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AFPC **POLICY RESEARCH REPORT**

RETAIL AND WHOLESALE PRICES FOR PRODUCE

AFPC Policy Research Report 93-3

Department of Agricultural Economics
Texas Agricultural Experiment Station
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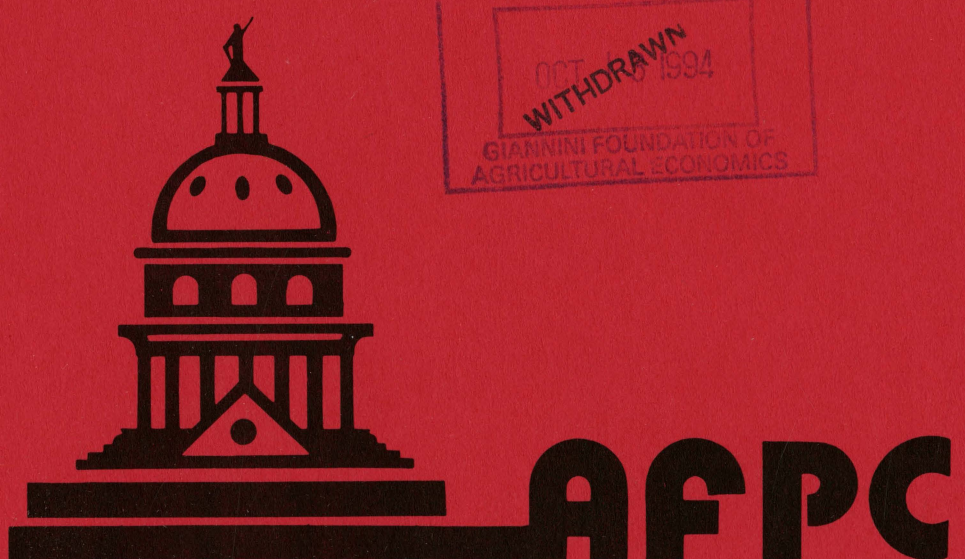

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RETAIL AND WHOLESALE PRICES FOR PRODUCE

AFPC Policy Research Report 93-3

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Preface

RETAIL FOOD PRICES

The necessity of food for everyone's well being and the special and large representation of food costs in the budget of poorer households makes food prices and pricing patterns important. Retail food prices are special in another way. Much of our food moves to consumers through supermarkets. These stores have come to be large business typically offering as many as 15,000 to 25,000 items for sale at one time. As these stores have become larger, changes have developed in pricing patterns and behavior. All items are not equal in importance to the image of the store. Prices of some items may have special roles in promoting the store at a point in time--different from their usual roles. Supermarkets are very sensitive to price levels and changes of other supermarkets. They frequently check each others prices and are constantly adjusting prices in order to maintain an image of "low prices" or "competitive prices." Since the price image is the motivation for this behavior, effort is usually expended to make these price changes visible. Most of the advertising of this industry is related to prices and price changes.

Price changes and the general pattern of price behavior that result from an interaction with other competing firms in the same industry may be called "horizontal price behavior." This is a contrast to the more traditional expectation for price behavior. Economists teach students about the role of price in adjusting the incentive for buying and selling which results from the interaction of the supply of and demand for products. Changes in price are an equilibrating device which brings harmony between buying and selling incentives in the market place. This process eventually relates the price to the cost of production of goods and rations consumption to situations in which goods have the most value. These price changes relate to the vertical channel between production and consumption and we call them "vertical price behavior."

Retail food prices reflect some combination of horizontal and vertical influences. They are unusual because there is more horizontal influence than we see in most prices. We are taught expectations for vertical price behavior, but horizontal price behavior is less well understood by experts and usually not taught to citizens at all.

Because retail food price behavior is unusual and especially important in our economy, it is the focus of a series of empirical and theoretical studies. The AGRICULTURAL AND FOOD POLICY CENTER will publish a series of studies which observe and analyze retail food prices. Titles and numbers are as follows:

PRR/93-1 RETAIL FOOD PRICING: HORIZONTAL AND VERTICAL DETERMINANTS D.I. Padberg, Ron Knutson and S.H.A. Jafri

PRR/93-2 PRICES OF PRIVATE LABEL AND NAT. BRAND FOOD PRODUCTS Hussain Ali Jafri, Trey Rogers and D.I. Padberg

PRR/93-3 RETAIL & WHOLESALE PRICES FOR PRODUCE Charles Hall, R. Hanagriff S.H.A. Jafri, and D.I. Padberg

PRR/93-4 RETAIL AND WHOLESALE PRICES FOR DAIRY PRODUCTS Ron Knutson, Joe Outlaw, Roger Hanagriff and D.I. Padberg

PRR/93-5 AFFECT OF RETAIL PRICE VARIABILITY ON TOTAL REVENUE George Criner, S.H.A. Jafri, Ron Knutson and D.I. Padberg

As fundamental data are made available, more studies may be developed.

RETAIL AND WHOLESALE PRICES FOR PRODUCE

by

Charles R. Hall, Roger S. Hanagriff, S.H.A. Jafri, and D.I. Padberg[1]

Farmers grow fresh foods which are an important dimension of the American diet. These foods, including dairy products, meat products, and produce items, are sold to consumers along with many other processed food products. In addition to our American tradition of concern about monopolistic tendencies of large firms, we want retail firms to be sensitive to market conditions. We want them to transmit the higher price signals that go with a shortage of product and pass the low prices which signal an abundance on to the consumer. If this is done, the market will work efficiently and everyone is treated fairly. If firms at the retail level are not sensitive to price changes or signals, a market glut can be disastrous and detrimental to growers and others in the food system.

The "market flexibility" factor is not equally important for all foods. Many food products which come from large manufacturers are more like industrial products--even though they have some agricultural inputs. Highly manufactured food products are typically more storable and the rate of production is more controllable.

Because of these reasons, there is less likelihood of a market glut due to alternative solutions which minimize loss to market participants. We do not need great flexibility and price sensitivity in the retail handling of cornflakes, for instance. The relatively few and very well informed producers can, and will, adjust production and inventories to meet the rate of sales with ease. Fresh produce items such as sweet corn or bell peppers are different. Prices must move up and down with supply and demand conditions throughout the season or the shortages and surpluses will cause spoilage and financial losses.

While there will always be concern and caution regarding the potential and prospect of monopolization in food retailing, that question has been studied extensively (Padberg, 1992). From this list of studies, we have a rather developed basis for making judgements about how the large firms are or are not being competitive with each other. There is less research, however, as to the extent that large firms are sensitive to price signals in the markets for the many products they handle. These large firms are very responsive to each other. There is much price movement in this interactive rivalry and evidence that the rivalry is real, aggressive and life threatening to the retail competitors. But, among all of these observations, there are no extensive efforts to measure retail price movement and

[1]The authors wish to express appreciation to the following students who collected price data throughout this project: Charles Herring, Layne Knipe, Steve Witten, and Clay Schoolfield. Financial support for this project was provided by the Tarleton Research Mentor Program.

discover its determinants. That is precisely the purpose of this study.

Essentially all of the public data which reports retail prices for food products are either aggregates or estimates of aggregate prices. There is almost no data showing price movements within individual stores. For this reason, we know very little about these patterns. This study attempts to identify and assess these interactions. For this reason, we have collected prices from four to six major retail firms in each city. Data have been collected from Dallas and Houston (Cities A and B in the charts) and from College Station and Stephenville (Cities C and D in the charts). Students from Tarleton State University and Texas A&M University gathered price data under supervision of faculty members.

This publication reports price data collected over the past year. It is our hope that in addition to learning more about food retail price behavior, we will also learn about developing accurate retail price data. It is also expected that we will be able to determine similarities and differences in pricing patterns in each city. Stores are assigned a unique classification number. For example, if Kroger is number *n* in City A, it is also *n* in City B. This may help determine whether behavior is driven more by the firm or by local competitive interaction. Some of these environments are strong in national chains, others independents, while local chains are of different importance in each. Stores which entered during the data collection period were added in some cases. Where two stores from which data were being collected merged, we picked up another firm.

The wholesale and grower prices were obtained from the Crop and Livestock Reporting Service which, monitors the Dallas wholesale produce market and grower F.O.B. prices in major production regions in Texas. It is complex to relate the wholesale price to the retail prices of the stores we have monitored. In most cases, these stores--especially the larger firms--buy directly from packer-shippers in the production region. In addition to receiving fresh, high quality product from that source, they may also benefit from price advantages. This wholesale price series does not accurately represent the *wholesale prices for these firms*--as would be needed if we were studying margins. What the wholesale price series does for us is define the timing and approximate magnitude of price breaks--up or down. This is useful in studying responsiveness, whether or not the implied margin is valid. Because of the incomparability of these data, we do not measure margins. None the less, it is interesting to see retail prices sometime go below the "wholesale price."

OBSERVED PRICES

Several factors affect the patterns of retail food prices. An important one is the cycle of weekly promotion and (newspaper) advertising. Because of this cycle, a new pattern of prices is developed by the management which is put into operation usually on Wednesday with advertisements that usually cover the week's end. A major share of the week's sales is made on Friday, Saturday and Sunday. Since the major pattern of price changes occurs weekly, we chose to collect weekly prices. Prices were collected on either Friday, Saturday or Sunday. We were interested in the behavior of retail prices in response to changes in

price at the wholesale and grower level. Since these prices move primarily in response to seasonal and other "growing season" influences, they may not move quickly and they may have only one or two significant changes in a year. For this reason, many weeks of data are required to get a full sense of how the price series relate to each other.

The study began in September of 1991 and continued until August of 1992. This totaled around forty-nine weeks of information. Some stores that began the project were closed down. For the most part these stores were closed at the beginning of the study so that new stores could be added. In the Houston area, Kroger was added late in the project and only twelve weeks of data was collected for that location . The Houston Fiesta location closed during the project, but another Fiesta was located just eight miles away. The week of February 14 was the first week of collection at the new Fiesta store. The store is in a different part of Houston and serves a different group of customers so there could be a different levels of service and/or pricing philosophies.

Six stores in Bryan-College Station area were included in the study consisting of Kroger, Winn-Dixie, HEB, Randalls, Appletree, and Foodtown. Each store illustrates about the same quality of produce. Foodtown's selection was not as broad as the other stores, but represented quality produce nonetheless. The study also consisted of five stores in the Houston area. The Houston stores include Kroger, Randalls, Appletree, Fiesta, and Holiday Foods.

Prices were collected for thirteen individual produce items. Each retail-level price was observed at the stores. The wholesale and grower prices were given by a terminal market located in the Dallas area. Produce items were chosen for this study for several reasons. Produce is an important component of Texas agriculture and is growing in popularity as it is consistent with the new and emerging dietary guidelines and eating habits. While there are important processing vegetables, our concentration is on fresh produce. We expect the market price to be effective in regulating and balancing production and consumption. Unlike more processed foods, produce comes directly from the field with less control over production--especially within a season. It is perishable and not typically storable. For this reason, it is important that the retailers are able to function as a part of the price signal system. Great losses may result if prices are inflexible.

Missing data are the result of some stores not stocking the item on the day data were collected. In Towns A&B, there were 197 (or 3.1%) missing price quotes. More than half of these (116) were related to spinach. While spinach is an important crop for Texas, it is primarily marketed to the processing industry. There are several months in which there are no local supplies and uncertain availability from other regions. In charts comparing store prices within a city, points on each side of the missing week are connected in the plot. The result is like interpolating between these points. Spinach was included in these charts because the resulting presentation still gives an indication of price behavior in this item. Where prices were used in averages, spinach was deleted because of the missing information. The remaining missing elements represented 1.4% of the sample of data. Almost half of them were related to the smallest retail firm in City B. Where prices were used in

averages, an estimate of the missing price was put in by interpolating between the points on either side of the missing element. This choice may have dampened the price variation of this one store somewhat but would have negligible effects on others.

PRODUCE ITEMS

1.APPLES

The apples in this study were large Washington Red Delicious. Apples that were large in size and of fresh quality were always available. Occasionally the price was quoted in price per apple. In this situation, average weight was calculated for converting the price to price per pound. The wholesale and grower price information is quoted in forty pound crates ranging in size from 72's to 90's. The price is then converted to price per pound to enable direct comparisons.

2. BELL PEPPERS

Prices for bell peppers are quoted on a per pepper basis. The price for the grower and at wholesale for bell peppers was quoted per one and one-ninth bushel. This measure for a medium bell pepper weighs about twenty-eight to thirty pounds. The Federal Inspection Service requires that a medium bell pepper crate of one and one-ninth bushel have a count of 90-100. So the average of 95 count is used to divide into the wholesale and grower price to obtain price per pepper.

3. BANANAS

Bananas are priced on per pound basis at the retail level. The stores typically sourced bananas from Central American, except for Fiesta. Some stores would carry the bananas from Mexico for a period of time and then switch back to Central American. The wholesale price is based on forty pound units. The wholesale price collected is the Mexican and Central American price. This quotation covers the majority of the origins of the bananas sold at the retail stores where prices were collected. There was no grower price quoted for bananas.

4. BROCCOLI

The Broccoli was priced at the retail level on a price per bundle or bunch basis. All of the stores exhibited the same quality of broccoli. The broccoli price for the grower and wholesale level is quoted in price per fourteen bunches. This price is then converted into a price per bunch to make direct comparisons.

5. CABBAGE(RED) & (GREEN)

The price for cabbage at the retail level was collected on a per pound basis. The price for red cabbage usually exceeds the price for green cabbage at the retail level as well as the wholesale and grower level. The wholesale and grower prices are quoted in the prices per fifty pound unit. They are of medium size, which is the largest type of continually available terminal market information. This price is then converted into the price per pound of cabbage.

6. CARROTS

Carrot prices were collected for the packaged type which are usually available at all stores. The two-pound package of carrots are the type used in the study. So if the store sold packaged carrots in some other measurement than two pounds, that price is then converted into a price for a two pound package of carrots. Most of the stores either have the two pound or a one pound bag. The Fiesta store uses five pound bags, which may explain some of the store-to-store variation. Since this factor did not change through time, it did not affect the variation over time. The wholesale and grower information quotes a price by twenty-four two pound bags of packaged carrots. A conversion is then made to equate the price for a single two pound bag of carrots to use in comparison.

7. CAULIFLOWER

The prices collected at the retail level for cauliflower refer to the price per head. Cauliflower is not always available in every store, but when it is available the quality is comparable. Cauliflower is frequently wrapped to preserve freshness. Sometimes cauliflower would not be wrapped, but the price would still remain about the same. The wholesale and grower prices are quoted for twelve wrapped heads of cauliflower. That price is then converted into a price per head for comparison.

8. CUCUMBERS

Retail cucumbers are priced on a per cucumber basis. These are the medium cucumber type, which is typically offered. Each store carried comparable quality of cucumbers. The price for cucumbers at the grower and wholesale levels is quoted on a one and one-ninth bushel basis. Information from the Federal Inspection Service indicates that there are approximately thirty-nine cucumbers in a twenty-four pound crate. That information was used to estimate the grower and wholesale price per cucumber.

9. LETTUCE

Lettuce at the retail level is priced on a per head basis. Lettuce for the most part is wrapped and the quality is similar across all stores. The wholesale and grower prices are quoted for twenty- four wrapped heads of lettuce. This price is then converted to a per head price at the wholesale and grower level for comparison.

10. POTATO

The potatoes used in the study are Idaho Russets and are priced on a per pound basis for loose Idaho Russet potatoes. The retail stores for the most part all have these potatoes in bulk, but the Fiesta store only sells the five pound bag of potatoes. This variation makes a price difference and therefore the information on potatoes at Fiesta may not be strictly comparable with the other stores. All of the other stores sold comparable quality and size of potatoes.

The wholesale and grower price is quoted for Idaho Russets Bakers with a size range of 70's to 80's in a fifty pound carton. This price is then converted to a per pound price basis for comparison.

11. SPINACH

A ten ounce packaged bag of spinach is used in this study. This product is not available year round at some stores. The quality, when available, is very compatible, but the availability at the retail level remains a problem.

The wholesale and grower price information is based on a twenty-four count of ten ounce packages of spinach. The price is usually available at the wholesale level, but the grower price information is less available. The price is given in a range at the wholesale level of California packages and Texas repacks. This information is then converted into a price per ten ounce bag for comparison.

12. TOMATOES

Price per pound for large tomatoes was collected. The wholesale and grower information was given for a large mature tomato in a twenty-five pound crate. This price could then be converted to the price per pound and used in comparison. The availability of the large tomatoes was fairly consistent. The stores usually had tomatoes, but not always large tomatoes. During the course of this study, Florida had considerable whitefly problems impacting their tomato crop. In fact, the whitefly and related viruses cost Flortida growers $141.4 million in losses and control expenses from the fall of 1990 until the spring of 1991. This, of course, translated into substantial price swings during this period. These data are shown in Charts 1-46.

ASSESSMENT OF RETAIL PRICE BEHAVIOR

Retail prices of individual stores are plotted together with wholesale and grower prices in Charts 1-46. Each chart represents prices of a particular produce item in surveyed stores in a city. There is generally a great deal of variation. We are not used to seeing retail prices for individual stores. Public price data are usually aggregates or estimates from samples taken. Such data are gathered and published to convey the central tendency of price level at retail. Because we are familiar with this type of retail price data, it is something of a shock to see price series with such variation. There is variation over time and variation between stores at a given point in time. Some items seem to have a different role than others. Bananas and lettuce seem to exhibit excessive variation probably caused by many price specials as compared with other items. However, most items show some degree of price variation.

Relation to Wholesale Price

One of our interests is to see to what extent retail prices are affected by supply and demand. The retail price needs to cooperate with the equilibrating process within the market. If that is working properly, there would be a high correlation between price movements at the retail and wholesale levels. It would seem that we could easily test that question by measuring the correlation (r^2). Figure 1 shows the simple average of correlations across ten stores of the wholesale vs. retail prices for the indicated product.

While this process gives interesting results, it is less than a perfect measure.

Take a situation where the wholesale price is constant (apples are a good example). Correlation cannot be very high, because the wholesale price, at a constant level, cannot explain any of the movement of the retail price. Conversely, a product where the wholesale price doubles and triples is likely to have a higher correlation with retail. With such a large movement of wholesale price, retail price is likely to respond even if it is normally pretty insensitive (tomatoes, for example). Although some of the correlation between wholesale and retail is caused by the behavior of the wholesale price, there is still an indication in these data that some commodities are more closely linked to wholesale prices than others.

Figure 1 shows bananas and apples with correlations of about .10. There is some variation in the wholesale price of bananas, and it is apparent from Charts 5-8 that the retail price shows exceptional variation. This is a good example of horizontal (competitive interactions with other stores) influences being much more important than vertical (supply and demand, as transmitted by the wholesale price) influences in retail prices. Bananas make a good price special. These stores use them for specials often. Even though there is great variation through time, advertised price specials may not explain all of the variation. Certainly it is not explained by supply and demand. Apples also have a low correlation, but it may be largely because the wholesale price is so constant. There is clearly some retail price variation motivated by horizontal determinants. If we had a year with more wholesale price movement, the correlation might be at an intermediate level rather than one of the lowest.

On the other end of the spectrum, tomatoes, potatoes and red cabbage were noticeably more correlated than the others. It is not easy to interpret these. They may be less functional as price specials. Potatoes are often sold in bags--more like a commodity than a product. The tiny volume of red cabbage makes it unattractive as a special. The wholesale price of tomatoes more than tripled in ten weeks, lifting the whole price structure (Charts 37-40). After the rise, prices returned to earlier levels. This period of fifteen weeks, or so, may have a different correlation than the following period where retail prices seem almost independent of wholesale price. In a usual year(absent the massive wholesale price movement) tomatoes might be more intermediate in correlation. By comparing the patterns for bananas (Charts 5-8) with those for tomatoes (Charts 37-40) it is easier to see that the retail price for bananas is more volatile than that for tomatoes. Despite other factors, tomato retail prices are more influenced by vertical factors, and bananas are more influenced by horizontal factors.

In the middle, there is a group of products where correlation is about .20 (carrots, broccoli, cabbage, bell peppers, lettuce, cauliflower and cucumbers). In these more typical produce items, wholesale price has some influence, while stores feel free to move the retail price around as they please. Much of the variation is in response to other competing firms at retail.

