

# **Are Retailers Using Price Scanners to Intentionally Overcharge Customers?**

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## **ABSTRACT**

Some media reports have claimed that retailers have used price scanners to intentionally overcharge customers. This paper presents the background to this issue and examines inspection reports from several states to determine if overcharges occur significantly more often than undercharges. Data would indicate that the opposite is true. Undercharges were found to be significantly greater than overcharges.

## **INTRODUCTION**

Today, price scanners are an integral part of almost every retail store, and they provide benefits to both customers and retailers. Scanners have allowed the elimination of individual item pricing at most stores which has netted retailers substantial savings. Additionally, retailers have saved in improved checkout productivity and by reducing the number of employees needed at cash registers. Additional savings also have accrued with improved efficiency in automatic ordering, improved shelf allocation, improved sales analysis, and better item tracking. For customers, the implementation of scanner technology has provided a faster store checkout, more detailed receipts, and sometimes price reductions resulting from retailers passing along cost savings. Customers have also been promised more accurate pricing with scanners as they go through the checkout; however, in some instances, retailers have not delivered on this promise.

## **BACKGROUND**

Since the first scanner was installed at a grocery store in 1974, price scanning at checkouts has received both praise and criticism. As scanner usage became more widespread, many media and governmental reports started appearing based on the accuracy of these scanners. The major problem with these initial reports is that widely varying methods were used to collect information. For example, some of the reports concentrated solely on advertised or sale items, while others sampled prices across a store's entire inventory. Moreover, some reports were based on checking as few as ten items while others tested hundreds of items for pricing accuracy.

Methodology problems were solved in 1995 when all state weights and measures inspectors had standardized procedures available to them for conducting pricing accuracy inspections at retail stores. These standards and procedures had been developed by the National Conference on Weights and Measures (NCWM) sponsored by the National Institute of Standards and Technology (NIST). The NCWM Procedures [23] set forth a sampling and inspection procedure that can be used to conduct price verification inspections in all kinds of retail stores. Before the NCWM Procedure was adopted, pricing inspection procedures varied widely from state to state.

The NCWM procedure is based on the randomized selection of merchandise to be price checked and provides for two sampling procedures. In the "randomized" sample, all of the items in an "area" of the store (such as a section or an aisle) have an equal chance of being included in the sample. For example, an inspector may randomly select 25 items from each of the toy, sports, linen, and men's wear sections

of a department store, for a total sample of 100 items. In the “stratified” sample, items are selected from specific merchandise groups, such as advertised specials, in-store specials, and end-of-aisle displays. For example, an inspector in a food store may randomly select 10 advertised items, 10 in-store specials, 10 end-of-aisle items, and 70 items from the rest of the store.

The NCWM price verification procedure is based on the assumption that some pricing errors are inevitable due to human or other errors; therefore, the procedure provides that a store “passes” an inspection if 98 percent or more of the items sampled are priced accurately, rather than requiring 100 percent accuracy.

Beginning in 1996, a series of national studies were conducted using these national procedures to examine the pricing accuracy of retailers that used scanners. The Federal Trade Commission conducted a study examining pricing accuracy in 6 states [14]. The following year, results of a three-year pricing accuracy study was published at the University of South Carolina that had involved 10 states [10] [11]. In 1998, the Federal Trade Commission conducted a follow-up study involving 36 states and the U.S. Virgin Islands [15]. The FTC’s interest in scanner accuracy stems from its role in protecting consumers from deceptive practices.

All three of these national studies analyzed reports submitted by state weights and measures inspectors. The initial FTC study involved 294 inspections in six states. Research conducted at the University of South Carolina analyzed 2,388 inspections from ten states. The second/follow-up FTC study involved 1,776 inspections in 36 states and the U.S. Virgin Islands. The states participating in all three studies represented a wide geographic sample of the entire country. In addition, both large and small states were represented.

An examination of the total error percentage for the three studies indicated that pricing errors had declined in the United States since the first study was published in 1996. The total error percentage had declined from 4.82% to 3.87% to 3.35%. This decline in errors resulted in a corresponding increase in pricing accuracy which rose from 95.18% to 96.13% to 96.65%. Stores reaching the 98% accuracy goal had also steadily improved—from 41% to 58% to 71%. There was also a corresponding increase in the percentage of stores with 100% pricing accuracy—increasing from 22% with the first study to 43% in the last one.

