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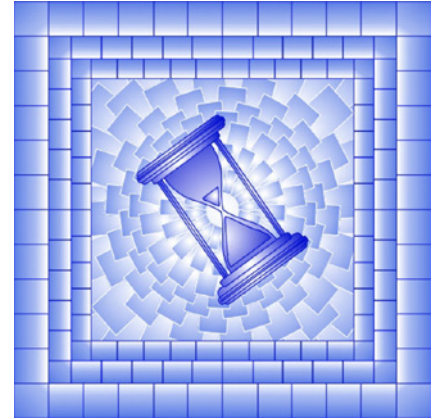
Analytical series – Prices Division

Outlet Substitution Bias in the Canadian Consumer Price Index: A Case Study

by Candace Hayman

Prices Division
13th Floor, Jean Talon Building, Ottawa, K1A 0T6

Telephone: 1 613 951-3336 Fax: 1 613 951-1539



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Candace Hayman

Prices Division
Telephone: 1 613 951-3336
Email: Candace.Hayman@statcan.ca

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How to obtain more information:

Client Services, Prices Division, Statistics Canada,
13th Floor, Jean Talon Building,
Ottawa, Ontario K1A 0T6
Telephone: 1 613 951-9606
Toll free: 1 866 230-2248
Fax: 1 613 951-1539
Internet: infounit@statcan.ca

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Preface

Prices Division first started publishing the analytical series in December 1996 as a means to convey conceptual and applied research undertaken by its staff, and at times, by other persons from within or outside Statistics Canada on the subject of price indexes.

All papers are reviewed by a panel of experts from within Statistics Canada or outside the agency. Views expressed in the papers are those of the authors and do not necessarily reflect those of Prices Division or Statistics Canada.

The purpose of the series is to disseminate knowledge and stimulate discussion. Questions and comments on any aspect of the papers are welcome and can be forwarded to the Director, Prices Division or to the Chief, Quality Assurance and Client Services Section, 13th Floor, Jean Talon Building, Statistics Canada, Ottawa, Ontario, K1A 0T6, Facsimile: 1 613 951-1539.

Abstract

Since the early 1990s, increased attention has been focused on the possibility that the rate of inflation may be being overstated as a result of measurement biases in the estimation of the Consumer Price Index (CPI). One source of this possible error is caused by outlet substitution bias. This type of distortion can result when consumers shift their patronage from one retail outlet to another. As superstores and warehouse type stores continue to open and capture a larger share of the market, the existing CPI sample could become increasingly unrepresentative. If the prices are lower at the new outlets and this decrease in costs is not accurately captured in the CPI, the index will exhibit an upward bias.

Table of contents

1. Introduction	6
2. Index levels and price movements – City A compared to Quebec	7
3. Index levels and price movements by outlet type	16
4. Price levels	17
5. Conclusions	19
Charts 1–11	8–17
Appendices 1–8	20–28

1. Introduction¹

Since the early 1990s, increased attention has been focused on the possibility that the rate of inflation may be being overstated as a result of measurement biases in the estimation of the Consumer Price Index (CPI). One source of this possible error is caused by outlet substitution bias. This type of distortion can result when consumers shift their patronage from one retail outlet to another. As superstores and warehouse type stores continue to open and capture a larger share of the market, the existing CPI sample could become increasingly unrepresentative. If the prices are lower at the new outlets and this decrease in costs is not accurately captured in the CPI, the index will exhibit an upward bias.

The CPI measures the price movement of goods and services over time and does not reflect absolute price levels. The differences in price levels only become relevant when a new outlet is introduced into the sample. Due to the manner in which the outlet sample is updated in the Canadian CPI, the initial impact that these new outlets have on consumer costs may not be captured. When a new outlet is introduced into the CPI, no direct comparison is made between the price or quality of the product or service at the new outlet and those at the existing outlets. Any differences in the price levels are assumed to be due solely to quality differences, and the new outlet is linked into the sample showing no price change. If the prices at the new outlet are lower than those at the existing outlets for identical or equivalent products, and this information is not captured immediately, then the CPI would contain an upward bias. The true costs to consumers would not be reflected in the official CPI. The higher the market share of the new outlet and the greater the price differences between the new and the existing outlets, the greater the bias.

In early 1997, a pilot project was initiated at Statistics Canada to examine the effects of new outlets on the Consumer Price Index for food items purchased from stores. The primary focus of this study was to look at the impact the opening of a large superstore has on existing outlets in the surveyed area, and how the outlet's inclusion (or exclusion) in the sample affects the CPI for food. The study also examined the effect, if any, of outlet type on price movements.

Starting in August 1997 through July 1998, prices and outlet characteristics were collected from 10 food stores in a mid-sized city in the province of Quebec (City A). Prices in City A were collected for the purpose of this study only, and are not included in the calculation of the official CPI for the province of Quebec. The 10 food stores were categorized into four outlet types:

- Type 1 – Conventional grocery store (30,000 square feet or less)
- Type 2 – Supermarket (more than 30,000 square feet)
- Type 3 – Warehouse type store
- Type 4 – Superstore (more than 30,000 square feet and having at least 25% of total area for general merchandise). One such outlet opened in October 1997.

¹ This study was first documented in May 1999.

The Consumer Price Index for food purchased from stores is based on the prices of 120 food items grouped into 48 basic classes (see Appendix 1). Month-to-month price movements are calculated at this lowest level of aggregation as the relative of the geometric mean of the prices, based on matched samples. The food purchased from stores price index is then calculated as a weighted arithmetic average of the 48 basic classes. The weights used to aggregate the basic classes within the food purchased from stores component of the CPI for City A were based on the expenditure patterns of southern Quebec. Expenditure patterns for 1992 (expressed in November 1997 prices) were used from August to December 1997 and 1996 expenditure patterns (expressed in December 1997 prices) were used from January 1998 to July 1998.

For this study, indexes were calculated for each of the four outlet types as well as for all four outlet types together for City A. In Section 2, the indexes for food purchased from stores and selected sub-aggregates for City A are compared with the official series published for the province of Quebec. Section 3 makes comparisons between the different outlet types within City A. Individual price movements and price levels are examined in Section 4. Finally, the conclusions are presented in Section 5.

2. Index levels and price movements – City A compared to Quebec

As shown in Chart 1, price movements for food purchased from stores differed significantly between City A and Quebec before the opening of the new store in October 1997. Food prices in City A declined substantially between August and September 1997, less than one month prior to the opening of the new outlet. Although food prices traditionally decline in September, mainly due to the lower costs of fresh fruit and vegetables available on the market, the drop in City A was more pronounced than in the rest of Quebec. The price index for food purchased from stores in City A declined 4.8% between August and September, compared to a drop of only 2.4% for Quebec. City A food prices continued to drop through November, with a slight increase in December, while those in Quebec did the opposite. They rose through November, with a slight decrease in December.

From January 1998 forward, the price movements in City A followed roughly the same pattern as those in Quebec. The difference in June 1998 resulted from lower prices for fresh produce in City A. By July 1998, the last month for which food prices were collected for this study, the index for City A was still 3.1% lower than it was in August 1997, while in Quebec, it was 2.4% higher. After the initial drop in September, food prices in City A rose by only 1.8% from September 1997 to July 1998, while those in Quebec increased by 4.9%.

