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# FOOD PRICES

Before and After Distribution of  
Welfare Checks...Low-Income  
Areas, Seven Cities, 1969

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U.S. DEPARTMENT OF AGRICULTURE  
ECONOMIC RESEARCH SERVICE  
OCT 5 1970  
COMMERCIAL RECORDS

## ABSTRACT

This report provides the results of a survey conducted by USDA in response to allegations that retail food stores operating in low-income areas raise prices to coincide with the issuance of welfare checks. Survey data--based on purchases made during two visits, 1 week apart, to 261 low-income area stores in seven cities--showed no identifiable pattern of price increases after the distribution of checks. Both price increases and decreases occurred, but, overall, the total cost of approximately 3,900 items purchased each week increased less than 0.1 percent from the first to the second week. In all cities surveyed, there was a significant correlation between the number of items that were not price marked and the number of price changes.

Key Words: Low income, Food, Retail prices, Consumer, Consumer Price Index, Welfare checks.

## PREFACE

In 1969, the Department of Agriculture conducted a survey to determine whether food stores in low-income areas increase prices after welfare checks are distributed. The Department was concerned because many people on welfare are also food stamp purchasers and, if such allegations were true, the effectiveness of the Food Stamp Program would be adversely influenced.

The Economic Research Service conducted the survey--April to August 1969--with technical assistance in designing and selecting the sample and performing statistical tests provided by the Statistical Reporting Service. Enumerators were field employees of the Consumer and Marketing Service's Compliance and Evaluation Staff.

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## HIGHLIGHTS

A 1969 survey of food prices in low-income areas of seven cities revealed no identifiable pattern of price increases after distribution of welfare checks. Although there were price increases and decreases, the total cost of approximately 3,900 items purchased increased less than 0.1 percent between the first and second week of the survey.

The 2-week survey was conducted by USDA's Economic Research Service in response to allegations that retail food store operators in low-income areas increase food prices after the issuance of welfare checks. The Department was concerned because any deliberate price increases to coincide with the issuance of welfare checks would adversely affect its Food Stamp Program.

The findings are based on prices paid for selected items in stores in low-income areas of Washington, D.C., Jackson, Miss., Boston, Mass., Newark, N.J., Detroit, Mich., Cleveland, Ohio, and Oakland, Calif. Specific food items used frequently by low-income families were purchased in each store the week prior to the issuance of welfare checks; these same items were purchased again on the same day 1 week later and immediately after checks were issued. All purchases were made without prior knowledge of store operators.

Of the total number of items purchased, prices were changed on 14 percent between the first and second week of the survey. The monetary change, however, was slight. Although about half these price changes were increases, the net difference owing to all changes was an increase of 85 cents on a total bill of \$1,600 per week for all purchases made in all sample stores in the low-income areas.

In about one-fourth of all stores visited, the cost of an identical basket of food was the same during both survey weeks. Nearly half the stores had cost differences of 5 cents or less, divided equally between increases and decreases.

Marked differences were recorded among the cities surveyed. For example, although three-fourths of the 261 stores changed the price of one or more items between shopping trips, nine of ten did so in Detroit and Cleveland, while about half did so in Boston. In Oakland, of the total number of items changing price, almost 60 percent showed a price decrease; of those items changing price in Detroit, 70 percent increased in price.

Several factors influenced variations in prices. Price changes were most likely to occur on items that were not price marked, and prices on fresh products changed more often than those on other items. Supermarkets tended to change prices more often than neighborhood stores. Errors at the checkout counter also accounted for variations in total grocery bills.

Normal fluctuations should be considered in any discussion of price changes. For example, during the Washington, D.C., survey, a seasonal decline in egg prices accounted for the largest share of changes. In other instances, advertised specials 1 week, preceded or followed by regular prices the other week, caused most of the widest fluctuations. Furthermore, food prices in general had been rising. From April to August 1969, the All U. S. Consumer Price Index for Food at Home went up 3.6 percent and was near its highest level in 1969 in four of the five cities surveyed.