Has pricing accuracy continued to improve since these three national studies? Reports vary from “Price scanners mostly on the money” [17] to “Faulty scanners ripping off public [12]. State inspections in Massachusetts of 88 stores representing 39 retailers found an accuracy rate of 99.58 percent [17] [21] [22], and in 2009 the overall accuracy rate was 99.51 percent [20]. And, in 2007 inspections of 4,500 items in 87 stores in that state found only four stores that failed to meet the 98 percent accuracy expectation [18]. The Associated Press [1] also has reported that similar results were found on recent inspections in Florida. Inspectors went to 54 stores in 24 cities and scanned 2,989 items. They found 28 overcharges and 26 undercharges with an accuracy rate of 98.2 percent, slightly better than the acceptable accuracy rate of 98 percent.

However, in other states a different picture is presented in media reports and press releases. Inspections in New York City [27] of 700 grocery stores found that 1/3 of them failed the 98 accuracy test. In North Carolina, which conducts pricing inspections continuously throughout the year fines stores that do not meet the 98 percent accuracy standard up to \$5,000 [2] [3] [4] [5] [6] [7] [8] [9] and re-inspects the stores within 60 days of the initial inspection. Large retail chains in other states have also been fined for

pricing inaccuracies. Office Depot [25] [24] was fined \$2.3 million in California, Target has been fined in New Jersey [26] and California [16], and Wal-Mart has also been fined in California [16] as well as Arizona [19].

Data would suggest that pricing inaccuracies still exist across the United States at retail stores that use scanners. In addition, there have been claims that retailers are intentionally using scanner errors to earn higher profits with items that are overcharges. The purpose of this research is to investigate that claim.

### **PROBLEM STATEMENT**

Since significantly higher error rates for overcharges might be viewed as a deceptive practice by retailers, the purpose of this study is to determine if a significant difference exists between overcharges and undercharges. The hypothesis established for this study is that the rate of overcharges will be equal to the rate of undercharges. That is, overcharges and undercharges should occur in a statistically equal proportion. If retailers are in fact intentionally overcharging customers, overcharges would be significantly higher than undercharges. The hypothesis being tested then can be stated as

**H1: There will be no significant different between overcharges and undercharges.**

A secondary purpose of this research is to begin a preliminary review of research related to the pricing accuracy at retail stores using scanners over the last five years. Based on this literature review, causes of pricing errors will be summarized and suggestions made as to how retail store managers can correct these pricing problems.

### **METHODOLOGY AND PROCEDURES**

The researcher obtained pricing inspection reports from nine states representing a wide geographic sample of the entire country. In addition, both large and small states were represented. These inspections included 117,495 items.

One assumption made by the researcher is that all state inspectors were interpreting the NCWM procedures in a similar manner. If followed consistently, the procedures are designed to produce a random selection of items to be inspected. All states participating in the study defined a pricing error as the scanned price not matching the shelf/posted price of an item. If the scanned price was higher than the shelf/posted price, an overcharge resulted. If the scanned price was lower than the shelf/posted price, the result was an undercharge.

The number and size of both overcharges and undercharges were tabulated. T-test analyses were calculated to determine if there was a significant different between overcharges and undercharges.

### **FINDINGS**

All errors (both overcharges and undercharges) were analyzed. In total, 117,495 items had been inspected from 2,104 stores. Four thousand three hundred and ninety-three items had been incorrectly priced—3.74 percent of the total. In other words, these stores had a pricing accuracy rate of 96.26 percent. There were 2,466 undercharges (2.10 percent of the total number of items checked), and 1,927 overcharges (1.64 percent of the total number of items checked). A t-test analysis revealed that there was a significant difference (at the .001 level) between undercharges and overcharges. Undercharges were significantly higher.

Overcharges and undercharges were also examined as a dollar percent of the retail price posted on the shelf. The retail value of the 117,495 items tested was \$779,533.87 with overcharges and undercharges totaling \$7,963.01, or 1.022 percent of the total value. This would indicate that slightly more than 1 percent of a customer's dollar purchase was incorrect.