Chart 1

Consumer Price Index for food purchased from stores, City A and Quebec, August 1997=100

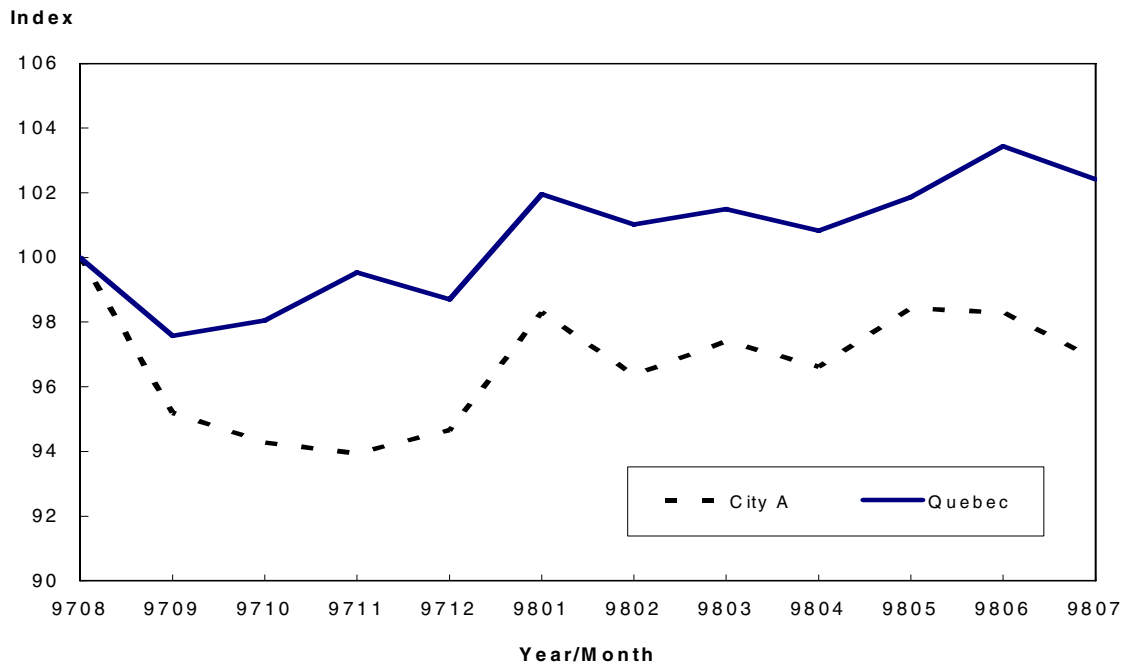


Table 1

**Contribution to the monthly movement for September 1997,
Consumer Price Index for food purchased from stores and selected sub-aggregates,
City A and Quebec¹, August 1997=100**

	CITY A			QUEBEC		
	Index Sept. 1997	% change	Contribution	Index Sept. 1997	% change	Contribution
Food purchased from stores	95.2	-4.8	-4.8	97.6	-2.4	-2.4
Meat	98.6	-1.4	-0.4	98.1	-1.9	-0.5
Fresh or frozen meat (excluding poultry)	98.2	-1.8	-0.3	95.9	-4.1	-0.6
Fresh or frozen beef	98.8	-1.2	-0.1	94.9	-5.1	-0.5
Fresh or frozen pork	94.9	-5.1	-0.1	96.4	-3.6	-0.1
Fresh or frozen poultry meat	100.1	0.1	0.0	100.7	0.7	0.0
Fresh or frozen chicken	100.2	0.2	0.0	100.3	0.3	0.0
Processed meat	98.4	-1.6	-0.1	100.6	0.6	0.0
Fish and other seafood	100.4	0.4	0.0	100.0	0.0	0.0
Fish	100.6	0.6	0.0	99.0	-1.0	0.0
Dairy products and eggs	98.1	-1.9	-0.3	99.7	-0.3	0.0
Dairy products	97.9	-2.1	-0.3	99.8	-0.2	0.0
Fresh milk	100.0	0.0	0.0	100.0	0.0	0.0
Butter	98.8	-1.2	0.0	97.3	-2.7	0.0
Cheese	95.6	-4.4	-0.2	100.2	0.2	0.0
Eggs	100.0	0.0	0.0	99.4	-0.6	0.0
Bakery and other cereal products	96.5	-3.5	-0.5	101.7	1.7	0.3
Bakery products	94.9	-5.1	-0.5	102.8	2.8	0.3
Other cereal grains and cereal products	100.0	0.0	0.0	99.6	-0.4	0.0
Fruit, fruit preparations and nuts	90.6	-9.4	-1.1	97.0	-3.0	-0.4
Fresh fruit	87.0	-13.0	-1.0	95.4	-4.6	-0.4
Preserved fruit and fruit preparations	97.2	-2.8	-0.1	99.7	-0.3	0.0
Vegetables and vegetable preparations	80.9	-19.1	-2.0	84.0	-16.0	-1.7
Fresh vegetables	76.8	-23.2	-2.0	79.8	-20.2	-1.8
Preserved vegetables and veg. preparations	97.9	-2.1	0.0	98.9	-1.1	0.0
Other food products	97.1	-2.9	-0.5	98.8	-1.2	-0.2
Sugar and confectionery	101.2	1.2	0.0	100.6	0.6	0.0
Fats and oils	99.6	-0.4	0.0	99.7	-0.3	0.0
Coffee and tea	92.5	-7.5	-0.2	98.3	-1.7	0.0
Non-alcoholic beverages	95.8	-4.2	-0.2	96.4	-3.6	-0.1

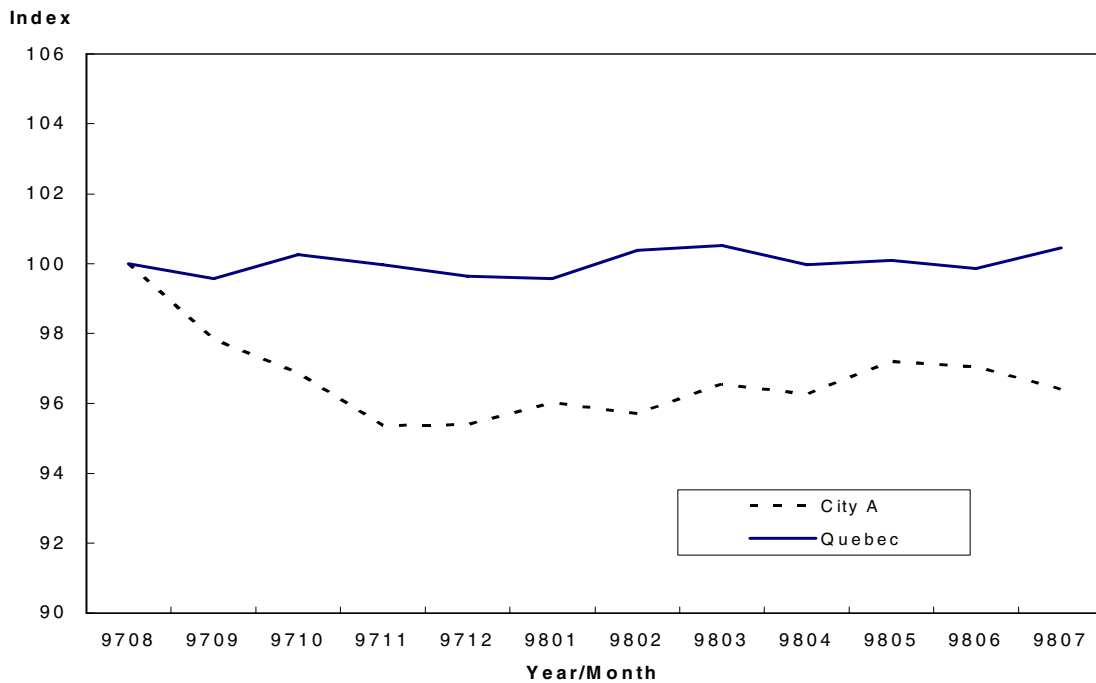
¹ Not all basic classes are published at the provincial level. The series presented in this table are those published for the official provincial CPI for food purchased from stores.

In Table 1, the decline in the Quebec food index in September 1997 could almost entirely be attributed to the decrease in fresh fruit and vegetable prices. Fresh produce contributed 2.2% of the 2.4% decrease in Quebec. In City A, lower fresh produce prices only contributed 3.0% of the 4.8% decrease.

In Chart 2, where the prices of fresh produce are excluded, the food index in Quebec remained relatively stable for the entire 12-month period (up 0.5% from August 1997 to July 1998). This was not the case in City A. In sharp contrast, the food index excluding fresh fruit and vegetables declined 3.6% over the same time period in City A and dropped 2.2% in September 1997 alone. By November, the index was 4.6% lower than it was in August.