FOOD PRICES BEFORE AND AFTER DISTRIBUTION  
OF WELFARE CHECKS ... LOW-INCOME AREAS,  
SEVEN CITIES, 1969

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INTRODUCTION

This report presents the results of a survey of prices of identical food items before and after issuance of welfare checks in low-income areas. <sup>1/</sup> These areas were randomly selected in seven cities: Washington, D.C., Jackson, Miss., Boston, Mass., Newark, N.J., Detroit, Mich., Cleveland, Ohio, and Oakland, Calif. In total, 261 stores were shopped and 3,933 purchases made on the same day of the week before and after welfare checks were distributed. The surveys were conducted during spring and summer months of 1969.

Four types of analyses were made: (1) variations in prices paid for identical items purchased 1 week apart, (2) factors contributing to price changes, (3) cost of identical market baskets of food, and (4) miscellaneous factors affecting the total grocery bill. These analyses are discussed in the following paragraphs along with a brief resume of the incidence of items being out of stock the second week.

Because of some major differences in the seven cities, the findings of each are presented, followed by a description of the methodology used in the conduct of the survey. The report concludes with a statistical analysis of the data and a summary, by type of store, of data from each city surveyed.

SUMMARY OF FINDINGS

Variations in Prices

Survey results show that about three-fourths of the 261 stores changed the price of one or more items between the first and second shopping trip. This finding varied among cities, ranging from about half the stores in Boston changing prices to nine out of 10 in Detroit and Cleveland. The higher proportion of supermarkets in the Cleveland sample and the fact that supermarkets

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<sup>1/</sup> A companion report, "Food Prices Before and After Distribution of Welfare Checks ... Low-Income Areas, Seven Cities, 1969--A Statistical Summary," provides information on procedures used and basic price data.



tended to change prices on more items than did other types of stores may partly account for the higher figure. 2/

Although many stores changed at least one price, only two stores--one in Newark and one in Cleveland--had, according to the Sign test, significantly more increases than decreases among the items where a price change occurred.

Of the 201 stores changing prices, about 40 percent had both increases and decreases. Slightly more than a third had increases only and the rest had decreases only. Detroit and Cleveland had the largest percentage of stores having increases only; Boston and Oakland the smallest.

Overall, only 14 percent of all items purchased changed price between the first and second shopping trip, with increases having a slight edge over decreases. Most changes were small, consisting mainly of increases or decreases of 1 or 2 cents.

Prices of fresh items--chicken, eggs, ground beef, frankfurters, and milk--changed most often. Those changing least often included bread, rice, fruit cocktail, and flour.

#### Factors Contributing to Price Changes

A significant factor relating to price changes was whether items were individually price marked. The correlation between the number of unmarked items and the number of price changes was highly significant in all cities.

In supermarkets, 15 percent of the items purchased were not price marked on both shopping trips and these accounted for 25 percent of the price changes. In neighborhood stores, about half the items purchased were not price marked and around three-fourths of the price changes were on these.

A second factor responsible for some changes in prices was advertised "specials." Although Tuesday and Wednesday were the days selected for the survey to minimize the influence of these specials, some were included in the purchases. Meats--chicken, frankfurters, and ground beef--made up a large share of the specials and accounted for some of the widest fluctuations in prices.

The effect of seasonal and general trends in prices was another factor. For example, during the survey in Washington, D.C., in April-May 1969, the price of eggs lowered seasonally. In contrast, during a later period in Detroit and Cleveland, a citywide rise of 1 cent a quart on fresh milk went into effect August 1--between the first and second visits to these stores. Also, according to the Bureau of Labor Statistics, the All U. S. Consumer Price Index (CPI) for Food at Home rose 3.6 percent from April to August 1969. During these months, the Index rose steadily and, during July and August, was

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2/ See page 18 for description of different types of stores.

near its highest level in 1969 in four of the five cities surveyed at that time. (See chart showing change in each city.)

In addition, enumerators in most cities reported that, at times, clerks could not agree among themselves about the price of an item. On some occasions, particularly in small stores, a clerk changed a price already charged after being corrected by the store owner.

#### Cost of Identical Market Baskets

To ascertain the net effect of price changes, the amount paid for items purchased during both weeks in the same store was totaled, by week. The result showed that the total cost was the same for both weeks in about a fourth of the 261 stores. Of the remaining stores, 41 percent were higher the second week and 33 percent were lower.

