the importance of the assumptions used in choosing the data for measurement. In the latter test, greater consideration was given to choosing industries which comply with theoretical industries on the basis of demand and

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2 Lester G. Telser, "Advertising and Competition", The Journal of Political Economy, Vol. 72, No. 6, December 1964, pp. 537-562.

3 Lawrence C. Murdoch, "Advertising and Charlie Brown", Business Review of the Federal Reserve Bank of Philadelphia, June 1962, pp. 3-16.

4 H.M. Mann, J.A. Henning and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. 16, No. 1, November 1967, pp. 34-45.

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where advertising is the major source of product differentiation[5]. In addition, since the latter test was based upon a sample of larger firms in the industry, it excludes firms not having the financial resources necessary for large-scale advertising and thus forced to charge lower prices as a means of competing for a part of the total market share.

The advertising variable used in this paper is, as in the above tests, that of the proportion of industry sales devoted to advertising with advertising derived from audits of national advertising expenditures in the print and broad cast media. However, the sales part of the ratio was obtained from two sources. These were: a sample of some sixty firms, and corporate data as published by the Corporations and Labour Unions Returns Act Administration[6]. As indicated in Appendix 1, the reason for choosing two sources was to provide a control and to increase the range of industries covered. As in the above tests, coverage was restricted only to those industries where advertising might be considered as an important economic variable, but because of limitations in

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5 Ibid., pp. 35-36.

6 Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Report for 1962, Ottawa, Queen's Printer, 1965.

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the data, was not particularly restricted to only those industries where advertising would be expected to be the only means of product differentiation; but rather, to those industries where it might be an important one. Since the data from the Corporations and Labour Unions Returns Act Administration cover only those corporations with gross revenues exceeding $500,000 or assets exceeding $250,000[7], these sales data, as those in the sample, will tend to eliminate the effect of the smaller firms in the industry, which, as noted above, may tend to use price rather than product differentiation as a means of competition.

The concentration variable used for the purposes of this paper is similar to that used in the United States as it is based upon the proportion of total industry employment accounted for by the largest few economic units in the industry. The concept of industry used for the computation of these ratios is that as defined by the Dominion Bureau of Statistics, Standard Industrial Classification Manual[8], four-digit industry. As outlined in Chapter IV, the problem of industry definition is the same as for the United States.

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7 Ibid., p. 15.

8 Canada, Dominion Bureau of Statistics, Standard Industrial Classification Manual, Ottawa, Queen's Printer, December 1960.

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The methods used for measuring concentration in this study however, do differ from those used in the United States owing to the inavailability of comparable Canadian data. The United States concentration ratios have been computed on the proportion of total industry sales accounted for by the largest four firms in the industry[9]. Whereas, the ratios used in this study, as indicated in Appendix 1, are based upon the proportion of total industry employment accounted for by the largest twenty plants in the industry. Although there are divergences between plant and firm concentration, and, as suggested by Bain[10], firm concentration may reflect more properly industry concentration; as is demonstrated in Appendix 1, the two are well correlated on a rank basis. And, it is because of the similarity in ranks between plant and firm concentration that the relationship between advertising and concentration is measured by means of the Spearman test of rank correlation.

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9 Mann, Henning and Meehan, Advertising and Concentration: An Empirical Investigation, pp. 34-36.

10 Joe S. Bain, International Comparisons of Industrial Structures, Princeton, Princeton University Press, 1966, p. 125.

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As with the choice of data on the basis of plants, output measured in terms of employment was chosen as the only usable data available in Canada. However, although insofar as capital intensity varies amongst industries employment may be affected, as Rosenbluth has demonstrated[11], concentration of employment is well correlated with other measures of output, and, in fact, this is the normal measure used for studies done in Canada[12].

In addition to using concentration as a dependent variable, Donald F. Turner, in, Advertising and Competition[13], made reference to a study done in the consumer good industries where a correlation was done between the proportion of industry sales devoted to advertising and the average profit rates earned by the industry. The correlation between these two variables was found to be significant.

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11 Gideon Rosenbluth, Concentration in Canadian Manufacturing Industries, Princeton, Princeton University Press, 1957, p. 13.

12 See, International Comparisons of Industrial Structures, op. cit., Concentration in Canadian Manufacturing Industries, op. cit., and, Raynauld, Andre, "Industrial Organization", The Canadian Economic System, Toronto, The MacMillan Company of Canada Limited, 1967.

13 Donald F. Turner, "Advertising and Competition", Federal Bar Review, Vol. 26, No. 1, Spring 1966, pp. 93-98.

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The use of profitability as an alternative measure of "deviations from competitive equilibrium", has been suggested by Joe Bain[14]. This measure, however, as Bain has cautioned, may only be judged as meaningful if the deviation continues for a period of years, as, at any particular time, profits may be the result of a number of factors. It is only over a period of time that any excess profits might be expected to be eliminated by the forces of competition. This would result from new firms entering the industry in order to participate in the excess profits and thereby wiping them out.

In the study cited by Turner, however, it was found that industries with large advertising outlays tended to earn profit rates approximately fifty per cent higher than those which did not undertake a significant effort. Since it was found that average profit rates in the study were near eight per cent, after taxes, on shareholders' equity, it was assumed that at least part of the excess was a result of monopoly power[15].

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14 Joe S. Bain, "Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940", The Quarterly Journal of Economics, Vol. 65, No. 3, August 1951, p. 293-294.

15 Telser, Advertising and Competition, p. 94.

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For the purposes of this paper, the relationship will only be measured in order to determine whether profitability is compatible with large advertising expenditures. The profitability variable, as indicated in Appendix 1, has been computed using two methods: on the basis of profits as a percentage of assets and on the basis of profits as a percentage of equity. The sources of these data are the same as for the sales data, i.e., from a sample of sixty firms and from data published by the Corporations and Labour Unions Returns Act Administration.

The use of studies done in the United States as reference for Canada is based upon the similarities between the two countries. As Rosenbluth has suggested[16], since consumption habits are similar in the two countries, so are patterns of demand. In the same manner, technologies are related in that industries in Canada and the United States tend to use the same type of equipment, materials and supplies and in the same proportions. The similarities between

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16 Rosenbluth, Concentration in Canadian Manufacturing Industries, p. 93.

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the two countries are enhanced by the existence of subsidiaries of United States firms in these industries. Computations done on the basis of information published by the Corporations and Labour Unions Returns Act Administration[17] on the proportion of sales accounted for by reporting corporations more than fifty per cent foreign owned give some indication of the degree of foreign control in the covered industrial groups. And, as pointed out in the report on Foreign Ownership and the Structure of Canadian Industry[18], the ownership is primarily by firms in the United States.

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17 Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Report for 1962, pp. 52-68.

18 Canada, Privy Council Office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 8-13.

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METHODS OF MEASUREMENT

Table I. - Percentage of Industry Sales Accounted for by Corporations More Than Fifty Percent Foreign Owned, 1962.

Industrial Group	Percentage of Industry Sales
Food Manufacturing	30.81
Beverages	11.77
Tobacco	82.72
Chemicals	79.50
Miscellaneous Manufacturing	63.40

Source: Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Report for 1962, Ottawa, Queen's Printer, 1965, pp. 52-68.

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CHAPTER IV

PROBLEMS OF MEASUREMENT

The problems associated with the measurement of the relationship between advertising and industrial concentration in such statistical tests as used in this paper are primarily those of properly defining the relevant industries and isolating media advertising from other possible sources of product differentiation.

As Bain has indicated[1], for the purposes of testing, on an industry basis, any such relationship as that between advertising and concentration, the industry should be defined on the basis of homogeneous product groups. As such, it should include only those firms whose outputs are to all (or most) buyers, generally close substitutes for each other but distant substitutes for the outputs of all other firms. And, in like manner, the purchasers of the outputs of a particular industry should be considered as being one group insofar as the selling policies of the suppliers may be concerned.

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1 Joe S. Bain, "Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940", The Quarterly Journal of Economics, Vol. 65, No. 3, August 1951, p. 298.

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As noted in Appendix 1, the limitations of the data presently available for the computation of concentration ratios have necessitated the use of industries as defined in the Dominion Bureau of Statistics, Standard Industrial Classification Manual[2], where industries are considered as being "composed of establishments engaged in the same or a similar kind of economic activity"[3]. Although certain commodities tend to be associated with particular industries and some industries are defined in terms of their principal products such as the automobile, appliance and flour milling industries, each produces a variety of products and may produce goods demanded by different classes of customers.

As Miller has pointed out, the breadth of output in the industrial definition will affect the concentration ratio computed[4]. As, the more narrowly defined is the industry,

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2 Canada, Dominion Bureau of Statistics, Standard Industrial Classification Manual, Ottawa, Queen's Printer, December 1960.

3 Ibid., p. 7.

4 John Perry Miller, "Measures of Monopoly Power and Concentration: Their Economic Significance", in, National Bureau of Economic Research, Business Concentration and Price Policy, A Conference of the Universities-National Bureau Committee for Economic Research, Princeton, Princeton University Press, 1955, p. 131.

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the more likely is it that there will be fewer firms accounting for total industry output. Such an effect will be heightened, of course, if the various firms in the industry specialize along particular product or geographical lines or sell to a particular class of customers.

In addition, while the advertising data have been grouped using the same industrial classifications as are used for the concentration data, the two are not strictly comparable on this basis. As noted in Appendix 1, the advertising data are grouped considering the major activity of each company rather than along particular product lines. Since the advertising data are biased toward the larger companies in each industry, there is reason to believe that the coverage tends to include multi-product firms which may be engaged in more than one industry as defined by the standard industrial classifications. In order for the advertising data to properly reflect industry advertising, such expenditures should be allocated by product with respect to the individual industries rather than to one industry encompassing all products. The concentration data, on the other hand, are computed on a plant basis and, as such, may be considered to conform more closely with the standard industrial classifications. Thus, not only do the industrial

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classifications used, cover in some cases, more than one theoretical industry, but the advertising data cover a wider range of outputs than do the concentration data. As Simon has noted[5], such multi-product comparisons and overlapping of coverage tend to obscure the relationship between advertising and concentration. For this reason, since the data on profitability are from the same source as those for advertising, the relationship between these two variables will be more identifiable. Even though, as mentioned earlier for concentration, they may relate to more than one theoretical industry.

The measure of concentration used for the purposes of this paper, as noted in Chapter III, is based upon the extent to which the largest few economic units in the industry account for total industry output. As such, it is a measure of the relative importance of the largest units to the industry, but does not measure the extent to which such importance might be mitigated by the relative size distribution of the units smaller than the largest. As Adelman has

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5 Julian L. Simon, "The Effect of the Competitive Structure upon Expenditures for Advertising", Quarterly Journal of Economics, Vol. X, No. 3, November, 1967, p. 626.

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suggested[6], there would be an important structural difference between two industries each with a concentration ratio of 0.50, but with the largest unit in one industry having fifteen per cent of total output, and the largest unit in the second industry having forty per cent. Thus such a measure as used in this paper may be considered not as a measure of the actual concentration in an industry but rather, more accurately, as a means of differentiating highly concentrated industries from those with relatively low concentration.

Associated problems in interpreting industrial concentration from the ratios computed are encountered where products compete in local rather than in national markets. This involves industries in which the products, either for considerations of transportation or perishability, compete locally. The data used for the computation of concentration relate to output on a national basis, assuming that all or most of the economic units involved compete with each other for a share of total output. However, in some industries, such as bakery products and soft drinks, the products of the

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6 M.A. Adelman, "The Measurement of Industrial Concentration", The Review of Economics and Statistics, Vol. 33, No. 4, November 1951, p. 271.

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various plants are sold in particular areas so that concentration should properly be measured on a local basis. Computations using national data tend to understate the actual concentration level in the industry. As suggested by Bain[7], it would be preferable to exclude these industries from the study, but, owing to the limited number of industries for which data are available, they have been included, subject to the interpretation of the above limitations.

The data used for the computation of the concentration ratios have furthermore not taken into consideration the importance of imports as a source of competition for domestic producers. Insofar as imports are available to consumers their range of choices is increased. However, as the advertising data cover firms producing domestically, the exclusion of import products from the concentration ratios will serve to make them more comparable with the advertising ratios.

Industrial concentration, as noted in Chapter I, is the result of a number of factors, the relative importance of which may differ from industry to industry or from industrial group to industrial group. In order to isolate the one

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7 Bain, Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940, p. 299.

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variable affecting concentration, i.e., advertising, it has been necessary to restrict the number of manufacturing industries covered in this study. As Scitovsky has indicated[8], advertising is expected to be an important determinant of concentration only in those industries where buyers are inexpert and subject to persuasion from other than price, technical or service consideration, i.e., the consumer goods industries. For this reason, only the consumer goods industries have been chosen for coverage in this study.

However, as noted above on page 47, since the industrial classifications used in this study are based upon groupings of establishments engaged in the same or a similar kind of economic activity, no distinction is made between different classes of customers purchasing essentially the same products. Although the firms included in the industries covered in this study sell primarily to individual consumers or households who do not have expert knowledge of the products they buy, in some cases part or most of the outputs of these firms are sold to purchasers having this knowledge. And, as pointed out above, the degree to which the market is expert

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8 Tibor Scitovsky, "Ignorance as a Source of Oligopoly Power", American Economic Review, Papers and Proceedings, Vol. 40, No. 2, May 1950, p. 49.

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will affect the level of advertising expenditures.

In addition, as previously suggested, advertising is but one of a number of means by which product differentiation may be achieved. The problem then, is to determine what factors may contribute to the existence of high advertising expenditures as opposed to expenditures on other means of product differentiation in particular industries. Telser has put forward an hypothesis[9] that industries exhibiting lower price elasticities will advertise more than those with higher elasticities. This hypothesis has been supported to some extent by Caves, who has pointed out[10] that there appears to be a tendency for a larger proportion of the sales dollar to be devoted to advertising in those industries, the products of which, show less physical differentiation or technical complexity. If this is in fact the case, that advertising is an alternative means of achieving product differentiation rather than indicative of the degree of product differentiation in the industry, the reliability of the

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9 Lester G. Telser, "How Much Does It Pay Whom to Advertise?", American Economic Review Papers and Proceedings, Vol. 51, No. 2, May 1961, p. 198.

10 Richard Caves, American Industry: Structure, Conduct, Performance, Englewood Cliffs, Prentice-Hall, 1964, p. 45.

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tests used in this paper will be lessened, depending upon the extent to which methods of product differentiation other than advertising are important in the industries covered.

Table XXVI in Appendix 2 presents a classification of the industries covered according to how forms of product differentiation other than advertising, geographical fragmentation of markets and divergence of the actual industries from their theoretical ideals may affect the variables under study.

In addition to the above, there is the further problem, as suggested by Simon[11], that the advertising to sales ratio may not increase proportionately beyond certain levels of concentration but rather increase to a certain level of concentration and then decline. The tests used in this paper have been constructed on the assumption that the relationship between the two variables is direct. Moreover, these tests necessitate the assumption that firms advertise to increase sales. Although this would appear reasonable, it is equally

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11 Simon, The Effect of the Competitive Structure Upon Expenditures for Advertising, pp. 625-627.

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possible that firms feel that they are able to increase their commitments to advertising as a result of added revenues generated by increased sales, which in turn, may be the result of other factors. That advertising expenditures follow closely the business cycle may lend some credence to the assumption that this is, in fact, the case[12]. However, as the advertising data tend toward the larger companies in each industry, who would be expected to have marketing departments with defined policies, there is reason to believe that the data will tend to reflect advertising expenditures made in order to generate sales.

Although the above-named problems of isolating the variables to be measured limit the application of the results to broader questions of advertising and competition, the data

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12 Whether this is still the case in light of changes in attitudes toward advertising is a matter of some uncertainty in view of conflicting data available on the subject. See, O.J. Firestone, The Economic Implications of Advertising, Toronto, Metheun Publications, 1967, pp. 58-63.