Price Differences between Cities

If retail food prices are importantly determined by horizontal influences, it should be possible to see effects of this

behavior in comparing prices between cities. The main component of horizontal price influence results from stores making price checks of each other and matching prices. Prices in one city, for example, Houston, might experience some competitive event which start prices of dairy products in a downward spiral. As one store advertised their newest offering, others would see an opportunity to do one better, causing the whole price structure to decline. While all of the attention is on dairy prices, produce prices might rise. Or the attention might be on lettuce and tomatoes while apples and bananas are not emphasized. In the previous charts, there is evidence of this kind of activity.

A result of this activity would be that a product with low prices in one store in a city is likely to be matched by others while prices in another city would likely be on a completely different pattern. Cities A,B,C and D are Houston, Dallas/Fort Worth, College Station and Stephenville (not in that order). Dallas/Fort Worth is 300 miles from Houston. While College Station and Stephenville are less distant from each other and the larger cities, they are none-the-less remote from these large cities. It is unlikely that cycles of leadership/followership, as those just described would be in harmony across these different locations. In Charts 47-55, each line represents the simple average of four or more stores in a particular city. Products are chosen to include some on each end of the "wholesale/retail correlation" spectrum discussed above.

All of these price lines are more stable than prices in a single store. Even so, they show significant swings. While there is frequent similarity between cities, there are many instances of quite separate and distinct behavior from one city to another. In some cases two or three of the cities will have very similar prices while the fourth shows a completely different pattern for several weeks. These data seem to reflect many examples where the price rivalry in a particular market has more effect on prices than supply and demand conditions. At this point, this is more of an intuitive proposition than a scientific test. In later publications we will test these questions more scientifically.

Market Basket Comparisons between Cities

Because of a slightly different list of products in some cities (two cities did not include lettuce and red cabbage) and because spinach was dropped out due to extended periods when it was not available in many stores, we have only nine items to put in the "market basket". These are apples, bananas, bell peppers, broccoli, cabbage, carrots, cauliflower, potatoes and tomatoes. By making a market basket of these items, we are able to see how similar or different produce margins are between stores within a city. In a situation where prices represent equilibrating market forces (vertical factors), we would expect these aggregate prices to be similar between stores. If these market basket prices are different from store to store, is must be because of some characteristic of retail competition, because they all face the same conditions at wholesale. These data are the best estimate we have of the pricing goals for the produce department. While these items are a small number compared to the several hundred items in produce, these are all significant items and represent a very large share of produce sales.

In City A, Store 2 drops below the others for three or four months, then rejoins

the group. Although City B is notable for the compactness of the pattern, there are two or three instances of a departure from the group for three to six weeks. City C is compact while City D is compact early in the year, diverse in the middle and separates into two patterns in the latter weeks of the year. Unlike a Rorschach Test, there is no particular significance to these patterns. It simply demonstrates the amount of latitude retailers have in retail pricing. Many of these differences are 15% of retail price. Certainly there is nothing in wholesale prices or store costs that would explain these temporary variations in the price of significant groups of produce items.

Prices for Same Firm, Different City

It has often been observed that chainstores may have similar price behavior in different cities. This data set allows some intercity comparisons of prices within stores of the same chain. Stores 3 and 4 in City C and D are considered. Prices of bananas, lettuce and cauliflower are compared between cities for Store 3 and Store 4. For Store 3, banana prices are the same 15 of 49 weeks. Lettuce prices are the same 31 of 49. Cauliflower are the same 32 of 49 weeks. For Store 4, the similar prices occur for bananas-24 of 41; lettuce-22 of 41 and cauliflower-23 of 41 (a store was opened the 9th week of the study, enabling the comparison for 41 weeks). Almost half of the time, prices were different. Charts 61-65 show that sometimes the differences were temporary price specials and sometimes different price levels. Sometimes price specials were the same time and depth, while in other cases they were different.

SUMMARY AND CONCLUSIONS

This study presents a large amount of retail price data--displayed in several different ways. Our purpose is to observe retail prices in detail and develop an intuitive feeling for their dynamics, volatility and patterns of behavior. The central question we have addressed concerns whether retail food prices are a part of the conventional supply and demand story our students are told in class. Or, are retail food prices a part of a very complex competitive interaction between supermarkets relating to price images and store promotion?

In an informal way we come to the conclusion that the answer is: both. Certainly, the classic equilibrating role of price is reflected in these data. At the same time, if you try to explain these prices as a part of supply and demand, you find a lot of unexplained "retail price noise." We believe this noise is a natural part of food retail competitive behavior. These data are convincing illustrations of the influence of the competitive interaction between retail firms upon retail prices.

Perhaps we have emphasized these horizontal patterns more than show a balanced picture. The reason for this is because this behavior is not generally understood. It is not mentioned in the textbooks. Many "experts" have little sense of this behavior since it is relatively new.

Again, our purpose is not to judge this behavior, rather it is to describe it. At the present stage of our studies we associate it with the following attributes:

- It is a reflection of firm rivalry in seeking consumer patronage.
- It reflects the economic power of retail firms.
- It may be substituted for price behavior which could be more effective in clearing markets.
- It does not add particularly to costs.
- It is not exploitive of either the consumer or the producer.
- While there may be negative impacts for the producer; there is no evidence to suggest that this was intentional.

These assessments are tentative and may be added to or subtracted from as our study proceeds.