Changes in total bills between the first and second weeks ranged from a decrease of 55 cents on an expenditure of \$8.14 and an increase of 42 cents on \$9.66. Approximately half the stores had differences of 5 cents or less, about equally divided between increases and decreases. Among stores having the largest differences, decreases outweighed increases. Several of these differences could be identified as resulting from specials in one of the weeks.

#### Miscellaneous Factors Affecting the Total Grocery Bill

The comparisons of price changes discussed previously were based on changes in marked prices or first price paid for an item. In addition, errors were made at the checkout counter that affected the actual amounts paid during both survey weeks. 3/ In general, these errors were of two types: (1) failure to charge the correct price--or any price--for an individual item, or (2) mistakes in figuring the total bill including addition errors, miscalculated sales tax, or an unaccounted for extra charge on the bill.

The checker's miscalculating the cost of a single unit when the item was multiple priced accounted for many errors in charging for an item. 4/ The incidence of this so-called "breakage" was highest in supermarkets and may have been due, in part, to more multiple pricing by the larger stores. The prevalence of these errors seemed to occur by stores--once started, the same clerk was likely to make more. Except for a few instances in which the clerk charged the multiple price for a single item, most of these errors amounted to 1 or 2 cents.

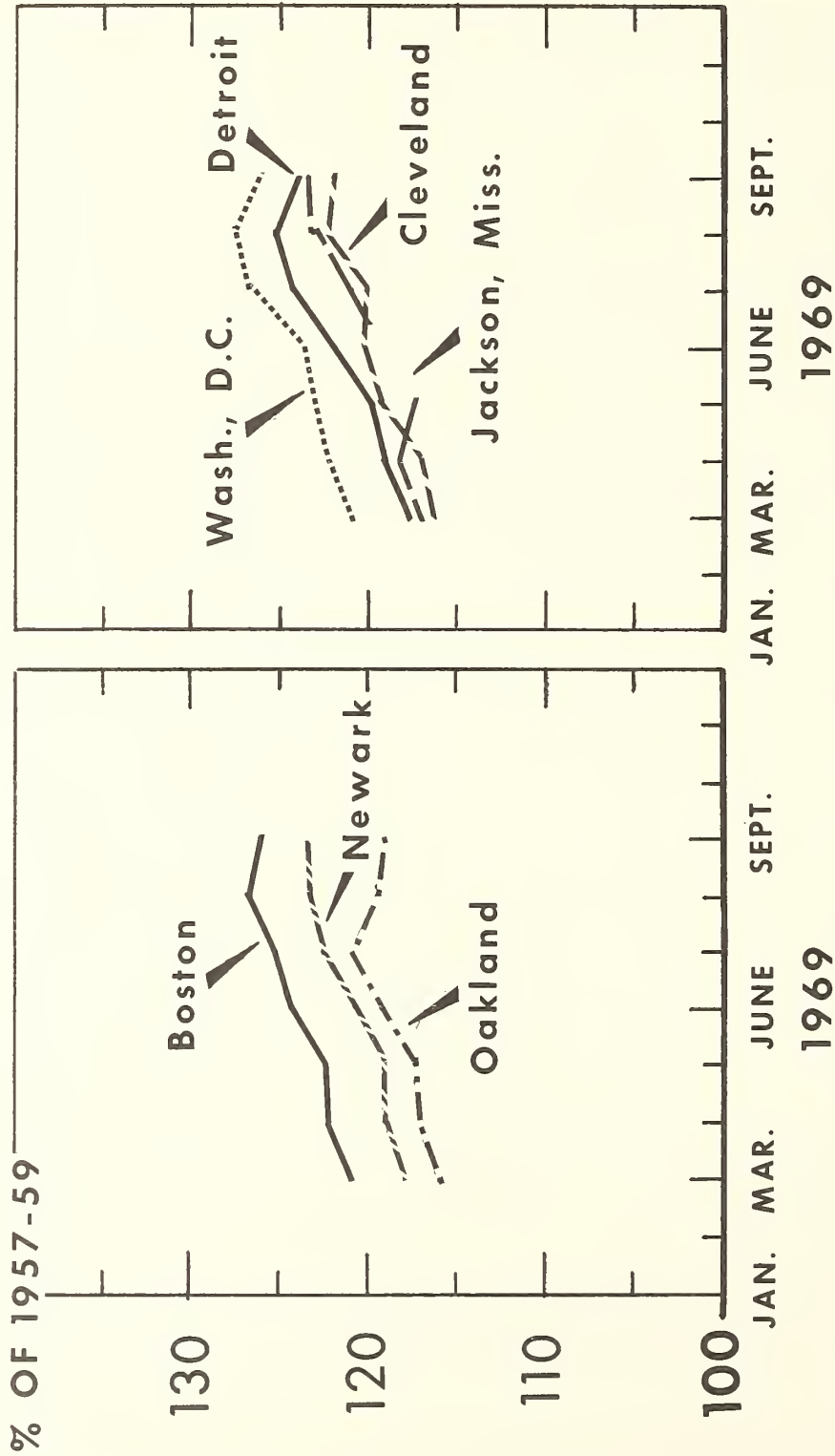
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3/ For example, if an item were marked 25 cents both weeks, but the clerk charged 25 cents the first week and 27 cents the second, this was not counted as a price change but as an overcharge the second week.