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are sufficiently precise to indicate the relationship between advertising and industrial concentration; which relationship might be expected to be shown more clearly were the data amenable to more precise measurement. That this is the case, is indicated by the fact that the problems of measurement are all in the same direction, i.e., they cause the relationship between advertising and concentration to be understated. And, although the data used in parallel tests in the United States are more precise, they suffer from the same problems of industrial definition for the concentration variable and limitations in coverage for the advertising variable. As pointed out by Mann, Henning and Meehan[13], since the methods of similar tests in the United States consist of simple correlations, they yield no more information on the direction of causality between the two variables than does the test used in this paper. In addition, as indicated by Simon[14], with

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13 H.M. Mann, J.A. Henning, and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. 16, No. 1, November 1967, pp. 34-36.

14 Simon, The Effect of the Competitive Structure on Expenditures for Advertising, p. 626.

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respect to advertising and by Adelman[15], with respect to concentration, any such multi-industry comparisons can only be related to the broader questions of advertising and competition on the basis of detailed study of the conduct, structure and performance of individual industries. In this light, the methods of measurement used in this study are sufficient to utilize all the information contained in the presently available data on a multi-industry basis without imparting an accuracy unwarranted by the data.

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15 Adelman, The Measurement of Industrial Concentration, p. 269.

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CHAPTER V

CONCENTRATION IN CANADIAN MANUFACTURING INDUSTRIES

Industrial concentration, as noted in Chapter I, is the result of a number of factors of either supply or demand, the relative importance of which factors may differ from industry to industry and from industrial group to industrial group. The Report of the Task Force on the Structure of Canadian Industry[1], has considered the causes of market dominance or concentration arising out of supply, to be, in general terms, susceptible to a three-fold classification. Namely; economies of large-scale production, economies of large-scale promotion and absolute cost advantages[2].

As indicated in earlier chapters, the present study involves an empirical investigation of the hypothesis that in the Canadian consumer-oriented industries, advertising tends to enhance industrial concentration as a result of the economies of large-scale sales promotion and the absolute cost advantages of the established good will for firms

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1 Canada, Privy Council Office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 122-164.

2 Ibid., pp. 130-132.

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presently engaged in the industry. Whereas, in those industries selling to customers knowledgeable in the technical attributes of the products they purchase, the dominant factors determining concentration arising out of supply are those related to the absolute cost and economies of large-scale production advantages of plant and firm organization. However, as indicated in Chapter IV, the determinants of concentration to be measured cannot be completely isolated from other, independent determinants. That there are determinants of concentration in the consumer-oriented industries other than the above-named may be illustrated by the automobile and appliance industries where economical production necessitates high capital outlays and large-scale production. Conversely, as suggested by Caves[3], even firms making homogeneous basic industrial materials, such as cement and steel, may make substantial expenditures in order to generate customer good will. Nevertheless, as indicated in the report of the Task Force on the Structure of Canadian Industry, large-scale sales promotion economies will predominate in those industries where consumer tastes can be "moulded and manipulated by such

3 Richard Caves, American Industry: Structure, Conduct, Performance, Englewood Cliffs, Prentice-Hall Inc., 1964, pp. 45-46.

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means as heavy expenditures, frequent styling changes, multiplication of product models, or the financing of dealer-service networks at the retail level"[4], i.e., as suggested in Chapter III, the consumer-oriented industries.

Some indication of the relative importance of concentration in the consumer-oriented as opposed to other industries may be obtained by analysis of the major industrial groupings in the manufacturing sector. As part of its study into the structure of Canadian industry the Task Force has computed the proportion of sales accounted for by the largest eight and twenty firms in the various manufacturing industry groups[5]. The results of these computations are reproduced in Table II.

The distinction between a concentrated and unconcentrated industry, as indicated by Singer[6], is arbitrary as the

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4 Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, op. cit., p. 131.

5 Ibid., pp. 426-427.

6 Eugene Singer, "The Structure of Industrial Concentration Indexes", The Antitrust Bulletin, Vol. 10, No. 1, January-April 1965, p. 79.

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Table II. - Percentage of Sales Accounted for by the Largest Twenty and Eight Firms in the Various Manufacturing Industry Groups, 1964.

Industry Group	Sales (millions of dollars)	Percentage of Sales in Largest Twenty Firms	Percentage of Sales in Largest Eight Firms
Food	5,101	40	28
Beverages	860	89	80
Tobacco	412	100	78
Rubber	534	94	80
Leather	269	44	28
Textiles	2,042	34	26
Wood	1,125	34	27
Furniture	272	33	20
Paper	2,886	57	50
Printing	719	47	27
Primary Metals	2,931	86	71
Metal Fabricating	1,730	33	25
Machinery	1,510	47	36
Transportation Equipment	3,251	79	68
Electrical	1,887	66	53
Non-Metallic Minerals	790	53	33

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Table II. - Continued - Percentage of Sales Accounted for by the Largest Twenty and Eight Firms in the Various Manufacturing Industry Groups, 1964.

Industry Group	Sales (millions of dollars)	Percentage of Sales in Largest Twenty Firms	Percentage of Sales in Largest Eight Firms
Petroleum and Coal Products	2,460	99	93
Chemicals	1,935	52	32
Miscellaneous Manufactures	642	39	26

Source: Canada, Privy Council Office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 426-427.

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information contained in simple concentration measures offers only a partial delineation of the economic group. However, for comparative purposes, the dividing line between concentrated and unconcentrated sectors may be represented by the proportion of 50 per cent of total sales accounted for by the largest eight firms and 75 per cent for the largest twenty firms as suggested by Turner and Kaysen for their definition of Type I structural oligopoly[7]. On this basis, there are found to exist six industrial groupings with high concentration, i.e., beverages, tobacco, rubber, primary metals, transportation equipment and petroleum and coal products, with the remainder having low or relatively low concentration. The distribution about this line is not symetrical, however, as those industrial groupings classified as having high concentration are all well above the arbitrary dividing line, whereas, some classified as low are close to the line.

Of the six industrial groupings classified as concentrated, all but one, primary metals, are consumer-oriented

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7 Donald F. Turner, and Carl Kaysen, Antitrust Policy, Cambridge, Harvard University Press, 1959, p. 27.

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or contain some consumer industries. In the case of those classified as having low concentration however, eight are consumer-oriented or contain some consumer goods industries, i.e., food, textiles, leather, furniture, printing, electrical, chemicals, and miscellaneous manufactures and five are producer goods industries.

As pointed out by Rosenbluth[8], and evidenced in Appendix 2, while certain of the classifications, most notably that of food products, contain industries with both low and high concentration, concentration in the consumer goods industries appears to be neither generally higher nor lower than that for manufacturing industries in general, i.e., there appears to be no dichotomy between the general level of concentration in the consumer goods industries and that in the producer goods industries.

In his analysis of concentration in the Canadian manufacturing industries, Rosenbluth found the index of concentration to be a function of the size of

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8 Gideon Rosenbluth, Concentration in Canadian Manufacturing Industries, Princeton, Princeton University Press, 1957, p. 23.

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the industry, the average size of firms in the industry and the degree of inequality of firm sizes within the industry[9]. Some 29 per cent of the variation in concentration among the industries studied was found to be the result of variations in the size of the industries; 64 per cent was found to be the result of variations in the average size of firm in the industries; and 7 per cent of the variation was found to be the result of variation in the degree of inequality of firm sizes[10]. As a result of these findings Rosenbluth concluded that those industries requiring a large scale of operation for economical production would be more concentrated than those where the minimum optimum scale of firm and plant is lower[11].

Thus, since 93 per cent of the variation has been accounted for by the size of industry and the average size of plant, it would be reasonable to assume that in the consumer industries, industries with a larger market and capable of large-scale promotion will be more concentrated than those

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9 Ibid., p. 16.

10 Ibid.

11 Ibid., pp. 16-17.

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industries with a smaller market and where there are not economies of large-scale promotion.

In Table III are presented the rankings of the industrial groups with respect to size as measured by total sales and with respect to concentration as measured by the proportion of total sales accounted for by the largest twenty and eight firms in each group. The table indicates a negative correlation between the two variables. However, some exceptions should be noted, including primary metals, transportation equipment and petroleum and coal products, where the industries are both relatively large and have relatively high concentration. This might be explained by the existence of a large average firm size which is the result, as suggested by Stigler[12], of a high minimum optimum scale. At the other extreme are such sectors as leather, wood, furniture, printing and miscellaneous manufactures where the industries are neither large nor do they have high concentration. In the case of food, the low concentration is combined with large size which would indicate the importance of industry market size as an inverse measure of concentration in this industry. In the cases of

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12 George J. Stigler, "The Economies of Scale", The Journal of Law and Economics, Vol. 1, No. 2, October 1958, pp. 54-71.

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Table III. - Comparison of Size Rankings on the Basis of Total Sales with Concentration on the Basis of the Proportion of Sales Accounted for by the Largest Eight and Twenty Firms in the Various Manufacturing Industry Groups, 1964.

Industrial Group	Sales	Percentage of Sales in Largest Twenty Firms	Percentage of Sales in Largest Eight Firms
Food	1	14	12.5
Beverages	12	4	2.5
Tobacco	17	1	4
Rubber	16	3	2.5
Leather	19	13	12.5
Textiles	6	16.5	16.5
Wood	11	16.5	14.5
Furniture	18	18.5	19
Paper	4	8	8
Printing	14	11.5	14.5
Primary Metals	3	5	5
Metal Fabricating	9	18.5	18
Machinery	10	11.5	9
Transportation Equipment	2	6	6
Electrical	8	7	7

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Table III. - Continued - Comparison of Size Rankings on the Basis of Total Sales with Concentration on the Basis of the Proportion of Sales Accounted for by the Largest Eight and Twenty Firms in the Various Manufacturing Industry Groups, 1964.

Industrial Group	Sales	Percentage of Sales in Largest Twenty Firms	Percentage of Sales in Largest Eight Firms
Non-metallic Minerals	13	9	10
Petroleum and Coal Products	5	2	1
Chemicals	7	10	11
Miscellaneous Manufactures	15	15	16.5

Source: Canada, Privy Council Office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 426-427.

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beverages, tobacco and rubber, on the other hand, the industries are both relatively small and relatively concentrated.

Although, as noted above, the concentration measures computed on the basis of industrial groups serve to give a broad indication of concentration in the various sectors of Canadian manufacturing, the industrial groupings encompass too many diverse products for the purposes of market analysis as each grouping may contain several industries defined on the basis of homogeneous product groups. For the purposes of comparing the concentration ratios computed in this study on the basis of the proportion of employment accounted for by the largest twenty plants with those done for the Task Force study on the basis of the proportion of sales accounted for by the largest eight and twenty firms, the ratios computed for this study on an industry basis have been combined into industrial groups by means of weighted averages. The results of these computations are shown in Table IV.

It may be noted that although the ratios presented in Table IV were computed on the basis of the largest twenty plants and those presented in Table II were computed on the basis of the largest twenty and eight firms, the measure in Table IV resembles that done on the basis of twenty rather

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Table IV. Percentage of Employment Accounted for by the Largest Twenty Plants in the Various Manufacturing Industry Groups, 1962.

Industrial Group	Employment	Percentage of Employment in Largest Twenty Plants
Food	178,392	50
Beverages	12,397[a]	89[a]
Tobacco	7,785	100
Rubber	19,825	80
Leather	31,542	40
Textiles	60,398	55
Wood	80,016	32
Furniture	34,244	36
Paper	80,326	36
Printing	37,382[b]	51[b]
Primary Metals	88,920	93
Metal Fabricating	79,621[c]	49[c]
Machinery	15,871	96
Transportation Equipment	104,761	95
Electrical	87,193	81
Non-Metallic Minerals	39,975[d]	77[d]

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Table IV. - Continued - Percentage of Employment Accounted for by the Largest Twenty Plants in the Various Manufacturing Industry Groups, 1962.

Industrial Group	Employment	Percentage of Employment in Largest Twenty Plants
Petroleum and Coal Products	11,088	77
Chemicals	57,961	71
Miscellaneous Manufactures	92,868	36

Source: Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963.

a Excludes soft drinks. As noted in Chapter IV, the regional nature of the product causes concentration ratios computed on a plant employment basis to understate the actual level of concentration. Since employment in soft drinks is greater than in that of three other beverage industries combined, the low ratio would have greater than proportionate affect on the weighted average for the four industries. Were soft drinks included, employment would be 25,519 workers and the concentration ratio would be 61.16 per cent.

b Includes 'Printing' and 'Printing and Publishing' industries only.

c Does not include 'Boiler and Plate Works' or 'Metal Stamping and Pressing'.

d Does not include 'Stone Products Manufacturers'.

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than that on the basis of eight firms as presented in Table II. This would tend to substantiate Rosenbluth's findings that the majority of firms in the Canadian manufacturing industries are single-plant firms[13].

As indicated in Tables II and IV, concentration levels as measured on the basis of plant employment differ from those measured on the basis of firm sales. And, although in certain industries, such as, beverages, tobacco, rubber, leather, wood, furniture, printing and miscellaneous manufactures, the two measures approximate each other, in other industries, the two measures give essentially different results. The machinery group is classified in Table II as being relatively unconcentrated, while in Table IV, it is measured as being highly concentrated. The tendency for the plant employment measure to give higher concentration than the firm sales measure is also evident in the electrical, transportation equipment, non-metallic minerals and chemical groups. In only a few cases such as those of rubber, petroleum and coal products and miscellaneous manufactures are the concentration ratios higher on a plant employment than on a firm sales basis.

13 Rosenbluth, Concentration in Canadian Manufacturing Industries, p. 62 .

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That the concentration ratios on the basis of plant employment tend to be higher than those on a firm sales basis is contrary to normal expectations as Rosenbluth found both employment[14], and plant[15] concentration to be generally lower than sales and firm concentration.

A possible explanation of the apparent anomaly is that the sales data may indicate larger industry sizes owing to double counting of sales. The data used are based on corporate returns made to the Corporations and Labour Unions Returns Act Administration[16], which classifies firms on the basis of primary activity and makes no adjustment for vertical integration[17].

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14 Ibid., p. 13.

15 Ibid., p. 62.

16 Canada, Privy Council Office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, p. 426.

17 Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Report for 1962, Ottawa, Queen's Printer, 1965, p. 15.

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Table V. - Comparison of Concentration Rankings, Percentage of Total Sales Accounted for by the Largest Twenty Firms, 1964, and Percentage of Total Employment Accounted for by the Largest Twenty Plants, 1962. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Percentage of Sales in Largest Twenty Firms	Percentage of Employment in Largest Twenty Plants
Food	14	13
Beverages	4	5
Tobacco	1	1
Rubber	3	7
Leather	13	15
Textiles	16.5	11
Wood	16.5	19
Furniture	18.5	17
Paper	8	17
Printing	11.5	12
Primary Metals	5	4
Metal Fabricating	18.5	14
Machinery	11.5	2
Transportation Equipment	6	3
Electrical	7	6

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Table V. - Continued - Comparison of Concentration Rankings, Percentage of Total Sales Accounted for by the Largest Twenty Firms, 1964, and Percentage of Total Employment Accounted for by the Largest Twenty Plants 1962. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Percentage of Sales in Largest Twenty Firms	Percentage of Employment in Largest Twenty Plants
Non-metallic Minerals	9	8.5
Petroleum and Coal Products	2	8.5
Chemicals	10	10
Miscellaneous Manufactures	15	17

Source: Firm data obtained from, Canada, Privy Councilоffice, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 426-427. Plant data obtained from, Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963.

Note: Coefficient of rank correlation = 0.904.

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However, although the two sets of concentration data yield different levels of concentration, as indicated by Rosenbluth[18], they are well correlated on a rank basis, for, as shown in Table V, the coefficient of rank correlation between the proportion of total employment accounted for by the largest twenty plants and the proportion of sales accounted for by the largest twenty firms is 0.904 (see Table VI). The coefficient of rank correlation between the proportion of total employment accounted for by the largest twenty plants and the proportion of sales accounted for by the largest eight firms is 0.901 (see Table VII). Both of which compare favourably with the coefficient of rank correlation between the two firm measures of 0.988 (see Table VI) and with that of 0.947 found by Rosenbluth for the relationship between plant and firm concentration on the basis of ninety-six industries with concentration computed by means of the same method for both using 1948 data[19].

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18 Rosenbluth, Concentration in Canadian Manufacturing Industries, p. 74.