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FIGURE 1. CORRELATION BETWEEN WHOLESALE AND RETAIL PRICE

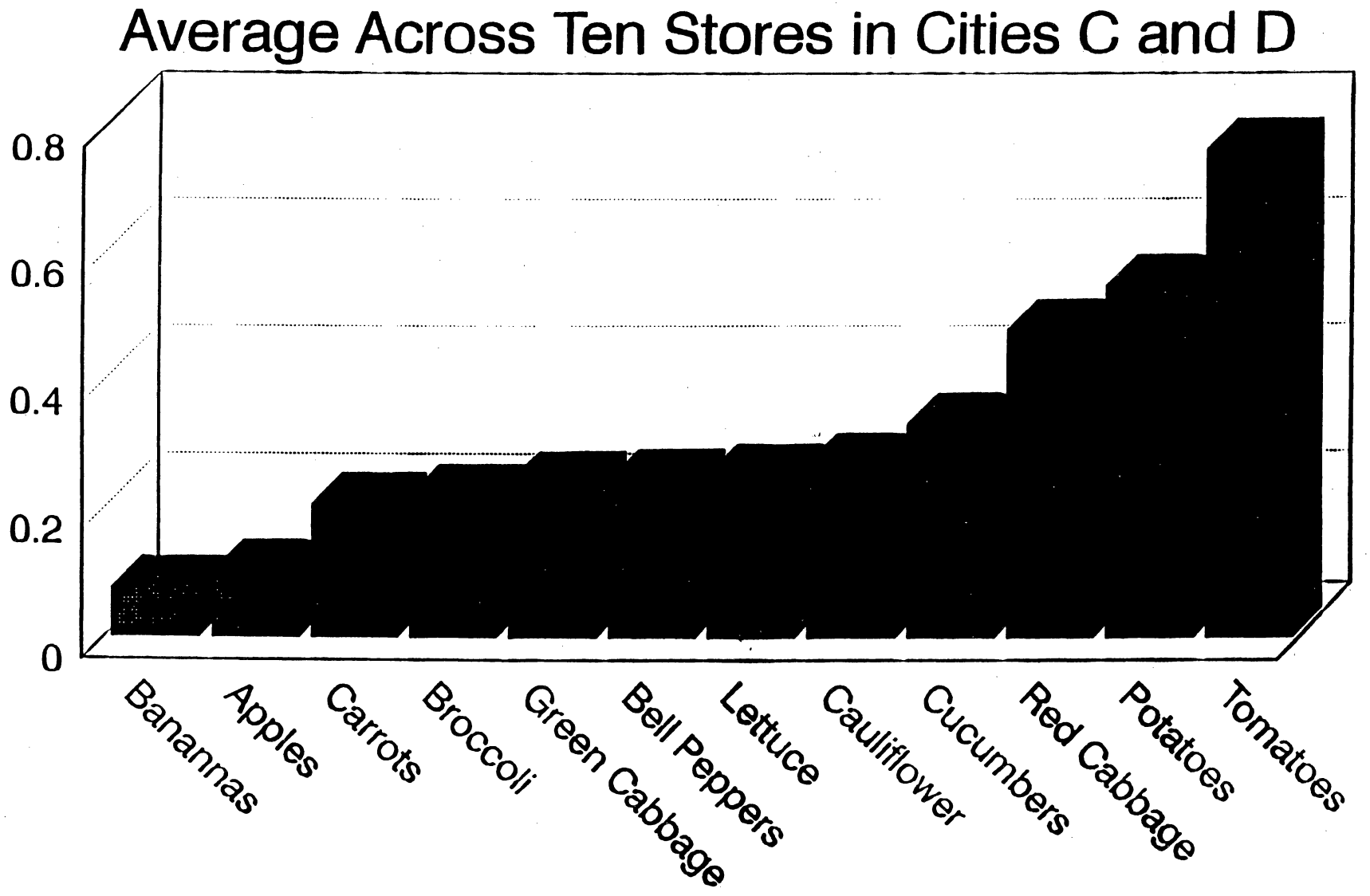


Chart 1. APPLE PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

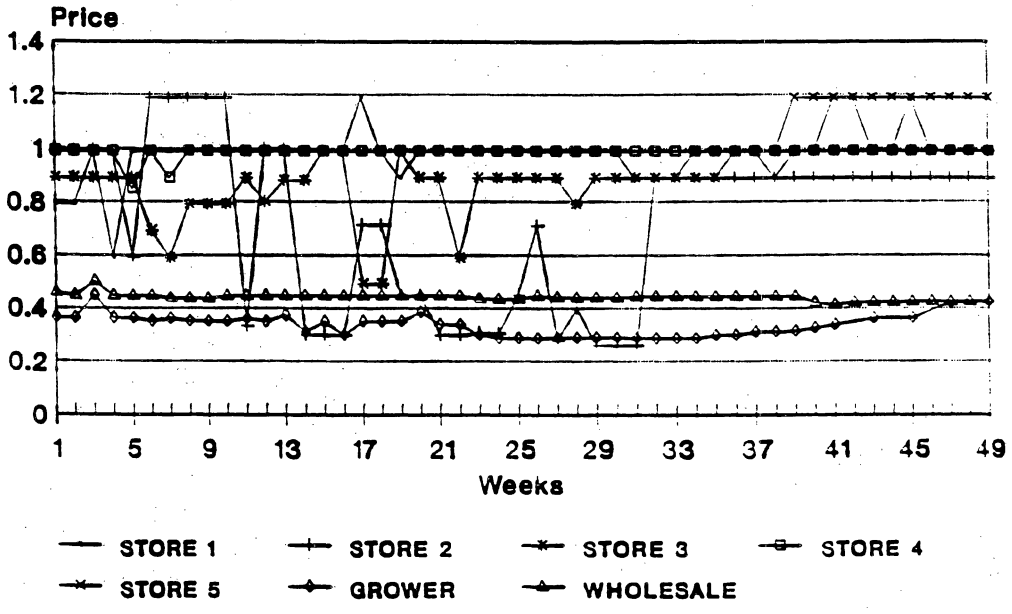


Chart 2. APPLE PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

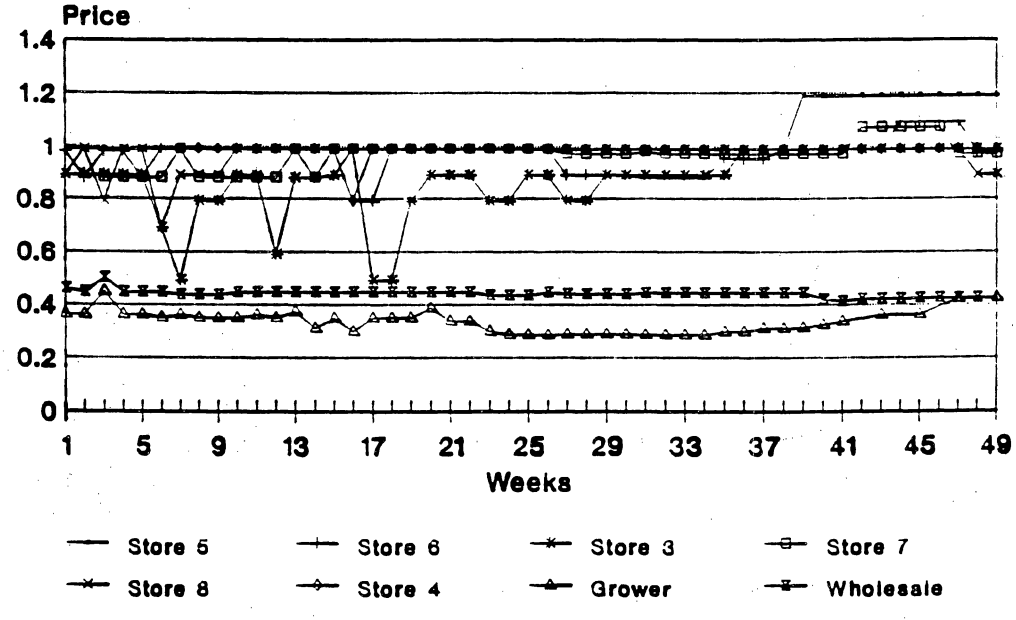


Chart 3. APPLE PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

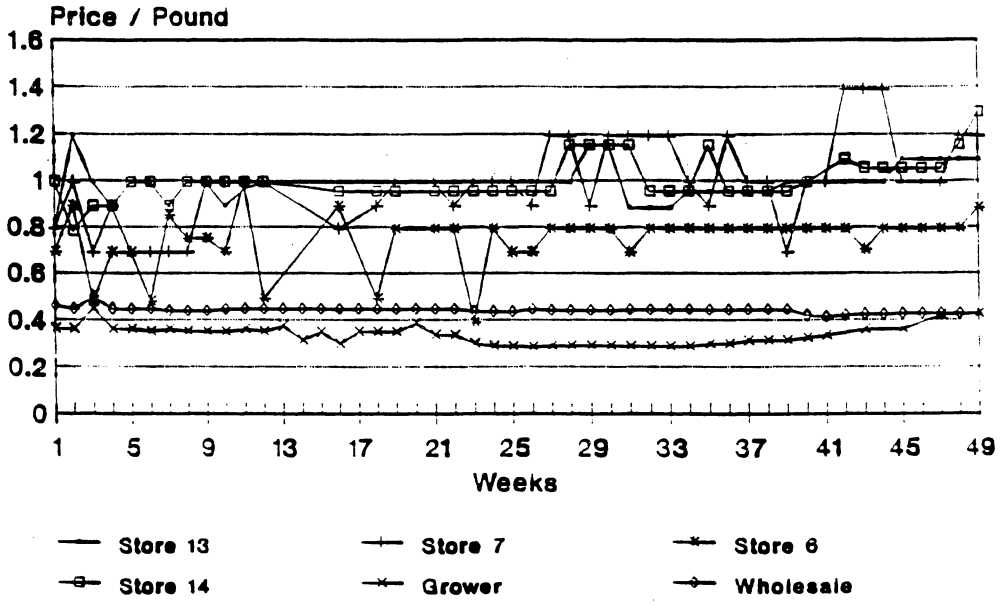


Chart 4. APPLE PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

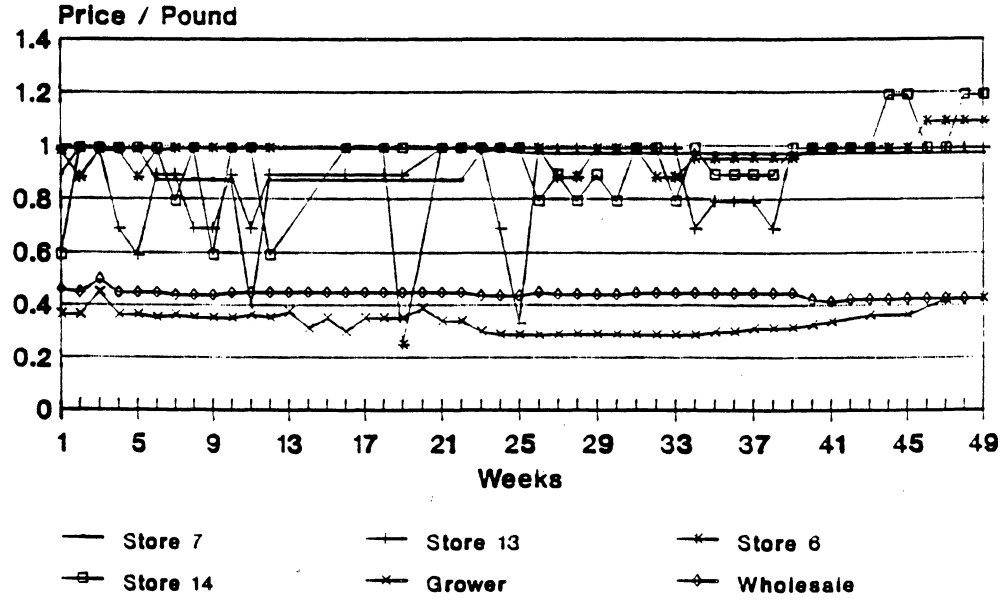


Chart 5. BANANA PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

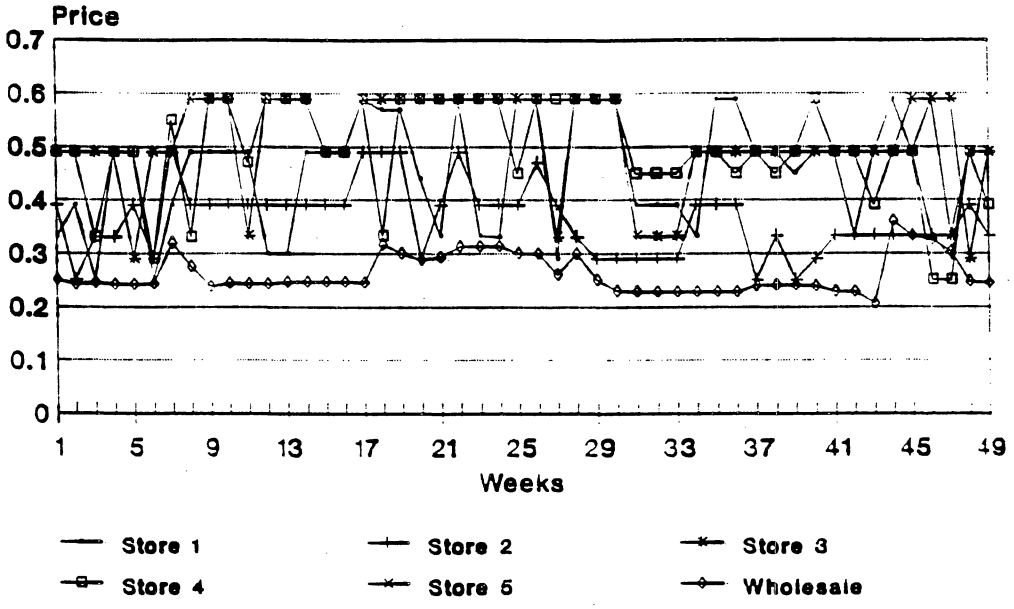


Chart 6. BANANA PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

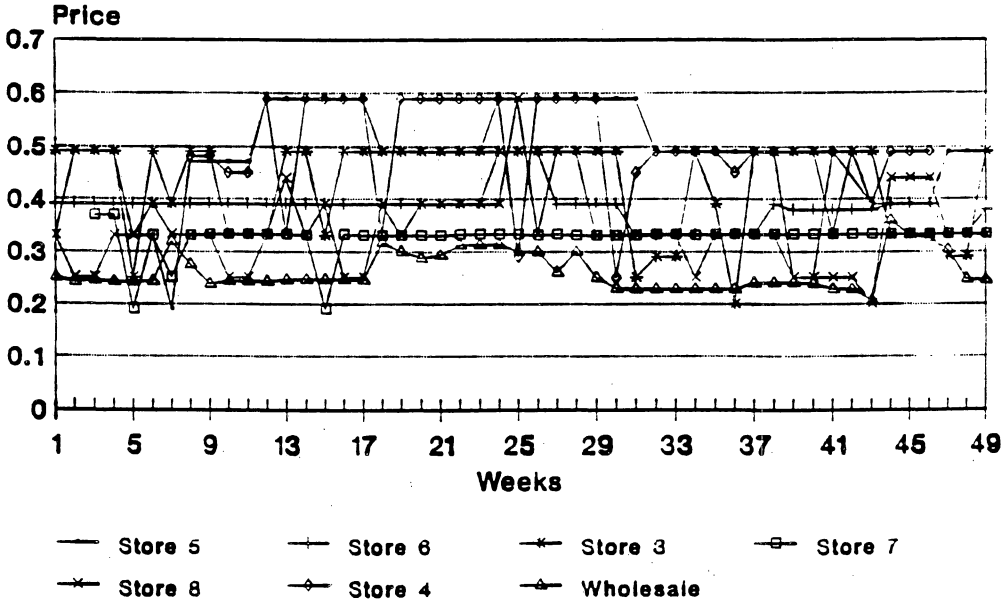


Chart 7. BANANNA PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

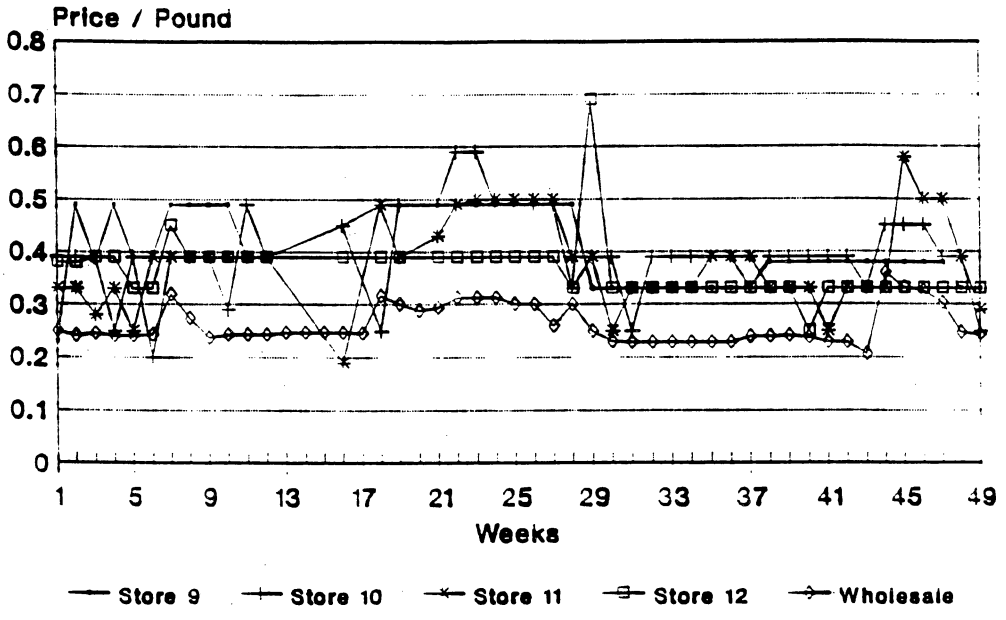


Chart 8. BANANNA PRICES, CITY D

Weekly Prices, 49 Weeks, 1991-92

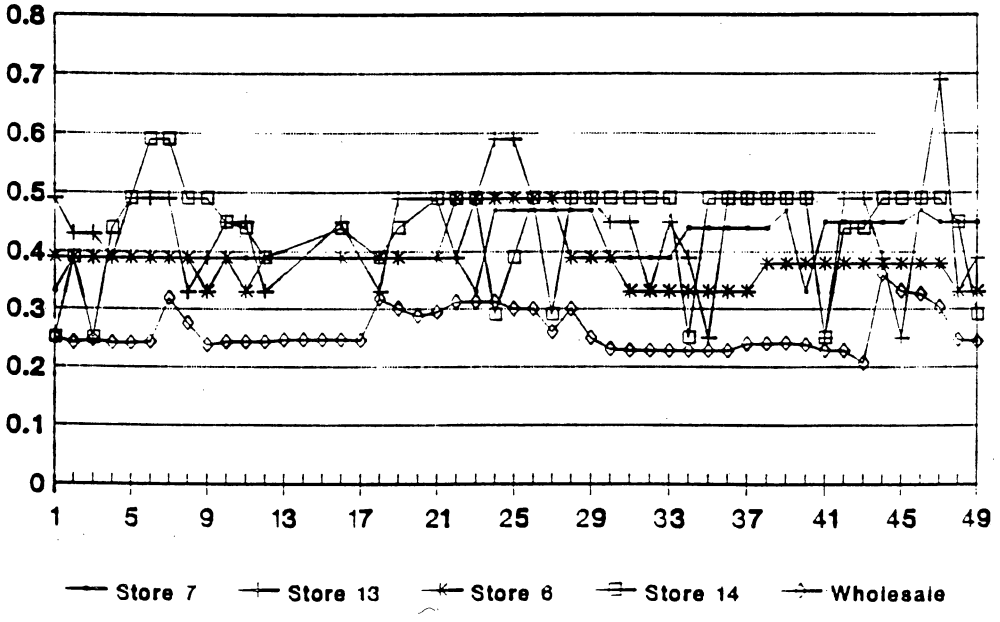


Chart 9. BELL PEPPER PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

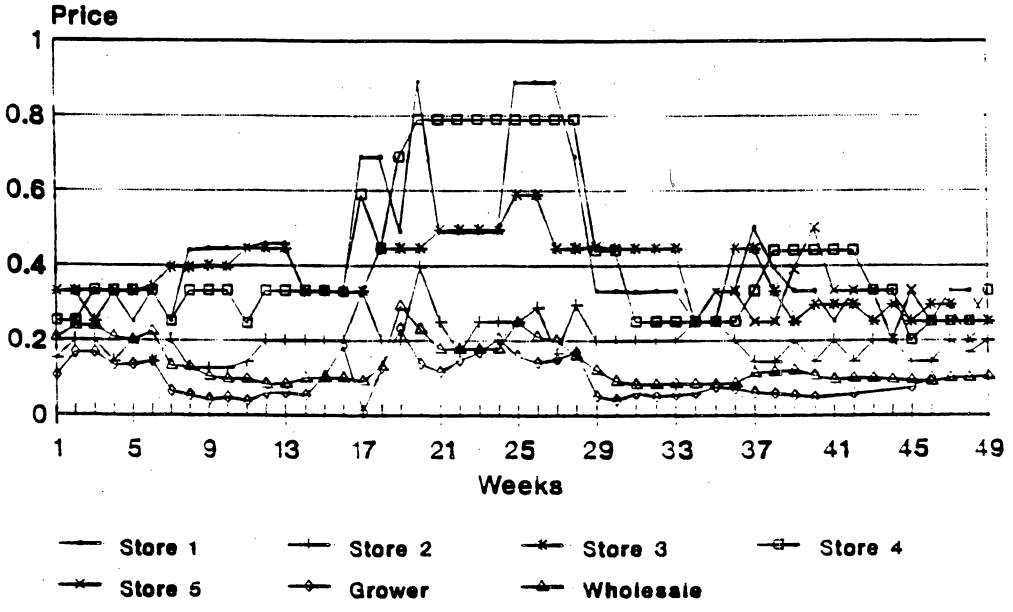


Chart 10. BELL PEPPER PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

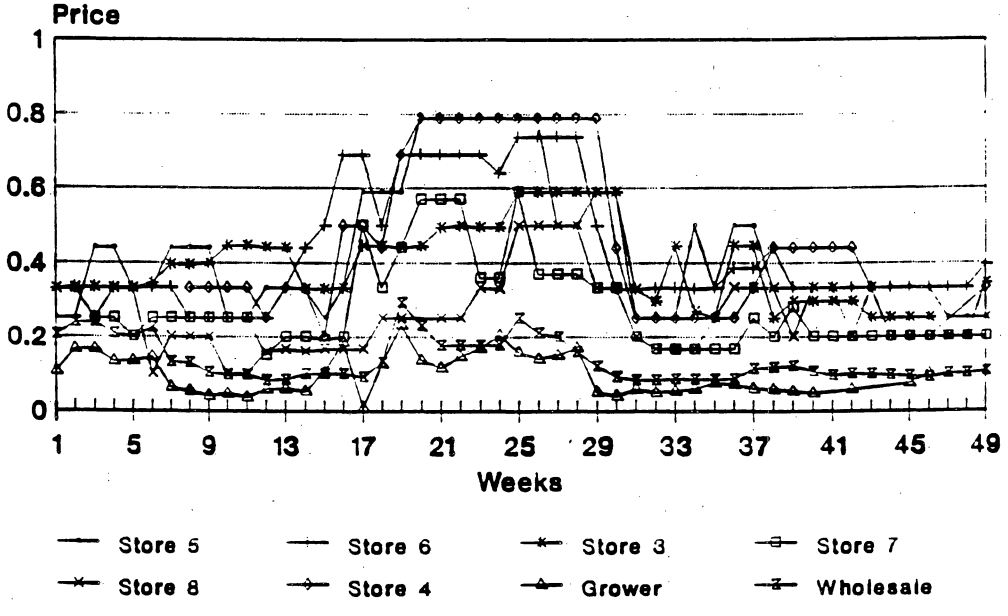


Chart 11. BELL PEPPER PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

