



Catalogue no. 21-601-MIE — No. 056

## Research Paper

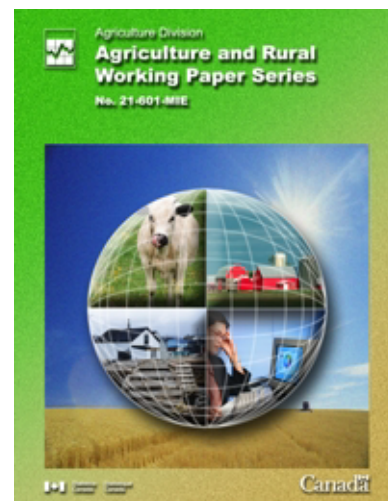
# Performance in the Food Retailing Segment of the Agri-Food Chain

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*This paper represents the views of the authors and does not necessarily reflect the opinions of Statistics Canada.*



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**Agriculture and Rural Working Paper Series  
Working Paper No. 56**

**Performance in the Food Retailing Segment of the Agri-Food Chain**

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**September 2002**

**The responsibility of the analysis and interpretation of the results is that of the author and not of Statistics Canada.**



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September 2002

Catalogue No. 21-601-MIE2002056

Frequency: Occasional

Ottawa

La version française est disponible sur demande (n° 21-601-MIF2002056 au catalogue)

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***Note of appreciation:*** Canada owes the success of its statistical system to a longstanding partnership between Statistics Canada and the citizens, businesses and governments of Canada. Accurate and timely statistical information could not be produced without their continued co-operation and good will.

## **Abstract:**

This paper sets out to measure the performance of the food-retailing sector of the Canadian economy for the period 1990 to 1998. This study was undertaken to provide a baseline study for the sector due to the major changes that took place after 1998. A second driver was to provide recent information on the sector as the last study of this type was conducted in the 1970s.

The paper uses profitability as a measure of performance. The measure was chosen because most firms make business decisions based on their profitability, and profitability provides an indication on the direction of employment, investment, and growth of a sector.

We find that that food retailing performed better than both non-food retailers and the general economy over the 1990s. While large retailers performed twice as well as small and medium retailers the latter categories performed better than their non-food counterparts over the period.

## **Introduction**

The decade of the 1990s opened in the middle of a recession that ended in early 1992. The recession was followed by an economic boom fueled primarily by the high tech sector. In the midst of this, the North American Free Trade Agreement came into force, the Uruguay trade round was concluded and the WTO was born, changing both the trade atmosphere and the ability of governments to use certain economic incentives such as subsidies. The food sector was not insulated from these events, despite the fact that food is a necessity and is therefore less sensitive to changes in economic conditions.

In the food-retailing sector, there has been a trend of consolidation since the early 1980s, as large enterprises expanded through the purchase of smaller enterprises. However, in the late 1990s, large enterprises started to consolidate among themselves. Large retailers claimed that they had been regionally-based and needed to consolidate to form national chains in order to compete with department stores such as Wal-Mart, which were expanding into food retailing. Combined, Costco and Wal-Mart have bit by bit already secured 7% of Canadian food sales (Canadian Grocer, 2001). So far, Wal-Mart has not moved aggressively into food retailing in Canada as it has in the United States, where Wal-Mart is poised to become the largest food retailer.<sup>1</sup>

Dan McTeague, Member of Parliament for Pickering-Ajax-Uxbridge, has raised concerns over the increased concentration in food retailing. His concerns are echoed in numerous articles and commentaries in the print and news media. The chief concerns are that

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<sup>1</sup> In addition, retailers contend that the focus of food retailing is shifting from national markets to global markets, where chains such as Royal Ahold earn over 90% of their business outside their home country. A recent report in the *Canadian Grocer* notes that some of Canada's regional grocery chains are good targets for acquisition by firms like Royal Ahold.

increased concentration will result in retailers exercising market power, leading to an increase in food prices, lower employment and reduced availability and variety of food.

In view of all the changes in the 1990s, this study sets out to assess how the food-retailing sector has performed. The first section will discuss the link between economic performance and market power. The second section focuses on the measurement of performance. Methodology is covered in section three, while the final section of this study will discuss and comment on the empirical results.

## **Economic Performance**

For this study profit is used as the measure of performance as it can be applied in a wide variety of contexts. For brokers and investors, performance is used as a guidepost for stock valuation and risk assessment. The higher the profit, the better the stock value. For economists, robust performance may signal that an industry will be increasing employment, earnings and capital assets. On the other hand, a declining performance may be reflected in lower productivity, a decline in employment, lower capital spending, etc. More importantly, poor performance in the form of low profitability, may signal that an industry needs to be looked at in more detail. For instance, an industry that continually performs poorly, despite a robust economy, invites further investigation to assess why this is the case.

Consumers and government are concerned over increasing concentration to the extent that it may lead to the exercise of market power and a reduction in consumer welfare. Most studies of market power focus on determining the structure of the market. To the extent that a few firms dominate a market, such a structure points to potential market power but not necessarily to the *exercise* of that power. Some, such as Cotterill (2000), argue that if firms are rational and are driven by market forces, then any potential market power will in fact be exercised. As a result, firms in the process of maximizing profits will use whatever power the structure of the market affords them.<sup>2</sup> Others, such as Thurow (1991) and Paul (2000), feel that this is not necessarily the case. They argue that if the market is contestable, or if mergers are increasing scale efficiencies, concentration can result in increased output and lower prices.<sup>3</sup>

In addition, there are those who dissent on the use of profit as an indicator of the exercise of market power. Fisher and McGowan (1983) argue, "... examination of absolute and relative accounting rates of return to draw conclusions about monopoly profits is a totally misleading enterprise" (p. 91). This is based on the fact that financial and administrative data reflect legal constructs rather than economic realities. In response to Fisher and McGowan, two studies by Farris and Ailawadi (1992) and Messinger and Narasimhan (1995) point out that profits can be used as a proxy for the *exercise* of market power, based on the logic that exercise of market power would lead to the existence of increased or super-normal profits over a sustained period of time.