4/ When items were priced in terms of multiples, unit cost was computed by dividing price shown by multiple and raising cost for one unit to the nearest whole cent.

# CONSUMER PRICE INDEX

Food at Home, Seven Cities



SOURCE; U. S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS

U. S. DEPARTMENT OF AGRICULTURE

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Products most usually affected by breakage were evaporated milk, baby food, and green beans--possibly because these products are frequently multiple priced and seldom purchased in single units. For instance, evaporated milk was priced in multiples of twos, threes, and fours, e.g., three for 55 cents and four for 79 cents, making it difficult to mentally figure the unit price.

In supermarkets in all seven cities, 58 errors on items were made the first week with a net undercharge of \$1.51. In the second week, 53 errors caused a net loss to the stores of \$1.66. In the neighborhood stores, there were 50 errors the first week for a net undercharge of \$3.70. In the same stores the next week, 38 errors resulted in a net undercharge of \$1.70. Almost half of all the errors on items were caused by miscalculating multiples. Many undercharges were due to the checker's failure to ring up an item and were usually much larger than those resulting from breakage. Not charging for a pound can of coffee at 90 cents offsets many differences of 1 or 2 cents from breakage. Mainly because of the items omitted from the tape, the dollar value of undercharges was about 3 times as great as the overcharges in these two types of stores.

Each city had at least one instance of an addition error or an unaccounted for charge on the bill. During the survey, Detroit, Cleveland, and Oakland each had only one of either type. Newark had an unaccounted for charge on the bill each week, with one being the largest found in any city. This error was an overcharge of \$4.59 in a supermarket, owing to failure to clear the cash register of the previous transaction. Boston had the largest share of errors on the total bills, with nearly all occurring in stores having handwritten bills rather than register or adding machine tapes.

Three cities had a sales tax on food and, in all three, errors were made in calculating the tax. In Washington, for example, there were 18 errors, only one of which--an undercharge--was made in a supermarket. All others--12 overcharges and five undercharges--occurred in neighborhood stores. In Jackson, there were 13 errors--mostly undercharges. Detroit had eight overcharges and 12 undercharges. Nearly all the errors in these three cities were less than 10 cents; almost two-thirds were only 1 or 2 cents.

### Out-of-Stock Items

During the second week of the survey, enumerators were instructed to buy, in each store, only the items identical with the ones purchased the first week. No substitutions were allowed. If specified items were not available, they were reported as out of stock. Overall, 441--or about 10 percent of the 4,374 items purchased during the first week--were not in stock the second. This pattern, however, varied somewhat by city, with Washington and Detroit having the largest and Oakland the smallest share of items not available on the second shopping trip. Neighborhood stores were out of a slightly larger share (10 percent) of specified items the second week than supermarkets (9 percent).

Washington, as a pilot city, may have had a slightly larger share of items reported out of stock because the impact of late deliveries and overlooked items had not been anticipated. In the other cities, return visits the same day by different enumerators were required if doubt existed about the availability of



items. Because of a bakers' strike in Detroit, bread accounted for nearly half the items being out of stock. In the other five cities, less than 10 percent of all items were unavailable. Products most often out of stock the second week were margarine, fresh meat, frankfurters, and bread (which was influenced to a considerable degree by the Detroit strike). Those least likely to be off the shelf included fresh milk, evaporated milk, sugar, rice, and flour.