Chart 2

Consumer Price Index for food purchased from stores excluding fresh fruit and vegetables, City A and Quebec, August 1997=100



In September 1997, the prices for fresh produce (in particular fresh fruit), bakery products, dairy products (especially cheese and ice cream), coffee and tea, and non-alcoholic beverages all declined by substantially more in City A than in Quebec. Meat, as well as other food products (soup, precooked frozen food preparations) in City A also exhibited price movements significantly different from those in Quebec over the 12-month period. Charts 3–8 compare the price movements of these selected sub-aggregates for City A to those for Quebec.

Chart 3

Consumer Price Index for food purchased from stores, bakery products, City A and Quebec, August 1997=100

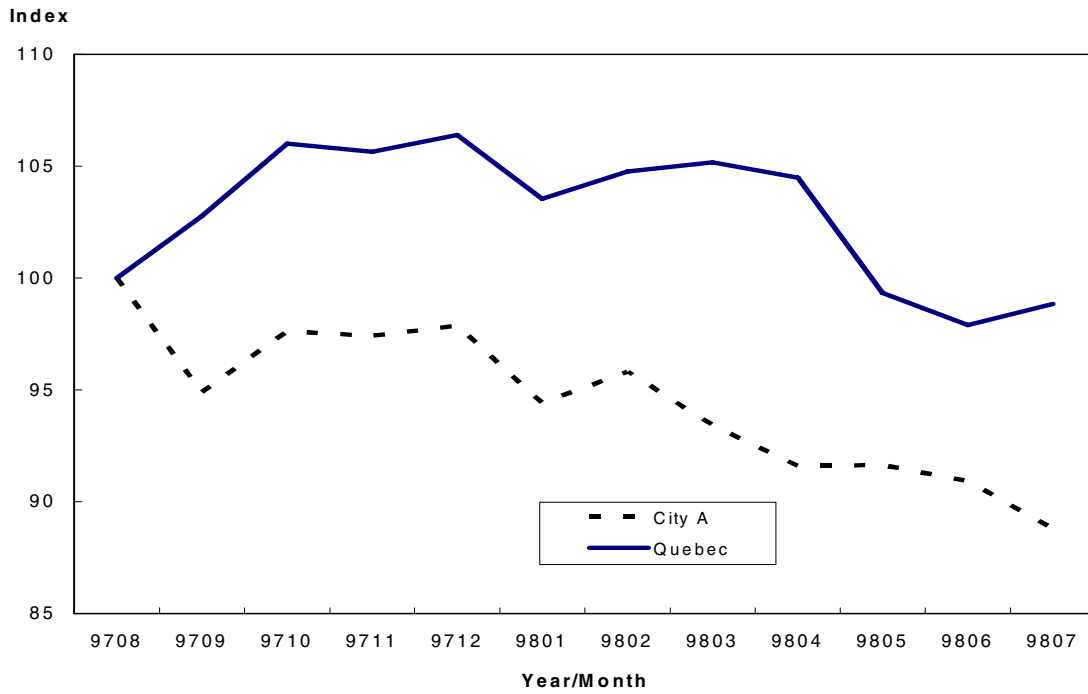


Chart 4

Consumer Price Index for food purchased from stores, cheese, City A and Quebec, August 1997=100

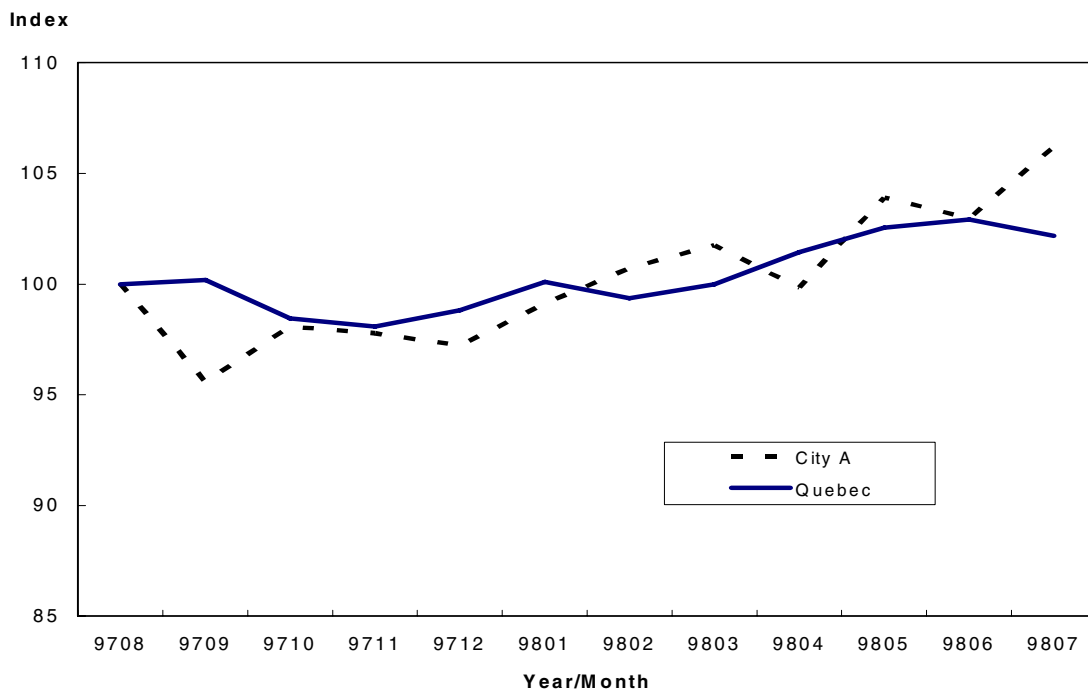


Chart 5

Consumer Price Index for food purchased from stores, coffee and tea, City A and Quebec, August 1997=100

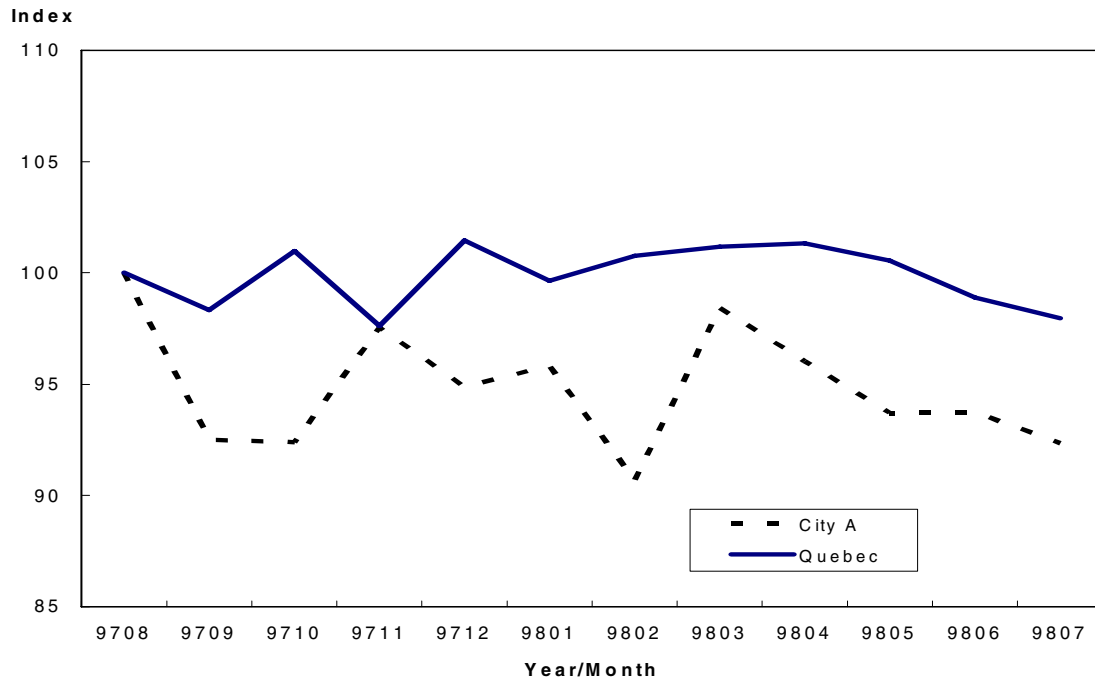


Chart 6

Consumer Price Index for food purchased from stores, non-alcoholic beverages, City A and Quebec, August 1997=100