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<sup>2</sup> Cotterill (2000) brings up the issue of double-marginalization, which reduces consumer welfare considerably. For a response to Cotterill's argument see Giraud-Heraud (1999)

<sup>3</sup> For an in depth assessment of the issues, see Sutton (1991), Shy (1996) and Rude (2001).

This leads to a discussion on the weakness between profitability and market power. Profitability is not necessarily the same across economic sectors due to differences in revenue and cost structures. Thus, there is no defined point at which the level of profitability is *too high* and therefore the result of market power<sup>4</sup>. The objective of this study is to provide a baseline study of the profitability in the food retailing sector, which could then be used to gain a better understanding of the sector and provide a guide to interpreting changes in profitability due to changes in market structure.

## Measuring Performance

While profit is the measure of performance in this study, there are a number of ways to measure performance and the next step was to identify a method that could be applied to all industries over time. To say that higher *absolute* profits indicate the potential exercise of market power would be incorrect as absolute profits could be expected to increase as a firm's sales increase. What is clearly needed is a measure of *profitability*, which standardizes for firm size.

There are several conventional methods for measuring profitability, although each has its drawbacks. The first method assesses the gross margin for each segment of the agri-food chain, as was recently done by the National Farmers Union in a presentation to the Standing Committee on Agriculture.<sup>5</sup> However, the use of a gross margin measure of profitability may provide inaccurate results. A declining margin tends to be interpreted as indicating declining profitability even though an increasing volume of sales may be enough to offset this. A firm earning a small profit per unit with massive volumes of sales may have a higher total profit than a firm with a high profit per unit but sales of only a few units. An example of this is the restaurant industry. For example, a single McDonalds franchise may have a total profit greater than that of an upscale restaurant. Despite the fact, that the McDonalds franchise may have a gross margin of only a few cents per meal, while the upscale restaurant could have a gross margin of several dollars per meal.

A second method for estimating an enterprise's profitability uses the ratio of net income to shareholders' equity. Shareholders, brokers and analysts prefer this measure because it informs people about the return on their investment in a business. The drawback is that the results are heavily influenced by the financial structure of the firm. This can happen two ways. The first way is where losses influence the denominator, shareholders' equity. A firm that incurs losses will see its equity decrease. When, after a period of losses, the firm has positive net earnings again the return on equity may be quite high. For example, consider two firms that are identical. The first firm incurs losses for two years and positive net income in year three. The other firm shows only positive net earnings. If in year three they show identical net earnings, the firm that incurred losses for the first two

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<sup>4</sup> Kay and Mayor (1986) argued that profitability in excess of the cost of capital could be considered *prima facie* evidence of barriers to entry. However, their arguments neglect the fact that higher profitability is the reward to taking on higher risk.

<sup>5</sup> See also Hendrickson (2000).

will show a higher return to equity than the firm that did not incur losses. Thus, with this measure the first firm would appear to be, by far, the more profitable.

The second influence on the return on shareholders' equity is financial leveraging, which impacts the numerator without impacting the denominator. To the extent that earnings exceed interest payments, this adds to the return available to shareholders without increasing the value of shareholders equity. In addition, the tax deductibility of interest payments also serves to augment the after-tax rate of return by reducing the tax liability of the company.

A third measure of profitability is the return on assets. Similar to the return on shareholders' equity, this measure uses net income in the numerator. The denominator is total assets, which include short-term assets, that for retailers can be as high as 75% of the total asset base. In food retailing, short-term assets are comprised mainly of inventory and accounts receivable, which are financed out of operating (i.e. short term) credit. Additionally, because food retailers can vary inventory with changing economic conditions, it could be considered a variable input like labour. Furthermore, a growing number of retailers are starting to sell on a consignment basis, meaning that the retailer does not buy the item and is not responsible for maintaining inventory. With a large portion of the total assets of retailers being short-term in nature, using the return on total assets as the profitability measure would mask the return that the firm generates from its longer-run investment in plant and equipment. One can use the sum of shareholders' equity and long-term debt as a proxy for longer-run investments, assuming that they are used solely to finance plant and equipment.

The approximation of the economic performance used in this study, which better matches these criteria is the following:

$$\text{Rate of Return on Long-Term Capital} = \frac{\text{Operating Income}}{\text{Long Term Capital}}$$

The use of operating income rather than net income allows one to approximate the economic concept of return on investment. Net income excludes interest payments and taxes paid. For financiers, brokers, banks, and investors, net income is preferred as it relates to the monetary value, which accrues to shareholders. However, by excluding the taxes paid and interest payments on debt, one is excluding a significant portion of the total economic return on the firm's investment in plant and equipment. Operating income is calculated without deducting either taxes or interest paid. As mentioned earlier the return on long-term capital is preferred, as it removes the distortion of short-term assets in the determination of the rate of return.

## **Methodology**

This study will use the operating rate of return on long-term capital, to compare the performance of food retailing with both non-food retailing and the general economy.

How the operating rate of return is calculated changes the results substantially. For instance, if one were to calculate the rate of return for each firm individually and take the average (mean), the results would be quite different than if one were to sum the numerator and denominator separately over all firms and then perform the calculation. No single measurement method offers a perfect solution, however, in this study it was determined that the latter method would be employed. Since the first method uses the mean of the returns calculated for each company, a small firm with an abnormally high or low return can have a sizable impact on the mean. This skewed mean then alters the results and could lead to perverse inferences about the relative performance of the various sectors. By calculating the operating rate of return as the sum of the operating income of all firms divided by the sum of the long-term capital, the rate of return obtained is a more accurate representation of the rate of return on the broad base of assets of the industry or size-class.