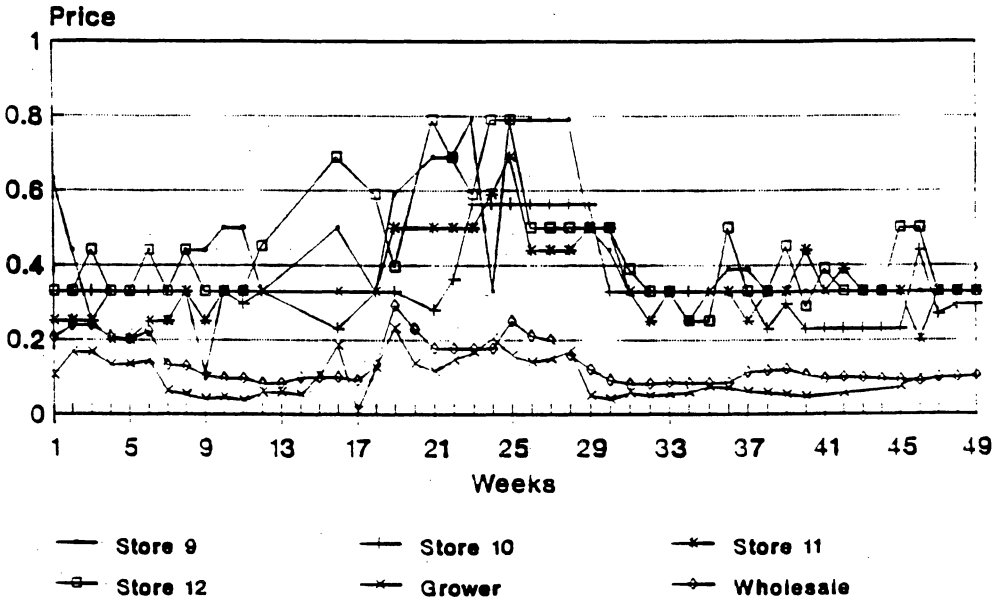


Chart 12. BELL PEPPER PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

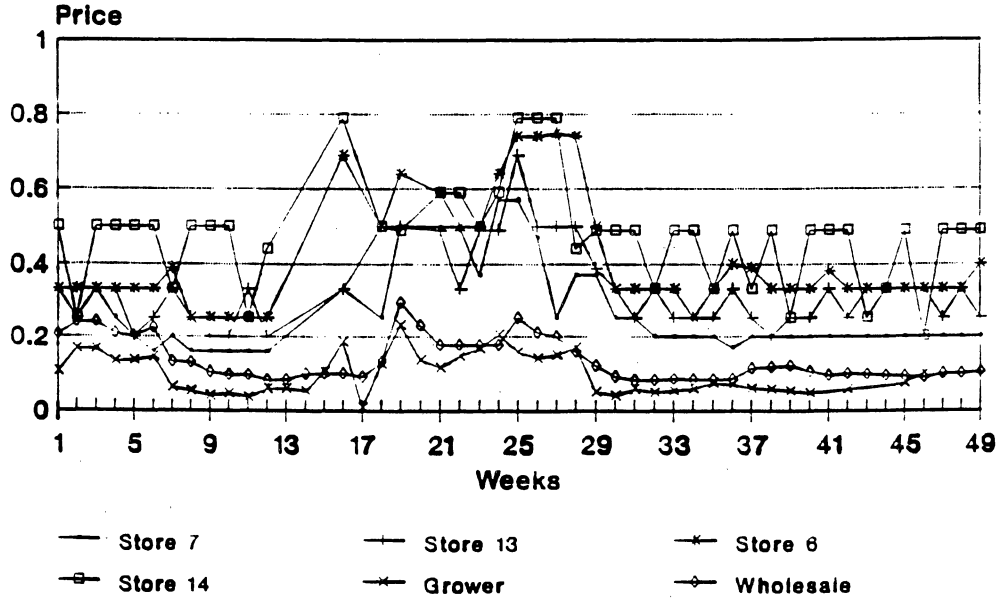


Chart 13. BROCCOLI PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

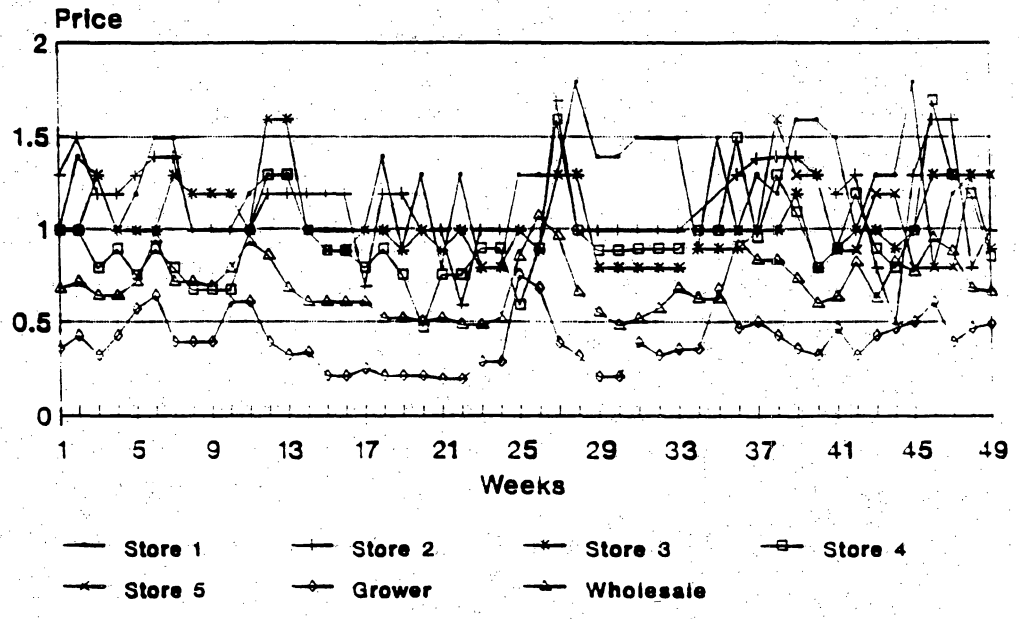


Chart 14. BROCCOLI PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

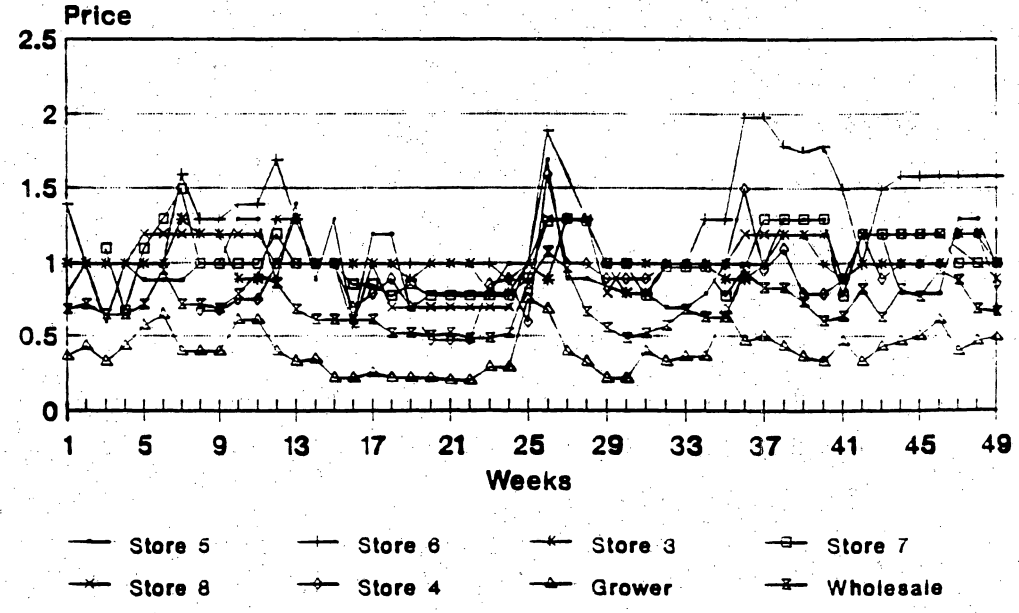


Chart 15. BROCCOLI PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

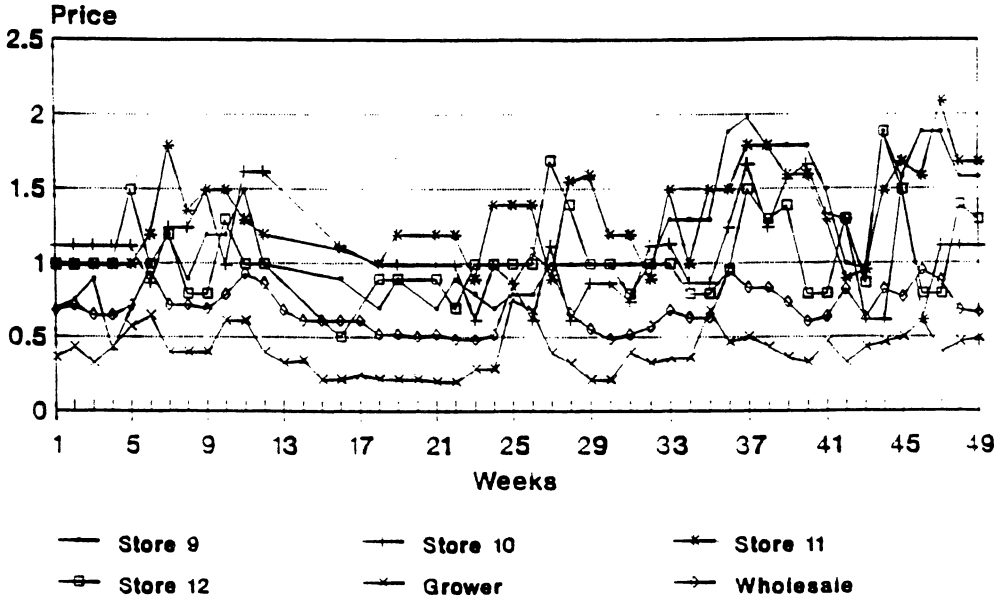


Chart 16. BROCCOLI PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

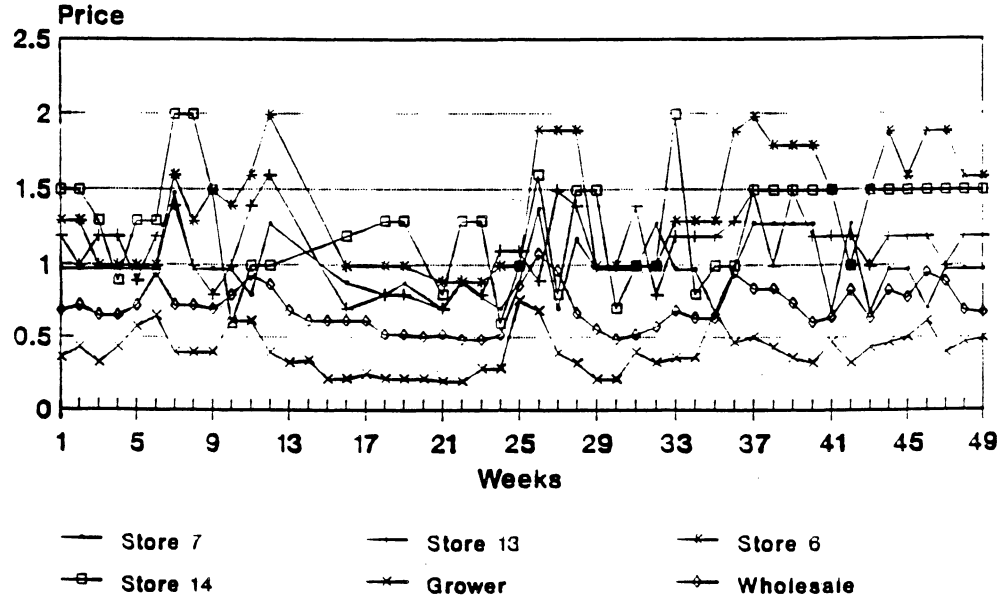


Chart 17. CABBAGE PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

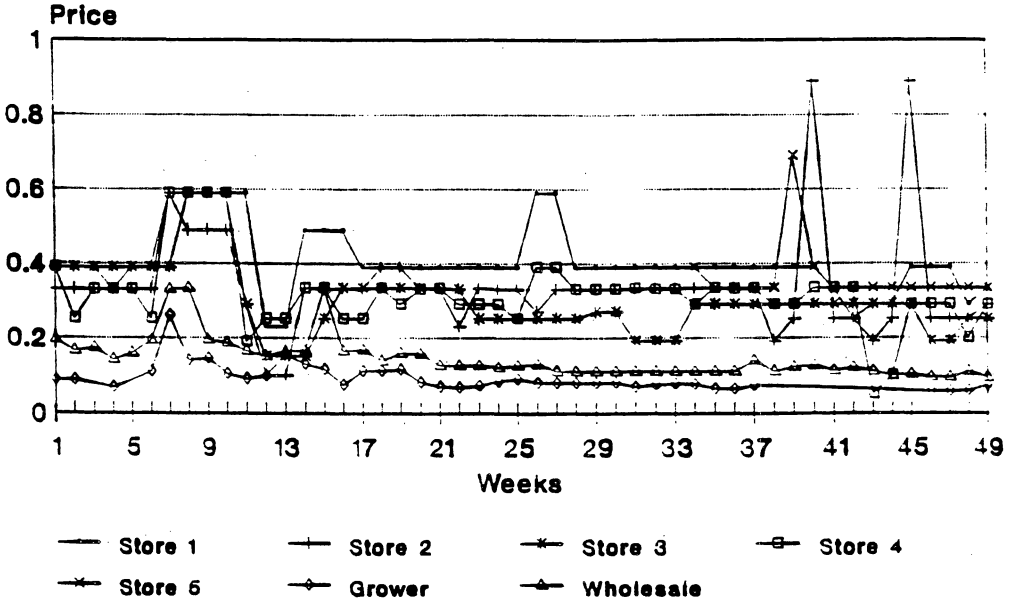


Chart 18. CABBAGE PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

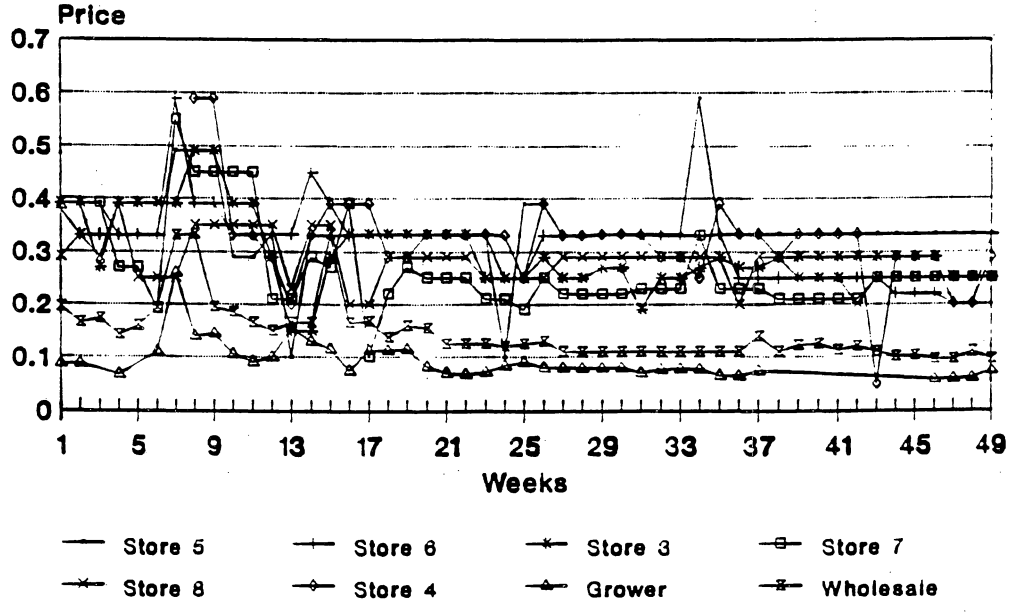


Chart 19. CABBAGE PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

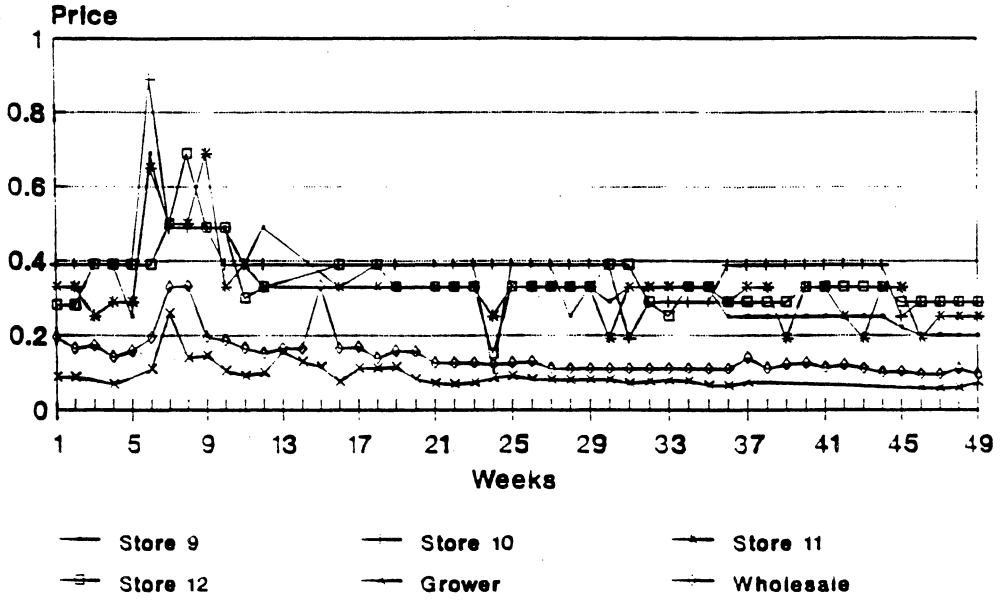


Chart 20. CABBAGE PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

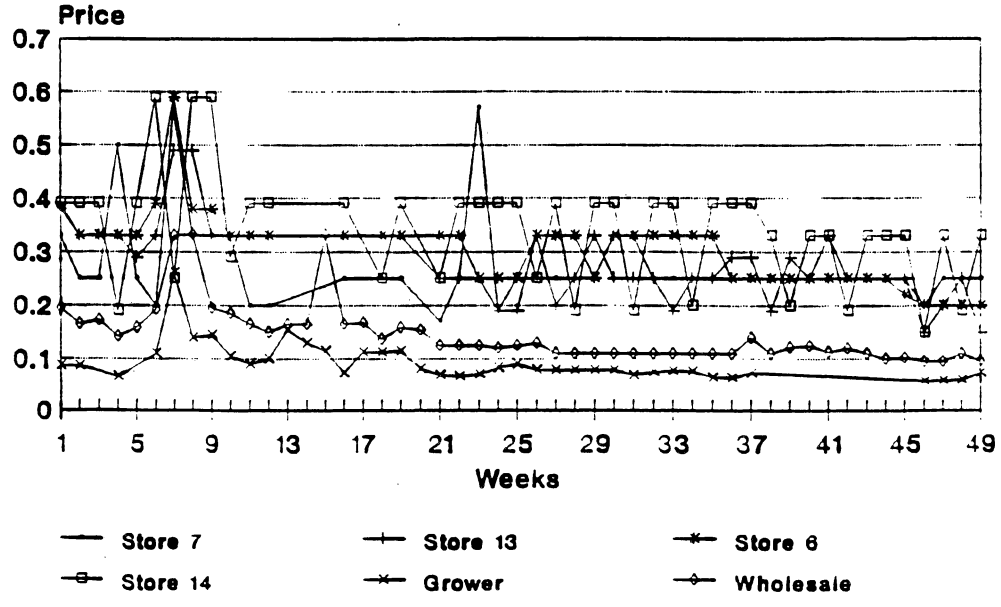


Chart 21. CARROT PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

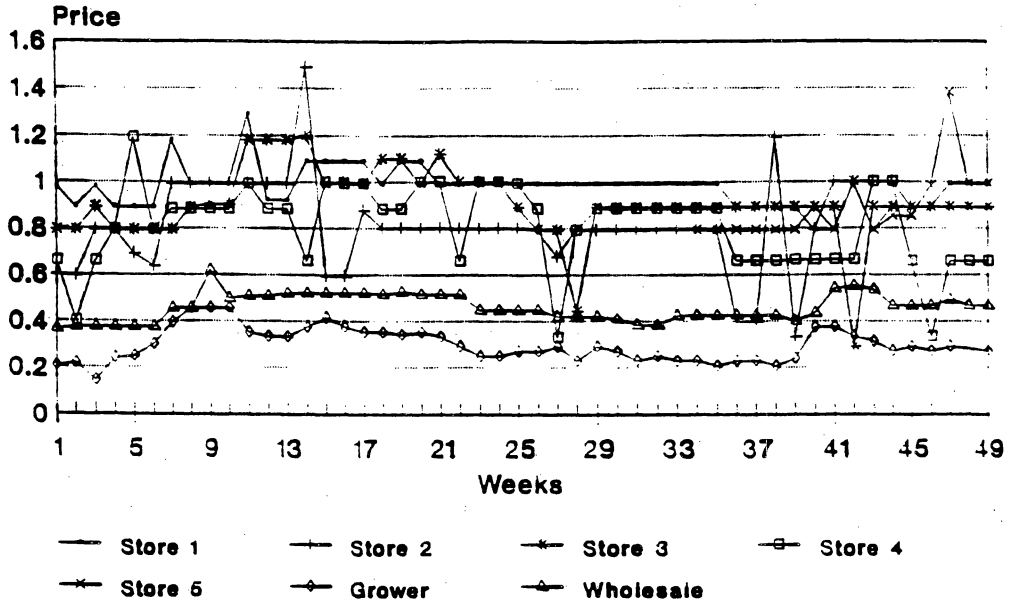


Chart 22. CARROT PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

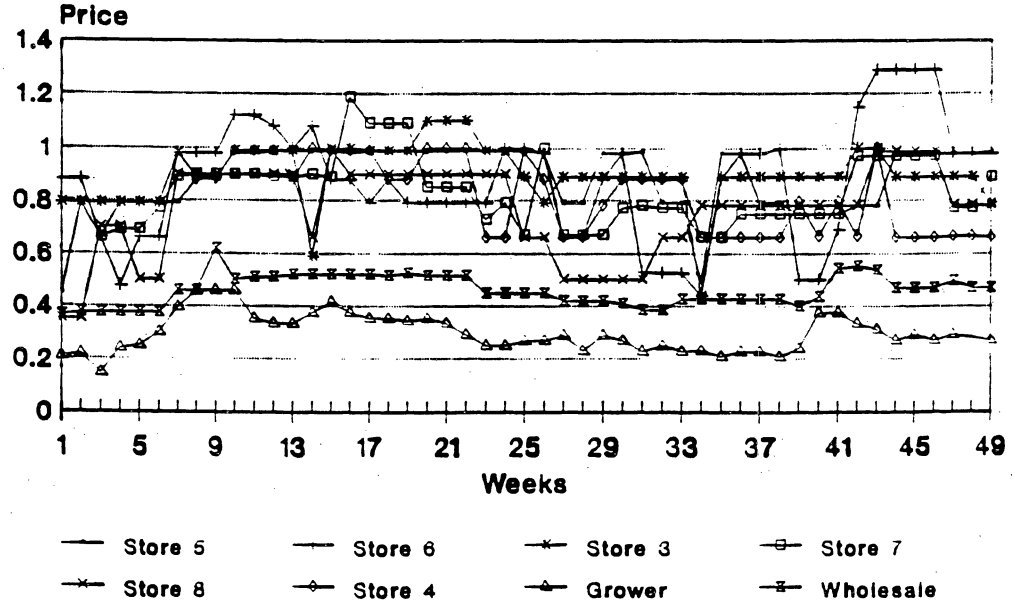


Chart 23. CARROT PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

