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Collecting Store-Level Data on Retail Supermarket Sales

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Primary data-collection methods have been understood and studied to a great degree. For example, volumes can be written on the proper way to conduct a survey-based study. However, the process of collecting data from a retail establishment is not as well documented. This paper covers the tools and strategies used to collect weekly data in a retail environment and makes some suggestions for future researchers so that they may avoid similar problems that occurred during the data collection and entry process.

Previous research using a classic demand structure has shown prices, advertisements, and income levels have an impact on demand. In a traditional retail environment, prices and advertisements are not the only factors that are influencing consumers' purchasing behaviors. Factors such as product placement, display size, product appearance, etc., can all influence consumers' decisions.

Expanding on the classical economic-demand model, a study was developed to investigate how different retail marketing strategies influence consumers' purchasing behaviors for fresh fruit. Variables beyond price and quantity sold were included in the model, including display sizes, point-of-purchase promotional material, and product placement. To collect this data, weekly in-store visits were needed. To accomplish this, a new method of data collection was developed.

The developed data collection and entry process has proven to be an efficient and effective way of tracking primary data. Currently, the data collection and entry process has been effectively used for over 150 weeks and implemented by six different data collectors. This paper provides a brief description of the data collected, an explanation of the tools and strategies that were used, and suggestions for future researchers when developing a data collection process for tracking sales in a retail environment.

Data Collected

During weekly store visits, information was collected on individual prices, the origin of production, eco-labeling, fruit sizes, display sizes, point-of-purchase material sizes, weekly advertisements, in-store specials, and quality-scale measures for

different varieties of fresh fruit. Information on quantity sold was taken from weekly movement reports provided by the produce managers or other qualified personnel¹ at the time of the weekly store visit. The weekly movement reports listed fruit varieties by PLU numbers, the codes used by almost all stores to track produce sales. At times, data were being collected from as many as nine different retail grocery stores within the same chain. The stores had different management styles and were located in different demographic areas in the Portland, Oregon metropolitan area.

Tools and Strategies Useful for Data Collection

To ensure that all relevant variables were tracked on a weekly basis and to minimize data collection error and collector bias, tools and methods were developed for the data-collection process. The tools developed were an inventory sheet, maps of the produce area, a weekly log, and use of pictures. The methods used include management of the collected data, reconciling of conflicting prices, interactions with managers and consumers, and selecting and training new data collectors.

Tools

There were a few tools that made collecting data at the retail level easier. One of the most important tools developed and used for the study was an inventory sheet. The inventory sheet is a table listing the fresh fruit varieties on the left-hand side and the different variables that were being tracked across the top. This sheet provides a quick and accurate way to record individual prices, the origin of production, eco-labeling, fruit sizes, display sizes,

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¹ The store reports provided three weeks of data on weekly aggregated revenue and quantity sold in pounds.

point-of-purchase material sizes, weekly advertisements, in-store specials, and quality-scale measures for different varieties of fresh fruit.²

Maps were another useful tool. Before the study began detailed maps of the produce area were created. On the maps, changes in display locations and the locations of any special banners or promotional material used were documented. Displays of fresh fruit appearing outside the produce department were also noted on the maps. These outside displays were either located in other sections of the store or outside the store's main entrance. From the information documented on the produce department maps, variables were created for entry displays (those fresh fruit displays that appeared in the entryway of the produce department), and the aisle location of displays (which included variables for within, end, and freestanding displays).

A weekly log was also created to document the items featured each week, changes in display locations, and any changes in the overhanging banners within the produce department. The log was organized by date, which provided easy reference. The log helped researchers adjust to unforeseen changes that occurred at the retail level.

Pictures were taken to document the dimensions of each fruit display, the corresponding point-of-purchase material, special promotional material, changes in the produce area, and any overhanging eco-labeling banners. For easy reference, the pictures were cataloged according to retail store, date, and subject. Pictures were also useful in checking for any entry errors or abnormalities in the data. The pictures of each display recorded the prices, point-of-purchase material, and display dimensions. When an error was observed in the data set, the pictures were checked to determine if the prices, display size, point-of-purchase size, display location, and eco-labeling signage were correctly entered in the data set. The pictures provided the ability to reexamine the appearance of the displays to determine if new variables should be added. For example, using the pictures, variables were developed for specific sensory wording which appeared on point-of-purchase material such as fresh, sweet, and crisp.

Methods

To efficiently manage the collected data, all information was manually entered into an Excel spreadsheet. The hard copies of the collected data were cataloged and sorted by week. To check for entry errors, sub-sets of ten per week were checked for accuracy. If any errors were found the entire weekly entry was double-checked with pictures and the hard copies of information collected during the store visits.

During data collection the prices at the point-of-purchase would sometimes conflict with the prices posted within the in-store fliers. Since the price at the point-of-purchase was easier to observe than the price within the in-store fliers, the price at the point-of-purchase should have a larger impact on consumers' spending. As a result, when the prices differed, the price at the point-of-purchase was entered in the data set as the weekly price.