The data used in this study is a stratified random sample from the Annual Survey of Financial Statements, a sample survey of corporate tax records (T2) developed by the Industrial Organization and Finance Division (IOFD) of Statistics Canada, and covers the years 1990 through 1998<sup>6</sup>. The various types of business activity are identified using the Standard Classification for Companies and Enterprises 1980 (SIC-C). This is different from the more commonly used Standard Industrial Classification for Establishments 1980 (SIC-E). Since many of the firms in the various segments of the agri-food chain operate more than one establishment, the SIC-C classification was used because the company registered under SIC-C is a legal entity with full financial records. That is to say, the company registered under SIC-C files an income statement for *all* of its establishments.

An important issue with using SIC-C data is that firms are classified based on the *largest* component of their business. It is an imperfect system of classification. Thus, some businesses that are not solely food retailers are included in the sample as such, because they have stated that the largest part of their sales come from food. As a result, the SIC-C grocery or food retail sample may include such SIC-E establishments as gas stations, land companies and bakeries, to name a few.

Another data issue that needs to be kept in mind is that although the sample is representative of the population and provides estimates of all retailing activity, not all enterprises are included in the data. The data set is derived from a stratified random sample where the strata are defined by size of assets and revenue, by industry. The overall sample includes all large enterprises, but the small and medium sized firms are sampled, with the probability of being included in the sample declining as firm size decreases. In short, the large enterprises are always in the sample, while small and medium sized enterprises are randomly selected.

In preparing the data set for use, firms with zero sales were excluded, as were firms where the short-term debts of the company exceeded its total liabilities. The logic behind the first exclusion is that retailers sell goods to consumers. Thus, if a firm had no sales the question arises as to how it could be a retailer. The underlying reason for the second

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<sup>6</sup> The year 1998 is the most recent year for which the data are available.



exclusion is that short-term debts are part of the total liabilities of a company and therefore cannot exceed the total. Even if the firm has no long-term liabilities, the short-term liabilities should not exceed total liabilities. The first exclusion reduced the sample size by about 30% each year. The second exclusion had a very limited impact, reducing the sample size by, at most, two observations in any given year. One exception was made when preparing the comparative sample for the general economy. Banks and other financial institutions do not have product sales per se, but the financial sector was nonetheless included in the sample.

The last concern with the data set is the demarcation between Small, Medium and Large Enterprises. There are differing definitions of where the boundaries should be drawn. Industry Canada defines large enterprises in two ways. The first is by sales, where a firm with over \$500 million in sales is considered large. The second is by employment size, where a firm is deemed to be large if it has over 50 employees. Neither of these definitions appeared satisfactory for this study. Using “over \$500 million in sales” as the measure of a large firm excludes all but the largest retailing firms, which poses problems in that small sample bias may become an issue. On the other hand, if one uses the employment method for determining the division between small, medium and large firms, over 40% of the food retailers would be considered large. In reality, a single large grocery store could have 50 employees on the payroll, making it a large firm under the Industry Canada definition. However, in terms of the structure of the food retailing industry, a firm really is mid-sized when it operates more than one location. Both of the definitions that Industry Canada uses are thus too broad to capture the actual structure of the market.

The Statistics Canada publication, *Financial and Taxation Statistics for Enterprises*<sup>7</sup> has an alternative definition of large firms. This definition states that firms with under \$5 million in annual sales are small, firms with annual sales between \$5 million and \$75 million are mid-sized and large firms are those that have over \$75 million in annual sales. In some large urban markets, a grocer with one store may be able to exceed \$5 million in annual sales, which poses a similar problem to the Industry Canada definitions. However, instead of passing over this definition, it was altered slightly to better match what was felt to be an accurate representation of the available data for food retailing.

To avoid including those individual stores, from large cities, in the mid-sized group, the sales threshold for medium sized firms was moved from \$5 million to \$10 million. In addition, since there were only a few observations with sales between \$75 million and \$100 million, the sales threshold for large firms was raised to \$100 million. The final result, for this study, is that the small enterprises are classified as firms with under \$10 million in sales, medium enterprises are classified as having sales between \$10 and \$100 million, while large enterprises include only firms with sales of \$100 million or more.

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<sup>7</sup> Statistics Canada Catalogue number 61-219-XPB

In addition, The Marketing and Industry Services Branch (MISB) of Agriculture & Agri-food Canada suggested six size classes to use in the analysis. While more size classes would allow for more detailed analysis, the suggested size classes put forward by MISB led to some size classes having fewer than 10 observations. With a random sample, the results would be left open to significant small sample bias.

This means that the classifications used in this study may not always be directly comparable with those used in other documents published by Statistics Canada.

### **Limitations of this Study**

This study is limited due to the fact that all the financial statistics are based on SIC-C data. Since SIC-C information incorporates all activities of the company, sales, costs and profits from non-food segments of the business are included. For example, large food retailers are classified to Food Retail but they may also have integrated wholesaling operations. As a result, the performance of the wholesale segment of their respective businesses is not separated from the retailing segment. There is no doubt that this will bias the results. However, without knowing the share of the profit from the wholesaling divisions, one can not determine the magnitude or direction of the bias.

### **Results**

#### **General Economic Environment of the Food Retail Sector**

Food distribution (retailing and wholesaling) accounts for 2.6% of Canadian GDP and food retailing accounts for one in 25 jobs. In 1998, Canadians spent just under \$59 billion on food bought from stores. Of that total, just over 50% is accounted for by the 80 supermarket and grocery chains (STC 2001). During the 1990s, the food-retailing sector had to adapt to shifts in consumer preferences and competitive trends. On the consumer side, Canada's ever-changing demographics have altered spending patterns. Increasing ethnic diversity is boosting demand for non-traditional foods such as curries, goat milk, goat meat and fruits and vegetables. In addition, the number of single-parent, single person and dual person households has increased. This, combined with the increased time constraints of two income families, has led to increased demand for quality ready-to-eat and pre-packaged individual meals.