19 Ibid.

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Table VI. Comparison of Concentration Rankings, Percentage of Sales Accounted for by the Largest Twenty and Eight Firms, 1964. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Percentage of Sales in Largest Twenty Firms	Percentage of Sales in Largest Eight Firms
Food	14	12.5
Beverages	4	2.5
Tobacco	1	4
Rubber	3	2.5
Leather	13	12.5
Textiles	16.5	16.5
Wood	16.5	16.5
Furniture	18.5	19
Paper	8	8
Printing	11.5	14.5
Primary Metals	5	5
Metal Fabricating	18.5	18
Machinery	11.5	9
Transportation Equipment	6	6
Electrical	7	7
Non-metallic Minerals	9	10

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Table VI. - Continued - Comparison of Concentration Rankings, Percentage of Sales Accounted for by the Largest Twenty and Eight Firms, 1964. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Percentage of Sales in Largest Twenty Firms	Percentage of Sales in Largest Eight Firms
Petroleum and Coal Products	2	1
Chemicals	10	11
Miscellaneous Manufactures	15	16.5

Source: Canada, Privy Council office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 426-427.

Note: Coefficient of rank correlation = 0.988.

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That industry sizes are well correlated between the plant employment and firm sales measures of concentration, despite actual size differences, is indicated in Table VIII.

Since, as suggested by Rosenbluth[20], variations in industry size was found to account for 29 per cent of variation in concentration, the correlation of industry sizes would be expected to have some effect on the coefficient of correlation between the concentration measures.

Rosenbluth[21] makes the further point that concentration will tend to remain stable over time as a result of the tendency for expansions in industry size to be matched by increases in average firm size and/or in the degree of inequality of firm size within industries. In general terms, relative concentration levels have in fact remained stable since 1948 and this can be indicated by comparing Rosenbluth's general findings with those presented in this study. The relative rankings of industry groups on the basis of concentration of employment in the largest twenty plants for 1962 and concentration of sales in the largest twenty and eight firms for 1964 are presented in Tables VI and VII.

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20 Ibid., p. 16.

21 Ibid., pp. 94-108.

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Table VII. - Comparison of Concentration Rankings, Percentage of Total Sales Accounted for by the Largest Eight Firms, 1964, and Percentage of Total Employment Accounted for by the Largest Twenty Plants, 1962. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Percentage of Sales in Largest Eight Firms	Percentage of Employment in Largest Twenty Plants
Food	12.5	13
Beverages	2.5	5
Tobacco	4	1
Rubber	2.5	7
Leather	12.5	15
Textiles	16.5	11
Wood	14.5	19
Furniture	19	17
Paper	8	17
Printing	14.5	12
Primary Metals	5	4
Metal Fabricating	18	14
Machinery	9	2
Transportation Equipment	6	3
Electrical	7	6

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Table VII. Continued Comparison of Concentration Rankings, Percentage of Total Sales Accounted for by the Largest Eight Firms, 1964, and Percentage of Total Employment Accounted for by the Largest Twenty Plants, 1962. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Percentage of Sales in Largest Eight Firms	Percentage of Employment in Largest Twenty Plants
Non-metallic Minerals	10	8.5
Petroleum and Coal Products	1	8.5
Chemicals	11	10
Miscellaneous Manufactures	16.5	17

Source: Firm data obtained from, Canada, Privy Council office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 426-427. Plant data obtained from, Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963.

Note: Coefficient of rank correlation = 0.901.

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On the basis of all three measures, the groups having relatively low concentration are foods, leather, textiles, wood, furniture, printing, metal fabricating and miscellaneous manufactures. Those with high concentration are beverages, tobacco, rubber, primary metals, transportation equipment, electrical and petroleum and coal products. These rankings also compare favourably with those of Rosenbluth for 1948[22].

In perspective, the data presented in this chapter indicate that:

(a) the general level of concentration in the consumer good industries is neither higher nor lower than that in the producer good industries;

(b) concentration tends to be higher for industries facing smaller markets;

(c) concentration ratios constructed using different output variables are well correlated on a rank basis;

(d) concentration ratios constructed from plant and firm data tend to be well correlated on a rank basis; and

(e) concentration tends to remain stable over time.

The implications of the first two findings, on the one hand, lie in the area of public policy in that:

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22 Ibid., p. 87.

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i) there is indication that concentration in particular industries is the result of a number of factors common in greater or lesser degree to all the manufacturing industries. And, although different determinants are expected to have greater affect on concentration depending upon whether the industry is consumer or producer oriented, the general results in one sector do not differ significantly from those in the other.

ii) insofar as there is a degree of association between concentration and the size of the market faced by the industry, the most suitable method of achieving lower concentration in that industry may be to open it to foreign markets and foreign competition.

The implications of the latter three findings, on the other hand, lie in the area of empirical research in that:

i) concentration ratios constructed on the basis of different output variables will yield essentially the same results when concentration is correlated with other variables on a rank basis;

ii) concentrated ratios constructed on the basis of presently available data, i.e., plant data, will yield reliable predictions of what would be obtained were firm data used; and

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iii) as concentration tends to remain stable over time studies done using concentration as one of the variables are not likely to be affected by the year chosen.

As will be seen in Chapter VII, these findings have important bearing upon the results obtained in that chapter as well as for the policy implications which might arise from them.

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Table VIII. - Comparison of Size Rankings; Sales, 1964 and Employment, 1962. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Sales	Employment
Food	1	1
Beverages	12	17
Tobacco	17	19
Rubber	16	15
Leather	19	14
Textiles	6	9
Wood	11	7
Furniture	18	13
Paper	4	6
Printing	14	12
Primary Metals	3	4
Metal Fabricating	9	8
Machinery	10	16
Transportation Equipment	2	2
Electrical	8	5
Non-metallic Minerals	13	11
Petroleum and Coal Products	5	18

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Table VIII. - Continued - Comparison of Size Rankings; Sales, 1964 and Employment, 1962. Various Industrial Groups in the Manufacturing Sector.

Industrial Group	Sales	Employment
Chemicals	7	10
Miscellaneous Manufactures	15	3

Source: Sales data obtained from, Canada, Privy Council Office, Foreign Ownership and the Structure of Canadian Industry, Report of the Task Force on the Structure of Canadian Industry, Ottawa, Queen's Printer, 1968, pp. 426-427.

Note: Coefficient of rank correlation = 0.847.

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CHAPTER VI

COMPARISON WITH THE UNITED STATES

As indicated in Chapter III, because of the similarities in industrial structure between the United States and Canada, as well as with respect to patterns of demand and methods of production, organization and promotion, it may be expected that the results obtained in empirical studies done in the United States in connection with advertising will yield similar results to those obtained in Canada.

With respect to the concentration variable, Rosenbluth found in 1948 that in fifty out of fifty-six industries judged to be comparable between the two countries, concentration was higher in Canada than in the United States owing to the smaller size of most Canadian industries[1]. However, on the basis of rank correlation for forty-one industries he found a correlation coefficient of 0.71[2] which led him to the conclusion that the rankings of industries by concentration levels in Canada resembles that of the United States but not too closely[3]. As the correlation of industry sizes was found

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1 Gideon Rosenbluth, Concentration in Canadian Manufacturing Industries, Princeton, Princeton University Press, 1957, p. 82.

2 Ibid., p. 91.

3 Ibid.

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to be 0.93[4]; and that of average firm size was found to be 0.90[5]; that of the number of firms 0.92[6]; while that of inequality of firm sizes was 0.69[7], the difference in concentration rankings appears to result from the greater inequality in firm sizes in the United States than in Canada.[8]

That comparative levels of concentration in the consumer-oriented industries resemble those in the United States is indicated by Table IX. The Canadian data are based upon the Dominion Bureau of Statistics, Standard Industrial Classification Manual[9] four-digit industry which, although different from the United States Standard Industrial Classification four-digit industry, as used for the United States data[10], the two are roughly comparable. The two sets of data

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4 Ibid.

5 Ibid., p. 92.

6 Ibid.

7 Ibid.

8 Ibid., p. 93.

9 Canada, Dominion Bureau of Statistics, Standard Industrial Classification Manual, Ottawa, Queen's Printer, December 1960.

10 Lester G. Telser, "Advertising and Competition", The Journal of Political Economy, Vol. 72, No. 6, December 1964, p. 542.

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also differ in that those for the United States represent four firm sales concentration whereas the Canadian data represent twenty plant employment concentration. These differences however, as suggested in earlier chapters are not likely to materially affect the comparability of the data.

The data presented in Table IX suggest that, generally speaking, a consumer-oriented industry which is relatively concentrated in Canada will also be relatively concentrated in the United States. However, there are two notable exceptions, i.e., breweries and dairy products. In the case of the Canadian brewing industry, as noted by Jones[11], the industry has been subject to a protracted series of mergers, whereas, in the United States, such merger activity has been curtailed by effective use of that nation's anti-trust laws. In the case of dairy products, as suggested in Chapter IV, the Canadian data may understate actual concentration in the industry owing to the local nature of production.

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11 J.C.H. Jones, "Mergers and Competition: The Brewing Case", The Canadian Journal of Economics and Political Science, Vol. 33, No. 4, November 1967, p. 554.

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Table IX. - Comparison of Industrial Rankings for Concentration, United States 1958[1], Canada 1962[2]. Fifteen Industries.

Industry	Canada	United States
Breweries	5	11
Wineries	4	7
Distilleries	3	2
Meat Products	8	12
Dairy Products	14	5
Canned Goods	11	9
Bakeries	13	10
Sugar Refineries	1	1
Confectionery	7	4
Knitted Goods	10	13
Carpets	2	3
Women's Clothing	15	15
Men's Clothing	12	14
Paints and Varnishes	9	6
Petroleum Refineries	6	8

Source: United States data, Lester G. Telser, "Advertising and Competition", The Journal of Political Economy, Vol. 77, No. 6, December 1964, p. 543. Canadian data Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963.

1 Based upon the proportion of industry sales accounted for by the largest four firms in the industry.

2 Based upon the proportion of industry employment accounted for by the largest twenty plants in the industry.

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Table X presents a comparison between the Canadian data and that from another United States study[12]. In this latter study, as indicated in Chapter III, the industry classifications have been made to conform more closely with homogeneous product groups than was the case for either the other United States study or the Canadian study. Again, as in the case of the comparison presented in Table IX, the rankings in both countries are similar but have one marked divergence, that of the distillery industry, which compared more favourably in Table IX. In the case of soft drinks, as with dairy products in the previous comparison, the disparity between the concentration levels may be attributed in part to the regional nature of production which tends to make firm concentration understate actual industry concentration. A further reason for the difference is that the United States data represent only those firms engaged in bottling for the major syrup manufacturers[13].

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12 H.M. Mann, J.A. Henning and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. 16, No. 1, November 1967, pp. 35-36.

13 Ibid.

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Table X. - Comparison of Industrial Rankings for Concentration, United States 1963[1], Canada 1962[2]. Eleven Industries.

Industry	Canada	United States
Soft Drinks	10	5
Breweries	7	8
Distilleries	1.5	7
Meat Products	8	9
Canned Goods	9	10
Bakeries	11	11
Biscuits	4	6
Cereals	1.5	1
Flour Mills	5	4
Tobacco	3	2
Soap	6	3

Source: United States data, H.M. Mann, J.A. Henning and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. 16, No. 1, November 1967, pp. 40-42. Canadian Data, computed from, Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963.

1 Based upon the proportion of industry sales accounted for by the largest four firms in the industry.

2 Based upon the proportion of industry employment accounted for by the largest twenty plants in the industry.

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In the case of the soap industry, the Canadian data include manufacturers of 'Soaps and Cleaning Compounds', whereas the United States data include only manufacturers of 'Soaps' which restriction of the products covered, as suggested in Chapter IV, serves to increase the concentration ratio and at the same to eliminate firms selling to institutional buyers or selling related but not heavily advertised products. The same is true of tobacco where the Canadian data do not only include the manufacture of cigarettes and other consumer products, but also 'Leaf Tobacco Processing', the output of which industry does not reach the consumer without further manufacture.

Table XI presents a comparison of the relative concentration rankings for the two United States studies. As noted above, the concentration ratios computed for the Mann, Henning and Meehan study were made to conform more closely with homogeneous product groups than were those computed for the Telser study. And, as pointed out in Chapter IV, such closer conformity make the former ratios more amenable to the tests undertaken. However, as may be observed from Table XI, on the basis of ranks the two measures approximate each other.

In the case of soaps, however, the choice by Mann, Henning and Meehan of a more restricted industry classification

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yields a different ranking accorded to this industry as between the two studies.

The two United States studies further differ in that the Telser study covers a wider range of products, some of which products, as pointed out by Mann, Henning and Meehan, reflect sales to both consumers and producers[14]. As indicated in Chapter IV, the resulting inprecision of the concentration ratio tends to understate the relationship between advertising and concentration. As the data available in Canada are not broken down beyond the four-digit level of industrial classification and as data for certain industries are not available, the coverage of the concentration ratios used in this study resemble more closely those used in the Telser study than those used for the Mann, Henning and Meehan study. It is for this reason that the results of the present study of the Canadian consumer-oriented industries is likely to conform more closely to the results obtained in the former rather than in the latter study.

With respect to the advertising variable, as indicated in Table XII, the relative similarities between firms

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14 Ibid.

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Table XI. - Comparison of Industrial Rankings for Concentration, Two United States Studies, 1958. Ten Industries.

Industry	Telser	Mann, Henning and Meehan
Breweries	9	9
Distilleries	5	6
Meat Products	10	7
Canned Goods	7	8
Flour Mills	6	4
Bakeries	8	10
Cereals	1	2
Tobacco Products	2	3
Soaps	4	1
Tires and Tubes	3	5

Source: Lester G. Telser, "Advertising and Competition", The Journal of Political Economy, Vol. 77, No. 6, December 1964, p. 543 and H.M. Mann, J.A. Henning and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. 16, No. 1, November 1967, pp. 40-42.

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in the same industry in the two countries, as noted in Chapter III, is reflected in the similarities in the rankings on the basis of advertising in the two countries. In the case of the United States data, industry advertising was computed on the basis of total industry advertising expenditures taken as a percentage of total industry sales revenues obtained from income tax data[15]. In the case of the Canadian data, as outlined in Chapter III, two sources were used: that of a sample survey and that of aggregate industry data. However, despite the different sources used for the Canadian data, as indicated in Table XII, they both agree fairly well with the rankings of the aggregate United States data.

Since, as noted above, the concentration variable used for the Telser study also agrees with that used in the present study on a rank basis, the findings in both countries on the relationship between advertising and industrial concentration may be expected to be similar. And, as demonstrated in Chapter IV, because of the multi-product coverage of the concentration ratios, such results will tend to understate the actual relationship between advertising and concentration.

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15 Ibid.

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Table XII. - Comparison of Industrial Rankings for Advertising Outlays per Dollar of Sales, United States, 1957, Canada, 1962. Eight Industries.

Industry	United States	Canada	
		Corporations and Labour Unions Returns Act	Sample Survey
Distilleries	6	5	4
Breweries	2	3	2
Wineries	4	2	3
Meat Products	9	9	9
Dairy Products	7	8	8
Canned Goods	5	4	6
Knitted Goods	8	7	7
Soaps and Cleaning Compounds	1	1	1

Source: United States, Telser, Lester G., "Advertising and Competition", The Journal of Political Economy, Vol. 77, No. 6, December 1964, p. 543. Canada, see Appendix I, pp. 151-159.

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Table XIII presents a comparison between the Canadian advertising data and that used by Mann, Henning and Meehan. In the latter case, the data represent advertising expenditures made by a sample of forty-two firms representing fourteen consumer industries. The firms were chosen from a list of advertisers reported by National Advertising Investments as making expenditures in three media[16]. And, in all cases, the firms were dominant in the markets in which they were classified. The sample chosen for the present study differs somewhat in that, although the firms covered tended to be larger firms, not all are dominant in the industries in which they operate. The coverage tends to be somewhat broader as the sample of Canadian advertisers includes sixty firms in fourteen industries, with only industries having three or more firms included in the sample.