## FINDINGS BY CITY

The survey pointed up some major differences among cities, and some highlights relating to each are presented in the following paragraphs.

### Washington, D.C.

Washington, the first city surveyed, had 51 stores in the sample--the largest number in any city--of which proportionately more convenience stores and delicatessens were included. As in most other cities, neighborhood stores far outnumbered other types.

Three-fourths of the stores had one or more changes in prices between the first and second shopping trip. Approximately 40 percent had both increases and decreases with the rest evenly divided between those having increases only and decreases only. Of the stores with changes, nearly 40 percent had changes amounting to only 1 or 2 cents. Overall, the increases and decreases were offsetting.

Washington stores also yielded the largest number of price comparisons--716 pairs could be used to ascertain changes from one week to the next. Only 88, or 12 percent, of the items purchased changed price between the first and second shopping trip, and slightly more than half these were decreases. Among products, eggs, margarine, and chicken had proportionately more changes than other items. Seasonal drops in egg prices and weekend specials on chicken largely accounted for these changes, which were fairly consistent among stores.

About two-thirds of all items were price marked during the first or both weeks, with milk, eggs, and bread least likely to be marked. There was a statistically significant correlation between the number of unmarked items and the number of price changes.

Sixty percent of the market baskets either did not change or decreased in total cost from week 1 to week 2. Among stores, the largest increase in the cost of the market basket--17 cents--was noted in a supermarket in which a special the first week was reflected in a higher price on the repeat visit. When this factor was taken into account, there was an increase of only 1 cent on a total cost of \$7.75.

Breakage errors were found on 17 items--14 of these in supermarkets. These 17 errors amounted to a net overcharge of 22 cents. Except for one overcharge of 11 cents and one of 5 cents, the other errors were only 1 or 2 cents on an item.

There were 18 instances of mistakes in computing the sales tax--seven the first week and 11 the second. Only one of these, an undercharge of 7 cents, occurred in a supermarket. The others took place in neighborhood stores, with overcharges outnumbering undercharges 12 to 5. During the 2 weeks, overcharges amounted to 72 cents, undercharges to 27 cents.

Nearly 13 percent of the items specified for purchase the second week were not available. Those most frequently reported out of stock were store ground beef, fruit cocktail, frankfurters, rice, and eggs. About one-third of the stores in which bulk ground beef was purchased the first week did not have the item the second week; one-fourth did not have fruit cocktail.

Although neighborhood stores were most likely to be out of an item, the difference among stores was not large. As indicated earlier, enumerators were not required to doublecheck missing items in Washington.

### Jackson, Miss.

Because most welfare checks were distributed on the 16th day of the month, the survey in Jackson was made during the second and third weeks of June 1969. Since this city is smaller than the others, only 25 stores were included in the sample--four supermarkets, one convenience store, and 20 neighborhood stores.

All but five stores--all neighborhoods--had at least one price change from the first to second week of the survey with 60 percent having only one or two. At the other extreme, one neighborhood store had five changes and one had nine. Approximately an equal number of stores had price increases only, decreases only, and both increases and decreases.

There were 53 price changes among the 382 items purchased--almost evenly distributed among increases and decreases. Overall, a net increase of 27 cents was due, in large part, to changes in the price of margarine, frankfurters, and ground beef.

Nearly three-fourths of the items were price marked one or both weeks. Even in small neighborhood stores, more than half the items purchased were marked. Again, however, proportionately more changes occurred on unmarked than price marked items. The correlation between the number of unmarked items and the number of changes was statistically significant for neighborhood stores.

Five of the 25 stores charged the same both weeks for identical baskets of food. Eight charged from 1 to 20 cents less the second week, and 12 charged 2 to 17 cents more. Although more stores had more increases than decreases, the net difference between the first and second shopping trip was only 0.2 percent on a total expenditure of \$153 per week, which is particularly significant since a period of generally rising prices existed.

Many instances of mistakes at the checkout counter occurred in Jackson, most of which were in the customer's favor. The biggest errors were caused by the omission of charges for items received. There were eight charges, totaling \$3.89, left off bills. In one store alone--a supermarket--these omissions

amounted to \$1.93--85 cents the first week and \$1.08 the second. When under-charges of 16 cents are added to \$1.93, a total of \$2.09 was not charged, representing a 13-percent loss to the store.