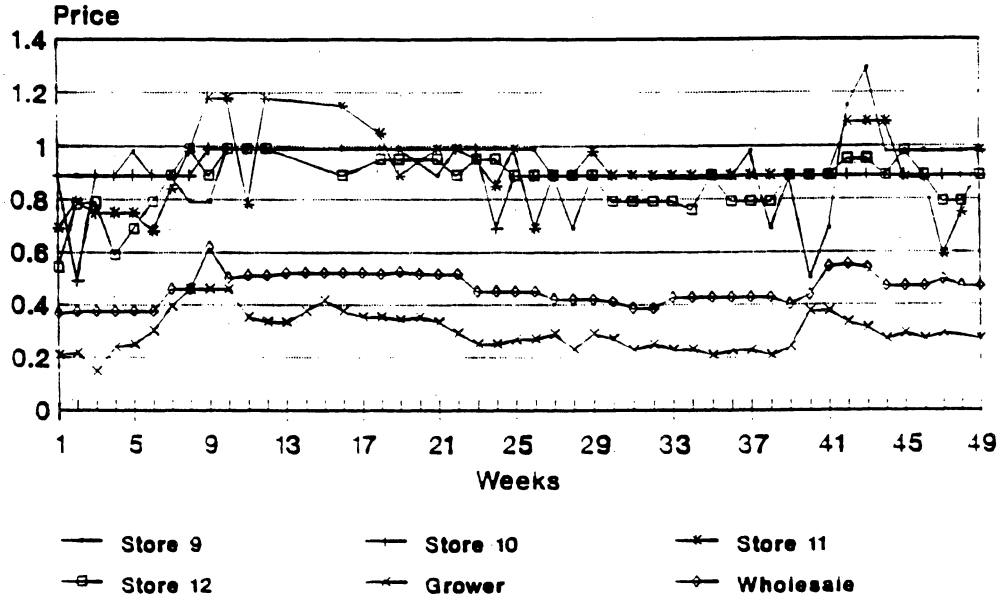


Chart 24. CARROT PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

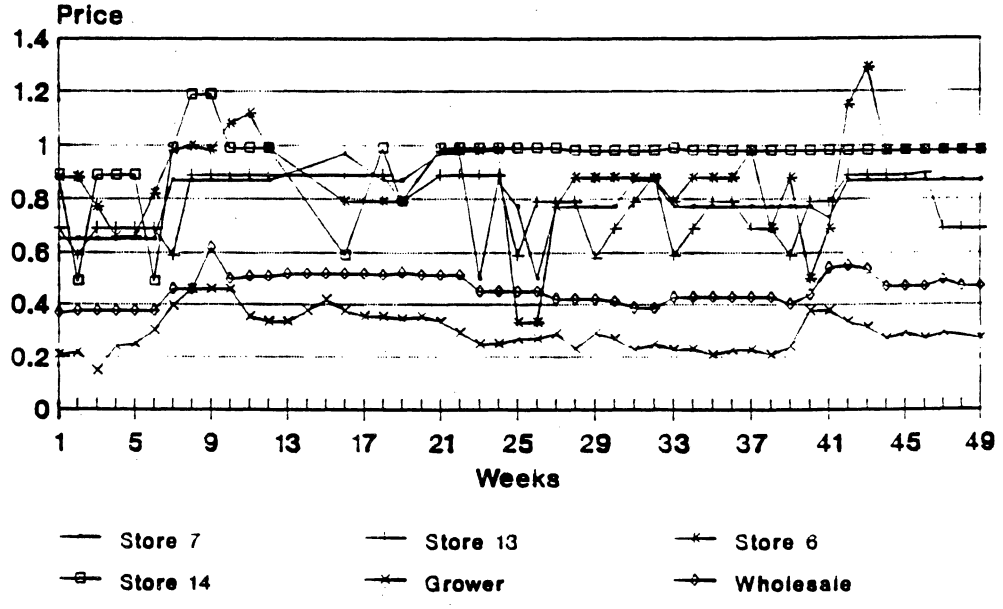


Chart 25. CAULIFLOWER PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

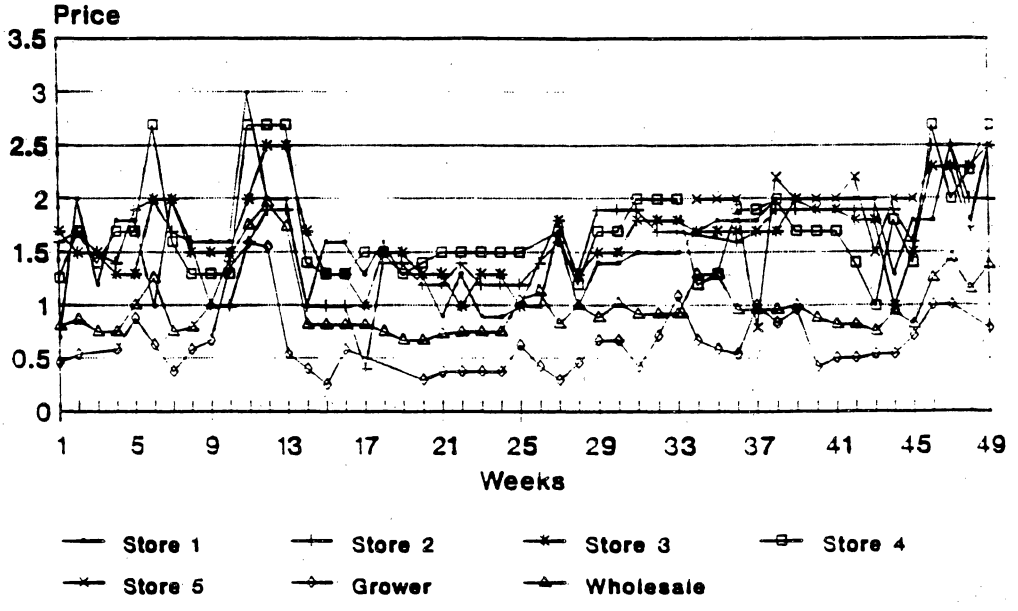


Chart 26. CAULIFLOWER PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

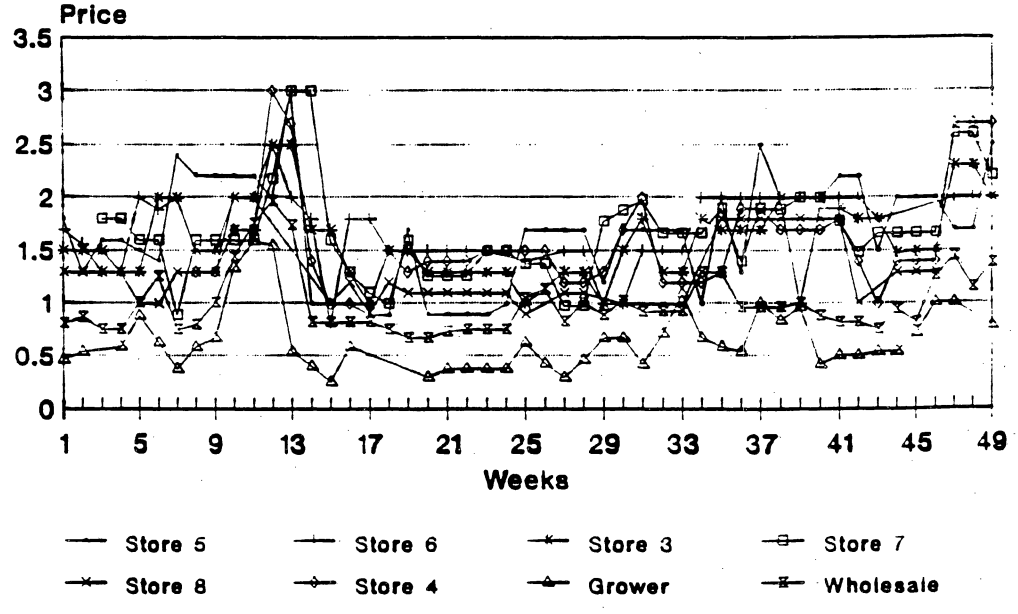


Chart 27. CAULIFLOWER PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

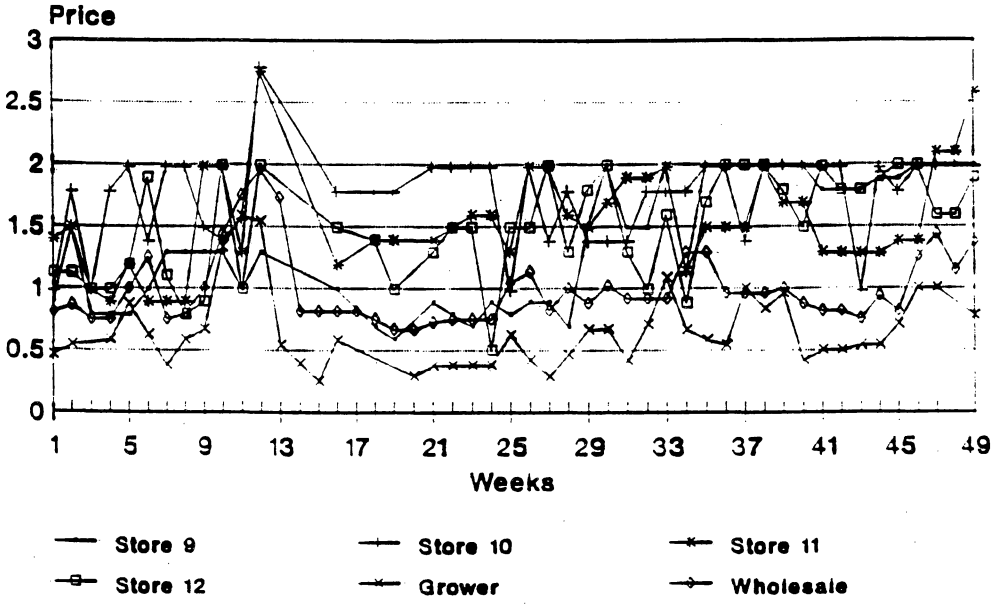


Chart 28. CAULIFLOWER PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

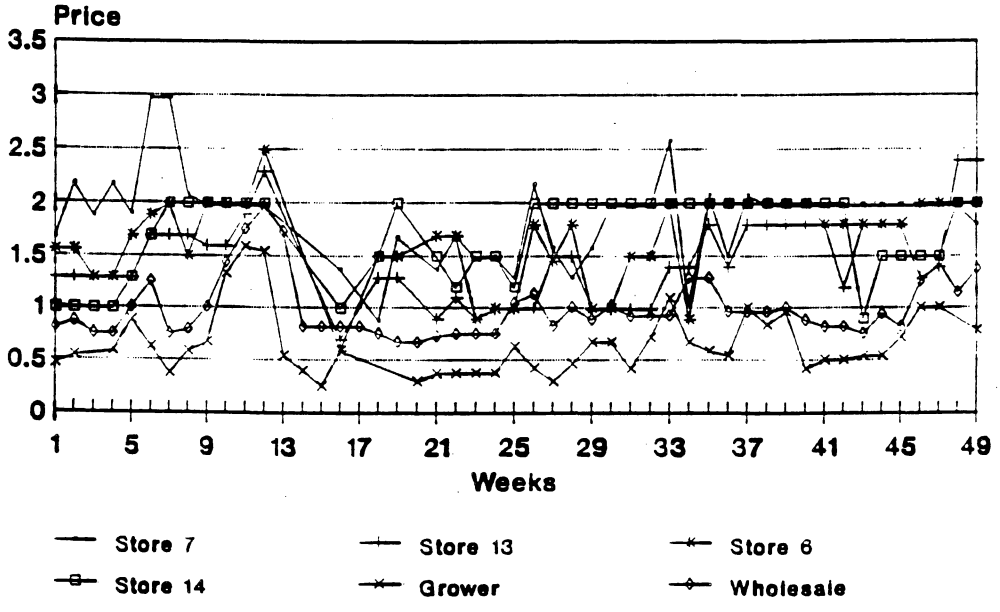


Chart 29. POTATO PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

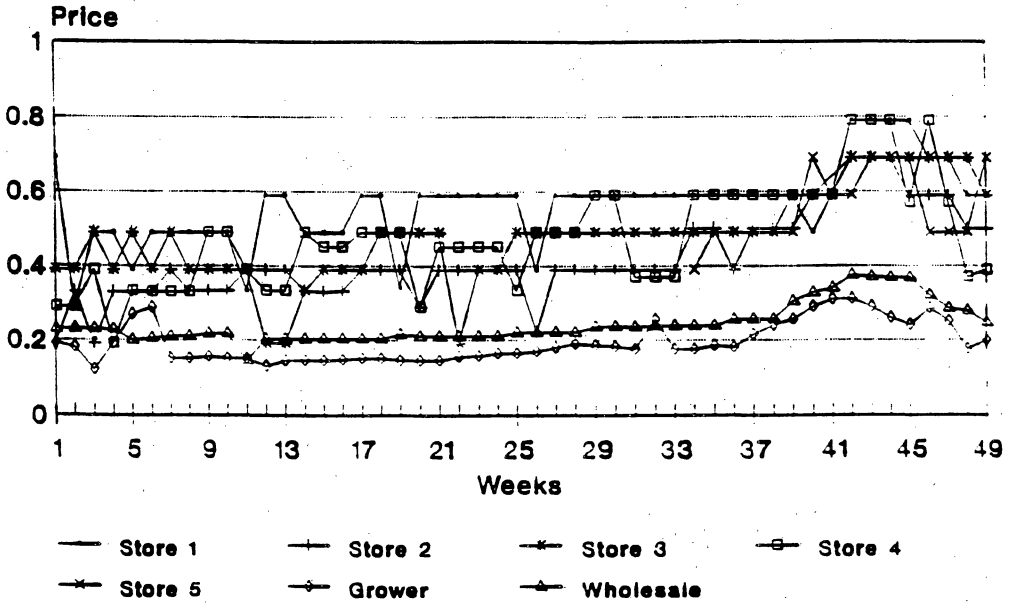


Chart 30. POTATO PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

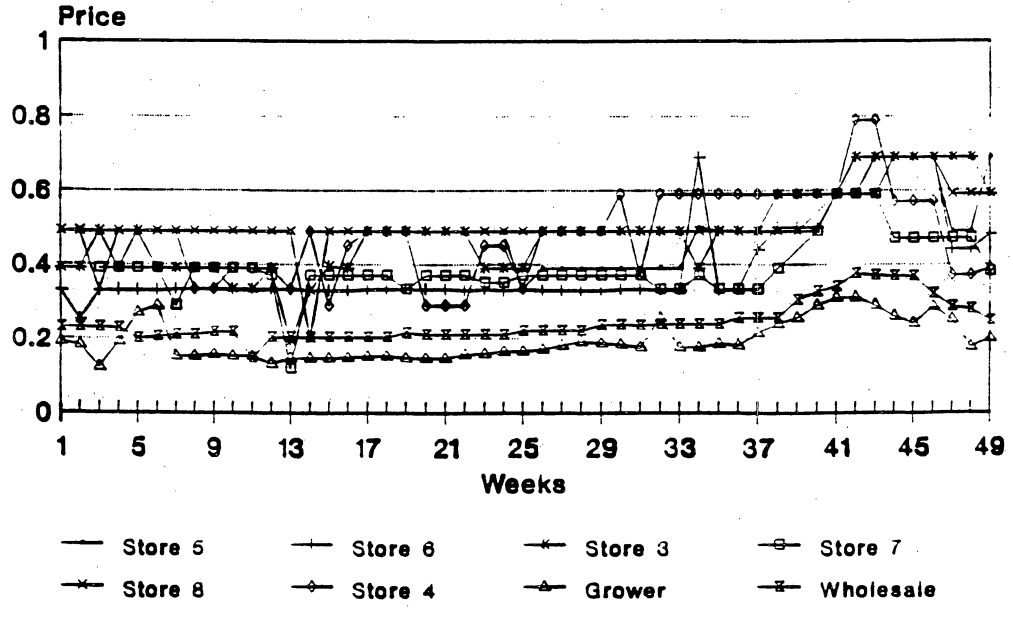


Chart 31. POTATO PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

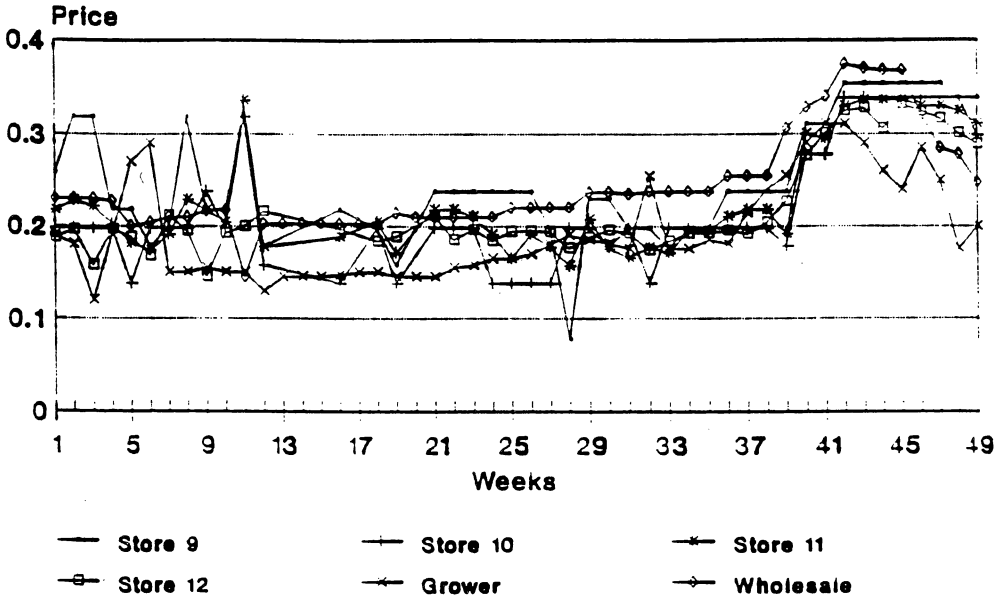


Chart 32. POTATO PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

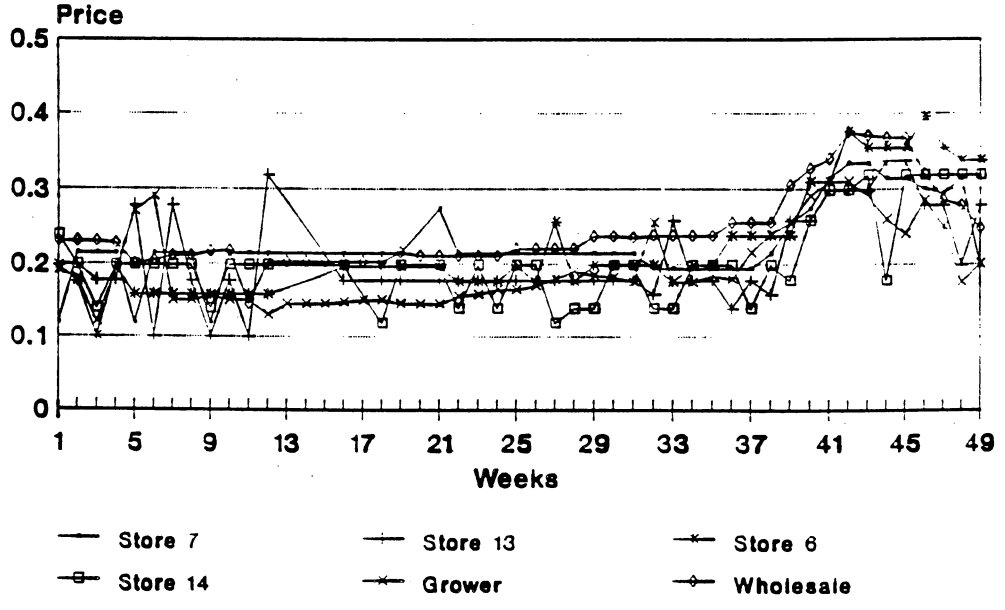


Chart 33. SPINACH PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

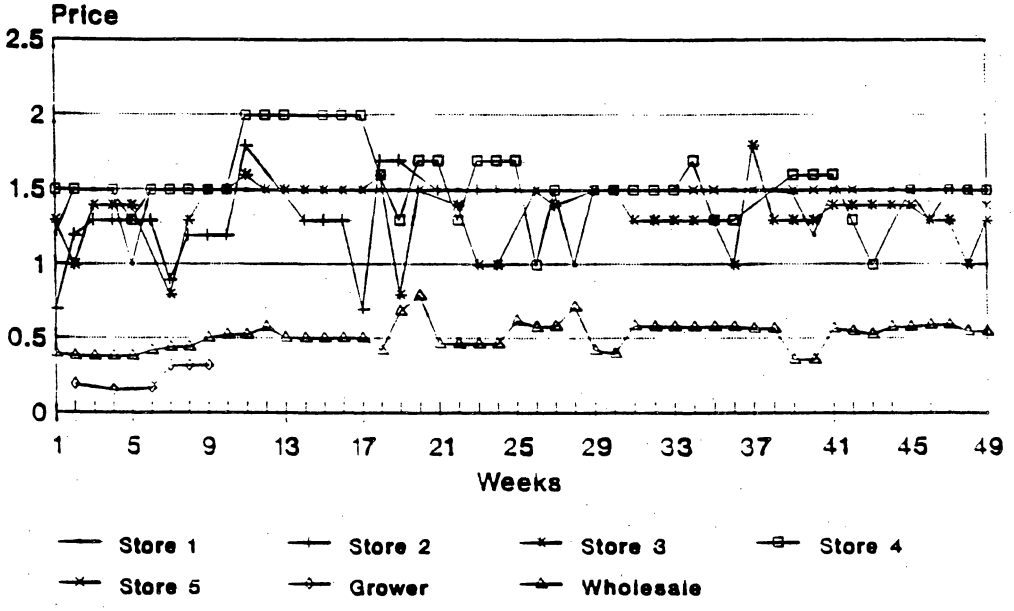


Chart 34. SPINACH PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

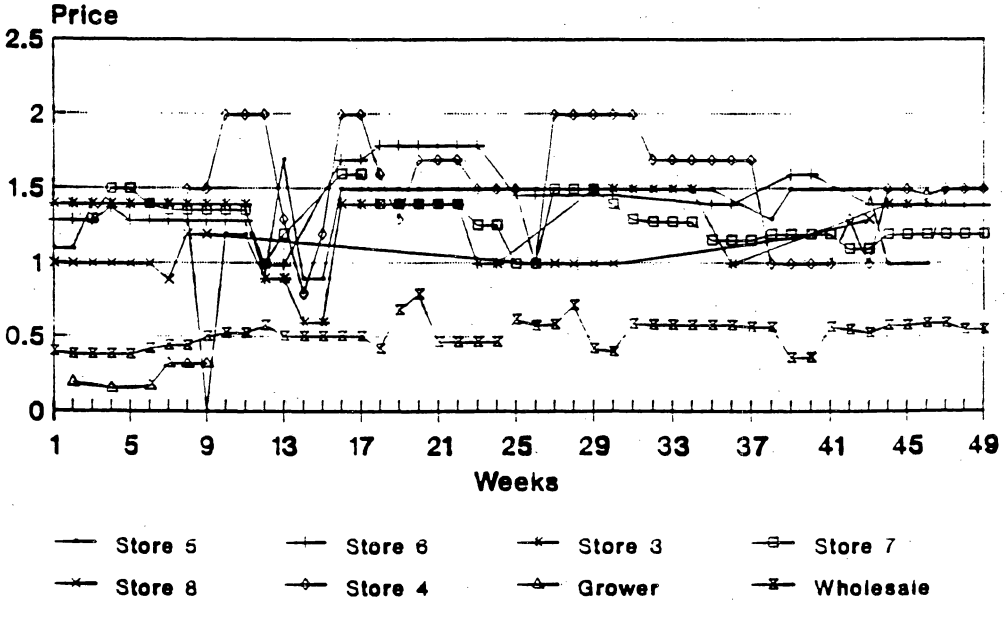