The data-collection process was designed to be convenient for the retail managers and as unobtrusive as possible. Data was collected during times that worked well with their schedules. The data collectors were instructed to be polite and courteous when interacting with the produce managers and their staff. The produce managers also helped in the data collection by providing valuable information about the consumer purchasing behaviors within their stores. Also, discussions took place about the typical product-placement strategies used by the produce managers.

One product-placement strategy that was not accounted for in the development of the data-collection process was the use product association. Produce managers would sometimes place produce displays in other areas of the store to increase sales not only of produce but sales of products that are often consumed together with fresh produce. An example of product association is displaying bananas in the cereal section, which can have a positive impact on the sales of both bananas and some cereals. Regularly visiting with the produce managers helped to ensure that all relevant information was collected each week.

The data-collection process took place in a consumer-based business. Therefore, interaction with consumers was expected. Data collectors were instructed to try to stay out of consumers' way, while providing friendly assistance when asked. For example, if consumers asked about the

² Appendix A provides an example of an inventory sheet used for data collection.

data-collection process, the data collectors were instructed to be polite and inform them about the study being conducted. Treating consumers politely helped with the purchasing process and left a favorable impression with consumers, and consequently with the produce and store managers.

When a new data collector needed to be hired, one of the important characteristics sought was a personable nature. The data-collection process involves interaction with retail managers, other store staff members, and consumers; thus, the data collector should be personable to maintain good relationships with managers, their staff, and their customers.

When training new data collectors it is paramount to convey the importance of accurately collecting and entering the data. New data collectors were instructed to collect and enter data in a timely manner. Previous experience has shown that delaying data entry leads to mistakes during the entry process. These mistakes will lead to incorrect results from the data analysis, and can take weeks to detect and correct. In addition, a process was needed to ensure consistency across data collectors. Project managers allowed sufficient time for the hiring process in order to overlap the outgoing and incoming data collectors by two weeks. This provides for a training process where the new recruit can observe a data collection and entry cycle and can be observed and coached in the second cycle.

Suggestions for Future Researchers

Future researchers can learn from this study in developing a data-collection process for a real-time market-research project in a retail environment. When developing a data collection process it is important that the research project has a clear objective. Having a clear objective will help determine the primary variables that should be examined. After the primary variables have been selected, other variables need to be looked at to ensure that the project will examine the selected objective. Conducting in-

terviews with other professionals in the area of focus can provide added insight into variables that may be important. For example, interviews conducted with the produce managers or other qualified personnel added new insight into what variables should be tracked for this study.

It is also important that the data-collection process be flexible. If slight changes in the objective of the research project occur, the data-collection process should be able to easily and quickly adjust. To keep the data-collection process flexible, new variables should be easy to add to the process, so that a new process does not need to be developed when new variables are added. The slightest change in how things appear at the retail level can have an impact on sales. When collecting data it is better to collect too much information and have the luxury of looking at many different areas than trying to backtrack and create new variables based on previously gathered information.

Conclusions

The tools and methods developed for this study have proven invaluable. For over 150 weeks, spanning nine different retail grocery stores, different data collectors have taken weekly observations of primary data in an efficient and accurate manner. The tools that were found to be most helpful are an inventory list, maps of the produce department, a weekly log, and the use of pictures. The strategies that were developed and used for this study include management of the collected data, reconciling conflicting prices, interactions with managers and consumers, and selecting and training new data collectors.

Many challenges have been faced and solutions developed for this study to ensure that all relevant information is collected on a weekly basis. Not all of the tools and strategies may directly apply to future studies that expand on the classical demand model, but using the experiences from this study can help ensure that future projects do not face the same problems.

Appendix A

Store: _____
 Week: _____

PLU	Type of Grape	Price	Location	FA	Size	Display (inches)	POP (inches)
4022	Green Seedless						
4023	Red Seedless						
4056	Black Seedless						
4059	Black Seedless						
4638	Black Seedless						
94022	Organic Green Seedless						
94023	Organic Red Seedless						
PLU	Type of Orange	Price	Location	FA	Size	Display (inches)	POP (inches)
3107	Navel						
3108	Valencia						
4388	Sunkist						
93108	Organic Valencia						
PLU	Type of Nectarine	Price	Location	FA	Size	Display (inches)	POP (inches)
3035	White						
4036	Nectarine						
4378	Nectarine						
94036	Organic Nectarine						
94378	Organic Nectarine						
PLU	Type of Peach	Price	Location	FA	Size	Display (inches)	POP (inches)
3113	Jupiter						
4038	Peach						
4044	Peach						
4401	White						
94044	Organic Peach						
PLU	Type of Plum	Price	Location	FA	Size	Display (inches)	POP (inches)
4040	Black						
4042	Red						
4436	Italian Prune						