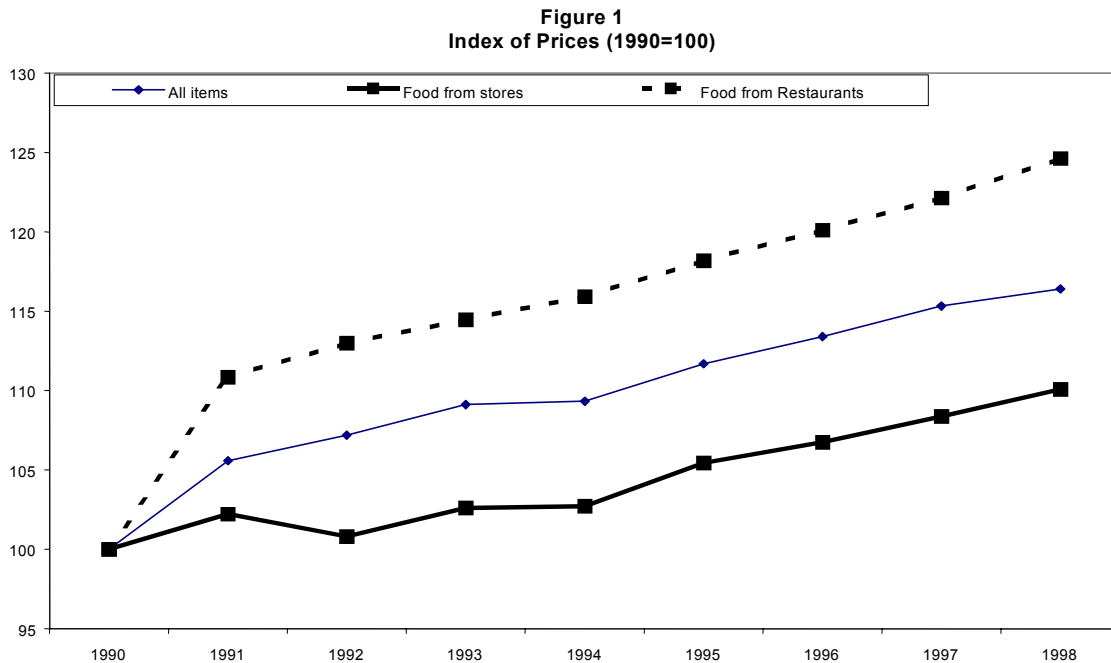
In addition to the changing consumer environment, the competitive environment also underwent a change in the 1990s. Over the decade there has been an increase in the number of non-food retailers, such as department stores, pharmacies, and gas stations, entering the food market. As a result, the distinctions between pharmacies, department stores, food service and food retailers blurred over the 1990s. This situation has been exacerbated by the reduction in the percentage of food dollars spent, at retail outlets, for consumption at home. In an attempt to keep their customers, the food retailing sector has started to change store formats, expand non-food selections, expand the selection of private label items and invest in in-store food service, ready-to-heat and ready-to-eat home meal replacements. In addition, to increase the competitiveness of the entire food chain, the food-retailing sector introduced the *Efficient Consumer Response* (ECR) system<sup>8</sup> to minimize the interaction costs between processors, wholesalers, and retailers. A key feature of ECR is its responsiveness to consumer preferences measured by current purchasing patterns. Another feature is that it shifts the onus for timely stocking of retail shelves to suppliers.

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<sup>8</sup> Introduced in 1992.

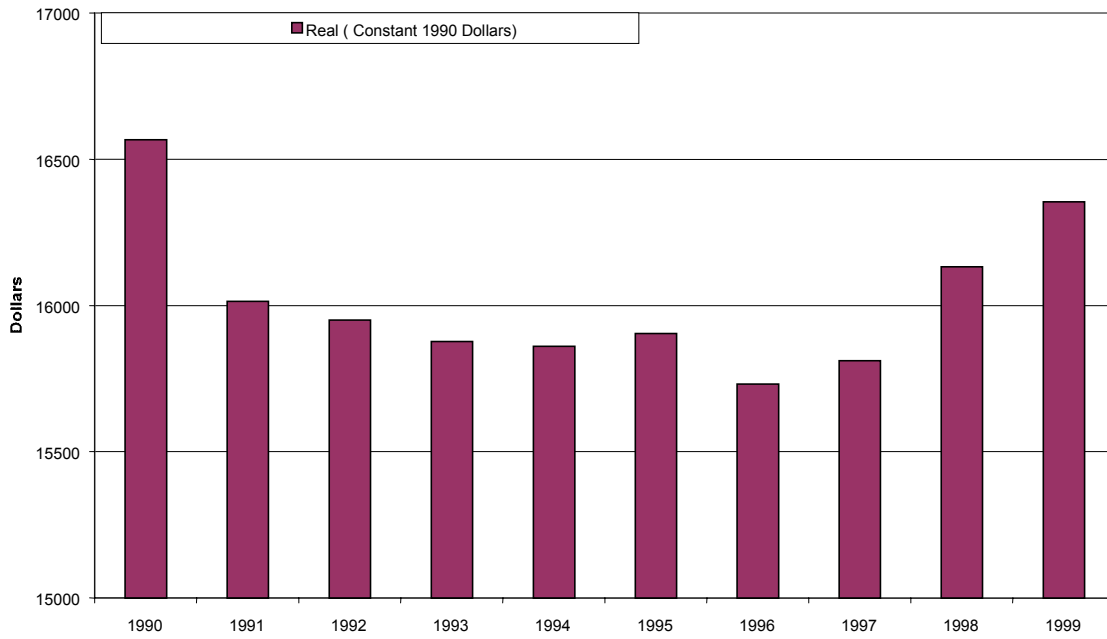
In terms of economic influences, the price of food from stores has been rising, since 1990, at a slower rate than prices in general, meaning that food has become cheaper relative to other goods over the decade (Figure 1). The introduction in 1991 of the GST, applicable to food from restaurants but not from food stores, increased the cost of restaurant meals relative to groceries. It thereby provided a benefit to food retailers during the recession.