In comparing the data for the two countries in Table XIII it is apparent that although there is agreement as to high and low rankings in both countries, the Canadian advertising data do not fit the Mann, Henning and Meehan data as closely as they do the Telser data. A possible reason for this divergence in the former case is that the Mann, Henning

16 Ibid.

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and Meehan advertising data include only firms advertising as the principal means of sales promotion and are not highly diversified. As demonstrated in Chapter IV, since advertising may not be indicative of the degree of product differentiation in an industry, but rather, an alternative means of achieving product differentiation, the inclusion of only advertising in industries where other sources of product differentiation are used will tend to understate the relationship between advertising and industrial concentration. And, as further noted in Chapter IV, the inclusion of multi-product firms in the advertising variable will cause some overlapping in industry coverage between the advertising and concentration variables. Which effect will also tend to understate the relationship between advertising and concentration.

Table XIV presents a comparison between the rankings of industries on the basis of advertising expenditures for the two United States studies. As noted in this comparison although the two sets of data agree with respect to high and low rankings of industries there are some notable exceptions such as breweries, flour mills and bakeries. As in the case of the Canadian advertising data, the Telser data do not

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Table XIII. - Comparison of Industrial Rankings for Advertising Outlays per Dollar of Sales, United States 1963, Canada 1962.

Industry	United States	Canada	
		Corporations and Labour Unions Returns Act	Sample Survey
Soft Drinks	5	2	n.a.
Breweries	6	3	2
Distilleries	4	5	3
Meat Products	8	7	7
Canned Goods	7	4	5
Bakeries	9	n.a.	8
Flour Mills	3	n.a.	6
Tobacco	1	6	4
Soap	2	1	1

Source: United States, H.M. Mann, J.A. Henning and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. 16, No. 1, November 1967, pp. 40-42. Canada, see Appendix I, pp. 151-159.

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exclude multi-product firms nor do they account for methods of product differentiation other than advertising.

Although the advertising and concentration variables used in the Mann, Henning and Meehan study are freer of disturbances than are those in either the Telser or the present study, as noted in Chapter IV, the problems of measurement using the presently available data serve only to detract from the relationship between advertising and concentration. Thus the results so far obtained may be interpreted in the light of what would be obtained were the relationship between the variables capable of more precise measurement. And, since one United States study has used data similar to those used in this study, it serves as a reference for the results obtained, while the other study serves as an indicator of the results which may be obtained with more detailed data as and when they become available in Canada.

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Table XIV. - Comparison of Industrial Rankings for Advertising Outlays per Dollar of Sales, Two United States Studies, 1957 and 1957-1961. Ten Industries.

Industry	Telser	Mann, Henning and Meehan
Breweries	2	6
Distilleries	7	5
Meat Products	10	9
Canned Goods	6	7
Flour Mills	9	4
Bakeries	5	10
Cereals	4	2
Tobacco Products	3	3
Soaps	1	1
Tires and Tubes	8	8

Source: Lester G. Telser, "Advertising and Competition", The Journal of Political Economy, Vol. 77, No. 6, December 1964, p. 543 and H.M. Mann, J.A. Henning and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. 16, No. 1, November 1967, pp. 40-42.

Note: The data for 1957-1961 relate to the Mann, Henning and Meehan study.

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CHAPTER VII

ADVERTISING AND INDUSTRIAL CONCENTRATION IN CANADA

As indicated in Chapter II, the hypothesis to be tested in this paper, using Canadian data, is whether in consumer-oriented manufacturing industries, advertising expenditures in an industry beyond those necessary for the provision of consumer information such as through classified advertisements, price lists, catalogues and notices of price and quality changes, tend to be associated with concentration as a result either of the effects of advertising expenditures on the size distribution of firms presently in the industry or of its effects as a barrier to the entry of new firms. The question to be answered, as indicated in Chapter III, is whether those industries with a high advertising to sales ratio can be expected to have a higher concentration ratio than those industries with a low advertising to sales ratio. If this is the case the relationship between advertising and industrial concentration may be expected to have a positive correlation. The data, however, as indicated in Chapter IV, tend to bias the correlation coefficient toward zero since the variables to be measured cannot be effectively isolated.

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Table XV presents industrial rankings of sales to advertising ratios computed on the basis of the two methods indicated in Appendix 1 for eleven consumer good industries and these are compared with the rankings of the associated industry concentration ratios. The coefficient of rank correlation between industrial concentration and advertising as a percentage of sales on the basis of a sample of sixty firms is 0.36, which compares with that between concentration and advertising as a percentage of the Corporations and Labour Unions Returns Act sales[1] data of 0.45. Thus, although the data employed have a tendency to bias the coefficients of correlation toward zero for the reasons cited in Chapter IV, they are positive and both are in the same range despite the use of different sources for the sales data. And, when twenty consumer industries are represented as in Table XVI, the coefficients of correlation resemble those computed on the basis of eleven industries in that, the coefficient on the basis of the sample survey data is 0.36 and on the basis of the Corporations and Labour Unions Returns Act data it is 0.47 for twenty consumer good industries.

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1 For the sources and limitations of these data see Appendix 1, pp. 151-161.

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Table XV. - Industrial Rankings of Concentration on a Plant Basis and Advertising Outlays as a Percentage of Sales, Using Sales Data Obtained From a Sample Survey[1] and From the Corporations and Labour Unions Returns Act Data[2]. Eleven Consumer-Good Industries.

Industry	Concentration	Corporations and Labour Unions Returns Act	Sample Survey
		Advertising as a Percentage of Sales	Advertising as a Percentage of Sales
Meat Products	8	10	10
Dairy Products	11	9	9
Canners	10	4	6
Tobacco Products	4	6	5
Knitting Mills	9	8	7
Distilleries	1	5	4
Breweries	6	3	2
Wineries	2	2	3
Major Appliances	7	11	8
Radio and T.V. Sets	3	7	11
Soaps and Cleaning Compounds	5	1	1

Source: Concentration data, Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963. Corporations and Labour Unions Returns Act data for sales; Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965. Sample Survey data; see Appendix 1, pp.151 159,Advertising data; Elliot Research Corp. Ltd., Audits of Expenditures in the Broadcast and Print Media for 1962, Toronto, 1963.

1 The coefficient of rank correlation for the sample survey data is 0.36.

2 The coefficient of rank correlation for the Corporations and Labour Unions Returns Act data is 0.45.

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That these low coefficients of correlation can be explained in part by the extraneous disturbances described in Chapter IV is illustrated in Table XVI. When the concentration and advertising values computed on the basis of the Corporations and Labour Unions Returns Act data are divided into two groups of eight industries with the highest advertising to sales and concentration ratios and nine industries with the lowest advertising to sales and concentration ratios, there are six industries which cannot be grouped as having either high concentration with large advertising expenditures or having low concentration with low advertising expenditures. These are: Breweries, Soft Drinks, Radios and Television Sets, Small Appliances, Canned Goods and Sporting Goods and Toys.

As suggested in Chapter IV and presented in Table XXVI of Appendix 2, the concentration ratio will tend to be understated where the relevant markets are local since the ratio is computed assuming all manufacturers selling in competition with one another. The advertising ratio will be understated when manufacturers in a particular industry sell to more than one group of buyers and when product differentiation in an industry is achieved by means other than advertising.

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Table XVI. Industrial Rankings of Concentration Computed on a Plant Basis and Advertising Outlays as a Percentage of Sales, Using Sales Data Obtained From a Sample Survey[1] and From Corporations and Labour Unions Returns Act Data[2]. Twenty Consumer-Good Industries.

Industry	Corporations and Labour Unions Returns Act		Sample Survey	
	Concentration	Advertising as a Percentage of Sales	Concentration	Advertising as a Percentage of Sales
Meat Products	11	15	9	12
Dairy Products	17	14	14	11
Canned Goods	14	6	11	7
Flour Mills	--	n.a.	5	9.5
Bakeries	--	n.a.	13	14
Misc. Food Products	--	n.a.	12	4
Tobacco Products	4	8	4	6
Knitting Mills	13	13	10	8
Soft Drinks	15	4	--	n.a.
Distilleries	1	7	1	5
Breweries	9	5	7	2
Wineries	2	3	2	3
Household Furniture	16	17	--	n.a.
Major Appliances	10	16	8	9.5

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Table XVI. - Continued - Industrial Rankings of Concentration Computed on a Plant Basis and Advertising Outlays as a Percentage of Sales, Using Sales Data Obtained From a Sample Survey[1] and From Corporations and Labour Unions Returns Act Data[2]. Twenty Consumer-Good Industries.

Industry	Corporations and Labour Unions Returns Act		Sample Survey	
	Concentration	Advertising as a Percentage of Sales	Concentration	Advertising as a Percentage of Sales
Small Appliances	6	10	--	n.a.
Radios and T.V. Sets	3	9	3	13
Soaps and Cleaning Compounds	5	2	6	1
Sporting Goods and Toys	8	12		n.a.
Paints and Varnishes	12	11	--	n.a.
Toilet Preparations	7	1	--	n.a.

Source: Concentration data, Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963. Corporations and Labour Unions Returns Act data for sales; Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965. Sample Survey data; see Appendix 1, pp.151-9. Advertising data; Elliot Research Corp. Ltd., Audits of Expenditures in the Broadcast and Print Media for 1962, Toronto, 1963.

1 The coefficient of rank correlation for the sample survey data is 0.35.

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2 The coefficient of rank correlation for the Corporations and Labour Unions Returns Act data is 0.47.

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On this basis, as suggested in Table XXVI of Appendix 2, in the cases of Breweries and Soft Drinks the concentration ratios do not properly reflect the actual levels of concentration in these industries as the ratios are computed on a national basis whereas, because of transportation costs, the relevant markets are local. In addition, in the case of soft drinks, the advertising ratio refers to manufacturers of soft drink syrups, a small group, whereas the concentration ratio refers to bottlers, a large group.

In the cases of Radios and Television Sets and Small Appliances, as suggested in Table XXVI, the advertising ratios do not properly reflect such means of product differentiation as specialized dealerships, point of sales advertising and resale price maintenance. In the case of canned goods, the industry consists of two industries based on homogeneous buyer groups, one consisting of a small group of manufacturers selling well advertised products at a higher price obtained as a result of successful product differentiation and a larger group selling either to buyers other than ultimate consumers or selling at a price lower than that obtained by those firms who have obtained successful brand recognition through extensive advertising.

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In the case of Sporting Goods and Toys, a number of industries based on homogeneous product groups, are included, some, such as toy manufacturers, have high advertising expenditures in the consumer media, while others, such as sporting goods manufacturers, have relatively low advertising expenditures in the consumer media.

When the Sample Survey data presented in Table XVI are ranked in the same way as was the Corporations and Labour Unions Returns Act data, two industries, Radios and Television Sets and Flour Mills, appear as having high concentration with low advertising ratios while two others, Canned Goods and Miscellaneous Foods, have high advertising ratios but low concentration ratios.

In the case of Flour Mills, as suggested in Table XXVI of Appendix 2, although some of the output of this industry is sold to consumers, the greater part of it is sold to such intermediary producers as bakeries. In the case of the Miscellaneous Foods industries, as pointed out in Table XXVI, the products included in the concentration and advertising ratios are too diverse to properly reflect even a small group of industries based on homogeneous product groups.

When the advertising data presented in Table XVI are grouped as above a further important distinction is revealed.

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In the case of the Corporations and Labour Unions Returns Act data those eight industries having the highest advertising to sales ratios are: Toilet Preparations, Soaps and Cleaning Compounds, Wineries, Soft Drinks, Breweries, Canned Goods, Distilleries and Tobacco Products. The products involved in each of these industries are items of relatively common use, non-necessities having small cost in comparison with the average consumer budget and/or are items having some psychi cally or socially oriented purpose whose achievement can be promised persuasively by the seller. Whereas, those products sold by those industries comprising the group of nine lowest advertisers may be distinguished amongst necessities, relatively rarely purchased, complex and expensive items. The same pattern is apparent when the Sample Survey data are considered as the industries with the largest advertising to sales ratios are: Soaps and Cleaning Compounds, Breweries, Wineries, Miscellaneous Foods, Distilleries, Tobacco and Canned Goods. It is precisely in these goods where purchases are relatively frequent, the cost is small and the physical qualities of the products differ slightly from one another that product differentiation achieved through advertising is highest even while the need for technical information may well be lowest.

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That this is the case lends credence to the contention that advertising in certain of the consumer good industries contributes to industrial concentration by means of product differentiation and is necessary to the maintenance of concentration in a particular industry, mainly because established firms endeavour to protect themselves from "too much" competition on the basis of price.

It has been pointed out in Chapter VI that the Canadian data used in this study and those used in one of the studies done in the United States are based on similar techniques in compilation. The question arises: do the Canadian and American data also yield similar results?

In the tests performed by Lester G. Telser[2] in the United States for the years 1947, 1954 and 1958, on forty-two broadly defined consumer-product industries, the industries were defined at the United States S.I.C. three-digit level[3], with no consideration as to choosing only industries where

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2 Lester G. Telser, "Advertising and Competition", The Journal of Political Economy, Vol. LXXII, No. 6, December 1964, pp. 537-562.

3 Ibid., pp. 542-545.

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advertising might be isolated from other forms of product differentiation or from other sources of concentration. On this basis, the average of the coefficients of correlation for the three years was found to be 0.17[4], with a coefficient of determination for each of the three years of about three per cent. As noted previously, since no attempt was made to properly isolate the variables to be measured other than to confine the study to the general sector of consumer-oriented manufacturing industries, the low values obtained may be considered to result, at least in part, from the crudeness of the measurement[5].

In contrast, the study done by Mann, Henning and Meehan[6], was based upon a sample of forty-two firms in fourteen industries where consideration was given to defining industries, for the purposes of the concentration ratios, on the basis of homogeneous product groups[7]. And, in addition, the firms

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4 Ibid., pp. 542-544.

5 Julian L. Simon, "The Effect of the Competitive Structure upon Expenditures for Advertising", Quarterly Journal of Economics, Vol. XLI, No. 4, November 1967, p. 626.

6 H.M. Mann, J.A. Henning and J.W. Meehan, "Advertising and Concentration: An Empirical Investigation", The Journal of Industrial Economics, Vol. XVI, No. 1, November 1967, pp. 34-45.

7 Ibid., p. 35.

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covered in the advertising variable were made to conform to the relevant industries in the concentration variable by eliminating highly diversified firms from the sample. Further, attempts were made to isolate advertising from other forms of product differentiation by including only those firms employing advertising as the principal means of sales promotion[8].

With advertising obtained from two sources[9], six regression equations were constructed, three for each type of data used for the years 1954, 1958 and 1963. The averages of the coefficients of correlation obtained were 0.66 and 0.50[10]. Since the coefficients varied over the three years, in the case of the other, amongst, 0.58, 0.68 and 0.72, the results were submitted to F-tests, the results of which led the authors to conclude that the hypothesis of repetitive sampling from the same population could not be rejected, i.e., that the observed differences among the regression equations could easily be due to sampling error[11]. This conclusion was further augmented by the similarity of the six regression equations[12].

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8 Ibid.

9 Ibid., pp. 34-35. The first source, yielding the higher coefficient was that of a list compiled by National Advertising Investments of firms advertising in the three major media. The second source was a compilation of data on the 100 largest advertisers published in Printers' Ink and Advertising Age.

10 Ibid., pp. 37-38.

11 Ibid.

12 Ibid.

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As indicated previously, although the limitations in the presently available Canadian data do not permit the proper isolation of the variables to be measured, some consideration was made in this direction, and as such, the approach approximated that of Mann, Henning and Meehan. On the other hand, in the Telser study, no such effort to eliminate extraneous factors was made, with the result being a slight although nevertheless positive correlation being indicated.

Despite the better industrial definition of the concentration variable in the Mann, Henning and Meehan study, the coefficients of rank correlation obtained using the Canadian data appear to approach the results obtained by Mann, Henning and Meehan since the average of the coefficients for the Canadian data is 0.41, whereas the averages for the Mann, Henning and Meehan data, as noted earlier, are 0.66 and 0.50. However, since the Canadian results are based upon tests of rank correlation, they may be expected to differ from those obtained as a result of regression analysis but not by such as to seriously distort the findings.[13]

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13 Dudley J. Cowden, Frederick E. Croxton, and Sidney Klein, Applied General Statistics, Englewood Cliffs, Prentice-Hall Inc., third edition, 1967, pp. 414-416.