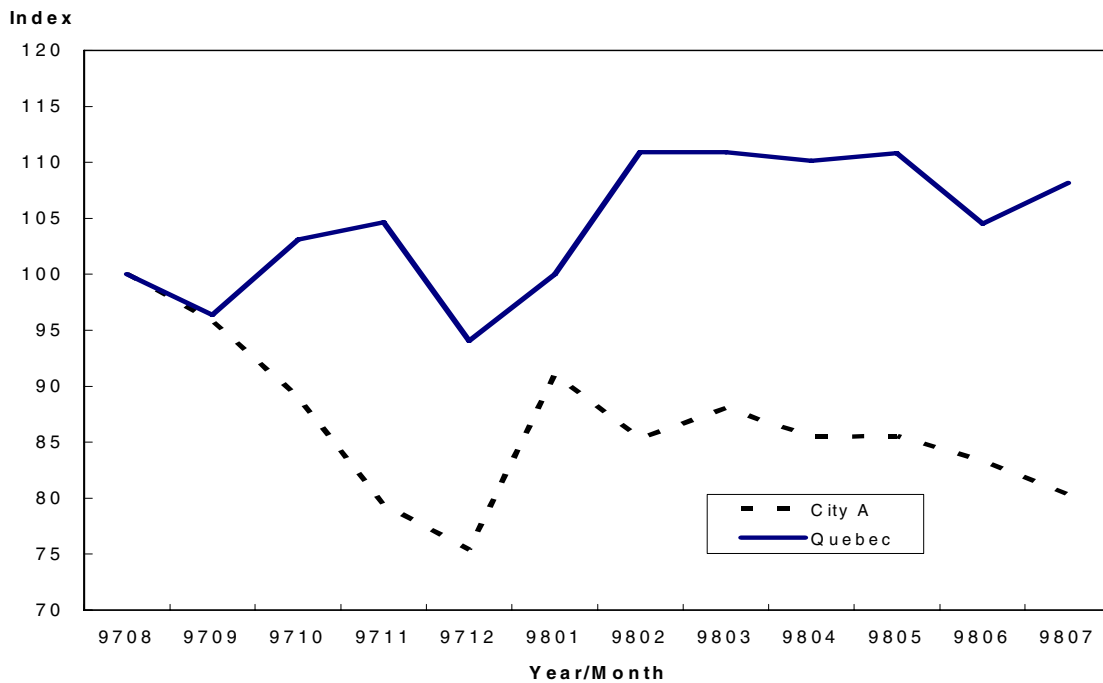


Chart 7

Consumer Price Index for food purchased from stores, meat, City A and Quebec, August 1997=100

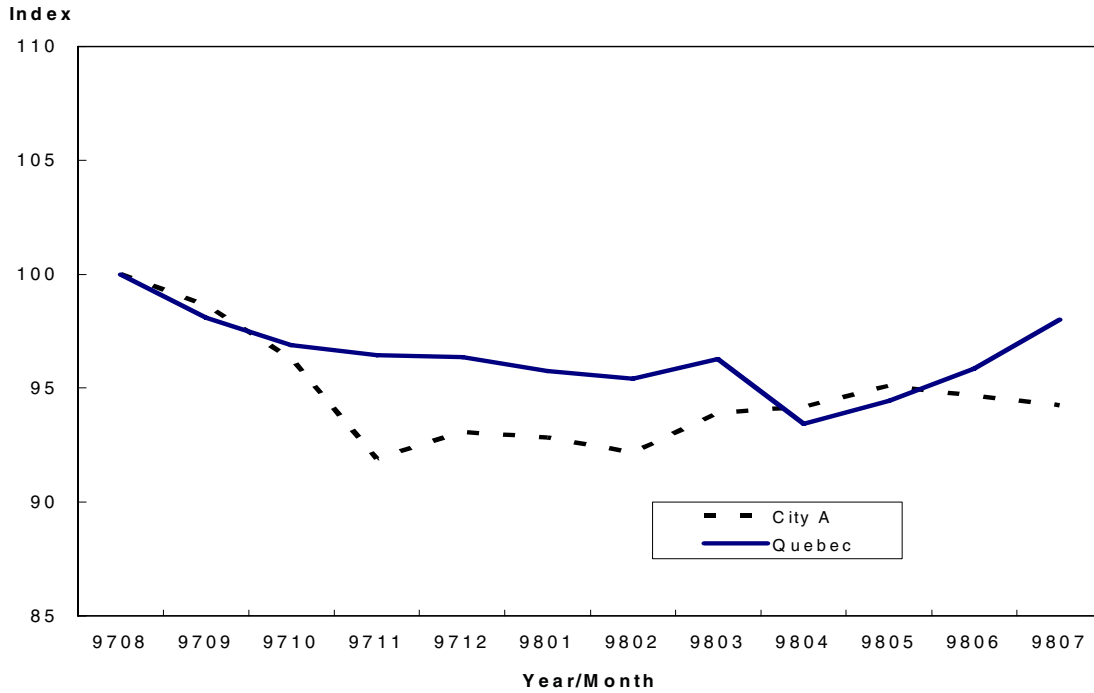
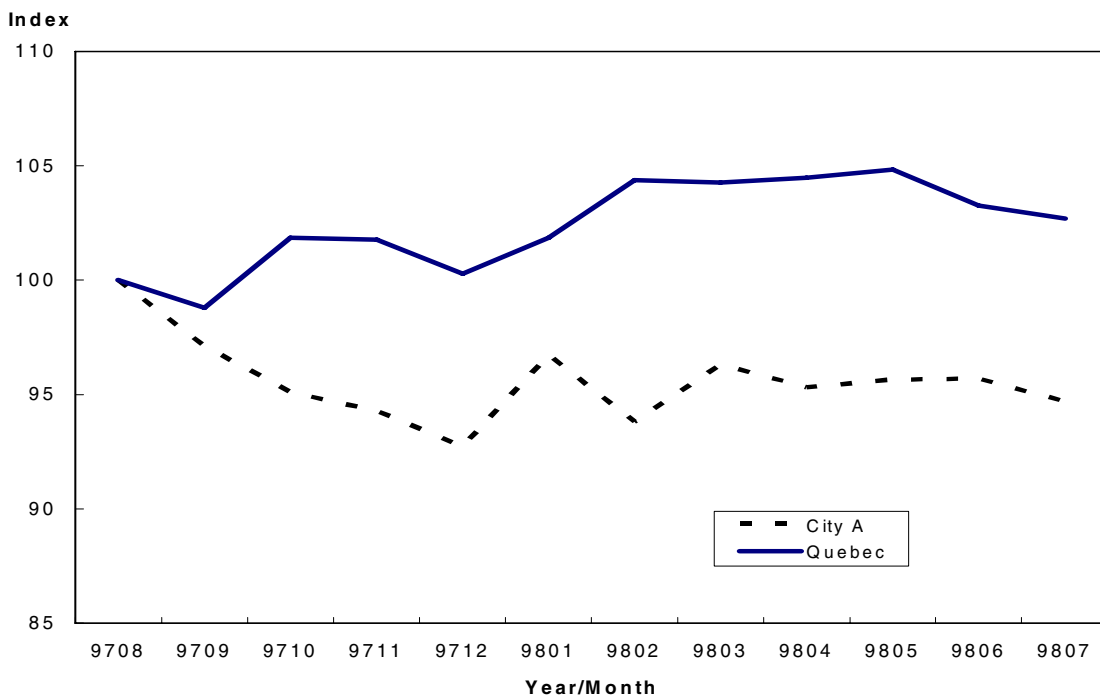


Chart 8

Consumer Price Index for food purchased from stores, other food products, City A and Quebec, August 1997=100



Although the price of most food items in an outlet will stay the same from one month to another, prices of individual items can vary significantly. Of the 1,100 prices collected in City A for September 1997, only 18% declined. The distribution of these reductions, though, was enough to cause a drop in the average price for 54% of the 120 food items priced. In addition, there were relatively few price increases (only 6% of the 1,100 price observations and 15% of the average prices) to moderate the effect of the price declines.