A second macro-economic influence was real disposable income, which declined between 1990 to 1996. Even though real income has been rising since 1996, real disposable income in 1998 was still lower than it was in 1990. Food to some extent is a necessity, and thus it is expected that consumers will sacrifice spending in other areas in order to maintain a certain level of food consumption. Indeed, Figure 3 shows that consumer spending on food (grocery stores) remained strong in comparison to non-food retail spending (department stores) and nominal disposable income over the period. The type of food purchased may change, that is consumers may substitute staple foods such as oatmeal and whole chicken, for higher priced foods such as packaged breakfast cereals and seasoned, ready to cook, boneless, skinless chicken breast; but the quantity of food purchased may not decline.



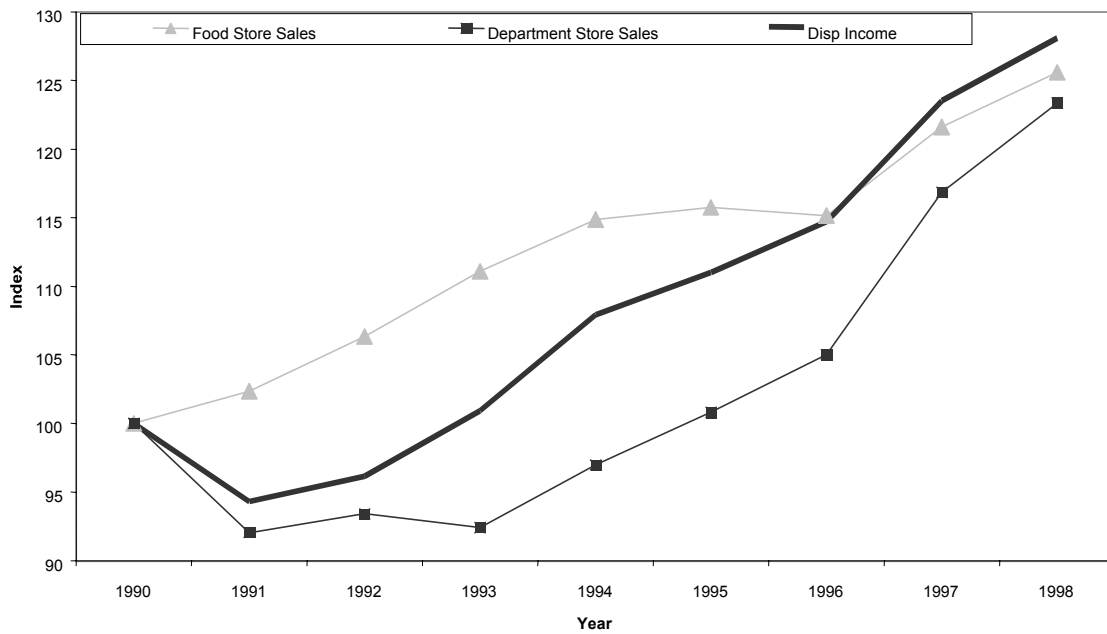
*Source:* Statistique Canada, The Annual Survey of Financial Statements.

**Figure 2**  
**Real Per Capita Personal Disposable Income over the 1990s**



*Source:* Statistique Canada, The Annual Survey of Financial Statements.

**Figure 3**  
**Index of Sales and Current Dollar Disposable Income Per Capita (1990=100)**



*Source:* Statistique Canada, The Annual Survey of Financial Statements.

## Food Retail

Overall, food retailing out-performed both non-food retail and the general economy between 1990 and 1998. Food retailers averaged a return of 12.15% over the decade while the average return was 7.33% for the general economy and 6.99% for non-food retailers.<sup>9</sup> The profitability in food retailing was realized despite the fact that the price of food has risen more slowly than prices in general since 1990. As a necessary good, one would expect food related industries to have little fluctuation in profitability. However, the food retailing industry was not wholly insulated from the economic recession of the early 1990s (Figure 4). The food and non-food-retailing sectors both saw a substantial decline in profitability over the same period.

Figure 4 shows the relative performance of the general economy, the non-food retailing industry, and the food retailing industry over the 1990s. For each particular sector, the level of profitability observed in 1998 was very close to the level observed in 1991. However, the pattern over the intervening period shows considerable variation. Food retailing follows the trend of the general economy over the period, but after 1994 the gap widens between its performance and the performance of the general economy. The profitability of non-food retailing was highly variable between 1990 and 1998. Non-food retailing may not have followed a normal economic cycle in the 1990s; even some of the largest non-food retailers experienced such difficult times that they eventually closed their operations and liquidated their businesses.

Within the food-retailing sector the profitability varies greatly by size class, as shown in Figure 5. On average, one will note that the overall trend for food retailing is similar to that of the large food retailers (Figure 5). This underscores the fact that large food retailers dominate the food retailing industry. Between 1990 and 1998 the average rate of return on long-term capital was 7.96% for small enterprises, 7.29% for medium sized enterprises<sup>10</sup> and 14.41% for large enterprises. Despite the large gap between the profitability of the large enterprises and the other size classes, the small and medium food retailers still out-performed the general economy. For all small firms in the general economy, the rate of return was 5.92%, or two percentage points below the rate of return for small food retailers. The average rate of return for all Canadian medium sized firms was 6.44%, which is almost one percentage point below the return posted by medium sized food retailers.<sup>11</sup>