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The similarity in sign for the coefficients of correlation amongst the three tests, with the coefficients being more positive as the variables measured have been made freer of extraneous disturbances, indicates a positive relationship between advertising and industrial concentration in both Canada and the United States. Whether or not the relationship in Canada differs significantly from that in the United States, however, is not at present determinant, given the differences in the basic data available in the two countries. However, allowing for these differences, there appears to be good reason to expect that the same relationship would be revealed in Canada and the United States were the data used capable of proper isolation. This expectation appears to be reinforced by the evident similarities between the two countries with respect to concentration[14] and advertising as a percentage of sales[15] resulting from similarities in markets, products and consumer tastes[16].

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14 Gideon Rosenbluth, Concentration in Canadian Manufacturing Industries, Princeton, Princeton University Press, 1957, p. 91.

15 Harry G. Johnson, The Canadian Quandry: Economic Problems and Policies, Toronto, McGraw-Hill Company of Canada Limited, 1963, p. 277.

16 Lester G. Telser, "Some Aspects of the Economies of Advertising", The Journal of Business, Vol. XLI, No. 2, April 1968, p. 167.

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In order to eliminate some of the disturbances from the Canadian data, dummy variables (i.e., variables constructed to assume values of unity or zero) were used to locate local markets, the use of product differentiation other than advertising and the existence of more than one homogeneous product or buyer group in each industry. The variables were introduced on the basis of the classifications presented in Table XXVI of Appendix 2.

In the case of local markets, the coefficient of correlation for the Corporations and Labour Unions Returns Act data, on the basis of eleven consumer good industries (Table XV) was increased from 0.45 to 0.65. In the case of the same data on the basis of seventeen industries (Table XVI), the coefficient was increased from 0.47 to 0.60. In the case of the sample survey data based on fourteen industries (Table XVI), the coefficient was increased from 0.35 to 0.59. As suggested above, this increase in the coefficients is in accordance with a priori expectations. However, when the dummy variables representing product differentiation other than advertising and industries containing more than one homogeneous product or buyer group were introduced into the data, the positive values of the coefficients were not increased significantly. Multiple correlations using more than one dummy variable at a time were not performed owing to

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restrictions in the degrees of freedom for samples of such limited size as used in this study[17].

The differences in the results obtained when using a dummy variable representing disturbances in the concentration variable and when using dummy variables representing disturbances in the advertising variable indicates that the limitations in the presently available data lie primarily with the concentration data and that when concentration ratios more properly reflecting actual industrial market structures become available in Canada, a more positive correlation between advertising and industrial concentration in the Canadian consumer good industries will be found.

The use of dummy variables, and/or restricting the industries under study in order to eliminate extraneous disturbances further indicates the importance of the assumptions used in choosing data for empirical studies of the relationship between advertising and concentration. The current debate[18] as to whether or not such a relationship which is

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17 Dudley J. Cowden, Frederick E. Croxton and Sidney Klein, Applied General Statistics, p. 454.

18 Jules Backman, Advertising and Competition, New York, New York University Press, 1967, pp. 82-114.

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expected to exist on the basis of presently available micro-economic theory[19] does in fact exist in the real world could well be resolved were it based on data selected according to the same theoretical assumptions.

In addition to the measurement of market power on the basis of concentration, tests using profitability have been suggested[20]. The use of profitability is based upon the fact that not only do profit rates provide some indication of market performance in terms of the normal criteria of allocative efficiency, but also high returns may signify the possible existence of market power, since, if exercised in the direction of profit maximization, market power should lead to rates of return which exceed those in competitive industries that are comparable in terms of risk and growth of demand[21].

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19 Nicholas H. Kaldor, "The Economic Aspects of Advertising", The Review of Economic Studies, Vol. LXXVIII, No. 45, 1950-1951, p. 16.

20 Tibor Scitovsky, "Economic Theory and Concentration Measurement", Business Concentration and Price Policy: A Conference of the Universities - National Bureau Committee for Economic Research, Princeton, Princeton University Press, 1955, pp. 104-106.

21 William S. Comanor and Thomas A. Wilson, "Advertising, Market Structure and Performance", The Review of Economics and Statistics, Vol. XLIX, No. 4, November 1967, p. 423.

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However, as Bain has indicated[22], the use of profitability as an indicator of market power should only be judged as meaningful if the deviation continues for a period of time, as, at any particular time, profits may be the result of a number of factors. It is only over a period of time that any excess profits might be expected to be eliminated by the forces of competition as a result of new firms entering the industry.

Given this constraint in the interpretation of profitability data at a particular time as a measure of market power, in Tables XVII, XVIII and XIX are presented industrial rankings of profits as a percentage of assets and of equity compared with industrial rankings of advertising as a percentage of sales.

As suggested in Appendix 1, profits taken as a percentage of assets is considered as an indicator of the profitability of an enterprise in that it compares profits with the total funds available to the business from trade creditors, lenders and shareholders. Profits as a percentage of equity, is considered as an indicator of the relative returns from alternate sources of investment. Although

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22 Joe S. Bain, "Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940", The Quarterly Journal of Economics, Vol. LXV, No. 3, August 1951, pp. 293-294.

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profits as a percentage of equity is considered as being closest to the economist's interpretation of profits[23], there are indications that correlations done using the two sets of data will yield essentially similar results[24].

As indicated in Tables XVII, XVIII and XIX, the coefficients of rank correlation obtained between profitability and advertising using the two above mentioned measures of profitability are 0.65, 0.76, 0.66, 0.76 and 0.81, all being significant. And, as in the case of the concentration variable, with profits as a percentage of assets on the basis of a sample survey, and upon aggregate data, both for eleven and twenty industries, the coefficients of correlation are sufficiently similar to indicate the same universe.

Although, as suggested above, profitability at a particular time may reflect a number of factors including market power, the significant positive relationship between

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23 Marshall Hall and Leonard Wiess, "Firm Size and Profitability", The Review of Economics and Statistics, Vol. XLIX, No. 3, August 1967, p. 329.

24 William S. Comanor and Thomas Wilson, Advertising, Market Structure and Performance, p. 427.

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Table XVII. - Industrial Rankings of Profits as a Percentage of Assets and Advertising Outlays as a Percentage of Sales, Using Profit, Asset and Sales Data Obtained from a Sample Survey[1] and from Corporations and Labour Unions Returns Act Data[2]. Eleven Consumer-Good Industries.

Industry	Corporations and Labour Unions Returns Act		Sample Survey	
	Profits as a Percentage of Assets	Advertising Outlays as a Percentage of Sales	Profits etc.	Advertising etc.
Meat Products	10	10	8	10
Dairy Products	6	9	6	9
Canners	8	4	9	6
Tobacco Products	5	6	5	5
Knitting Mills	9	8	11	7
Distilleries	1	5	1	4
Breweries	2	3	3	2
Wineries	4	2	3	3
Major Appliances	11	11	10	8
Radio and T.V. Sets	7	7	7	11
Soaps and Cleaning Compounds	3	1	4	1

Source: Corporations and Labour Unions Returns Act data for sales, profits and assets; Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965. Sample Survey data; see Appendix 1, pp.151-59, Advertising data; Elliot Research Corp. Ltd., Audits of Expenditures in the Broadcast and Print Media for 1962, Toronto, 1963.

1 The coefficient of rank correlation for the sample survey data is 0.65.

2 The coefficient of rank correlation for the Corporations and Labour Unions Returns Act data is 0.76.

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profitability and advertising taken together with the findings for advertising and concentration reinforces the earlier findings of a definite positive relationship between advertising and industrial concentration in the consumer-oriented industries in Canada.

There are three possible conclusions to be drawn from these findings. They are, that:

a) Advertising may make possible concentration in the consumer good industries;

b) Concentrated consumer good industries must continue to advertise heavily in order to maintain the level of concentration; and

c) Concentrated consumer good industries compete by means of advertising rather than on the basis of price.

In the case of the first, advertising might be expected to enhance industrial concentration in the consumer good industries as a result of the effects of large advertising expenditures on the size distribution of firms in the industry. This is the result of the fact that the initial size distribution in an industry adopting advertising expenditures as a means of competition may be expected to be changed as a result of the advertising efforts of some sellers attracting

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Table XVIII. Industrial Rankings of Profits as a Percentage of Assets and Advertising Outlays as a Percentage of Sales, Using Profits, Assets and Sales Obtained From a Sample Survey[1] and From the Corporations and Labour Unions Returns Act Data[2]. Twenty Consumer-Good Industries.

Industry	Corporations and Labour Unions Returns Act		Sample Survey	
	Profits as a Percentage of Assets	Advertising Outlays as a Percentage of Sales	Profits etc.	Advertising etc.
Meat Products	16	15	10	12
Dairy Products	9	14	6	11
Canned Goods	12	6	11	7
Flour Mills	n.a.	n.a.	9	9.5
Bakeries	n.a.	n.a.	14	14
Misc. Food Products	n.a.	n.a.	8	4
Tobacco Products	8	8	5	6
Knitting Mills	14	13	13	8
Soft Drinks	3	4	n.a.	n.a.
Distilleries	2	7	1	5
Breweries	4	5	3	2
Wineries	6	3	2	3
Household Furniture	15	17	n.a.	n.a.
Major Appliances	17	16	12	9.5
Small Appliances	7	10	n.a.	n.a.

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Table XVIII. - Continued - Industrial Rankings of Profits as a Percentage of Assets and Advertising Outlays as a Percentage of Sales, Using Profits, Assets and Sales Obtained From a Sample Survey[1] and From the Corporations and Labour Unions Returns Act Data[2]. Twenty Consumer-Good Industries.

Industry	Corporations and Labour Unions Returns Act		Sample Survey	
	Profits as a Percentage of Assets	Advertising Outlays as a Percentage of Sales	Profits etc.	Advertising etc.
Radios and T.V. Sets	11	9	7	13
Soaps and Cleaning Compounds	5	2	4	1
Sporting Goods and Toys	13	12	n.a.	n.a.
Paints and Varnishes	10	11	n.a.	n.a.
Toilet Preparations	1	1	n.a.	n.a.

Source: Corporations and Labour Unions Returns Act data for sales, profits and assets; Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965. Sample Survey data; see Appendix 1, pp. 151-9, Advertising data; Elliot Research Corp. Ltd., Audits of Expenditures in the Broadcast and Print Media for 1962, Toronto, 1963.

1 The coefficient of rank correlation for the sample survey data is 0.66.

2 The coefficient of rank correlation for the Corporations and Labour Unions Returns Act data is 0.76.

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greater customer allegiance than that of others, causing the relative market shares of the successful advertisers to increase at the expense of the less successful.

In addition, the resultant changes in relative market shares will tend to work in favour of the larger firms in the industry insofar as the "pulling power" of larger expenditures is more than proportional to the amount spent, i.e., there are increasing returns to scale. And, the tendency will be further enhanced insofar as there are volume discounts allowed by sellers of media space and time and insofar as the national media are superior to the local in promoting product allegiance as a result of consumers putting greater trust in nationally accepted brands.

In view of these, it is reasonable to expect the larger firms to gain at the expense of the smaller ones, or, even if at the start, firms are more or less of equal size, those that forge ahead will increase their lead as the additional sales generated enable them to increase their advertising outlays still further.

However, although in the early stages of the concentration process the disappearance of the small firms may proceed naturally as a result of increasing unprofitability on account of the rise in costs due to advertising and other

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Table XIX. - Industrial Rankings of Profits as a Percentage of Equity and Advertising Outlays as a Percentage of Sales using Industrial Profits, Equity and Sales Obtained from Corporations and Labour Unions Returns Act Data[1]. Seventeen Consumer-Good Industries.

Industry	Profits as a Percentage of Equity	Advertising Outlays as a Percentage of Sales
Meat Products	16	15
Dairy Products	11	14
Canned Goods	13	6
Tobacco Products	8	8
Knitting Mills	15	13
Soft Drinks	3	4
Distilleries	1	7
Breweries	4	5
Wineries	6	3
Household Furniture	14	17
Major Appliances	17	16
Small Appliances	9	10
Radios and T.V. Sets	10	9
Soaps and Cleaning Compounds	5	2
Sporting Goods and Toys	7	12
Paints and Varnishes	12	11

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Table XIX. Continued - Industrial Rankings of Profits as a Percentage of Equity and Advertising Outlays as a Percentage of Sales using Industrial Profits Equity and Sales Obtained from Corporations and Labour Unions Returns Act Data[1]. Seventeen Consumer-Good Industries.

Industry	Profits as a Percentage of Equity	Advertising Outlays as a Percentage of Sales
Toilet Preparations	2	1

Source: Profit and equity data; Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965. Advertising data; Elliot Research Corp. Ltd., Audits of Expenditures in the Broadcast and Print Media for 1962, Toronto, 1963.

1 The coefficient of rank correlation is 0.807.

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means of product differentiation and the fall in sales due to more powerful advertising by others, the later stages will likely take on the character of competitive "war" with each firm protecting its market share and being prepared, if necessary, to incur losses in order to repel any attempt at intrusion by others. Hence, the ultimate effect of the concentration process will likely be oligopoly rather than monopoly.

As suggested by b) above, once the level of concentration has been reached in the industry when any attempt on the part of one firm to increase its share of the market by increased expenditures on advertising is met by retaliatory expenditures on the part of its competitors, it will still be necessary for the firms in the industry to advertise heavily in order to protect their relative shares both from firms already in the industry and from those which would enter.

As indicated in Chapter II, advertising on the part of the firms in an industry tends to create a barrier to the entry of new firms. In the consumer good industries, large advertising expenditures are used by sellers to promote the difference between their products and those of their competitors and to enhance the goodwill of the seller in the eyes of the consumer. Insofar as buyers have a preference,

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transitory or permanent, for the product of a particular seller, he will be protected from the competitive acts of his competitors or potential competitors. Thus, in order for each seller to protect his market share and thereby the level of concentration, it is necessary for him to continue his expenditures on advertising. Further, as suggested above, as the products involved have less physical differences amongst sellers, are purchased more often and form a smaller part of the normal consumer budget, not being staples, it will be necessary for the sellers to spend relatively more on advertising in order to maintain market shares protected through product differentiation.

In addition to the tendency for advertising to enhance concentration and the necessity for further advertising to maintain that concentration, there is a further aspect to the relationship of advertising to competition, that as in c) above: the tendency for certain industries to use advertising as a means of competition preferable to that on the basis of price.

As indicated in Chapter I, relatively concentrated industries are normally oligopolistic in that there are few sellers relative to the market with each seller reacting to the competitive actions of his competitors. In such a model

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the possible alternatives available to each seller in order to increase his revenue by means of price adjustments is constrained by the probable reactions of his competitors. With all sellers in an oligopolistic market selling essentially the same product the result of a price increase on the part of one seller would mean lost revenue as his share of the market is decreased.

Alternately, if the seller were to lower his price, his competitors would follow in order to protect their relative market shares. This would involve a possible loss of revenue for all depending upon the elasticity of demand for the product in question. And, if sellers were to meet a price reduction on the part of a competitor with a lower price, the ultimate result of the reductions may be prices below the sellers' costs. However, if each seller were to differentiate his product in the eyes of the consumer by means of advertising, then to the extent that the differentiation is successful and consumers are less willing to accept substitutes, i.e., demand for the product is less elastic in response to increases in its price or to decreases in the prices of close substitutes, the greater discretion will the seller have in the price he may charge. In addition, although a seller may expect his competitors to retaliate to any

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efforts on his part to cut into their market shares, by means of advertising, the results of such retaliation will be less severe and possibly slower in coming than in the case of a price war where customers gained by a lower price on the part of one seller are as easily lost as a result of a further price reduction on the part of a competitor.

Thus, competitive moves not based on price give each firm a certain time advantage to gain added revenue before his competitors can meet him and, in addition, offer the possibility that not all of the advantage initially won will be ultimately lost.