Prices charged for fresh produce are the most volatile. Due to seasonal availability and specials, most fruit and vegetable prices exhibited differences of over 100% between the highest and lowest price charged in all ten outlets in City A over the period of study. The prices charged for many of the fresh produce items varied by over 400% in some of the outlets.

Other food items also exhibited very large price variation. Prices of selected meat cuts and pasta products, for example, varied by more than 100% in some of the outlets. The prices charged for coffee and tea, selected bakery products and soft drinks also varied significantly from month to month.

While the prices of some food items change on a weekly basis, many tend to remain constant with just the occasional increase or decrease. Milk, for example, exhibited very little price movement from month to month. The prices charged for milk were relatively stable with very little variation from one outlet to another.

Weekly advertised specials, used to attract customers into stores, and in-store specials are responsible for most of the variation exhibited in food prices within outlets. Generally, profit margins are quite low in food outlets and there is not much room to lower overall prices. Except for seasonal variation, (especially for fresh produce), a sale on one item is usually offset by a price increase or a return to the regular price on other items.

Of the 48 basic food classes—the lowest level at which price indexes are calculated—34 (representing 75.4% of the food weight) decreased in City A in September 1997. Only 8 basic classes, which represent 13.7% of the weight, increased in City A. In Quebec, 26 basic classes decreased (54.4% of weight) and 18 increased (37.3% of weight). See Charts 9 and 10.

Chart 9

Relative importance of basic food classes that increased, decreased or remained unchanged for City A

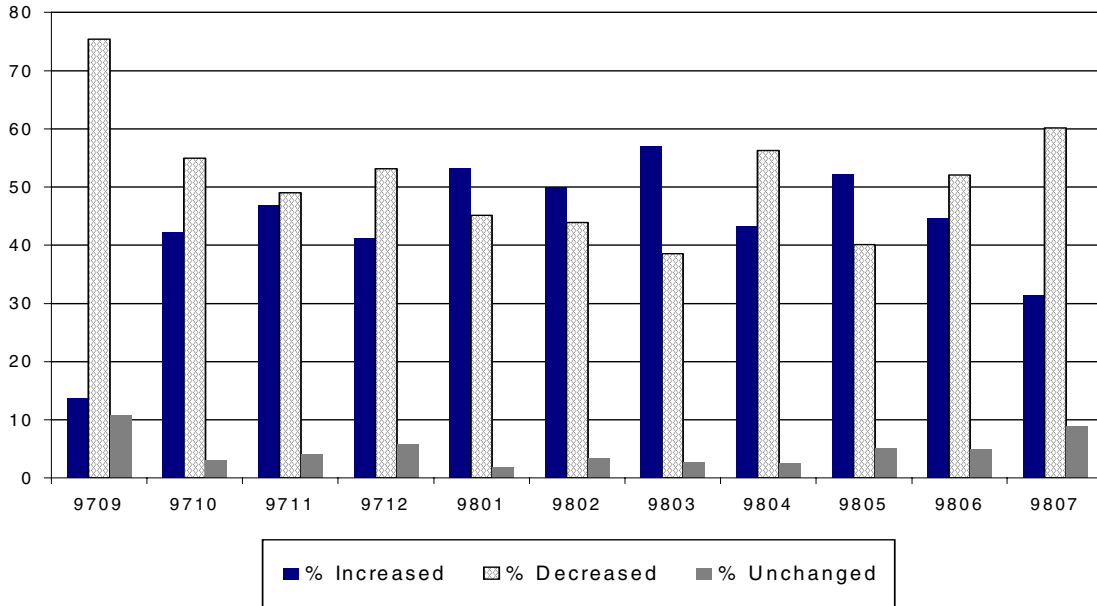
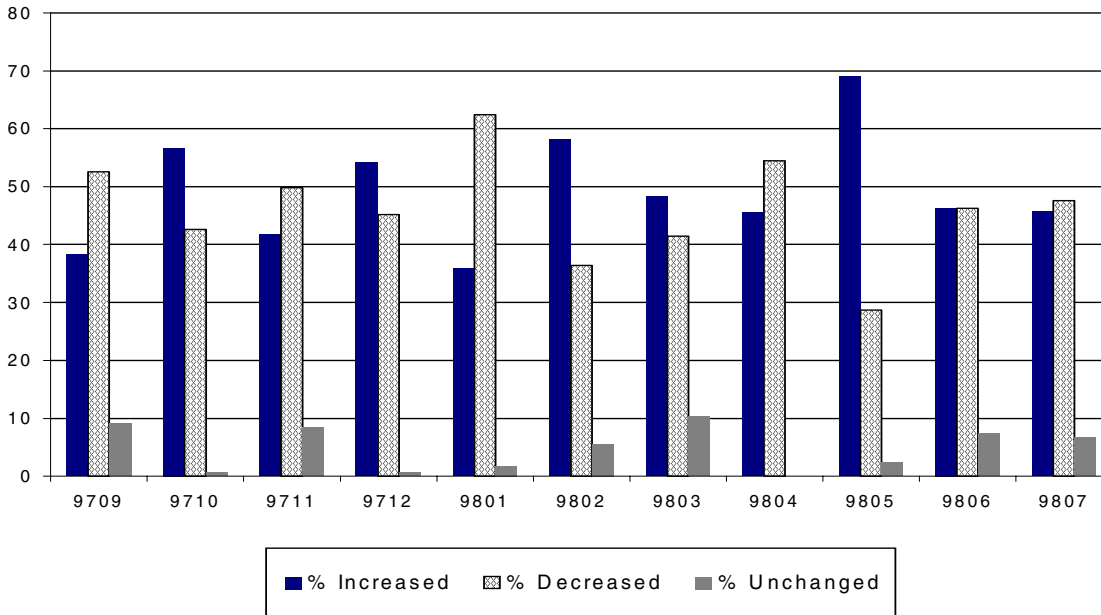


Chart 10

Relative importance of basic food classes that increased, decreased or remained unchanged for Quebec



With the exception of fresh or frozen beef, which declined 5.1% in September, all of the basic classes that exhibited large price decreases (greater than 5%) in Quebec were for fresh fruit and vegetables. Large price increases for oranges and lettuce moderated the declines. In September, the Quebec index for fresh fruit declined by 4.6% and the one for fresh vegetables declined by 20.2%.

In addition to the large seasonal decrease in fresh fruit and vegetable prices (down 13.0% and 23.2% respectively) in City A for September, the indexes for ice cream and related products (-5.2%), bread, rolls and buns (-9.9%), coffee (-8.5%), precooked frozen food preparations (-6.1%) and fresh or frozen pork (-5.1%) also declined significantly. The largest price increase was for sugar and syrup (3.3%).

The relative importance of the basic classes that increased and decreased in City A came close to being equalized after the initial drop in September. The magnitude of the decreases, however, more than offset the price increases, and the food index dropped a further 0.9% in October and 0.3% in November. In sharp contrast, food prices in Quebec increased by 0.4% in October and then by a further 1.5% in November. After the initial drop in September, although there were large variations in the price movement of the individual basic classes, the index for food purchased from stores for City A remained at a lower level, relative to the Quebec index, throughout the entire 12-month period.