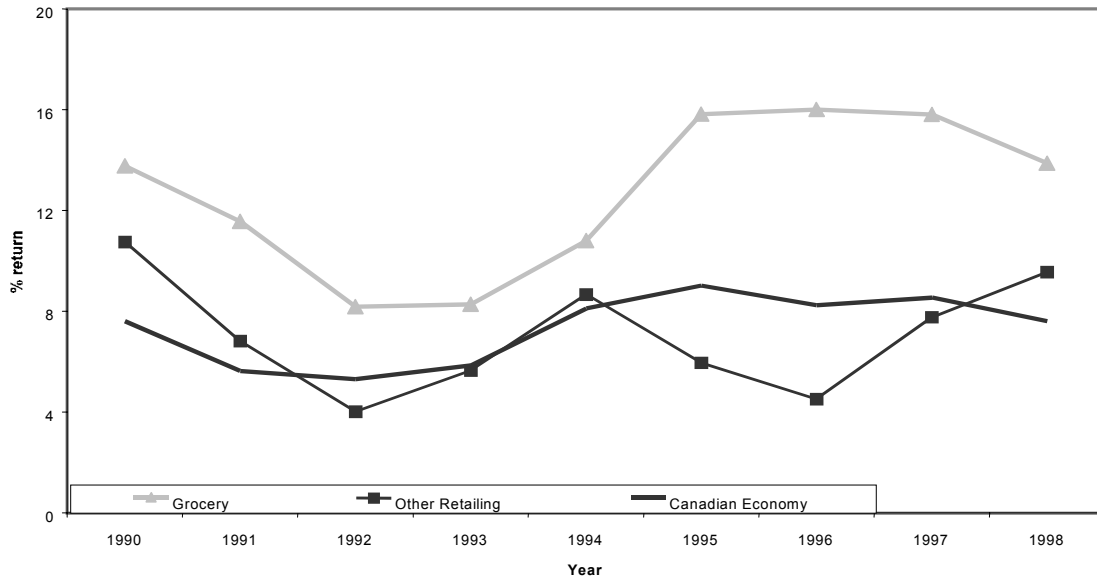
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<sup>9</sup> See Appendix I, Table 1 for the rates of return.

<sup>10</sup> Recall that small enterprises are those with less than \$10 million in sales, medium enterprises are firms with sales between \$10 million and \$100 million and large enterprises are firms with sales of \$100 million or more.

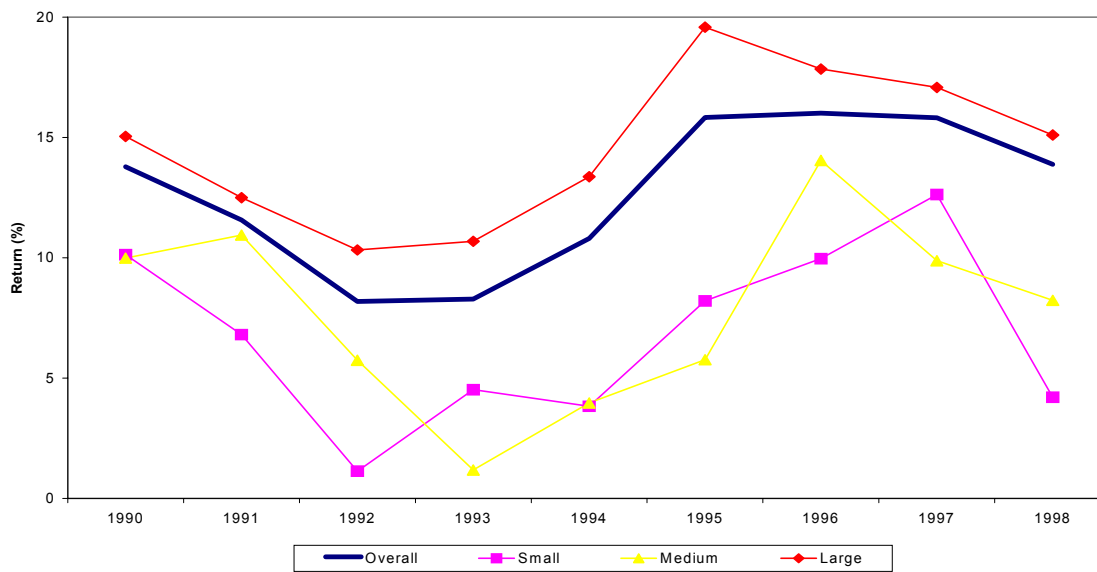
<sup>11</sup> Small non-food retailers outperformed their food counterparts with an 8.98% return, while medium sized non-food retailers posted an average rate of return of 7.45% over the period. For a more detailed comparison see Appendix I, Tables 2,3 and 4.

**Figure 4**  
**Rate of Return for the General Economy, Food retailing and Non-food retailing**



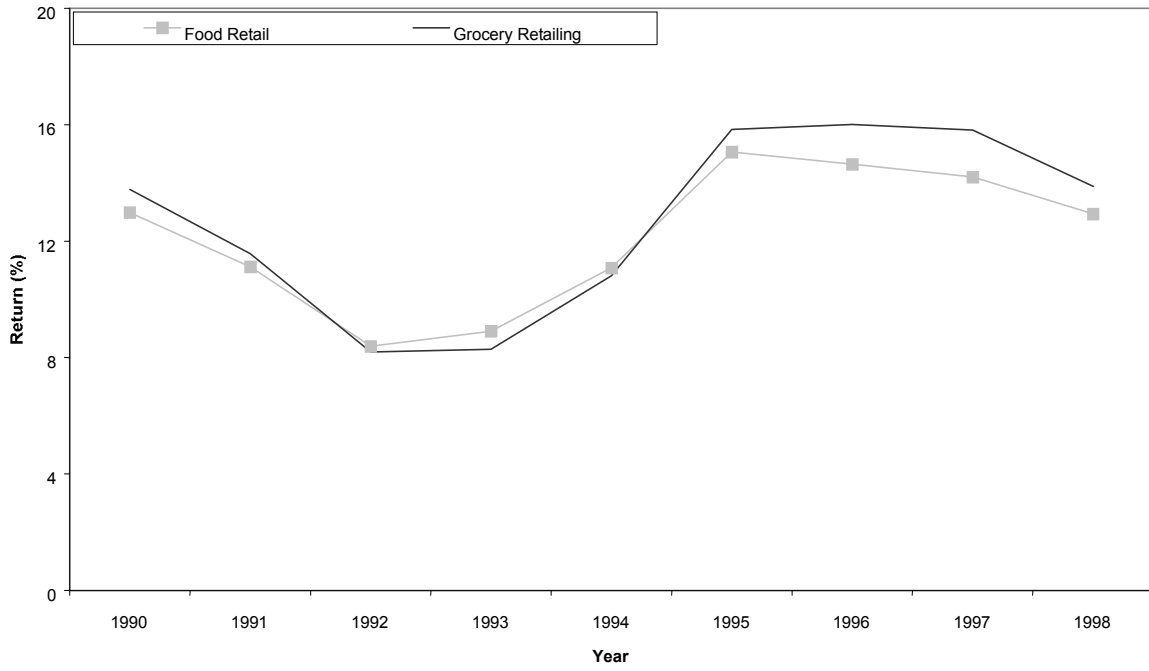
*Source:* Statistique Canada, The Annual Survey of Financial Statements.