In perspective, the findings in this thesis have led to the conclusion that: insofar as there is an inverse relationship between industrial concentration and competition, empirical evidence suggests that, in the consumer good industries, there is also an inverse relationship between advertising and competition. In view of this conclusion the question may be asked: Does large scale advertising serve socially desirable ends?

Arguments against large scale advertising, on the one hand, rest primarily with the misallocation of economic resources which may result from oligopolistic or monopolistic market structures. By restricting the number of competitors

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or potential competitors, large scale advertising may serve to protect monopoly profits or increase the opportunities for collusive price agreements. And, as a result of the restrictions placed upon the flow of profits and movement of prices, consumers may be expected to pay more for goods bought than would be the case under the conditions of the competitive model.

Such higher prices, in effect, serve to restrict consumer choice insofar as what a consumer pays for one item cannot be spent on another. And, the restriction on the flow of profits in and out of particular industries limits their use for what might be considered as more socially useful purposes in other industries. However, although advertising is a factor contributing to industrial concentration, it may be considered that it is not the structure of industries as such which should be attacked, but rather, the conduct of the firms involved. There are certain advantages to be gained from concentrated industries serving limited markets as a result of economies of large scale. The answer then, may not be to attack concentration as such but rather to ensure conduct in these industries comensurate with consumer welfare through such government agencies as the Combines Branch of the Department of Consumer and Corporate Affairs.

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Arguments in favour of large scale advertising, on the other hand, rest primarily with the benefits which can be gained as a result of large scale production and the minimization of risk. By allowing for the expansion of scale in production, widening markets and contributing to consumer acceptance of new or improved products which can be produced more economically or are superior to older products, large scale advertising may serve to enhance consumer welfare by lowering costs and improving products.

The advantages of large scale production, however, presupposes a range of decreasing costs in production with virtually no upper limit. In fact, certain large scale firms may, and probably are, operating beyond optimum size so that increases in output result not in decreasing but in increasing costs of production and/or distribution. Further, this argument in favour of large scale presupposes production centred in a few, large, specialized plants. In fact, large firms may well have a number of plants located in different regional markets with each plant producing a full range of products. Insofar as this is the case, there is no production advantage over a number of firms owning that same number of plants.

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Ensuring larger markets for a longer time, however, may provide the rewards necessary to bring forth newer and better products. The originator of a new product may normally be expected to be the sponsor of a brand-name product, the acceptance of which will be built up through extensive advertising. If successful, the brand-name product will bring to the seller increased profits and to the consumer greater satisfaction. For a period, depending upon the extent of barriers to new entry resulting from product differentiation or technical considerations, the product originator will have the market to himself and enjoy monopoly profits, but gradually, as the market expands, new sellers will enter causing profits in the market to decline. The longer the originator can forestall new entry, the greater will be his profits. These profits over and above those which would be received under competitive conditions will serve to repay the development costs of the new product and give to the originator reward for his innovation. Without such rewards there would be no inducement to risk investment in such innovations. However, insofar as such investment is in innovations of the most heavily advertised consumer goods such as toilet preparations, soaps, liquor and tobacco it is questionable whether innovations justify the large scale

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investment in advertising and profits. From the point of view of economic welfare such innovations may be considered to be, at best, frivolous and not to enhance consumer welfare except in a derived psychic sense of the consumer having something new or different.

Even innovations in such industries as above, however, where the products are all essentially similar, serve to maintain demand in a society at the stage of mass consumption and thereby help maintain income. Further, it has been suggested by Professor Harry Johnson[25], that economies such as those of Canada and the United States can afford a certain amount of "waste" in order to serve diverse wants. It is in the less developed nations where such waste can be considered as being morally wrong. Yet, in these nations large scale advertising does not play the role that it does in the developed nations, as "it does not take an ad man to tell a starving man that he is hungry", i.e., wants in poor nations are well defined and basic.

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25 Harry Johnson, The Canadian Quandry, pp. 279-280.

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Large scale advertising in an economy at the stage of mass consumption may also assist in minimizing risk as, advertising, if properly planned and soundly executed, can assist businessmen insofar as it gives them a measure of assurance that the markets obtained will be large enough to permit profitable operations. In this way, businessmen may look upon advertising as insurance against possible failure and as an essential requirement for embarking upon large capital expenditures.

This argument places emphasis on the ability of advertising not only to inform the consumer of new products but also to persuade him to buy. Such investments in persuasion have their own risks, however, to which such a classic example as the Edsel Ford will attest. In this way, large investments in persuasive advertising may actually serve to increase the amount risked without severely curtailing the risk involved.

A further argument put forward in defence of large scale advertising[26], is that it identifies the seller with his product. Such identification serves to ensure product

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26 Jules Backman, Advertising and Competition, p. 159.

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quality since, in order for the seller to reap the benefits of product differentiation, consumers must have such confidence in the brand to purchase it repeatedly. However, it might be pointed out that such public confidence might be more cheaply won through greater public expenditure on government surveillance of product standards. In addition, such emphasis on brand name standards may lead to overinvestment on the part of producing firms in product qualities above that which is necessary for proper performance or emphasize quality which has no bearing upon the ultimate needs which are to be filled.

In conclusion, on the basis of the above, it may be said that advertising entails both costs and benefits. On the one hand, advertising may contribute to a misallocation of economic resources insofar as concentration contributes to industrial conduct and performance at variance with those of the competitive model. On the other hand, in certain instances, advertising may enhance consumer welfare by bringing forth more varied goods at lower costs than would otherwise be possible. In order to reap these benefits of advertising at least cost the answer thus appears to rest in more effective enforcement of combines policy rather than intervention in advertising.

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SUMMARY AND CONCLUSIONS

The purpose of this thesis has been to determine, using Canadian data, whether in the consumer-oriented manufacturing industries, advertising expenditures beyond those necessary for the provision of consumer information, tend to enhance industrial concentration as a result either of the effects of advertising expenditures on the size distribution of firms presently in the industry or of its effects as a barrier to the entry of new firms. The method of measurement employed is that of the Spearman test of rank correlation. This method was chosen as the most suitable for the available data. On this basis, coefficients of rank correlation were obtained using advertising to sales ratios based both on a sample survey of some sixty firms and on aggregate industry data. Correlations were done for both sets of data using eleven and twenty industries. The coefficients obtained were although low, all positive and in the same range. Part of the reason for low values of the correlation coefficients is the fact that it was not possible to isolate the variables from extraneous disturbances not correlated with the two measured variables.

It was further determined that those consumer industries spending the greatest proportion of sales on advertising were Toilet Preparations, Soaps and Cleaning Compounds.

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Wineries, Soft Drinks, Breweries, Distilleries and Tobacco Products. The products involved in each of these industries are items which are subject to repeat purchase, non-necessities, have small cost in comparison with the average consumer budget and/or items having some psychically or socially oriented purpose whose achievement can be promised persuasively by the seller.

Comparisons of the results obtained using Canadian data with those obtained in the United States were made. Although, because of differences in the types of data used in the two countries whether or not there is a significant difference between the two countries is not determinate, there is reason to expect that were the basic data used in the two countries more similar, the same relationship would be revealed in both Canada and the United States.

This expectation appears to be reinforced by the similarities between the two countries with respect to concentration and advertising as a percentage of sales resulting from similarities in markets, products and consumer tastes.

The data also suggest that the different results obtained in similar tests in the United States are the result of extraneous disturbances being eliminated from some tests

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and not from others.

When profitability is used as the dependent variable and advertising as the independent, a strong positive correlation is evident. Insofar as high profitability indicates more concentrated markets this result tends to reinforce the earlier findings. Since both the advertising and profitability data were obtained from the same sources, the problem of extraneous disturbances was less than is the case for advertising and concentration.

The main implications of the finding that there is a positive correlation between advertising and concentration are:

(a) Advertising contributes to, or facilitates industrial concentration in the consumer-good industries;

(b) Concentrated consumer-good industries must continue to advertise heavily in order to maintain the level of concentration; and

(c) Concentrated consumer-good industries may use advertising as a means of competition in order to protect themselves from competition on the basis of price.

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Given these conclusions, that insofar as there is a positive relationship between industrial concentration and competition, empirical evidence suggests that, in the consumer-good industries, there is also an inverse relationship between advertising and competition; the question remains: Is large-scale advertising in this way good or bad?

The answer rests in the relative advantages of competition and oligopoly or monopoly. On this basis, criticism of large-scale advertising must center on its effects on the misallocation of resources, while praise must rest on the advantages of large-scale production and stable price structures.

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APPENDIX 1

SOURCES AND QUALITY OF THE DATA

1. Concentration Data

The concentration ratios computed for the purposes of this study are based upon data obtained from the D.B.S. Census of Manufactures, for the various industries. As the only output data available to date are those on an establishment basis, it has been necessary to compute concentration as the proportion of total industry employment accounted for by the largest twenty plants in the industry. This study uses 'grouped data', the method suggested by Gideon Rosenbluth in, Concentration in Canadian Manufacturing Industries,[1] and used by Joe Bain in, International Comparisons of Industrial Structures.[2]

Available evidence indicates a high correlation between plant and firm concentration data. Rosenbluth's study of the relationship between plant and firm concentration in ninety-six Canadian manufacturing industries indicates a rank

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1 Gideon Rosenbluth, Concentration in Canadian Manufacturing Industries, Princeton, Princeton University Press, 1957, pp. 140-142.

2 Joe S. Bain, International Comparisons of Industrial Structures, Princeton, Princeton University Press, 1966, pp. 26-28.

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correlation of 0.947[3]. Thus it would be reasonable to expect an industry with relatively high (or low) firm concentration to have a relatively high (or low) plant concentration. Evidence presented by Bain indicates a similarly high correlation for United States data[4].

The method of presentation of census data in Canada, i.e., grouped by size classes, makes it necessary to estimate concentration ratios on the basis of the maximum and minimum employment that could be controlled by the largest twenty plants. To illustrate: in biscuit manufacturing the largest employment size classes contain eighteen plants accounting for 5,694 employees. The employment accounted for by the two plants smaller than the eighteen largest will lie somewhere between the minimum number of employees that it is statisti cally possible for these plants to control and the maximum.

The minimum number of employees that it is statistically possible for them to control would be attained if all plants in the size class controlled exactly the same number

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3 Rosenbluth, Concentration in Canadian Manufacturing, p. 74.

4 Bain, International Comparisons of Industrial Structures, p. 24.

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of employees, i.e., the average. Thus with seven plants in class 50-99, and total employees of 478, the minimum number would be: $\frac{478}{7} = 68$. The three largest plants in the class would then control 2 x 68 = 136 employees.

The maximum number of employees that it is statistically possible for the two largest plants to control would be either the number of workers they would employ if each were at the upper limit of the size class (99 workers per plant) or the number of workers they would control if all the remaining smaller plants in the size class were at the lower limit of the class, whichever is the smaller. Thus, there are two estimates of the maximum possible employment of the six plants in question: 99 x 2 = 198; or, the total number of workers in the class, 478 less 50 x 2, i.e., 478 - 250 = 228. The smaller estimate is 198. It is chosen because it is closer to the actual figure.

There will then be two estimates of the number of workers controlled by the largest fifteen plants in the industry; 5,694 + 136 = 5,830, and 5,694 + 198 = 5,892. The corresponding maximum and minimum statistically possible percentages of all industry workers employed by the largest fifteen plants are: 87.80 and 88.73 per cent and the mean

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estimate is half way between these two, at 88.26 per cent.

On the basis of United States data, Bain found this procedure to be as accurate as any comparably simple one[5]. Comparing his estimates with figures computed from detailed census data, he found that in about half of the cases his estimates were quite close to the actual concentration indices or within 10 per cent of the true figures. In about a quarter of the cases they were significantly higher and in about a quarter significantly lower, diverging from the true figures by more than 10 per cent[6]. These findings led Bain to the conclusion that as a result of unavoidable errors inherent in the estimating procedures, "the findings should be viewed as rough and ready indicators of tendencies rather than as precise measures"[7].

Since the error in the estimates tend to decline as the concentration indices refer to larger absolute numbers of plants, it was necessary to base the measure upon the largest number of plants for which data could be obtained for

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5 Ibid., p. 29.

6 Ibid., p. 30.

7 Ibid., p. 31.

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all industries in the study. Thus the number chosen was twenty which is the same as was chosen by Bain for United States data[8].

In order to obtain an idea of the reliability of the estimates so obtained, comparisons have been made with measures of plant concentration done by Raynauld in 1961[9] and by Rosenbluth in 1948[10]. These measures differ from that employed in this study as they measure concentration on the basis of the number of plants accounting for 80 per cent of total industry employment rather than the proportion of total employment accounted for by a given number of the largest plants in the industry. As Rosenbluth has pointed out, different measures may yield somewhat different rankings but will tend to be well correlated on a ranked basis[11].

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8 Ibid., p. 12.

9 Andre Raynauld, "Industrial Organization", The Canadian Economic System, Toronto, The MacMillan Company of Canada Limited, 1967, pp. 144-145.

10 Rosenbluth, Concentration in Canadian Manufacturing, pp. 117-120.

11 Ibid., p. 11.

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As may be seen in Tables XX and XXI, the measure obtained on the basis of 1962 data agrees with the two other measures. In the comparison with the Rosenbluth plant measure, however, the reversal of the ranks between 'Flour Mills' and 'Paints and Varnishes' stands out noticeably. Since the ranking of 'Flour Mills' in the 1962 data compares favourably with that in the Raynauld data, however, there is good reason to believe that concentration in the flour milling industry has increased substantially since 1948. That this has, in fact, been the case is made evident by a comparison of plant and firm figures for the years 1948 and 1962. In 1948 there were 170 plants in the industry[12] and approximately 148 firms[13]. In 1962 the number of plants was fifty-four and the number of firms was forty-eight[14].

The concentration measure used in this study, i.e., the proportion of total employment accounted for by a given number of the largest plants in the industry, was chosen as

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12 Canada, Dominion Bureau of Statistics, Flour Mills, 1961, Annual Census of Manufactures, Ottawa, Queen's Printer, 1962.

13 --------, Flour Mills in Canada, 1949, Location and Capacity of Mills, Ottawa, Queen's Printer, 1950.

14 Canada, Dominion Bureau of Statistics, Flour Mills, 1962, Annual Census of Manufactures, Ottawa, Queen's Printer, 1963.

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Table XX - Comparison of Concentration Rankings on a Plant Basis: Rosenbluth 1948 and Estimates 1962[1].

Industry	Rosenbluth 1948	Estimates 1962
Distilleries	1	1
Wineries	2	2
Breweries	4	4
Slaughtering and Meat Packing	5	5
Paints and Varnishes	3	6
Flour Mills	6	3
Knitted Goods	7	7
Fruit and Vegetable Canners	8	8
Soft Drinks	9	9
Bakeries	10	10

Source: Gideon Rosenbluth, Concentration in Canadian Manufacturing Industries, Princeton, Princeton University Press, 1957, pp. 117-120.

1 Coefficient of rank correlation is 0.982. On the basis of thirty-four industries chosen as comparable with respect to the 1948 D.B.S. industrial classification, the coefficient is 0.848.

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Table XXI - Comparison of Concentration Rankings on a Plant Basis: Raynauld 1961 and Estimates 1962[1].

Industry	Raynauld 1961	Estimates 1962
Tobacco	1	1
Flour Mills	2	2
Breweries	3	3
Slaughtering and Meat Packing	4	4
Misc. Foods	5	6
Fruit and Vegetable Canners	6	5
Soft Drinks	7	7
Dairy Factories	8	9
Bakeries	9	8

Source: Andre Raynauld, "Industrial Organization", The Canadian Economic System, Toronto, The MacMillan Company of Canada Limited, 1967, pp. 144-145.

1 The coefficient of rank correlation is 0.983. On the basis of thirty-one industries the coefficient is 0.975.

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preferable to that employed by Rosenbluth as it more closely approaches the measures used in the United States in advertising studies and is comparable with the method used by Bain in 1961[15]. Rosenbluth firm data were not used because of the problem of updating them from 1948 and because of the changes in the D.B.S. industrial classifications which have occured since that time.