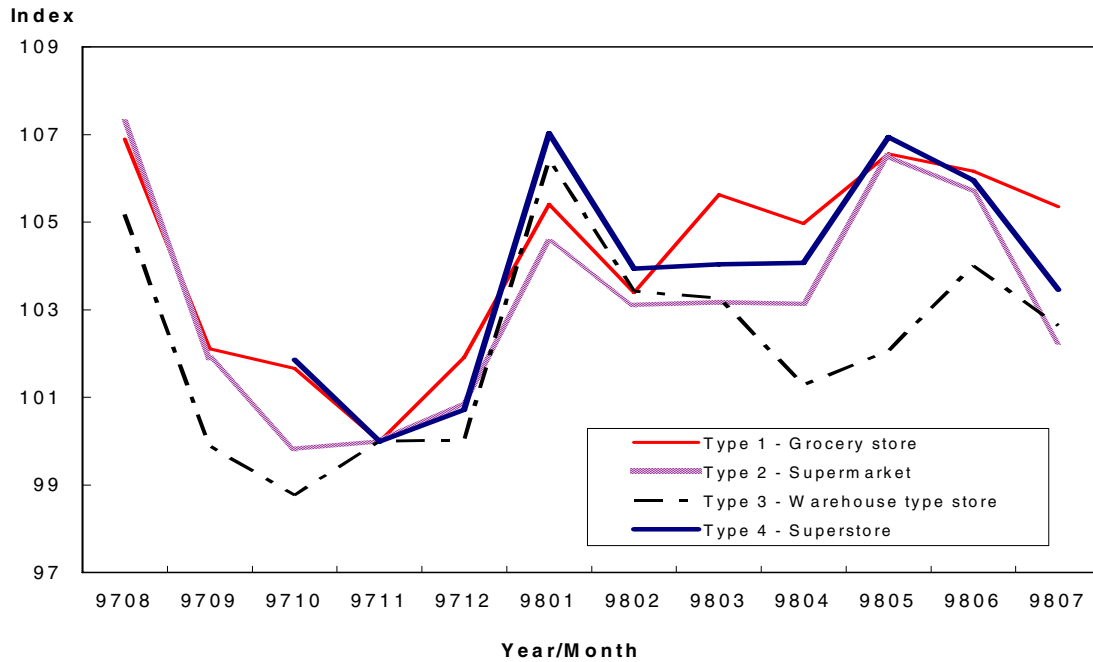
Faced with the prospect of losing market share to the new superstore that was opening in October, existing outlets began offering deep discounts on selected high volume items while holding the price level on the majority of other food items. The benefit to consumers was lower overall food prices.

3. Index levels and price movements by outlet type

Outlet type appears to have had little or no effect on price movement. As seen in Chart 11, there was very little difference in the movement of food prices between outlet types in City A. The initial decrease in September 1997 was almost identical for all outlet types. All food stores in the area lowered their overall prices to more closely approximate those anticipated in the new outlet. To attract customers, stores continued to adjust their prices on a regular basis to reflect those being offered by their competitors.

Chart 11

**Consumer Price Index for food purchased from stores by outlet type, City A,
November 1997=100**



4. Price levels

The prices collected for goods and services in the CPI are based on consistent quantity and quality from one time period to another within each outlet. Although the same basic specification is priced in all stores, the selection of the specific item or brand to be priced in each particular outlet is based on what is considered to be the “best seller” or “highest volume seller” in that outlet. As a result, price collectors will not or cannot always obtain a price for the exact same item in each store and, therefore, it is not possible to directly compare price levels for all items between outlets.

In some stores, the price collected for a representative item could be for a store or “no name” brand, while in other outlets, a national brand is priced. Many of the food items (excluding fresh produce) that exhibited large variation in the price being charged by the different outlets can be attributed, in part, to weekly specials and to the brand being selected for pricing. The price of soft drinks, for example, varied by more than 100% between the highest and lowest price charged by the different stores, but it also varied by over 50% within most outlets surveyed. The highest prices charged were usually for national brands, while the lowest were most often for store brands. In this study, the smaller outlets (those with less than 30,000 square feet of floor space), tended to have a slightly higher percentage of national brand names as their best sellers. In any given month—mainly due to weekly-advertised specials—the prices of individual items in one outlet could be higher or lower than the prices in any other outlet, regardless of whether they were for a store brand or national brand.

Outlet type is a very poor indicator of price levels for food. There can be just as much variation in the prices charged by stores within the same outlet type as there is between outlet types. Food prices are often more influenced by the location of the stores and not by their size. Even though the geographic area covered in this study was relatively small, the stores with the most similar price levels were all located in close proximity to each other. Although prices declined in all stores in anticipation of the opening of the new outlet, stores in different areas of the city are not in direct competition with each other. Consumers may occasionally go out of their way to shop at a superstore or a large warehouse type store, but convenience is often of greater importance for their everyday shopping needs.

Food outlets do not compete solely on the basis of price. Many outlets, in particular the smaller ones, are placing greater emphasis on service and quality, and on providing what is important to their customers. Although smaller stores do not generally carry the same variety of items as larger stores, they tend to provide more in the way of services and convenience to their customers. When this survey was undertaken, most food outlets had or were in the process of introducing new or expanded services and promotional programs for their customers. Many of these new initiatives were already in place at other locations and were not being introduced solely in response to the opening of the new outlet. This was part of a continuing trend adopted by many grocery stores and supermarkets to compete with the new superstores that have been opening across the country.

Customer characteristics play an important role in determining which services individual stores provide. While grocery packers and free delivery may be important to one segment of the population, lower prices, “one-stop shopping”, prepared meals, or convenient location may be more important to other segments of the population. Although price is a significant factor, stores are not always competing for the same market. One of the smaller stores in this sample reported the largest average number of customers and one of the higher dollar value of sales. It also had the highest number of full-time staff. This particular outlet caters to a specific clientele and offers the atmosphere and the services this segment of the market demands.

5. Conclusions

1. It is not possible to say if the Consumer Price Index always captures the impact that the opening of a new lower-priced superstore has on consumer food prices. In this particular case study, however, the impact was certainly captured. What is more, it occurred before the new store actually opened. All stores in the area adjusted their prices to compete with those anticipated in the new outlet and to attract and keep customers. Faced with the prospect of losing some of their market share to the new superstore, existing stores began offering deep discounts on selected high volume items while holding the price level on the majority of other food items. The benefit to consumers was overall lower prices. Even once the new outlet opened, nearby stores continued to adjust their prices up and down to approximate the levels in the new outlet. Thus, this case study reveals how existing outlets adjust their marketing strategies in the advent of new lower-priced competition. The results of this study showed that new outlet bias was minimal. Linking in the data from this type of new outlet was the appropriate action to take.

2. In this study outlet size and type did not have an observable impact either on price levels or on price movements for food.

At least two reservations should be noted in connection with the above conclusions.

1. The scope of this study was limited. It only looked at different size grocery stores, supermarkets, warehouse type stores, and superstores. There was no attempt to examine what effect specialty food stores (such as fresh produce outlets, butchers or coffee shops) might have had on the price levels and price movements of individual food items or basic classes.

2. It is also important to remember when viewing the results that, in practice, the size of the CPI outlet sample in any given area would not be as large as it was in this case study. The size of the sample and the proximity of the existing outlets to the new store would determine the impact on the existing stores and would affect the results. Equally noteworthy is the fact that this analysis works well for a large sample of food items; however, the same type of results could not be extrapolated for many other consumer goods and services.