**Figure 5**  
**Rate or Return in Food Retailing by Size Class**



*Source:* Statistique Canada, The Annual Survey of Financial Statements.

**Figure 6**  
**Performance in Food Retailing vs Performance in Grocery Retailing**

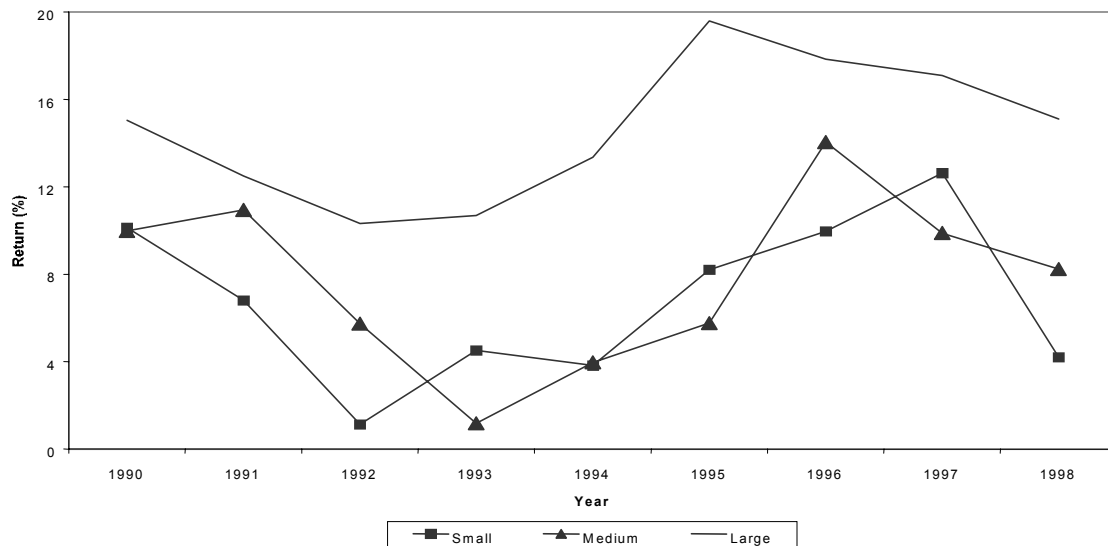


*Source:* Statistique Canada, The Annual Survey of Financial Statements.

## Grocery Stores

With the concern over increasing concentration among grocers, the performance of grocery stores, as a component of food retailing, was assessed separately. Despite being a component of food retailing, grocery retailing is quite different from food retailing. Grocery retailers carry a wide variety of foodstuffs and general household supplies. Food retailing, on the other hand, also includes stores that sell only a certain type of food such as health food stores and bakeries and retailers that sell non-household related goods such as gas stations. In total, grocery retailing and food retailing performance follow a similar trend (Figure 6). The average rate of return over the 1990s for grocers at 12.68% was very similar to the 12.15% return for food retailers. To a large extent this reflects that fact that grocery retailing accounts for 92% of retail food sales.

Figure 7  
Performance of Grocery Retailers by Size class



Source: Statistique Canada, The Annual Survey of Financial Statements.

On average the rate of return for large grocery stores was 14.61% between 1990 and 1998. By way of comparison, medium sized firms averaged 7.75% and small firms averaged 6.82% over the same period. Figure 7 shows the relative returns by size class. The results are roughly the same as with food retailing (see figure 5) over the 1990s. The one major difference is the performance of small grocers over the period. Small grocers, with a 6.82% rate of return, under-performed in comparison to small food retailers in general (7.96%), and the performance of small grocers is quite volatile over the period. Part of the reason for this variability is a consequence of the nature of the business conducted by small food retailers. Small food retailers are mainly convenience and specialty food stores that do not compete directly with the large grocery chains for a share of the market. However, despite the variability in performance, and the lower rate of return, small grocers still out-performed the general economy average of 5.93% between 1990 and 1998. The performance of medium sized grocers at 7.75% was roughly equal to the performance of mid-sized food retailers at 7.29%. Large grocers,



with an average rate of return of 14.61% over the 1990s, performed better than large food retailers in general who averaged 14.41%.

### **International Comparisons**

Two other studies have looked at the returns for large retailers. The first, by Bert and Sparks (1997), looked at the large chain grocers in France and England. Their results showed that between 1988 and 1993 the average rate of return for the largest six chains was 18.72% in France and 20.62% in England. For Canada, the average rate of return of the largest six chains between 1990 and 1993 was 12.02%. The second study was carried out by the UK Competition Commission, which reported an average return of 17.67% for large UK supermarkets between 1993 and 1998. By way of comparison, the Canadian average for the same period was 19.93%. Despite the fact that the numbers are not completely comparable due to differences in accounting and tax laws between countries<sup>12</sup>, it would seem Canadian grocers under-performed relative to their foreign counterparts in the early 1990s, and outpaced them towards the end of the decade.