2. Advertising Data

The advertising data used in this study were computed from actual audits of national media expenditures for time and space obtained from Elliot Research Corp. Ltd. The media covered by these data are: radio; television; daily, weekly, bi-weekly and tri-weekly newspapers; week-end supplements; farm papers and consumer magazines.

A rough approximation of the relative importance of the media covered by the Elliot data is given in Table XXII. These figures tend to underestimate the importance of the covered media, however, as they represent net media advertising revenues from all sources, both public and private and

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15 Bain, International Comparisons of Industrial Structures, p. 29.

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from all industries, both manufacturing and non-manufacturing.

For this reason, although catalogues and direct mail are represented in Table XXII as receiving some 20.6 per cent of net advertising revenues, a substantial part of this revenue is from firms engaged in retail and wholesale trade.

Data on expenditures in the broadcast media are obtained by Elliot Research Corp. from information supplied by Canadian radio and television stations and verified through monitoring in sixteen centres across Canada. The advertising is costed using the earned discount rate for each sponsor and are for station time and line charges only.

In the case of the publication media, expenditures are obtained on the basis of lineal counts. Advertisements in the daily newspapers are measured to the nearest five lines per column and measurement of the same advertisement in different papers are standardized as far as possible to show the same number of lines throughout, regardless of shrinkage or expansion. Costing is carried out using the relevant publication rate schedules with flat line rates for daily newspapers and one-time rates for the other publication media.

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Table XXII - Net Advertising Revenues, Percentage share by Media, 1962.

Media Covered by Elliot Research Corp. Data		Media Not Covered	
Medium	Percentage Share of Net Advert. Revenue	Medium	Percentage Share of Net Advert. Revenue
Radio	9.1	Business Papers	4.2
Television	10.5	Directories City and Telephone	5.4
Daily Newspapers	31.3	Religious, school and other publications	0.4
Weekly Supplements	2.9	Catalogues and direct mail	20.6
Weekly, Semi, and Tri-weekly newspapers	4.4	Outdoor billboards, car cards, etc.	7.2
Consumer Magazines	3.0		
Farm papers	0.9		
Total	62.1	Total	37.8

Source: Maclean-Hunter Research Bureau, A Report on Advertising Revenues in Canada, Toronto, Maclean-Hunter Publishing Co. Ltd., October 1966, p. 6.

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Advertising expenditures in the various media may be distinguished as to whether the coverage is national or local National advertising has been considered by Professor O.J. Firestone[16] to include that advertising coverage which is designed to reach the general public across the nation or an entire industry, trade or profession. Such advertising is normally placed in publications with nationwide appeal and readership and on radio and television networks. Conversely, local advertising is considered to include that advertising coverage which is designed to reach people in a particular community. This type of advertising may originate either locally or it may be a supplement to national advertising aimed at creating purchases of goods and services advertised nationally. Local advertising is placed in local newspapers and on area radio and television stations.

As noted above, the data used in this study pertain only to national advertising expenditures which are considered by Elliot Research Corp. to be those expenditures by firms whose products are available on a national or regional (multiple city) basis. The broadcast expenditures do not

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16 O.J. Firestone, The Economic Implications of Advertising, Toronto, Methuen Publications (a division of The Carswell Company Ltd.), 1967, p. 14.

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include any local or dealer advertising nor do they include 'overflow' advertising on stations in the United States. And, as the data represent only actual expenditures for time and space in the various media, they do not include advertising allowances made available by national firms to regional or local distributors. The data on expenditures in the publication media include only that dealer advertising which is printed from standard 'cuts' provided by the manufacturer and is printed in more than one publication. The lines in these advertisements containing dealer identification, however, are deducted for the purposes of national measurement.

The data are limited to firms spending more than one thousand dollars per annum in time charges in the broadcast media and to firms which disburse more than ten thousand dollars per annum in space costs in the publication media.

As may be seen in Table XXIII, expenditures on local advertising represent an important source of revenue for certain of the covered media. However, as pointed out by Professor O.J. Firestone[17], although certain of the manufacturing industries such as the automobile and appliance industries make extensive use of advertising at the local or

17 Ibid., p. 41.

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dealer level, in general, manufacturing firms rely upon national advertising, while the major source of local advertising revenues are firms engaged in retail trade. That the greater part of local advertising is done by firms engaged in industries not included in this study may be indicated by taking total advertising expenditures as reported in Marketing[18] by Elliot Research Corp. Ltd. as a percentage of net advertising revenues (national and local) and of net national advertising revenues as reported in, A Report on Advertising Revenues in Canada[19]. The Elliot data exclude retail and classified advertising; advertising by chain and department stores and by radio and television stations as well as that by theatres and political groups. On this basis, although the Elliot data represent but 44.9 per cent of net advertising revenues (national and local) received by the covered media, they represent 97.3 per cent of net national advertising revenues.

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18 Elliot Research Corp. Ltd., "National Ad Expenditures", Marketing, Vol. XXIII, No. 6, April 26, 1963, pp. 54-56.

19 Maclean-Hunter Research Bureau, A Report on Advertising Revenues in Canada, Toronto, Maclean-Hunter Publishing Co. Ltd., October 1966, pp. 4 and 7.

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Table XXIII - Components of Net Advertising Revenues for Covered Media, National and Local, 1962.

Medium	Advertising Revenues			
	Total	National	Local	National as a Percentage of Total
	(thousands of dollars)			
Television	$ 61,718	$ 49,352	$ 12,366	80.0
Radio	53,756	23,526	30,230	43.8
Newspapers (excl. classified ads)				
Daily	143,615	52,321	91,294	36.4
Weekend Supplements	17,018	14,874	2,144	87.4
Weekly, semi, tri, etc.	25,681	5,606	20,075	21.9
Periodicals				
Magazines, general	17,875	17,875		100.0
Farm papers	5,529	5,529		100.0

Source: Maclean-Hunter Research Bureau, A Report on Advertising Revenues in Canada, Toronto, Maclean-Hunter Publishing Co. Ltd., 1966, p. 7.

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3. Assets, Profits and Sales Data

The data on assets, profits and sales have been computed using two methods with different sources for each. The first method entails using a sample survey of approximately sixty firms engaged in various consumer industries and whose advertising expenditures have been audited by Elliot Research Corp. Ltd. The data for this sample were obtained in part from published sources[20] and in part from the companies themselves. The companies included in the sample have been grouped on an industry basis using the D.B.S. standard industrial classifications considering the major activity of each company. These industrial groupings have been made to comprise three or more firms in order to ensure the confidentiality of the individual company data obtained. A complete list of the companies covered and the industries in which they have been placed is shown in Table XXXI of Appendix 2.

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20 Maclean-Hunter Publishing Co. Ltd., Corporation Card Service, Toronto.

--------, Survey of Industrials, 1963, Toronto, 1964.

Special Joint Committee of the Senate and House of Commons, Proceedings on Consumer Credit (Prices), Ottawa, Queen's Printer, 1967.

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For the purposes of this sample survey, profits are given to mean the net profit of the enterprise, i.e., the amount remaining after deducting from revenues all reasonable and proper operating expenses including income taxes. Assets are considered as total assets as shown in the balance sheet and include such items as accounts receivable, inventories, property, plant and equipment and investment in other companies. Sales are represented as the gross revenues received from the sale of products less any discounts or other promotional costs. The profitability of the firms contained in the sample is measured on the basis of profits taken as a percentage of assets. This measure has been considered by Clarkson, Gordon and Co., Chartered Accountants, as an indicator of the profitability of an enterprise[21]. It compares profits with the total of funds available to the business from trade creditors, lenders and shareholders[22].

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21 Clarkson, Gordon and Co., "Profitability Study, Five Major Canadian Retail Food Chains", submission to the, Special Joint Committee of the Senate and House of Commons, Proceedings on Consumer Credit (Prices), Ottawa, Queen's Printer, 1967, p. 3414.

22 Ibid.

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The second source of assets, profit and sales data used in this paper is the Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act[23]. The coverage under the act includes those corporations whose gross revenues exceed $500,000 or whose assets exceed $250,000[24]. These data include industrial groupings of assets, profits, sales and equity and have been chosen as being most comparable with Elliot Research Corp. data which, as noted above, tend toward the larger and corporate advertisers. Further, they have the added advantage that the returns are divided into a confidential section containing the financial information and a non-confidential section containing information on corporate ownership and the principal activity of each corporation. The non-confidential section is open to public view at the Corporations Branch of the Department of Consumer and Corporate Affairs.

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23 Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965.

24 Ibid., p. 15.

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This has made possible the inclusion of only those firms covered by the advertising data which are also included in the financial data. It has further facilitated the industrial grouping of the companies included in the sample survey.

The profit data covered under the Corporations and Labour Unions Returns Act are defined to include corporate operating profit and financial income as well as those non-recurring profits which may be credited directly to retained earnings, all after the deduction of depreciation allowances but before taxes and dividends[25]. Assets are given as total assets as shown in the corporate financial statements[26]. Sales are considered as the gross revenue derived from the corporation's principal source of operation[27]. Equity is defined to include the total of all issued share capital, the earnings retained in the business (or minus any deficit), all items of capital and the amounts segregated from retained earnings[28].

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25 Ibid.

26 Ibid.

27 Ibid.

28 Ibid.

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Profits as a percentage of equity has been used in these data in addition to profits to assets as a further measure of profitability. This measure has been considered by Clarkson, Gordon and Co. as an indicator of the relative returns from alternate sources of investment[29].

As indicated in Tables XXIV and XXV, the industrial rankings for the sample and Corporations and Labour Unions Returns Act data on profits as a percentage of assets and advertising outlays as a percentage of sales, although somewhat different, appear to be well correlated. The coefficient of rank correlation for profits to assets is 0.93 and for advertising outlays to sales it is 0.85.

The use of two sources for the financial data was made in order to provide a control and to increase the range of industries covered. Coverage was limited, in the case of the Corporations and Labour Unions Returns Act data, because of the consolidation of two or more industries into one, and, in the case of the sample data, reluctance on the part of some firms in certain industries to divulge the necessary financial information.

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29 Special Joint Committee of the Senate and House of Commons, Proceedings on Consumer Credit (Prices), p. 3414.

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Table XXIV Industrial Rankings of Advertising Outlays as a Percentage of Sales: Sample Survey Data and Corporations and Labour Unions Returns Act Data[1].

Industry	Corporations and Labour Unions Returns Act Data	Sample Survey Data
Meat Products	10	10
Dairy Products	9	9
Canners	4	6
Tobacco Products	6	5
Knitting Mills	8	7
Distilleries	5	4
Breweries	3	2
Wineries	2	3
Major Appliances	11	8
Radio and T.V. Sets	7	11
Soaps and Cleaning Compounds	1	1

Source: Corporations and Labour Unions Returns Act data, Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965. Sample Survey data, see text pp. 151-159.

1 Coefficient of rank correlation = 0.846.

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Table XXV Industrial Rankings of Profits as a Percentage of Assets: Sample Survey Data and Corporations Labour Unions Returns Act Data[1].

Industry	Corporations and Labour Unions Returns Act Data	Sample Survey Data
Meat Products	10	8
Dairy Products	6	6
Canners	8	9
Tobacco Products	5	5
Knitting Mills	9	11
Distilleries	1	1
Breweries	2	3
Wineries	4	2
Major Appliances	11	10
Radios and T.V. Sets	7	7
Soaps and Cleaning Compounds	3	4

Source: Corporations and Labour Unions Returns Act data, Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965. Sample Survey data, see text pp.151-159.

1 Coefficient of rank correlation = 0.93.

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Table XXVI. - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

Industry	Factors	Effect on variables
Industries in which dealer advertising, sales promotion or other forms of product differentiation might be expected to affect ranking of advertising/sales.		
Distilleries	Television advertising not permitted by Board of Broadcast Governors. Other covered media advertising variously affected by provincial legislation[a].	Some decrease in advertising/sales ratio expected but amount not known[b].
Breweries	Advertising in the covered media restricted by law in some provinces[c]. Heavy reliance on local and promotional efforts[d].	Inclusion of sales promotion on advertising/sales ratio would increase it substantially[e].

Table XXVI. - Continued - Industries Classified According to Factors Affecting Ranking of Advertising and Concentration

Industry	Factors	Effect on variables
Wineries	Advertising in the covered media restricted by law in some provinces[f].	Not known
Major Appliances	Use of dealer identification and joint advertising through dealers with dependence on specialized servicing and model changes.	Some decrease might be expected but amount not known.
Radios and Television Sets	As above.	As above.
Household Furniture	As above.	As above.
Small Appliances	As above.	As above.
Paints and Varnishes	As above.	As above.

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration

Industry	Factors	Effect on Variables
Pharmaceuticals and Medicines	For those firms in the industry also members of the Pharmaceutical Manufacturers Association there is extensive use of 'detail men', direct mail, samples and advertising in professional journals. The only consumer advertising done is a small amount of institutional advertising.	Inclusion of consumer advertising only gives no indication of relative ranking.
Automobiles	Use of strong dealer identification with the greater part of advertising done through dealers[i]. Also there is heavy dependence upon specialized servicing and annual model changes.[j]	Use of national advertising only gives no indication of relative ranking.

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration

Industry	Factors	Effect on variable
Industries in which concentration ratio is affected by geographical fragmentation of markets.		
Bakeries	Owing to the perishable nature of the product it normally had a local market although it may be manufactured by large, inter-regional bakeries or by chain stores in 'in-store' bakeries. Pricing structure would indicate oligopolistic structure for the industry in major urban markets.	Pricing practices would indicate a market dominated by a few large firms with many small local firms in the periphery[1].

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

Industry	Factors	Effect on variables
Soft Drinks	Transportation costs necessitate local bottling although product is nationally advertised and sold subject to the national pricing policies of a few large firms[m].	Concentration ratio is greatly decreased[n].
Breweries	Owing to transportation costs, the market is fragmented geographically but throughout is dominated by the three major brewers, except in the Maritime provinces where it is dominated by two local brewers[o].	Concentration ratio would be significantly increased if taken on the basis of relative market shares[p].
Dairy Products	Most of the products in this group are perishable and thus confined to local markets.	Effect on concentration not known.

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

Industry	Factors	Effect on variables
Industries comprising more than one theoretical industry.		
Meat Products	Fresh meats are not differentiated and only advertised on an institutional basis. Processed meats differentiated as to producer and are advertised by brand.	Not known but expected not to be great[q].
Canned Goods	Branded and unbranded products. Consumer and institutional sales[r]. Relatively low concentration generally, but in highly advertised items, appears to be dominated by a few firms[s].	Not known.
Soaps and Cleaning Compounds	Consumer and institutional sales. Consumer sales dominated by three large firms.	Would increase concentration ratio.

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

Industry	Factors	Effect on variables
Flour Mills	Sales made to consumers and to bakeries. Majority of sales made to bakeries[t] where product is undifferentiated. Much more important in these sales appear to be discounts and forward integration by flour milling companies.	Sales to consumers taken separately would affect advertising/sales somewhat but not greatly[u v].
Paints and Varnishes	Consumer and institutional sales.	Effect on concentration ratio not known. Advertising to sales ratio decreased somewhat.
Miscellaneous Food Products	Products included in concentration ratio and number of product lines in advertising/sales ratio far too diverse to be meaningful[w].	Effect not known.

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

Industry	Factors	Effect on variables
Pharmaceuticals and Medicines	Contains three distinct industries; manufacturers of 'ethical' drugs, 'generic' drugs and patent medicines. Ethical drug manufacturers are heavy advertisers in technical journals and users of sales promotion. Patent medicines are primarily consumer-oriented. Generic drugs are sold primarily to institutions and not advertised[x].	Effect not known.

a Maclean Hunter Publishing Co. Ltd., "Marketing's Guide to Liquor Advertising", Marketing, issue of July 28, 1967, p. 28-29.

b Bain has suggested that, at least for the United States, there are strong brand allegiances based both upon prolonged advertising and product reputations with further reinforcement from the prestige associated with the conspicuous consumption of known brands. As a result of these, he estimated that for any prospective entrant into the industry, the disadvantage would be twenty per cent of manufacturers' price in 'bonds' and fifteen per cent in 'B' blends with similar disadvantage for 'straights'. However, he estimated that the disadvantages of entry to 'A' blends would be "prohibitive".