Appendix 1

Primary classification of commodities in the CPI for food purchased from stores¹

ALL-ITEMS

FOOD

FOOD PURCHASED FROM STORES

MEAT

FRESH OR FROZEN MEAT (EXCLUDING POULTRY)

Fresh or frozen beef

Fresh or frozen pork

Other fresh or frozen meat (excluding poultry)

FRESH OR FROZEN POULTRY MEAT

Fresh or frozen chicken

Other fresh or frozen poultry meat

PROCESSED MEAT

Ham and bacon

Other processed meat

FISH AND OTHER SEAFOOD

FISH

Fresh or frozen fish (including portions and fish sticks)

Canned and other preserved fish

OTHER SEAFOOD

DAIRY PRODUCTS AND EGGS

DAIRY PRODUCTS

Fresh milk

Butter

Cheese

Ice cream and related products

Other dairy products

EGGS

BAKERY & OTHER CEREAL PRODUCTS

BAKERY PRODUCTS

Bread, rolls and buns

Biscuits

Other bakery products

OTHER CEREAL GRAINS & CEREAL PRODUCTS

Rice (including mixes)

Breakfast cereal and other cereal products

Pasta products

Flour and flour-based mixes

FRUIT, FRUIT PREPARATIONS AND NUTS

FRESH FRUIT

Apples

Oranges

Bananas

Other fresh fruit

PRESERVED FRUIT AND FRUIT PREPARATIONS

Fruit juices

Other preserved fruit and fruit preparations

NUTS

Appendix 1 (Concluded)

Primary classification of commodities in the CPI for food purchased from stores¹

VEGETABLES AND VEGETABLE PREPARATIONS

FRESH VEGETABLES

Potatoes

Tomatoes

Lettuce

Other fresh vegetables

PRESERVED VEGETABLES AND VEGETABLE PREPARATIONS

Frozen and dried vegetables

Canned vegetables & other vegetable preparations

OTHER FOOD PRODUCTS

SUGAR & CONFECTIONERY

Sugar and syrup

Confectionery

FATS AND OILS

Margarine

Other edible fats and oils

COFFEE AND TEA

Coffee

Tea

CONDIMENTS, SPICES & VINEGARS

OTHER FOOD PREPARATIONS

Soup

Infant and junior foods

Precooked frozen food preparations

All other food products

NON-ALCOHOLIC BEVERAGES

¹ Basic classes are in bold, blue italics (48 in total).

Appendix 2

Consumer Price Index for food purchased from stores, total and selected aggregates, City A, August 1997=100

	9709	9710	9711	9712	9801	9802	9803	9804	9805	9806	9807
Food purchased from stores	95.2	94.3	94.0	94.7	98.3	96.4	97.4	96.6	98.4	98.3	96.9
Meat	98.6	96.3	91.9	93.1	92.8	92.2	93.9	94.2	95.1	94.7	94.2
Fresh or frozen meat (excluding poultry)	98.2	95.9	88.9	91.4	90.6	92.5	92.2	92.9	95.8	94.1	94.4
Fresh or frozen beef	98.8	98.8	90.6	93.3	92.1	95.5	97.6	97.0	101.9	99.5	97.7
Fresh or frozen pork	94.9	81.4	74.9	79.0	78.5	76.3	69.4	74.4	71.6	69.2	77.5
Fresh or frozen poultry meat	100.1	94.4	93.4	93.1	94.6	91.0	97.8	97.6	96.6	97.2	94.5
Fresh or frozen chicken	100.2	93.7	92.2	92.2	94.2	89.7	97.1	96.6	95.6	96.1	92.9
Processed meat	98.4	98.6	97.5	96.7	96.0	93.2	94.4	94.3	93.2	94.3	94.4
Fish and other seafood	100.4	100.2	100.1	100.5	100.5	100.6	100.4	102.1	100.6	102.8	103.6
Fish	100.6	101.5	101.3	101.3	100.4	101.2	99.8	102.7	100.5	103.6	103.8
Dairy products and eggs	98.1	98.9	99.2	99.3	99.5	100.0	101.2	101.2	102.1	102.3	102.7
Dairy products	97.9	98.8	99.2	99.4	99.6	100.1	101.4	101.4	102.4	102.7	103.0
Fresh milk	100.0	100.6	100.9	101.7	101.2	101.5	102.2	103.7	104.3	104.3	104.3
Butter	98.8	93.0	98.9	99.0	98.6	100.0	100.4	101.9	101.9	101.9	101.9
Cheese	95.6	98.1	97.8	97.2	99.1	100.7	101.7	99.8	103.9	103.0	106.2
Eggs	100.0	99.6	99.0	98.4	98.1	98.6	98.6	98.8	98.4	98.4	98.3
Bakery and other cereal products	96.5	97.9	97.3	97.5	95.2	97.0	95.4	94.4	95.0	94.3	93.3
Bakery products	94.9	97.6	97.4	97.9	94.4	95.8	93.4	91.6	91.6	90.9	88.8
Other cereal grains and cereal products	100.0	98.6	97.1	96.7	97.0	99.5	99.5	100.4	102.1	101.6	103.0
Fruit, fruit preparations and nuts	90.6	87.5	88.3	87.6	93.0	92.6	91.4	88.2	96.0	92.4	91.3
Fresh fruit	87.0	83.9	84.0	83.2	91.5	90.7	89.2	84.4	95.7	89.8	87.9
Preserved fruit and fruit preparations	97.2	95.0	97.3	96.6	96.9	97.3	96.4	95.8	98.3	98.3	98.6
Vegetables and vegetable preparations	80.9	81.8	90.6	97.0	121.1	107.1	110.5	108.8	112.6	116.4	107.8
Fresh vegetables	76.8	78.3	89.0	97.5	130.0	110.4	115.8	113.9	117.8	123.7	112.8
Preserved vegetables and vegetable preparations	97.9	96.3	97.5	94.9	94.6	96.8	94.1	93.4	97.0	94.5	92.5
Other food products	97.1	95.1	94.3	92.7	96.7	93.8	96.3	95.3	95.7	95.7	94.7
Sugar and confectionery	101.2	106.2	105.5	105.5	106.1	102.3	105.1	104.7	105.4	105.9	106.1
Fats and oils	99.6	99.1	100.2	102.2	103.4	103.4	104.5	105.3	104.5	105.4	107.6
Coffee and tea	92.5	92.4	97.5	94.9	95.8	90.7	98.4	96.0	93.7	93.7	92.3
Non-alcoholic beverages	95.8	89.0	79.4	75.4	91.0	85.3	88.0	85.5	85.5	83.3	80.3
Food purchased from stores excluding fresh fruit & vegetables	97.8	96.9	95.4	95.4	96.0	95.7	96.6	96.3	97.2	97.0	96.4

Appendix 3

Consumer Price Index for food purchased from stores, total and selected aggregates, Quebec, August 1997=100

	9709	9710	9711	9712	9801	9802	9803	9804	9805	9806	9807
Food purchased from stores	97.6	98.0	99.5	98.7	102.0	101.0	101.5	100.8	101.9	103.4	102.4
Meat	98.1	96.9	96.5	96.4	95.8	95.4	96.3	93.4	94.5	95.8	98.0
Fresh or frozen meat (excluding poultry)	95.9	96.5	95.7	96.7	93.5	96.1	94.9	93.9	94.9	95.3	98.8
Fresh or frozen beef	94.9	98.2	97.2	97.7	97.0	98.7	97.3	95.8	99.1	98.5	100.0
Fresh or frozen pork	96.4	87.8	87.2	91.4	77.6	83.9	83.9	84.6	79.7	82.3	94.4
Fresh or frozen poultry meat	100.7	95.2	97.9	94.8	97.1	95.1	99.5	93.4	94.8	97.9	100.4
Fresh or frozen chicken	100.3	95.0	97.6	95.1	97.3	93.6	99.0	92.5	92.9	96.4	99.7
Processed meat	100.6	98.8	96.9	96.7	98.1	94.2	95.5	92.4	93.2	94.9	94.7
Fish and other seafood	100.0	99.5	102.1	101.5	100.8	102.4	101.4	103.1	106.0	105.6	106.4
Fish	99.0	98.1	101.7	101.8	100.4	101.7	100.0	102.2	106.0	105.4	106.5
Dairy products and eggs	99.7	100.0	100.1	100.4	100.8	100.8	101.5	102.6	103.2	103.4	102.8
Dairy products	99.8	100.2	100.2	100.5	100.9	101.1	101.7	102.8	103.4	103.6	103.1
Fresh milk	100.0	102.8	102.8	102.6	102.6	102.6	102.7	104.3	104.4	104.4	104.4
Butter	97.3	95.9	96.9	97.2	97.3	99.1	99.7	100.9	101.2	101.1	102.4
Cheese	100.2	98.5	98.1	98.8	100.1	99.4	100.0	101.5	102.5	102.9	102.2
Eggs	99.4	98.8	99.4	99.8	99.7	97.3	99.9	100.8	100.7	100.7	100.1
Bakery and other cereal products	101.7	103.5	103.3	103.5	101.9	102.6	103.1	102.4	99.5	98.2	99.0
Bakery products	102.8	106.0	105.6	106.4	103.5	104.8	105.2	104.5	99.3	97.9	98.9
Other cereal grains and cereal products	99.6	98.6	98.8	97.7	98.8	98.3	98.9	98.4	99.8	98.8	99.4
Fruit, fruit preparations and nuts	97.0	92.9	93.4	91.9	98.2	97.3	95.3	94.1	100.9	106.8	105.8
Fresh fruit	95.4	89.1	90.7	88.0	97.8	95.9	94.6	91.7	102.1	113.3	110.7
Preserved fruit and fruit preparations	99.7	100.0	98.1	98.8	100.0	100.4	97.1	98.4	100.2	97.8	99.3
Vegetables and vegetable preparations	84.0	87.8	102.7	99.1	123.5	109.7	113.5	113.5	115.2	124.8	112.0
Fresh vegetables	79.8	84.6	103.6	99.5	132.0	113.1	118.7	118.9	121.3	133.8	116.6
Preserved vegetables and vegetable preparations	98.9	98.7	99.4	97.9	98.5	99.6	98.0	97.3	97.3	98.4	98.7
Other food products	98.8	101.9	101.8	100.3	101.9	104.4	104.3	104.5	104.8	103.3	102.7
Sugar and confectionery	100.6	108.9	110.9	114.7	114.3	115.4	115.4	115.1	115.9	114.1	106.8
Fats and oils	99.7	100.9	100.2	100.2	100.6	99.4	99.1	101.6	103.0	100.9	103.0
Coffee and tea	98.3	101.0	97.6	101.5	99.7	100.8	101.2	101.3	100.6	98.9	98.0
Non-alcoholic beverages	96.4	103.1	104.6	94.0	100.0	110.9	110.9	110.1	110.8	104.5	108.2
Food purchased from stores excluding fresh fruit & vegetables	99.6	100.3	100.0	99.6	99.6	100.4	100.5	100.0	100.1	99.9	100.5