Some errors were made in computing Jackson's 5 percent sales tax on food. Most of these were in the customer's favor and small, although one error of 37 cents resulted from charging a tax of only 5 cents instead of 42 cents. Overall, the stores had a net loss for the 2 weeks of \$4.45, when all types of errors at the checkout counter were combined.

Eight percent of the items purchased the first week were not available the second. In supermarkets, 3 percent of the items were out of stock, compared with 9 percent in neighborhood stores. Fruit cocktail, bread, and frankfurters were most frequently unavailable during the second week. Green beans, rice, and coffee were never reported out of stock.

### Boston, Mass.

Boston differed from the other six cities in some ways. First, no clear-cut poverty areas were evident, even though the ones included in the sample had been officially designated as such. Middle- and low-income families as well as people from surrounding areas shopped in the sample stores. In addition, there was a diversity of ethnic groups. For example, one of the sample areas had a large concentration of Italians; another catered primarily to families of Polish and German descent. Also, at the time of the survey, a Commodity Distribution Program, rather than the Food Stamp Program, was operating.

Forty-three stores were included in the survey sample, nearly 80 percent of which were neighborhood stores--the largest number in any of the seven cities. Stores in the Italian neighborhood were unique because they did not carry fresh meats. Meats were available only in butcher shops, which was common practice before the advent of the all-encompassing supermarkets.

Despite its larger share of neighborhood stores, Boston ranked third in the number of items purchased. Only in Cleveland, with three times as many supermarkets, and in Washington with far more stores, were more items purchased. An indication of variety of items was shown by the diversity of brands. Although an attempt was made to keep these brands identical for each product from store to store, there still were 27 different brands of margarine purchased, the largest number for any product in any city. In addition, there were 20 brands of green beans and 11 of coffee--the highest number for these in any city.

Still another characteristic peculiar to the neighborhood stores was that many had neither a cash register nor an adding machine. In four out of 10 visits, enumerators had to inquire about the prices charged for items. Many times, the storekeeper wrote the prices on a grocery bag or a scrap of paper. Despite this practice, Boston had the smallest share of stores changing prices between the first and second week of the survey. Only 24 of 43 stores (56 percent) changed one or more prices, and half of these stores changed only one or two. Thirteen stores had both increases and decreases in prices, six had



increases only, and five had decreases only. As in other cities, supermarkets were most likely to change prices.

Only 11 percent, or 70 of the 640 items purchased, changed prices. This rate, too, was the lowest in any of the cities surveyed. Although the changes were equally divided among increases and decreases, the net difference amounted to a decrease of 44 cents.

Price changes were most likely to occur on fresh items. For example, chicken fryers accounted for less than 2 percent of the prices but 7 percent of the changes. Frankfurters, eggs, and ground beef also accounted for a rather large share of the price changes. On the other hand, the price of bread never changed.

About two-thirds of the items had prices marked on them. Although supermarkets had the largest share of price-marked items, about half those from the smaller stores--delicatessens and neighborhoods--were marked also. In these stores, as in other cities, items not marked were likely to change in price. In neighborhood stores, there was a statistically significant correlation between the number of unmarked items and the number of price changes.

Twenty-two of 43 stores (51 percent) charged the same for an identical basket of food on both shopping trips. Only eight stores charged more the second week while 13 charged less, resulting overall in a decrease of 44 cents on an expenditure of \$266 per week.

As in other cities, errors were made at the checkout counter. The wrong price was charged for 30 items with nearly two-thirds of these in the customer's favor. Eleven of the errors were attributed to miscalculating the cost of a single item which was multiple priced. The dollar value of all undercharges on items was  $2\frac{1}{2}$  times as large as the value of the overcharges.

Since Boston did not have a sales tax on food, there were no errors of this type. However, there was a total of 22 errors on the total bill (other than on tax) in the seven cities, and eight of these were in Boston--all in neighborhood stores. Seven of the errors were found on handwritten lists. Overcharges in four stores amounted to \$1.58, with one store accounting for a single error of 92 cents. Total undercharges in the other four stores amounted to only 15 cents.