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

Bain, Joe S., Barriers to New Competition, Their Character and Consequences in Manufacturing Industries, Cambridge, Harvard University Press, 1956, p. 129.

c Maclean Hunter Publishing Co. Ltd., op. cit., p. 28-29.

d Jones, J.C.H., "Mergers and Competition: The Brewing Case," The Canadian Journal of Economics and Political Science, Vol. 33, No. 4, November 1967, p. 559.

e Ibid., p. 559.

f Maclean Hunter Publishing Co. Ltd., op. cit., p. 28-29.

g Two major national manufacturers of small appliances have been prosecuted under the Combines Investigation Act in the past few years for resale price maintenance, which would appear to give evidence of the importance of manufacturers' brands in this industry. See, Canada, Department of Justice, Report of the Director of Investigation and Research, Combines Investigation Act, Ottawa, Queen's Printer, for the year ended March 31, 1965, p. 65-68.

h Information provided by the Pharmaceutical Manufacturers Association on a sample of thirty-eight members of the association, in 1962 revealed that of total advertising for the year of 9.0 million dollars, 2.2 millions were spent on advertising in medical journals, 2.6 millions in direct mail, 3.8 millions on samples, $196,000 on medical exhibits and displays and $156,000 on donations. No figure was available for advertisements in the consumer media.

i Telser, Lester G., "Advertising and Competition", The Journal of Political Economy, Vol. 72, No. 6, December, 1964, p. 545.

j Caves, Richard, American Industry: Structure, Conduct, Performance, Englewood Cliffs, Prentice-Hall, 1964, p. 21 and p. 45.

k Telser, Advertising and Competition, p. 545.

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

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l The Globe and Mail in a report on the baking industry, indicated that approximately fifty-seven per cent of total Canadian bakery sales in 1967 were accounted for by the six largest bakeries in Canada, with only 15.5 per cent being accounted for by the small independent bakers. The concentration in this industry appears to be the result of falling demand for bread and other bakery products as well as competition from chain store 'in-store bakeries'. Per capita consumption of bread has dropped from 87.3 pounds per year in 1965 to 85.7 pounds in 1966, and an estimated eighty-three pounds in 1967. The same report indicated that the bakery industry operates on a low margin, with profits of the successful companies averaging two per cent of the sales dollar. McKenzie, Grace, "Commercial Bakers Seek to Counter Static Sales, Falling Profit", feature in The Globe and Mail of Toronto, 124th year, No. 36, 887, issue of March 1, 1968, p. B7, Col. 1.

m Rosenbluth, Gideon, Concentration in Canadian Manufacturing Industries, Princeton, Princeton University Press, 1957, p. 68.

n Telser, Advertising and Competition, p. 545.

o Jones, Mergers and Competition, p. 556.

p Ibid., p. 556.

q Bain, Joe S., Barriers to New Competition, Cambridge, Harvard University Press, 1956, p. 127.

r Ibid., p. 128.

s Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, Fruit and Vegetable Canners and Preservers, 1962, Ottawa, Queen's Printer, 1963.

t Based upon flour shipments in Canada, Dominion Bureau of Statistics, Op. Cit., p. 12, and upon the materials and supplies used in the baking industry in, Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, Bakeries, 1964, Ottawa, Queen's Printer, 1965, bakery sales accounted for approximately 78.1 per cent of total Canadian flour sales.

Table XXVI. - Continued - Industries Classified According to Factors Affecting Industrial Ranking of Advertising and Concentration.

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u Bain, Barriers to New Competition, p. 123.

v The concentration in the flour milling industry appears to be related to falling demand for Canadian flour both for domestic and foreign consumption. Per capita Canadian flour consumption has been decreasing since at least 1948, tied in large measure, no doubt, to the falling demand faced by Canadian bakeries, the flour mills' largest customer. Canada, Dominion Bureau of Statistics, Flour Mills, 1961, Annual Census of Manufactures, Ottawa, Queen's Printer, 1962.

w Canada, Dominion Bureau of Statistics, Standard Industrial Classification Manual, Ottawa, Queen's Printer, December 1960, p. 68-70.

x Special Committee on Drug Costs and Prices, Chairman, Mr. Harry C. Harley, Ottawa, Queen's Printer, 1967.

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Table XXVII. - Advertising Outlays as a Percentage of Sales: Data Obtained From a Sample Survey and From Corporations and Labour Unions Returns Act Data.

Industry	Advertising Outlays as a Percentage of Sales	
	Corporations and Labour Unions Returns Act	Sample Survey
Meat Products	0.20%	0.30%
Dairy Products	0.24	0.34
Canned Goods	1.95	1.69
Flour Mills	n.a.	0.79
Bakeries	n.a.	0.06
Misc. Food Products	n.a.	2.34
Tobacco Products	1.33	1.71
Knitting Mills	0.37	1.60
Soft Drinks	2.51	n.a.
Distilleries	1.52	2.95
Breweries	2.16	3.13
Wineries	2.56	2.67
Household Furniture	0.10	n.a.
Major Appliances	0.18	0.79
Small Appliances	0.96	n.a.
Radios and T.V. Sets	1.26	0.29

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APPENDIX 2

Table XXVII. - Continued Advertising Outlays as a Percentage of Sales: Data Obtained From a Sample Survey and From Corporations and Labour Unions Returns Act Data.

Industry	Advertising Outlays as a Percentage of Sales	
	Corporations and Labour Unions Returns Act	Sample Survey
Soaps and Cleaning Compounds	4.81%	5.75%
Sporting Goods and Toys	0.46	n.a.
Paints and Varnishes	0.92	n.a.
Toilet Preparations	8.32	n.a.

Corporations and Labour Unions Returns Act data, Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965, Sample Survey, see Appendix 1, pp. 151-159.

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Table XXVIII. - Profits as a Percentage of Assets: Data Obtained from a Sample Survey and from Corporations and Labour Unions Returns Act Data.

Industry	Profits as a Percentage of Assets	
	Corporations and Labour Unions Returns Act	Sample Survey
Meat Products	4.30%	4.09%
Dairy Products	9.80	4.54
Canned Goods	6.28	3.61
Flour Mills	n.a.	4.29
Bakeries	n.a.	1.83
Misc. Food Products	n.a.	4.82
Tobacco Products	9.97	6.88
Knitting Mills	4.67	2.88
Soft Drinks	17.35	n.a.
Distilleries	19.08	9.39
Breweries	15.73	7.81
Wineries	14.59	7.90
Household Furniture	4.39	n.a.
Major Appliances	0.36	3.05
Small Appliances	12.36	n.a.
Radio & T.V. Sets	6.61	5.11

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Table XXVIII. - Continued - Profits as a Percentage of Assets Data Obtained From a Sample Survey and From Corporations and Labour Unions Returns Act Data.

Industry	Profits as a Percentage of Assets	
	Corporations and Labour Unions Returns Act	Sample Survey
Soaps and Cleaning Compounds	15.45%	6.98%
Sporting Goods and Toys	5.01	n.a.
Paints and Varnishes	7.44	n.a.
Toilet Preparations	19.49	n.a.

Corporations and Labour Unions Returns Act data, Canada, Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965, Sample Survey, see Appendix 1, pp. 151-159.

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Table XXIX - Profits as a Percentage of Equity: Data Obtained From Corporations and Labour Unions Returns Act Data.

Industry	Profits as a Percentage of Equity
Meat Products	7.03%
Dairy Products	16.09
Canned Goods	11.97
Tobacco Products	19.30
Knitting Mills	8.89
Soft Drinks	24.25
Distilleries	47.96
Breweries	24.10
Wineries	21.25
Household Furniture	8.94
Major Appliances	0.69
Small Appliances	19.03
Radios and T.V. Sets	17.57
Soaps and Cleaning Compounds	23.60
Sporting Goods and Toys	20.75
Paints and Varnishes	12.30
Toilet Preparations	29.47

Corporations and Labour Unions Returns Act Administration, Annual Report of the Minister of Trade and Commerce Under the Corporations and Labour Unions Returns Act, Ottawa, Queen's Printer, 1965.

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APPENDIX 2

Table XXX. Concentration in The Canadian Manufacturing Industries, 1962: Percentage of Employment Accounted For by the Largest Fifteen Plants in the Industry.

Industry	Concentration
Process Cheese	100.00% (10)[a]
Sugar Refineries	100.00 (11)
Vegetable Oil Mills	100.00 (12)
Railroad Rolling Stock	100.00 (14)
Wineries	100.00
Cement	100.00
Fish Products	100.00
Woollen Mills	100.00
Cordage and Twine	100.00
Carpets, Mats and Rugs	100.00 (16)
Miscellaneous Textiles	100.00 (16)
Motor Vehicles	100.00 (17)
Breakfast Cereals	100.00 (19)
Distilleries	100.00 (19)
Asphalt Roofing	100.00 (19)
Steel Pipe and Tube Mills	100.00 (19)
Household Radio and T.V. Receivers	99.89
Tobacco Products	99.80

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Table XXX. - Continued Concentration in The Canadian Manufacturing Industries, 1962: Percentage of Employment Accounted For by the Largest Fifteen Plants in the Industry.

Industry	Concentration
Office and Store Machinery	99.80%
Batteries	98.65
Smelting and Refining	98.52
Plastics and Synthetic Resins	97.63
Iron and Steel Mills	95.13
Agricultural Implements	93.73
Office Furniture	93.48
Shipbuilding and Repair	90.96
Copper and Alloy Rolling, Casting and Extruding	90.04
Aircraft and Parts	89.51
Leather Tanneries	89.23
Foundation Garments	89.07
Cotton Yarn and Cloth Mills	88.59
Biscuits	88.26
Cotton and Jute Bags	87.83
Narrow Fabric Mills	87.69
Glass and Glass Products	87.27

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Table XXX. Continued - Concentration in The Canadian Manufacturing Industries, 1962: Percentage of Employment Accounted For by the Largest Fifteen Plants in the Industry.

Industry	Concentration
Flour Mills	87.50%
Leather Glove Factories	84.51
Soaps and Cleaning Compounds	83.92
Small Electrical Appliances	83.59
Synthetic Textile Mills	80.67
Mixed Fertilizers	80.59
Rubber Industries	80.02
Broom, Brush and Mops	79.97
Toilet Preparations	79.65
Sporting Goods and Toys	79.45
Breweries	79.43
Textile Dyeing and Finishing Plants	78.33
Communications Equipment	77.52
Paper Boxes and Bags	76.58
Petroleum Refineries	76.28
Industrial Chemicals	74.89
Motor Vehicle Parts and Accessories	73.95
Confectionery	73.63

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Table XXX. - Continued - Concentration in The Canadian Manufacturing Industries, 1962: Percentage of Employment Accounted For by the Largest Fifteen Plants in the Industry.

Industry	Concentration
Metal Rolling, Casting and Extruding	73.34%
Coffins and Caskets	72.45
Fabricated Structural Metal	67.37
Wooden Box Factories	66.63
Veneer and Plywood Mills	66.10
Slaughtering and Meat Processors	61.39
Scientific and Professional Equipment	61.12
Pharmaceuticals and Medicines	60.75
Paints and Varnishes	60.20
Canvas Products	59.73
Wire and Wire Products	58.40
Hats and Caps	54.76
Publishing	53.35
Other Paper Convertors	52.94
Ready-Mix Concrete	51.24
Jewellery and Silverware	50.44
Printing and Publishing	50.42

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Table XXX. - Continued - Concentration in The Canadian Manufacturing Industries, 1962: Percentage of Employment Accounted For by the Largest Fifteen Plants in the Industry.

Industry	Concentration
Boatbuilding and Repair	48.60%
Luggage, Handbag and Small Leather Goods Manufacturers	48.05
Knitting Mills	47.87
Poultry Processors	47.31
Fruit and Vegetable Canners and Preservers	42.33
Misc. Food Industries	41.53
Plastic Fabricators, n.e.s.	41.11
Miscellaneous Furniture	40.88
Misc. Wood Industries	40.28
Fur Goods	35.10
Soft Drinks	34.75
Concrete Products	33.49
Misc. Chemicals	32.42
Men's Clothing	31.03
Pulp and Paper Mills	29.28
Shoe Factories	27.42
Feed Manufacturers	25.29

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Table XXX. · Continued - Concentration in The Canadian Manufacturing Industries, 1962: Percentage of Employment Accounted For by the Largest Fifteen Plants in the Industry.

Industry	Concentration
Sawmills	23.03%
Bakeries	22.89
Misc. Manufacturing Industries	22.06
Household Furniture	21.05
Machine Shops	20.17
Dairy Factories	19.74
Sash and Door and Planing Mills	16.48
Women and Children's Clothing	14.95

Canada, Dominion Bureau of Statistics, Annual Census of Manufactures, 1962, Ottawa, Queen's Printer, 1963.

a Numbers in brackets represent total number of plants in the industry and represent those industries where there were either fewer than fifteen plants in the industry or the largest size class contained more than fifteen plants, thus making calculations on the basis of the largest fifteen plants impossible.

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Table XXXI. - Companies Covered in the Sample Survey of Canadian Advertisers.

I Meat Products

1. Burns and Co. Ltd.
2. Canada Packers Ltd.
3. Essex Packers Ltd.
4. Swift Canadian Co. Ltd.

II Dairy Products

1. Central Creameries Ltd.
2. Cooperative Agricole de Granby Ltee.
3. Dominion Dairies Ltd.
4. Silverwood Dairies Ltd.

III Fruit and Vegetable Canners

1. Canadian Canners Ltd.
2. Gerber Products of Canada Ltd.
3. Green Giant of Canada Ltd.

IV Flour Mills

1. Maple Leaf Mills Ltd.
2. The Ogilvie Flour Mills Co. Ltd.
3. Robin Hood Flour Mills Ltd.

V Bakeries

1. Canada Bread Co. Ltd.
2. General Bakeries Ltd.
3. McGavin Toastmaster Ltd.
4. Morrison-Lamothe Bakery Ltd.

VI Misc. Food Products

1. Brooke-Bond Canada Ltd.
2. Catelli Food Products Ltd.
3. General Goods Ltd.
4. Hostess Food Products Ltd.
5. Salada Foods Ltd.

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Table XXXI. - Continued - Companies Covered in the Sample Survey of Canadian Advertisers.

VII Tobacco Products

1. Imperial Tobacco Co. of Canada Ltd.
2. General Cigar Co. Ltd.
3. The Tuckett Tobacco Co. Ltd.
4. B. Houde and Grothe Ltd.
5. Rothmans of Pall Mall Canada Ltd.

VIII Distilleries

1. Alberta Distillers Ltd.
2. H. Corby Distillery Ltd.
3. Distillers Corp. Ltd.
4. Calvert Distillers Ltd.
5. Gooderham and Worts Ltd.
6. Melchers Distillers Ltd.

IX Breweries

1. Dow Brewery Ltd.
2. Molson's Brewery Ltd.
3. Moosehead Breweries Ltd.
4. Oland's Breweries Ltd.
5. John Labatt Ltd.
6. Bavarian Brewing Ltd.

X Wineries

1. T.G. Bright and Co. Ltd.
2. T.G. Bright (Quebec) Ltd.
3. Chateau-Gai Wines Ltd.
4. Jordan Wines Ltd.

XI Knitting Mills

1. Dorothea Knitting Mills Ltd.
2. Garfield's Ltd.
3. The Monarch Knitting Co. Ltd.
4. Penmans Ltd.
5. York Knitting Mills Ltd.

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Table XXXI. Continued - Companies Covered in the Sample Survey of Canadian Advertisers.

XII Major Appliances

1. Kelvinator of Canada Ltd.
2. Moffats Ltd.
3. Tappan-Guerny Ltd.

XIII Household Radios and T.V. Sets

1. Canadian Admiral Corp. Ltd.
2. Canadian Marconi Electronics Ltd.
3. Dominion Electrohome Industries Ltd.
4. Fleetwood Corp.

XIV Soaps and Cleaning Compounds

1. Colgate Palmolive Ltd.
2. Lever Bros. Ltd.
3. Proctor and Gamble Co. of Canada Ltd.

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