Appendix 4

Consumer Price Index for food purchased from stores by outlet type^{1,2}, November 1997=100

	9708	9709	9710	9711	9712	9801	9802	9803	9804	9805	9806	9807
Type 1	106.9	102.1	101.7	100.0	101.9	105.4	103.4	105.6	105.0	106.6	106.2	105.4
Type 2	107.3	101.9	99.8	100.0	100.9	104.6	103.1	103.2	103.1	106.5	105.7	102.3
Type 3	105.2	99.9	98.8	100.0	100.0	106.4	103.4	103.3	101.3	102.1	104.0	102.6
Type 4			101.9	100.0	100.7	107.0	103.9	104.0	104.1	106.9	106.0	103.5
City A	106.4	101.3	100.3	100.0	100.7	104.6	102.6	103.7	102.8	104.8	104.6	103.1

¹ Prices for two of the 120 food items in the survey were not available in outlet type 4.

² Due to pricing gaps, the price movement for ice cream and chocolate bars for outlet type 3 was used as a proxy for outlet type 2 for September 1997.

Appendix 5

Percentage of price observations that increased, decreased or remained unchanged, by outlet type for City A

	9709	9710	9711	9712	9801	9802	9803	9804	9805	9806	9807
Type 1											
Increased	8.4	16.1	17.6	21.0	16.8	17.9	22.3	19.1	24.5	17.6	18.6
Decreased	17.1	13.6	17.1	15.6	12.4	16.6	11.8	15.0	14.1	12.1	16.4
Unchanged	74.5	70.3	65.2	63.4	70.8	65.5	65.8	65.9	61.3	70.3	65.0
Type 2											
Increased	3.0	11.8	18.8	13.8	17.5	17.2	14.3	13.9	12.1	13.0	10.0
Decreased	19.5	23.5	15.0	13.8	10.4	10.5	14.3	11.8	5.9	8.8	12.6
Unchanged	77.5	64.7	66.3	72.5	72.1	72.3	71.4	74.4	82.0	78.2	77.4
Type 3											
Increased	3.8	21.8	21.8	12.3	20.3	16.7	18.4	22.6	19.7	17.4	12.3
Decreased	18.7	14.7	16.4	19.1	7.2	15.9	15.0	15.0	15.0	11.9	14.8
Unchanged	77.4	63.4	61.8	68.6	72.5	67.4	66.7	62.4	65.4	70.6	72.9
Type 4											
Increased			8.5	10.2	12.0	14.8	14.5	19.7	19.7	13.7	12.0
Decreased			17.1	12.7	6.8	10.4	12.0	16.2	10.3	12.8	14.5
Unchanged			74.4	77.1	81.2	74.8	73.5	64.1	70.1	73.5	73.5
All outlet types											
Increased	6.2	16.4	17.8	16.7	17.2	17.2	19.2	18.8	20.6	16.3	14.9
Decreased	18.0	16.0	16.6	15.6	10.4	14.6	13.0	14.5	12.2	11.5	15.1
Unchanged	75.8	67.5	65.6	67.6	72.4	68.1	67.9	66.7	67.2	72.3	69.9

Appendix 6

Number and relative importance of average prices that increased, decreased or remained unchanged, by month for City A

	INCREASED		DECREASED		UNCHANGED	
	Number	Weight	Number	Weight	Number	Weight
9709	18	14.9	66	54.5	37	30.6
9710	45	37.2	76	62.8	0	0.0
9711	54	44.6	47	38.8	20	16.5
9712	50	41.3	50	41.3	21	17.4
9801	54	44.6	42	34.7	25	20.7
9802	50	41.7	49	40.8	21	17.5
9803	61	50.4	41	33.9	19	15.7
9804	54	44.6	54	44.6	13	10.7
9805	64	52.9	37	30.6	20	16.5
9806	52	43.0	41	33.9	28	23.1
9807	54	44.6	52	43.0	15	12.4

Appendix 7

Number and relative importance of basic classes that increased, decreased or remained unchanged for City A

	INCREASED		DECREASED		UNCHANGED		DECREASED > 5%		INCREASED > 5%	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight
9709	8	13.7	34	75.4	6	10.8	13	26.1	0	0.0
9710	17	42.1	28	54.9	3	2.9	10	19.9	7	14.6
9711	25	46.9	19	49.0	4	4.1	6	21.3	9	13.3
9712	20	41.2	25	53.1	3	5.7	3	6.3	4	5.6
9801	27	53.1	20	44.1	1	2.8	0	0.0	7	13.6
9802	21	50.0	22	45.2	5	4.8	7	10.2	2	2.1
9803	27	57.1	16	39.6	5	3.3	2	5.3	6	15.2
9804	22	43.4	23	52.6	3	4.0	8	14.6	3	8.6
9805	23	52.2	19	41.4	6	6.5	3	3.9	7	18.1
9806	24	44.6	19	49.2	5	6.2	4	6.0	3	3.5
9807	20	31.5	24	57.7	4	10.8	6	10.2	2	3.2

Appendix 8

Number and relative importance of basic classes that increased, decreased or remained unchanged for Quebec

	INCREASED		DECREASED		UNCHANGED		DECREASED > 5%		INCREASED > 5%	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight
9709	18	37.3	26	54.4	4	8.3	6	21.0	2	1.6
9710	25	54.8	22	44.6	1	0.6	7	14.6	7	12.7
9711	25	41.4	20	50.3	3	8.3	1	1.2	5	10.7
9712	23	54.1	24	45.4	1	0.5	5	7.5	3	4.4
9801	19	35.8	28	62.5	1	1.7	5	11.8	7	15.3
9802	27	58.1	20	36.3	1	5.4	4	9.4	4	7.4
9803	24	48.3	20	41.5	4	10.3	0	0.0	4	7.8
9804	22	45.6	26	54.4	0	0.0	6	13.3	2	5.4
9805	29	69.0	17	28.7	2	2.2	3	9.1	6	7.9
9806	26	46.4	19	46.3	3	6.4	1	3.5	7	14.5
9807	22	45.8	24	47.6	2	6.5	3	8.3	2	3.1