### **Conclusions**

Grocery retailing constitutes a substantial component of food retailing and both have exhibited rates of return (12.68% and 12.15% respectively) which are much larger than the rates of return for non-food retailing (6.99%) or the general economy (7.33%). The superior performance of grocery/food retailing is largely accounted for by the performance of the large firms, which registered returns almost double those of small and medium sized firms. In contrast to food, the large non-food retailers under-performed relative to small and medium non-food retailers.

The superior profitability of large grocery/food retailers is a bit of a puzzle given that food prices have been rising less rapidly than the price of consumer goods in general implying that the real price of food has been declining. On the one hand, this declining relative price of food suggests that grocers are not extracting monopoly profits from consumers.

However, if prices are not the underlying reason for increasing profitability within food retailing, then the driver by necessity will be decreasing costs. Costs can be decreased through increasing efficiencies, better managerial skills, or through the leverage of market power. Unfortunately this study does not explore deeper into the underlying mechanics of the profitability in food retailing, but future research in this area would prove interesting.

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<sup>12</sup> The ratios used in this and the two comparison studies are almost identical. The major difference is how tax legislation in the different countries govern the treatment of expense items.

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## Appendix I Rates of Return

<b>Table 1</b>				
<b>Rate of Return by Sector: All Firms</b>				
Year	Economy	Non-food Retailing	Food Retailing	Grocery Retailing
1990	7.61	10.76	12.98	13.78
1991	5.63	6.82	11.11	11.57
1992	5.31	4.02	8.39	8.18
1993	5.86	5.65	8.91	8.28
1994	8.12	7.92	11.08	10.81
1995	9.02	5.96	15.07	15.83
1996	8.25	4.52	14.64	16.01
1997	8.55	7.77	14.20	15.82
1998	7.61	9.56	12.93	13.88
<b>Average (1990-1998)</b>	<b>7.33</b>	<b>6.99</b>	<b>12.15</b>	<b>12.68</b>

*Source:* Statistique Canada, The Annual Survey of Financial Statements.

<b>Table 2</b>				
<b>Rate of Return by Sector: Small Enterprises</b>				
Year	Economy	Non-food Retailing	Food Retailing	Grocery Retailing
1990	7.24	12.74	9.47	10.13
1991	6.01	9.49	7.40	6.81
1992	4.58	6.46	4.61	1.13
1993	4.63	7.51	7.66	4.52
1994	5.92	7.76	8.10	3.83
1995	6.76	8.41	8.20	8.21
1996	7.08	8.86	9.29	9.97
1997	3.90	9.56	9.97	12.63
1998	7.05	10.07	6.97	4.20
<b>Average (1990-1998)</b>	<b>5.93</b>	<b>8.98</b>	<b>7.96</b>	<b>6.82</b>

*Source:* Statistique Canada, The Annual Survey of Financial Statements.

<b>Table 3</b> <b>Rate of Return by Sector: Medium Enterprises</b>				
Year	Economy	Non-food Retailing	Food Retailing	Grocery Retailing
1990	6.33	8.16	10.72	9.99
1991	4.65	4.38	8.40	10.94
1992	5.40	3.52	5.22	5.74
1993	5.86	9.06	2.96	1.18
1994	7.23	8.03	3.11	3.96
1995	7.59	9.26	6.92	5.76
1996	7.54	4.49	11.22	14.04
1997	7.38	6.71	9.86	9.88
1998	6.02	13.43	7.21	8.23
<b>Average (1990-1998)</b>	<b>6.44</b>	<b>7.44</b>	<b>7.29</b>	<b>7.75</b>

*Source:* Statistique Canada, The Annual Survey of Financial Statements.

<b>Table 4</b> <b>Rate of Return by Sector: Large Enterprises</b>				
Year	Economy	Non-food Retailing	Food Retailing	Grocery Retailing
1990	7.87	9.79	14.55	15.04
1991	5.76	4.22	12.46	12.50
1992	5.51	1.37	10.24	10.33
1993	6.35	2.49	10.64	10.69
1994	9.22	8.05	13.26	13.37
1995	10.20	2.77	19.32	19.59
1996	8.93	0.37	17.59	17.84
1997	9.80	6.13	16.72	17.08
1998	8.31	8.43	14.93	15.10
<b>Average (1990-1998)</b>	<b>7.99</b>	<b>4.89</b>	<b>14.41</b>	<b>14.61</b>

*Source:* Statistique Canada, The Annual Survey of Financial Statements.

**Appendix II**  
**List of Financial Variables Used**

SIC-C code	Estimation Weight	Total Assets
Inventory	<b>Total Liabilities</b>	<b>Total Shareholders' Equity</b>
Sales	Interest on Debt	Cost of Materials/Supplies
Salaries, Wages & Benefits	Rental Expenses	<b>Operating Income</b>
Total Current Assets	<b>Current Liabilities</b>	

The Variables in bold are the ones used in the calculation of the return on long-term capital.

With regard to the variables, the calculation was conducted as follows:

$$\frac{\text{Operating Income}}{\text{Shareholders' Equity} + (\text{Total Liabilities} - \text{Current Liabilities})}$$

## Appendix III

### Sample Sizes

<b>Table 6</b> <b>Sample Size by Sector: All firms</b>				
Year	Economy	Non-food Retailing	Food Retailing	Grocery Retailing
1990	36591	2239	386	255
1991	39774	2609	517	303
1992	40249	2652	499	330
1993	40364	2674	479	306
1994	44462	2680	530	337
1995	45937	2690	537	336
1996	41951	2387	507	292
1997	37685	1877	399	178
1998	29885	873	231	120

*Source:* Statistique Canada, The Annual Survey of Financial Statements.

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