When enumerators returned to stores the second week of the survey, 58 (8 percent) of the items purchased the first week were not available. In supermarkets, the out-of-stock rate was about 10 percent; in neighborhood stores it was 8 percent. Frankfurters and green beans, the items most frequently unavailable, were out of stock on about a fifth of the return visits. In contrast, of 92 coffee items purchased the first week, 91 were available the second week.

#### Newark, N. J.

One factor that caused problems in price comparisons in this city was the profusion of brands of bread sold in low-income area stores. Furthermore,



there was a wide assortment of weights, some of which could not be readily identified without checking labels. Out of 53 loaves purchased, there were 10 different brands in six different sizes. One brand was available in five sizes, another in four, three had three sizes each, and the rest had one or two. Weights varied from 12 to 22 ounces. This latter fact may have been responsible, in part, for the high rate of bread being out of stock the second week. Although stores may have had the same brand, they did not have the same size purchased the first week. While the out-of-stock rate for all items in all stores was only 7 percent, that for bread was 22 percent.

Stores surveyed included six supermarkets, two delicatessens, and 24 neighborhoods. About eight of 10 of these stores changed at least one price between the first and second shopping trip. Nearly half the stores had price changes both ways. Of the remainder, about twice as many had increases only as had decreases only. Although the number of changes per store ranged from one to eight, about two-thirds of the stores had less than five.

Of the 484 items purchased, 83 (17 percent) changed in price, and about six of 10 changes were increases. In supermarkets and delicatessens, more than half the changes were decreases while in neighborhood stores almost three-fourths were increases. Items changing price most often were ground beef, frankfurters, coffee, margarine, green beans, and eggs. There was a statistically significant number of increases in green beans and frankfurters.

About half the items purchased were price marked both weeks. Most of the chicken, ground beef, and bread were marked, while milk, eggs, margarine, and frankfurters were least likely to have prices on them. More than two-thirds of the price changes were on unmarked items, and there was a statistically significant correlation between the number of items unmarked and the number of price changes.

One small neighborhood store had significantly more price increases than decreases among items where a price change occurred between the first and second week. Eight of 13 items purchased each week increased in price; none decreased. The increases ranged from 2 to 10 cents with all but one of these occurring on items that were not price marked. The total cost of identical baskets of food was 42 cents higher the second week. In addition, there were overcharges on rice amounting to 24 cents.

In seven of the 32 stores, the total cost of identical market baskets was the same both weeks. Among the rest of the stores, 14 (63 percent) increased in cost and 11 decreased. Changes in the cost of the same basket of food in individual stores ranged from a decrease of 5 percent to an increase of 9 percent. In supermarkets, the net cost was 1 percent less the second week; in neighborhood stores, about 1 percent more; the difference between the two types of stores was statistically significant. Overall, the net difference in these market baskets between weeks 1 and 2 was an increase of 43 cents on an expenditure of about \$194 per week.

The foregoing describes changes on the second visit of marked prices on items or, if not marked, changes from the price paid on the first visit. There were, however, checker errors as well which, in total, were greater in magnitude

than the price changes. Altogether there were 24 errors on items--equally divided between under- and overcharges. Two undercharges were due to miscalculation of unit costs of multiple priced items; six attributed to not charging for items received; and five were other types of undercharges--all of which, in total, amounted to \$2.15. Overcharges included one on "breakage," two where the entire price of the multiple was charged for a single unit, and seven others. In total, these overcharges amounted to \$1.03. Up to this point, the difference was in favor of the customer. However, there were two other errors on the total bill--one of 33 cents which could not be explained, and one for \$4.59 which apparently resulted from the register not being cleared from the previous sale. The net difference from all types of errors was an overcharge of \$3.80.

#### Detroit, Mich.

In this city, two events occurred between the first and second shopping trips that somewhat influenced findings. First, there was a bakery strike, which resulted in nearly three-fourths of the bread items purchased the first week being unavailable the second and caused the out-of-stock rate to be the highest in any city. Second, there was a 1-cent across-the-board increase in the price of a quart of milk.

Also, the sampling procedure required some modification. As first drawn, more stores were located in the sample areas than anticipated and more than staff and materials were available to handle effectively. To solve this problem, a subsample was constructed by the statistician responsible for this phase of the survey. This subsample provided 33 stores, including eight supermarkets, two convenience stores, and 23 neighborhoods.