Overcharges and undercharges were also examined separately. The 1,927 overcharges represented \$3,133.57 (.402%) of the total dollar shelf value. In other words, there were errors in the retail store's favor less than ½ percent of the time. The 2,466 undercharges represented \$4,829.44 (.620%) of the total dollar shelf value. A t-test analysis was performed based on the difference of these percentage impacts. Again, the percentage rate of undercharges was found to be significantly greater than the rate of overcharges at the .001 level.

## **DISCUSSION AND IMPLICATIONS**

Since undercharges were found to be significantly higher than overcharges, the data would indicate that retailers are not intentionally overcharging customers. Causes of these pricing errors still need to be examined more thoroughly since data would indicate that many retail stores are still not maintaining a 98 percent pricing accuracy rate. Moreover, the three national studies conducted in the late 1990s would also tend to support the same finding since undercharges were higher than overcharges. One conclusion that could be reached is that these pricing errors are a result of carelessness and inattentiveness rather than willfulness on the part of the retailer to deceive customers.

Although many retailers have achieved high levels of pricing accuracy, pricing errors continue. Are there specific reasons for this improved pricing accuracy by some stores? One reason may be the increased frequency of government inspections based on a standardized testing procedure. Also, better pricing accuracy may be due to growing retailer awareness of consumer and government concerns about pricing accuracy that have been reported by the media.

As pricing accuracy improves, retail store managers must identify the factors that are contributing to those improvements. These reasons may vary. Many retail stores, especially grocery stores, now employ pricing coordinators whose duties include maintaining pricing accuracy between their computer price file and shelf/posted prices. Performance evaluations of these individuals are tied to pricing accuracy results attained by their stores. At some retail stores, even a part of the store manager's evaluation is related to the pricing accuracy that is maintained.

Some retailers believe that good pricing practices are only a matter of devoting substantial resources to computer hardware and the development of software. The sole focus of good pricing practices, however, should not be the accuracy of prices in the store's database. To the customer, the price in the store's computer is not the most important price. The customer expects to be charged the price posted or advertised. Thus, good pricing practices must ensure that the price at checkout matches the posted or advertised price—a goal that can be achieved through updated technology, proper procedures, better employee training and periodic price inspections.

Pricing errors have resulted from numerous problems, including incorrect shelf and item prices, incorrect sign prices, out-of-date signs, and incorrect prices in the computer. Errors can also occur when prices in the store's computer are not updated in a timely manner. For example, sale signs may be put up or taken down before the corresponding change is made in the computer. Prices on hundreds and even thousands of items, at some stores, are changed weekly further complicating this task. Some of the

errors are probably inevitable. Specific policies must be in place when pricing errors are detected. Correcting an overcharge for one customer does not improve the store's pricing integrity unless feedback is quickly made to management.

Good pricing practices are likely to provide net benefits to the retailer. All scanner pricing errors can directly or indirectly reduce profits and sales. Stores can lose thousands of dollars through undetected undercharges. Consumers are also affected by scanner pricing errors. Consumers lose money when they are overcharged, and they are not likely to be comforted by the knowledge that a pricing error was an undercharge. Even undercharges may cause customers to begin to question all prices in a store and send them to the competitor's store.

It is doubtful, however, that the fact more customers are being undercharged provides comfort to those customers who are being overcharged. They will probably not be appeased knowing that in the long run, pricing errors balance out in their favor. All pricing errors, undercharges as well as overcharges, erode customer trust and loyalty. Customer trust in the technology being used is crucial to maintaining their confidence in a store's pricing procedures.

### **FUTURE RESEARCH**

Additional research is needed to identify and understand why pricing inaccuracies persist at retail stores that use scanners. Moreover, consumer perceptions of these inaccuracies need to be studied, and questions similar to these need to be answered—"Do consumers perceive that retailers are systematically overcharging them with scanners?" and "What are the consequences of such perceptions for retailers?" Building on these issues, consumer research could focus on an understanding of how consumption is affected by customers' perceptions of inaccurate pricing.

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