Chart 35. SPINACH PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

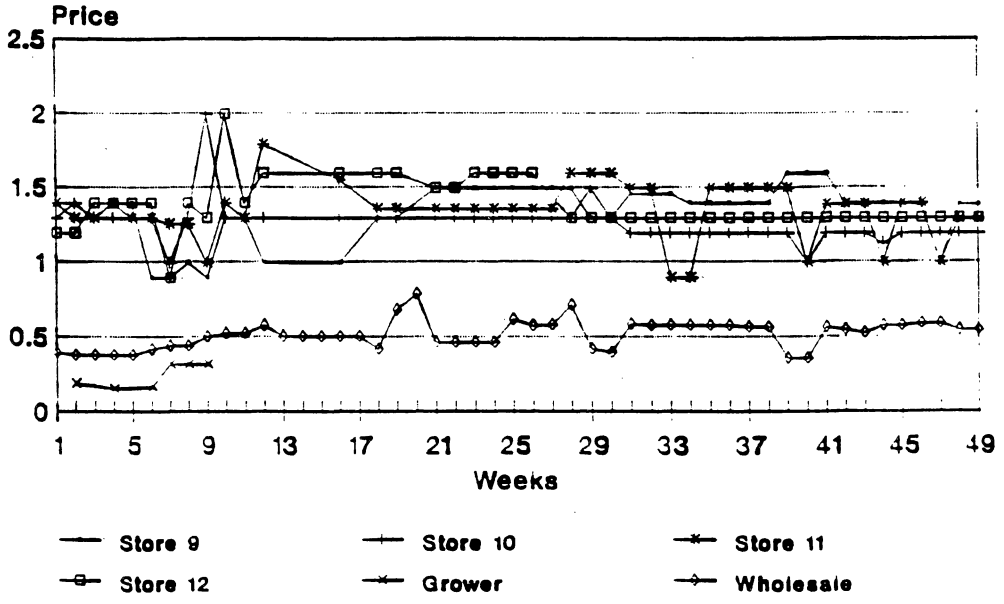


Chart 36. SPINACH PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

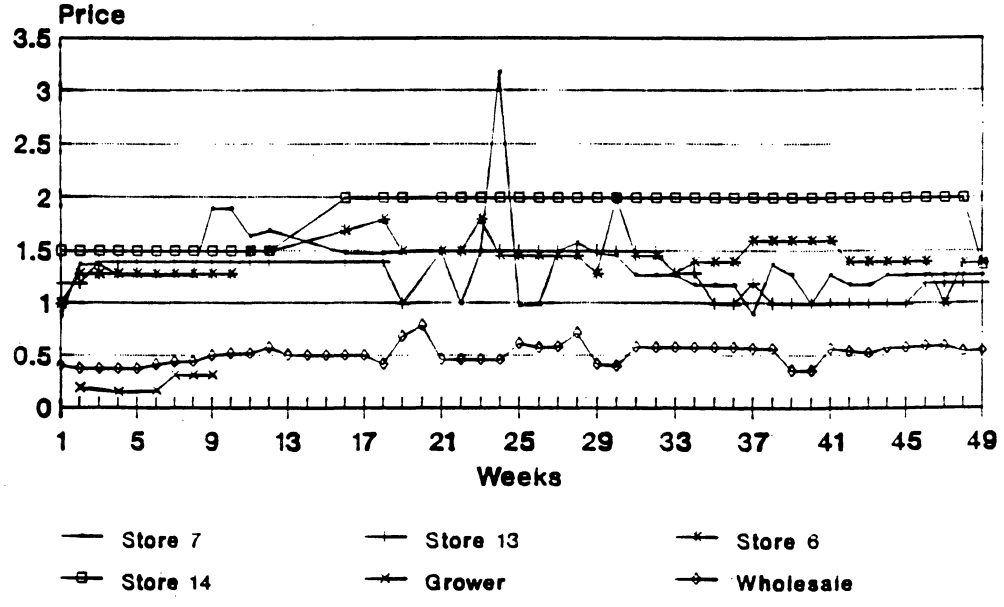


Chart 37. TOMATO PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

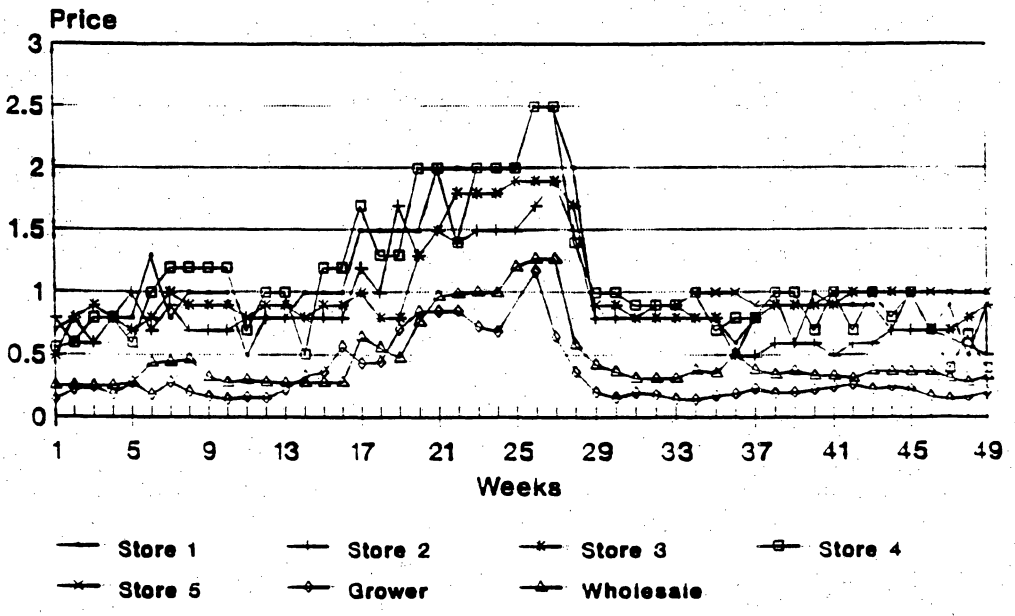


Chart 38. TOMATO PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

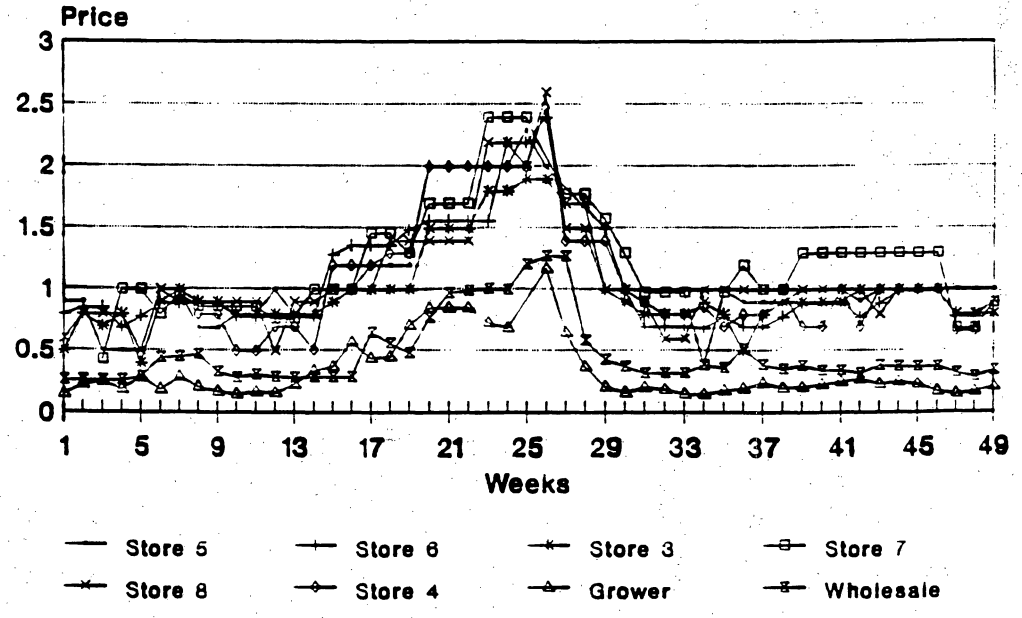


Chart 39. TOMATO PRICES, City C

Weekly Prices, 49 Weeks, 1991-92

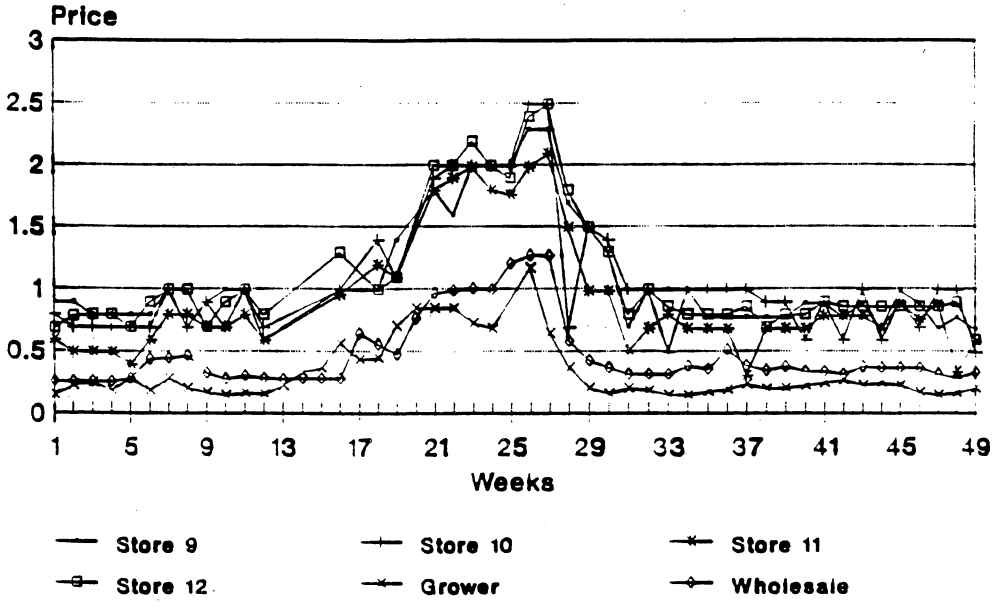


Chart 40. TOMATO PRICES, City D

Weekly Prices, 49 Weeks, 1991-92

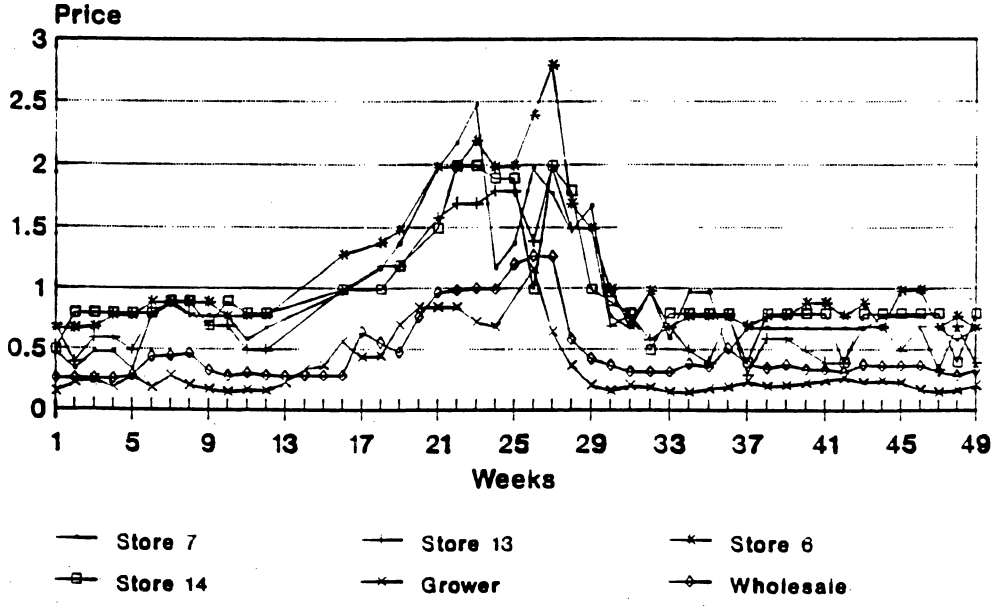


Chart 41. CUCUMBER PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

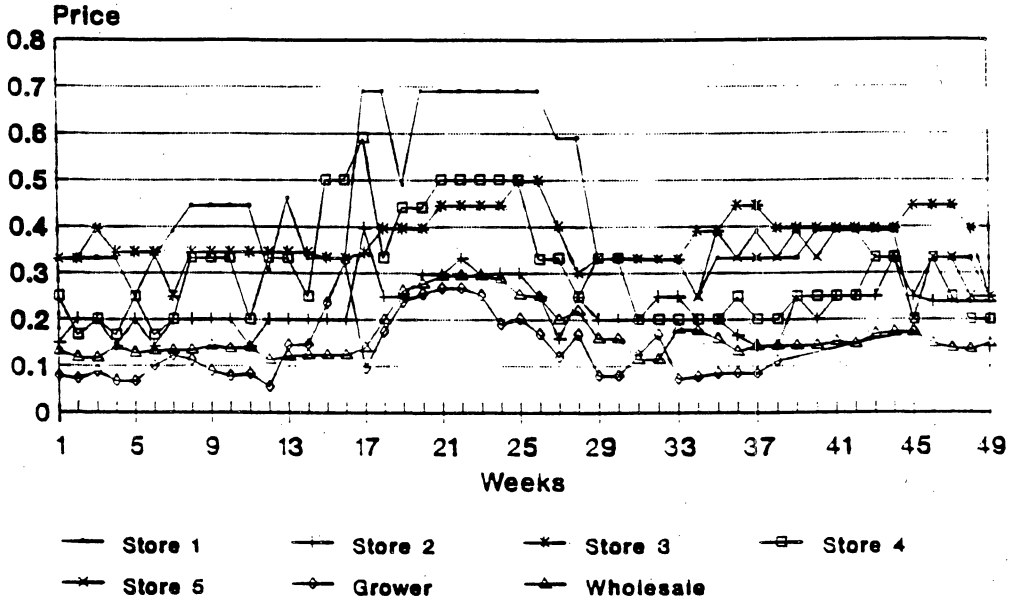


Chart 42. CUCUMBER PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

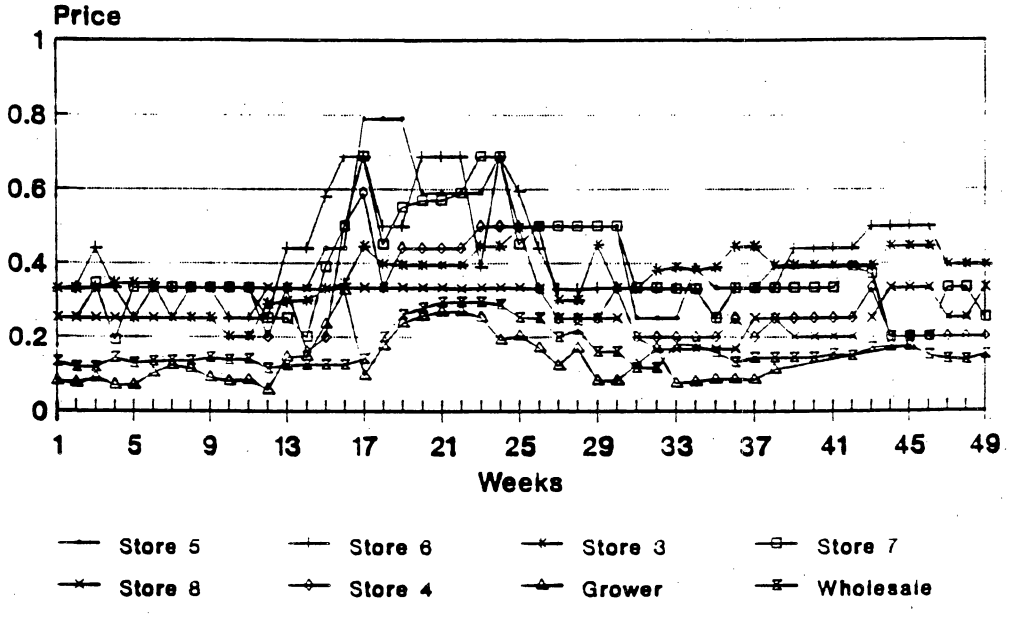


Chart 43. LETTUCE PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

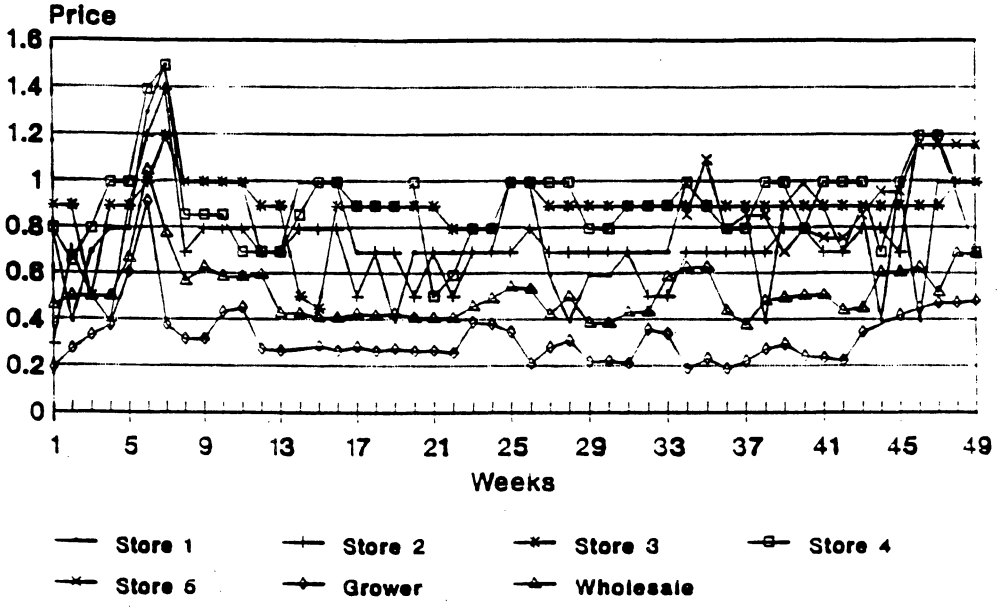


Chart 44. LETTUCE PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

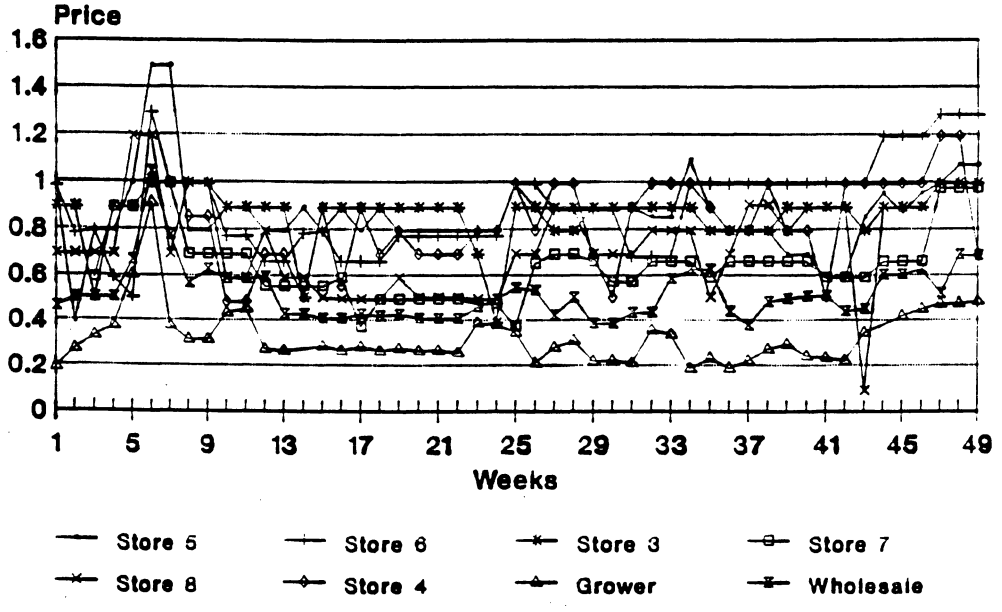


Chart 45. RED CABBAGE PRICES, City A

Weekly Prices, 49 Weeks, 1991-92

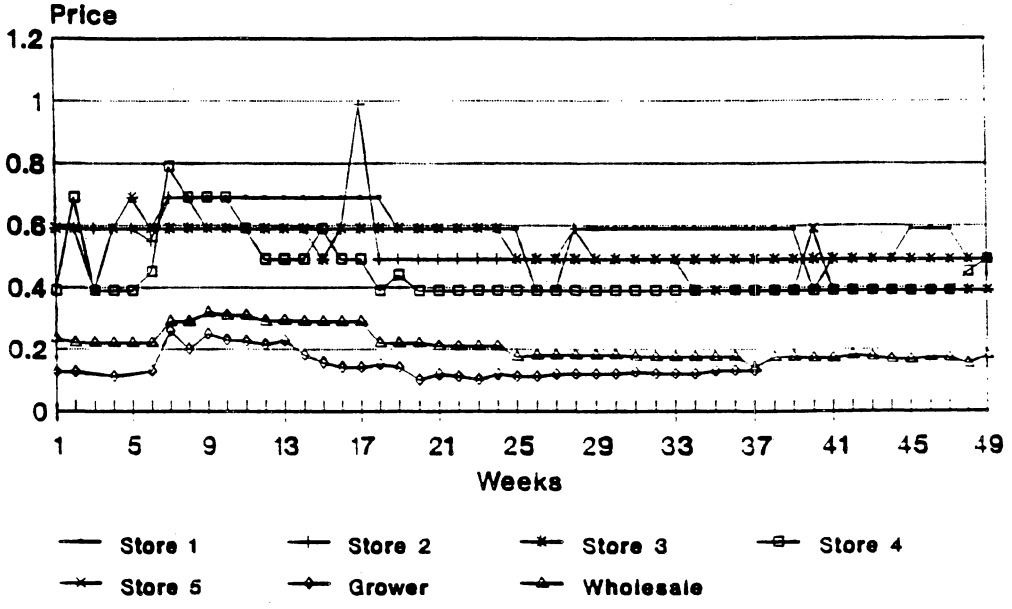


Chart 46. RED CABBAGE PRICES, City B

Weekly Prices, 49 Weeks, 1991-92

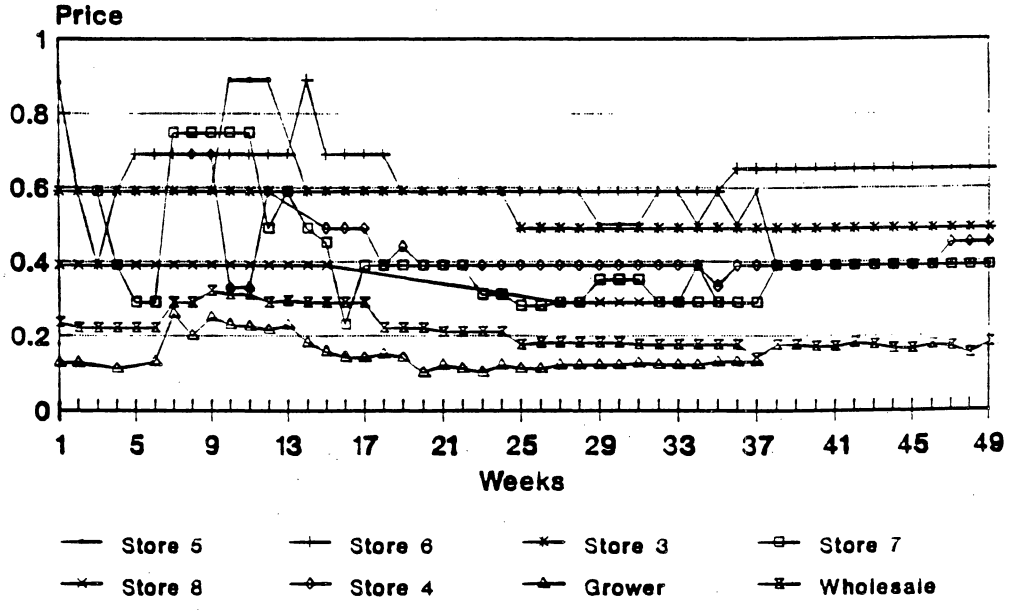
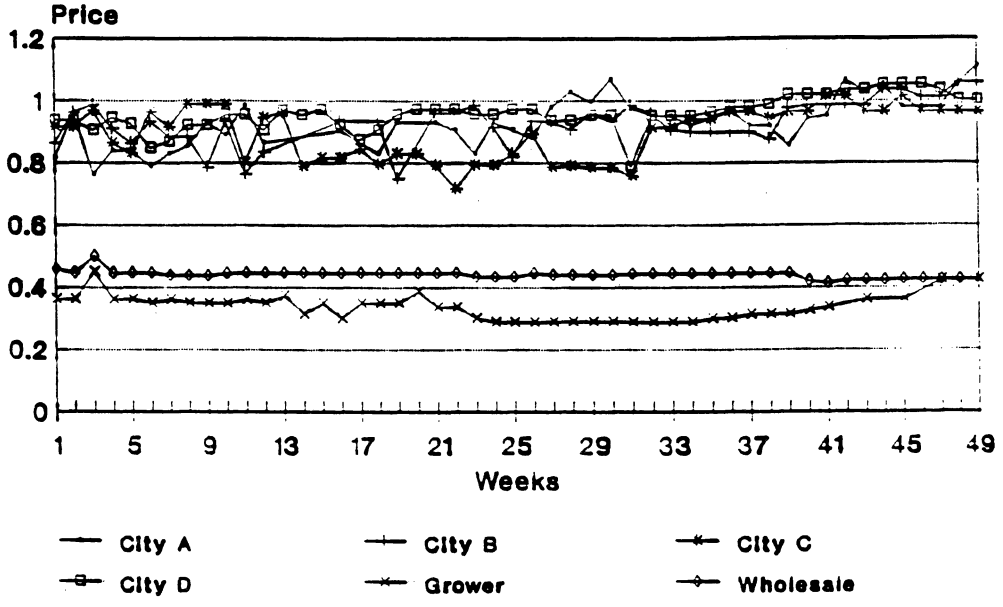


Chart 47. APPLE PRICES, Four Cities

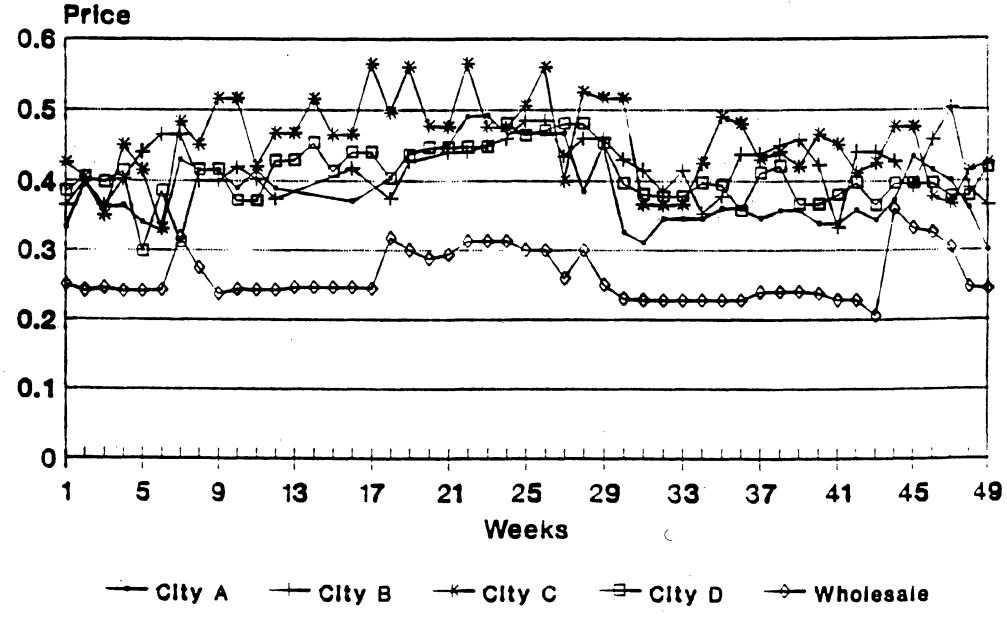
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 48. BANANA PRICES, Four Cities

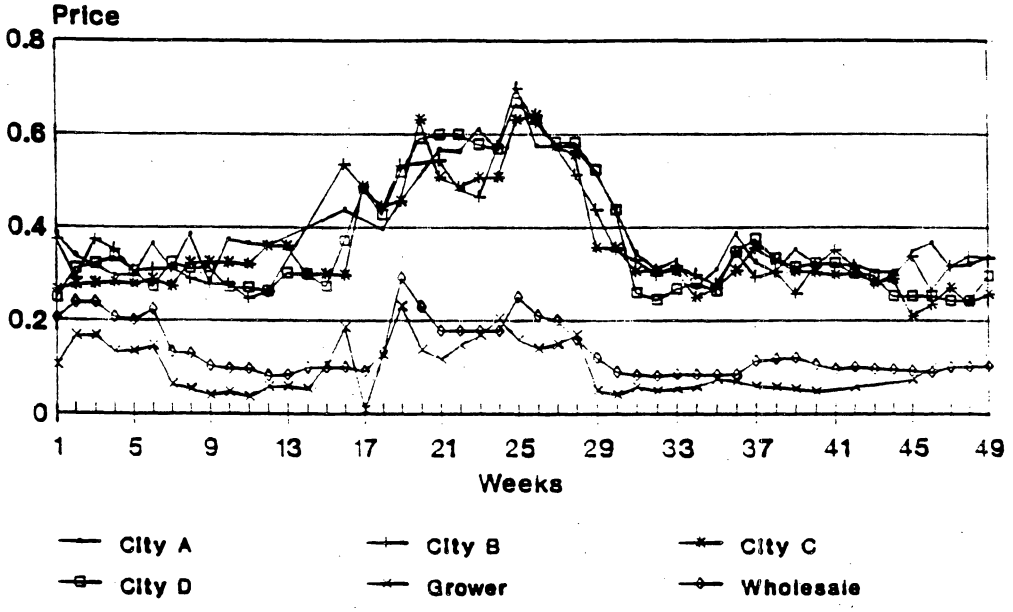
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 49. BELL PEPPER PRICES, 4 Cities

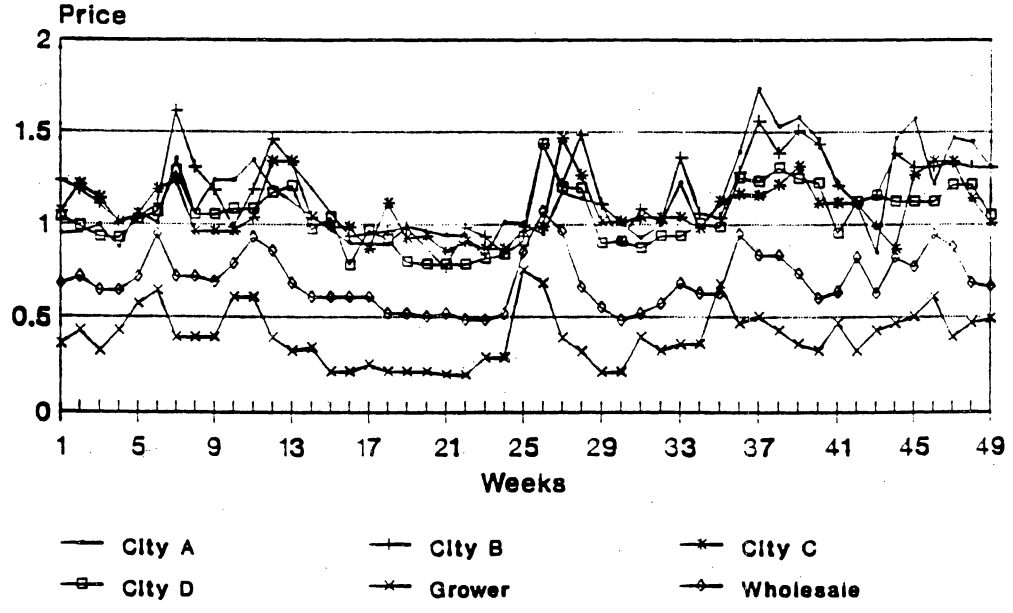
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 50. BROCCOLI PRICES, 4 Cities

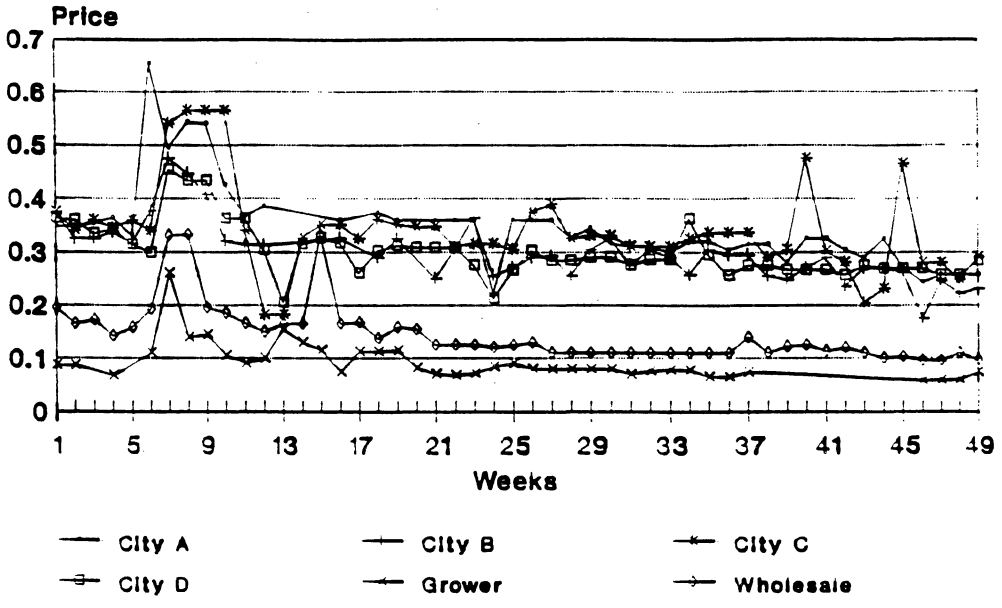
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 51. CABBAGE PRICES, 4 Cities

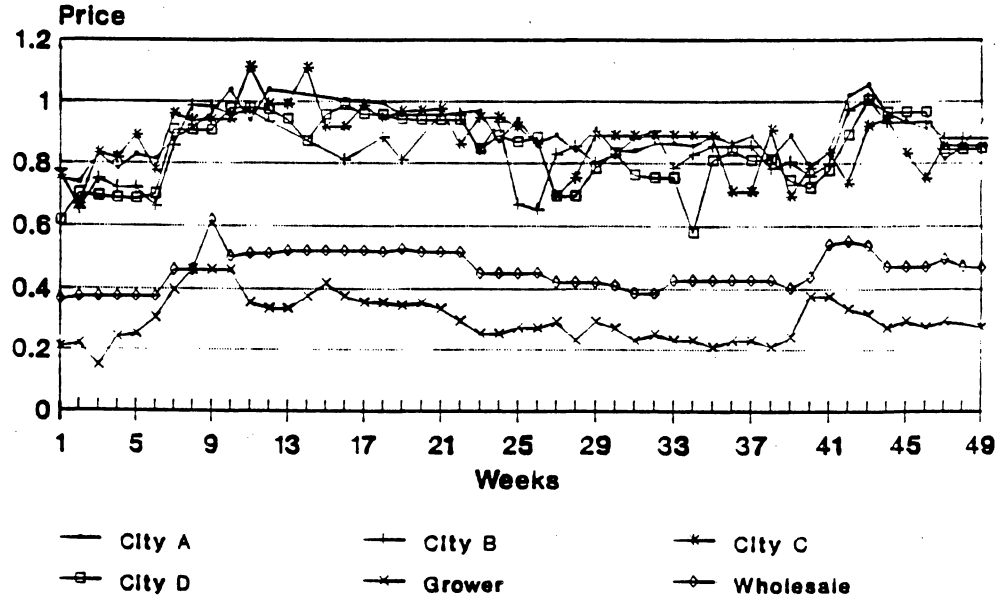
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 52. CARROT PRICES, 4 Cities

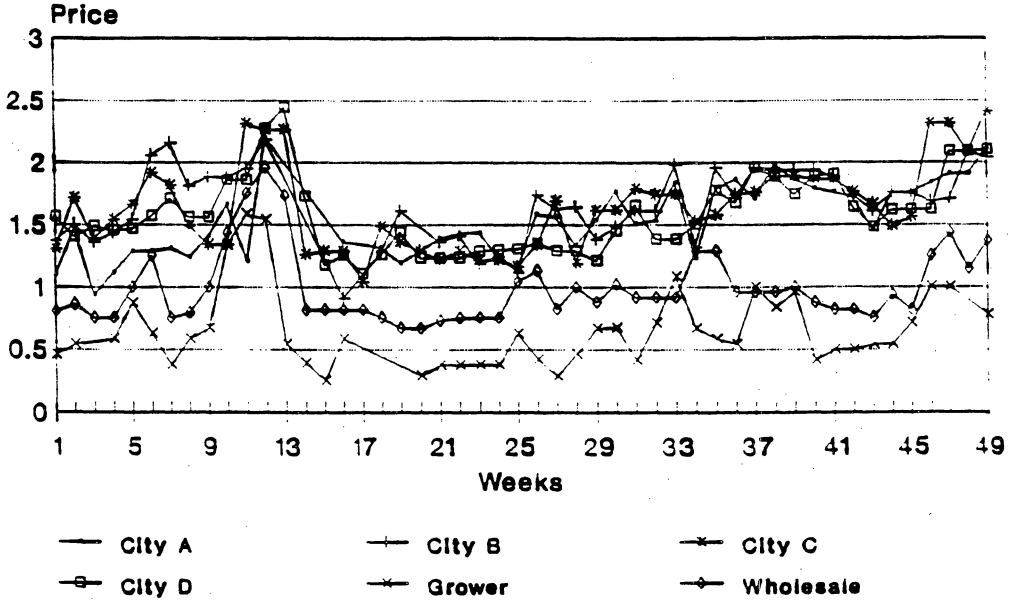
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 53 CAULIFLOWER PRICES, 4 Cities

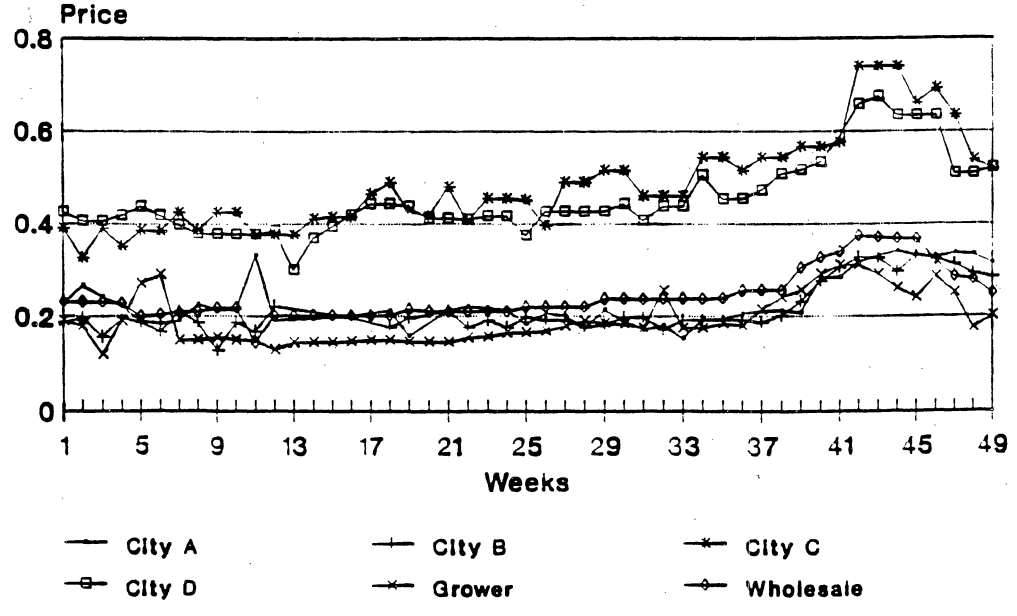
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 54. POTATO PRICES, 4 Cities

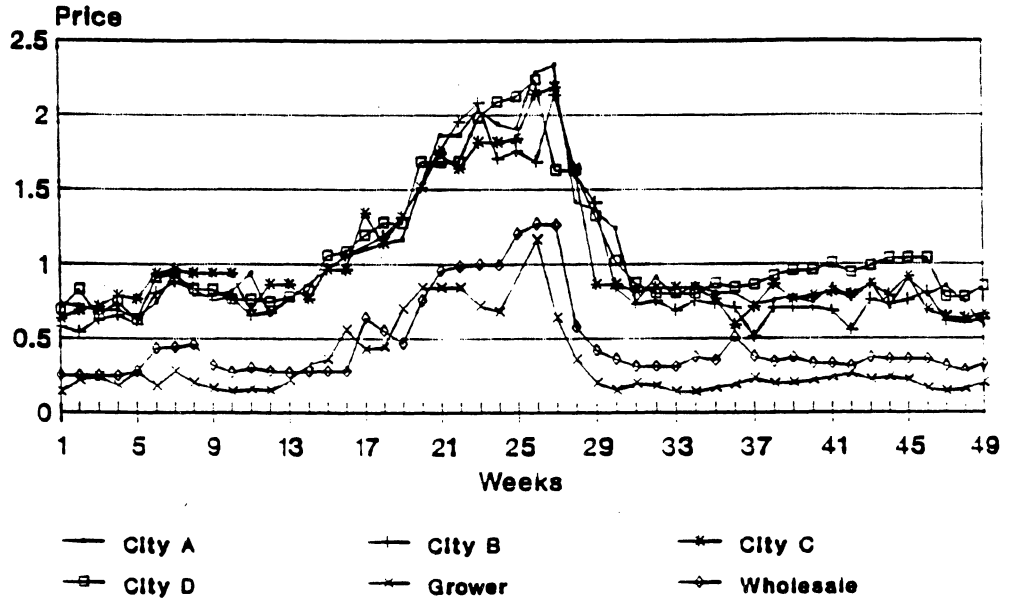
Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 55. TOMATO PRICES, 4 Cities

Weekly Prices, 49 Weeks, 1991-92



City Price is Average of Store Prices

Chart 56. MARKET BASKET, CITY A

Sum of prices of 12 items in each store

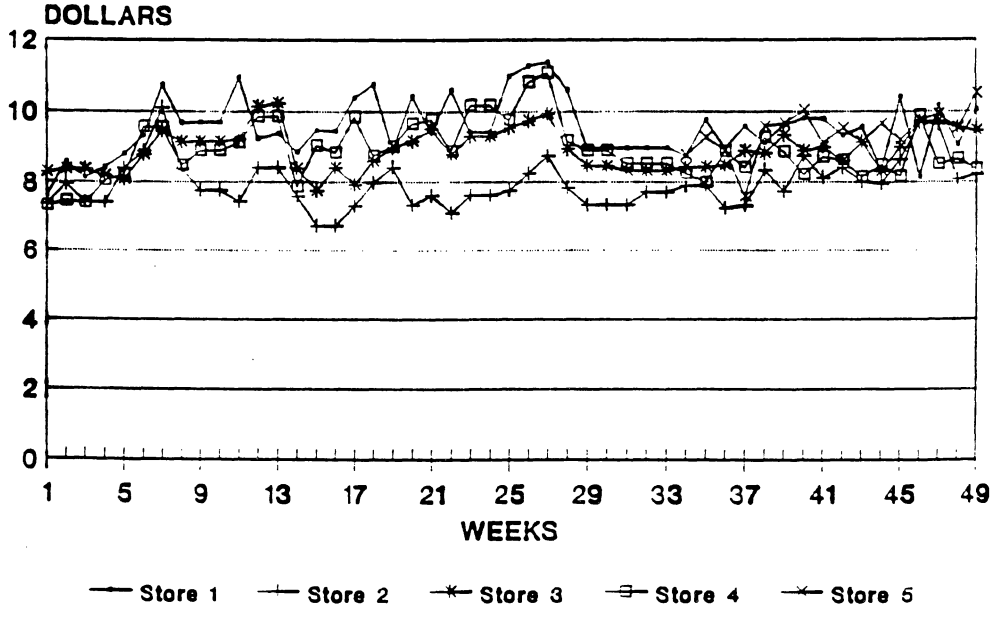


Chart 57. MARKET BASKET, CITY B

Sum of prices of 12 items in each store

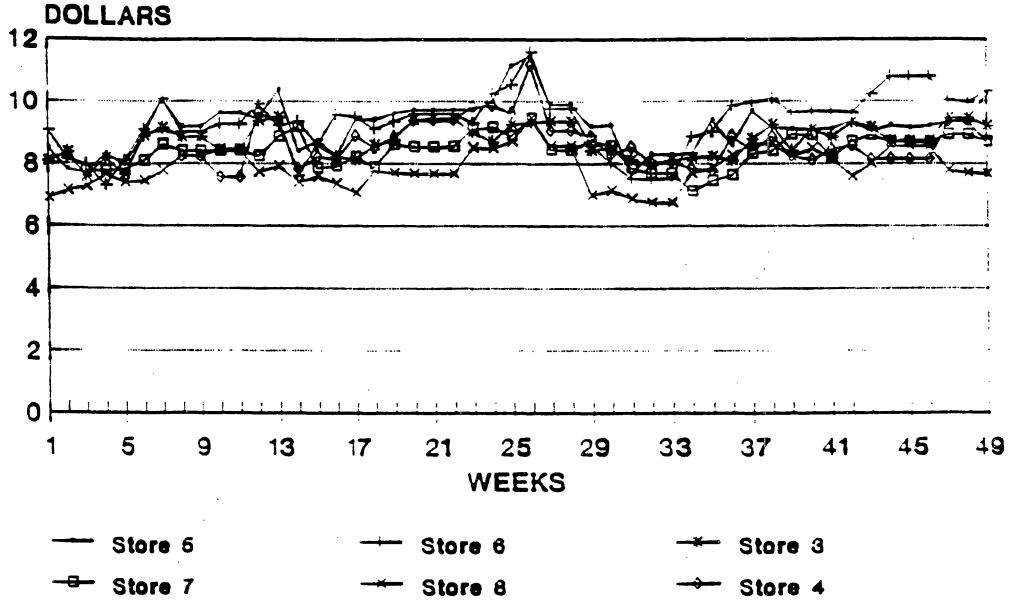


Chart 58. MARKET BASKET, CITY C

Sum of prices of 10 items in each store

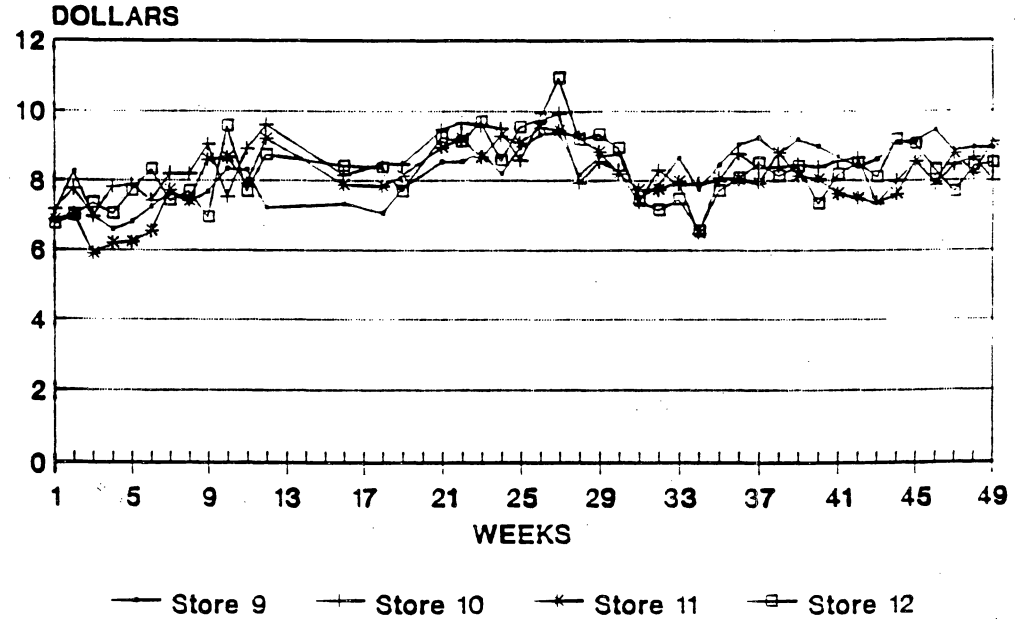


Chart 59. MARKET BASKET, CITY D

Sum of prices of 10 items in each store

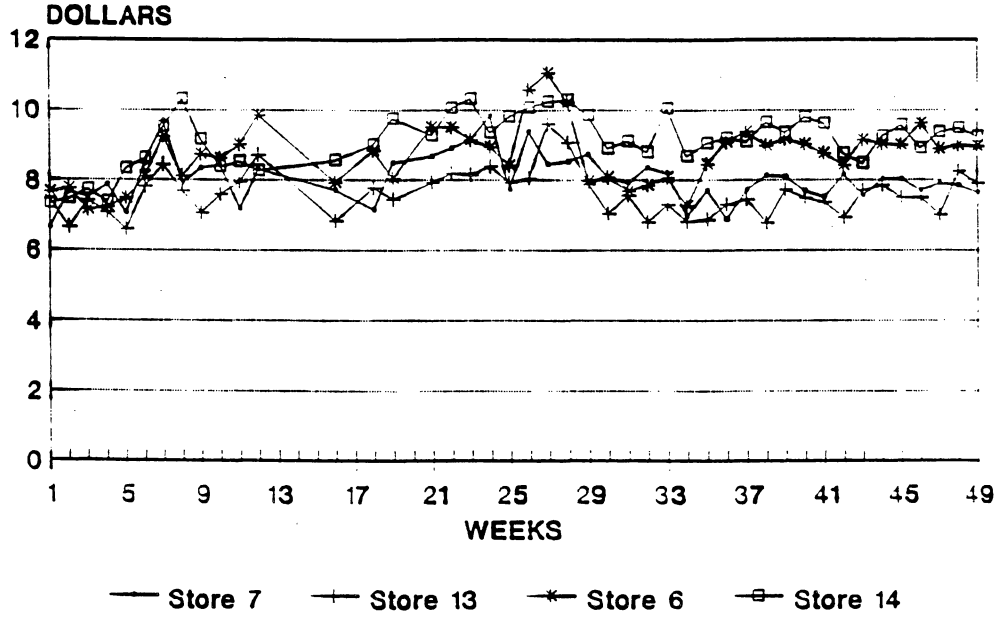


Chart 60. BANANA PRICES, Store 3

Intercity Comparisons, City C and D.

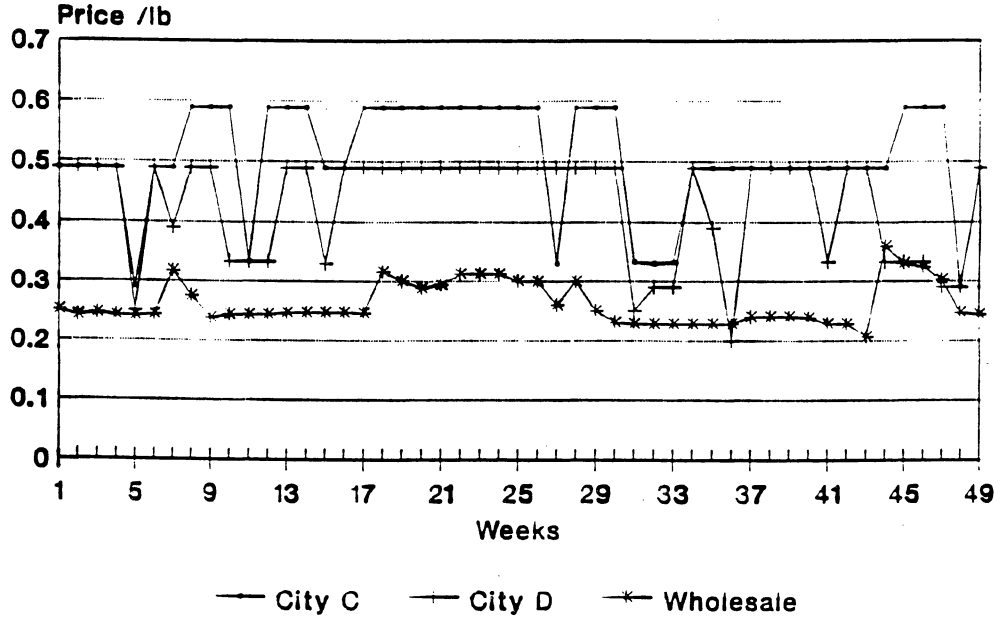


Chart 61. LETTUCE PRICES, Store 3

Intercity Comparisons, City C and D.

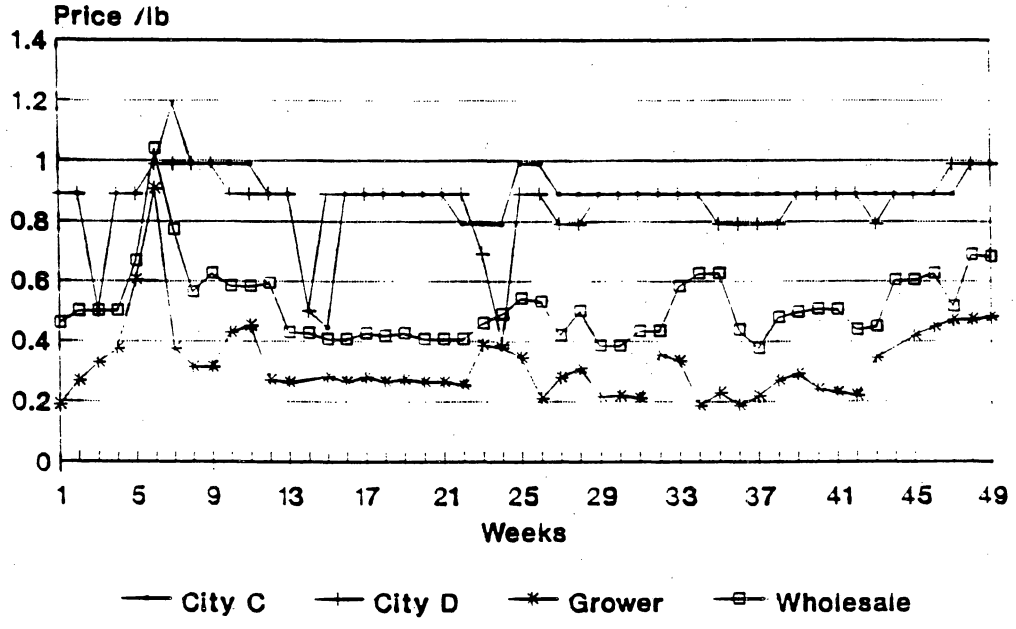


Chart 62. CAULIFLOWER PRICES, Store 3

Intercity Comparisons, City C and D.

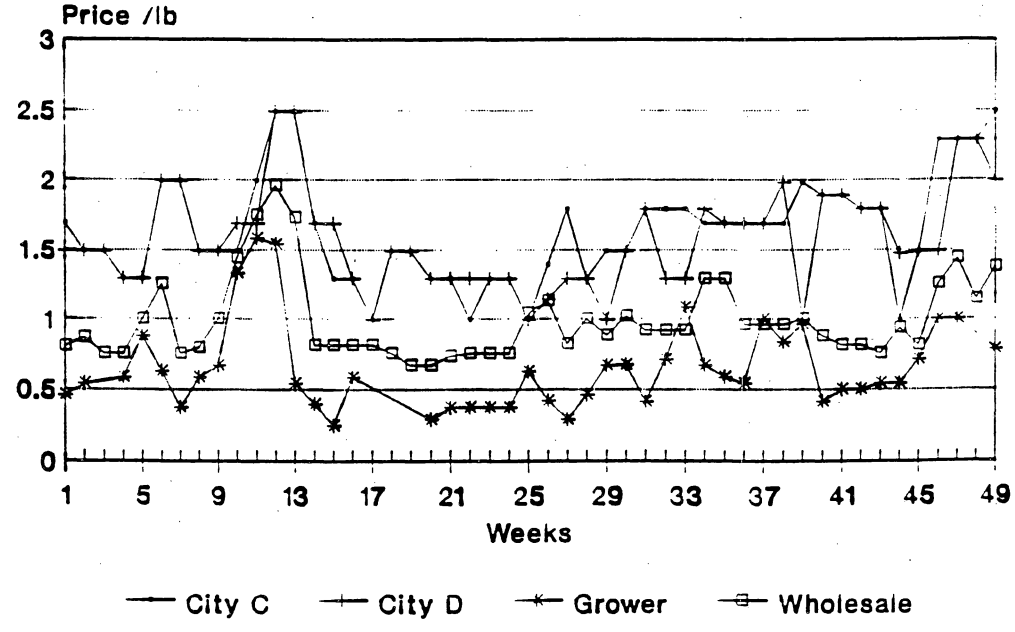


Chart 63. BANANA PRICES, Store 4

Intercity Comparisons, City C and D.

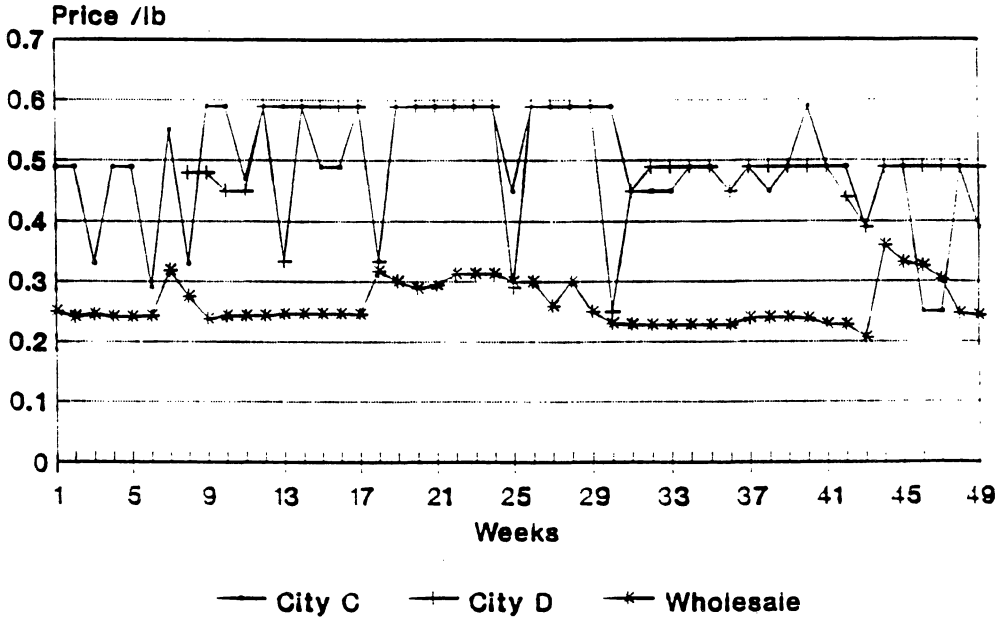


Chart 64. LETTUCE PRICES, Store 4

Intercity Comparisons, City C and D.

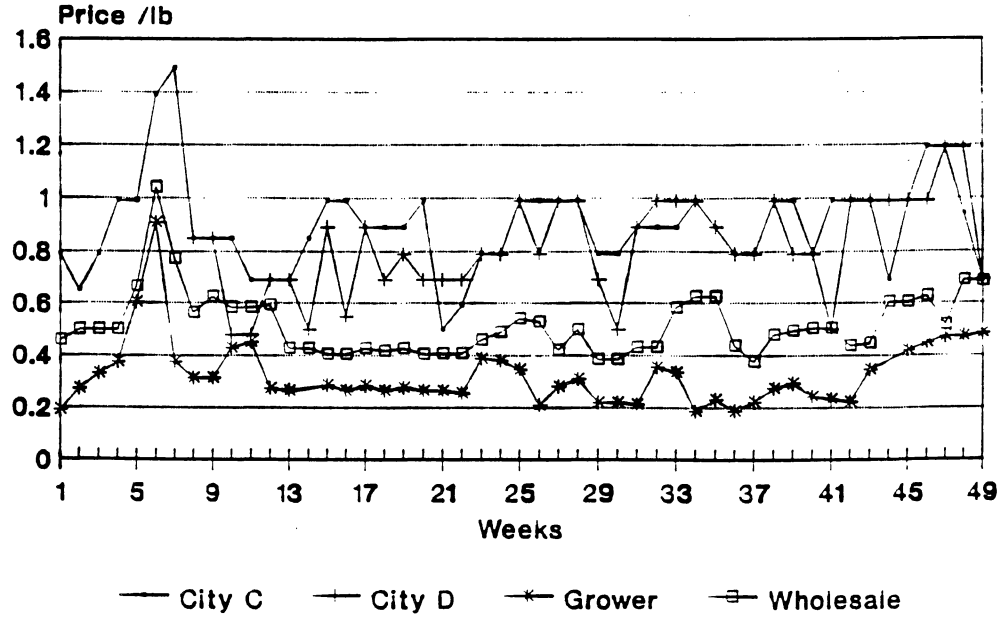
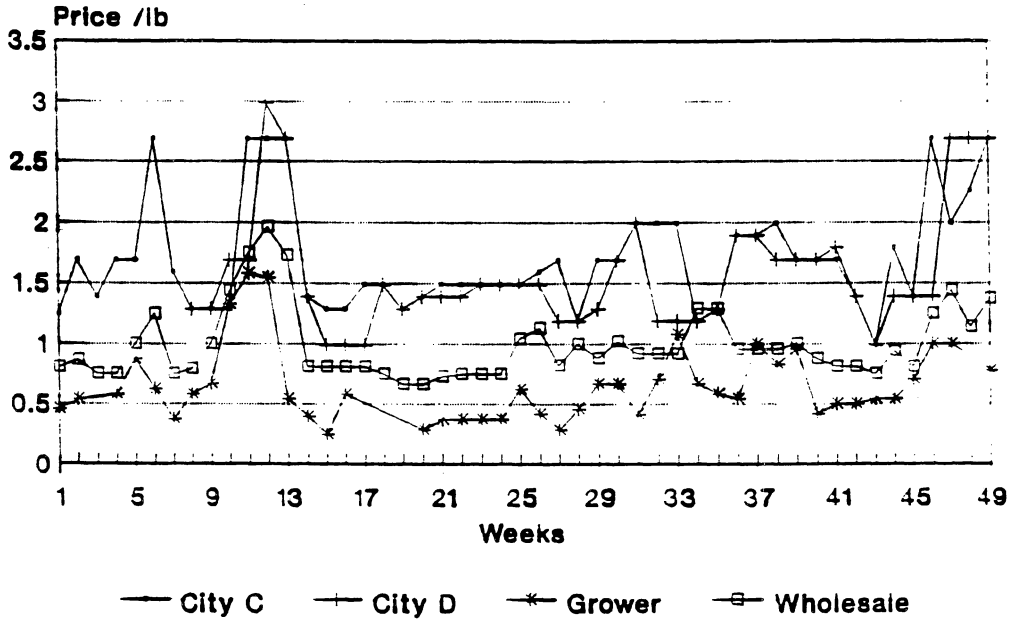


Chart 65. CAULIFLOWER PRICES, Store 4

Intercity Comparisons, City C and D.



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