All but three stores--one convenience and two neighborhoods--changed prices between the first and second week with about half the stores changing only one or two. All eight supermarkets changed prices; seven had increases only and one had both increases and decreases. Most neighborhoods also changed prices, with the largest share of these adjusting prices both ways. Two neighborhood stores had decreases only; seven had increases only.

There were 456 pairs of food items purchased both weeks. Of these, 84 (18 percent) changed prices between the first and second week--the largest share in any city. In addition, almost 70 percent of the changes were increases. Some of these, of course, were the result of a citywide increase in milk prices during the intervening weekend. By the second survey date, 19 of the 33 stores had raised their price for milk. Six supermarkets increased the price 1 cent; 13 neighborhood stores raised it by at least 1 cent. Two of these latter stores raised the price 2 cents the second week; two increased it 3 cents; and, in two others, it was 4 cents higher. In contrast, two supermarkets did not change their prices on milk and, in two neighborhoods, the price went down. When allowance is made for this general increase in the price of milk, only 14 instead of 18 percent of the prices changed.

Price increases ranged from 1 to 14 cents on items with ground beef having the largest increase. Decreases ranged from 1 to 20 cents with the

largest change in price on ground beef. Overall, 85 percent of the increases and 65 percent of the decreases amounted to 4 cents or less. Half the changes were on items that were not price marked either 1 or both weeks. As in other cities, there was a direct correlation in the number of items unmarked and the number of price changes.

There was no one store where the number of price increases exceeded the decreases significantly. Nevertheless, the number of increases in prices in supermarkets as a group and in all low-income area stores was significantly greater than the decreases. Even when adjustments were made for milk price increases, there were still a significant number of increases. However, note should also be made that in Detroit in August 1969 the Consumer Price Index for Food at Home reached its second highest level for the year. The percentage increase in this Index between July and August was greater than the rate of increase found in the sample stores.

When purchases were combined into identical market baskets, those for five stores cost the same both weeks. Among the other 28 stores,  $2\frac{1}{2}$  times as many increased as decreased in cost. Increases ranged from 1 to 14 cents, with nearly half amounting to 3 cents or less. Decreases were spread over a wider range, viz., 2 to 32 cents. Overall, the change in these market baskets the second week was an increase of 28 cents on a total cost of \$185 per week--or less than 0.2 percent.

Although there were some checker errors, miscalculating the unit cost of multiple priced items was not as common as in the other cities. There were only two of these--both made in the same supermarket and by the same checker. One of these errors was an overcharge of 1 cent, the other an undercharge of 7 cents.

Beside errors on multiples, checkers made 17 more in ringing up the cost of individual items. These were about equally distributed between over- and undercharges. The undercharges totaled twice as much as the overcharges--75 cents, compared with 37 cents.

There were 20 miscalculations of food sales tax, with most amounting to only 1 cent. However, owing to one neighborhood store not charging any tax either week, there was a net undercharge of 60 cents. In addition, there was a 59-cent charge on the tape from one supermarket that could not be accounted for. Overall, the net difference because of errors was 39 cents in favor of customers.

### Cleveland, Ohio

Starting August 1, there was a 1-cent across-the-board increase in the price of fresh milk in Cleveland. In contrast to Detroit, however, this increase did not show up as quickly in store prices. On the second shopping trip, not quite half the stores had changed their prices. Nevertheless, among those that did, most raised the price more than 1 cent. One supermarket increased its milk price 4 cents. In another supermarket and three neighborhood stores, milk was the only item that changed price and the increases were 2 or 3 cents each.



Cleveland was the only city in which supermarkets represented more than one-fourth of the sample stores; it had nearly twice as many as Washington, D.C., which had the next highest number. As might be expected, Cleveland also had the smallest number of neighborhood stores. In total, 21 supermarkets, one convenience store, and 17 neighborhood stores were shopped both weeks. Some of the findings for these visits may, in part, reflect the influence of such a high proportion of supermarkets, e.g., the number of items price marked, the number of price changes, and even the diversity of brands purchased.

Cleveland had the highest proportion of stores changing price of any of the survey cities. All but three stores--one supermarket and two neighborhoods--changed at least one price between the first and second shopping trip. Nearly two-thirds of the stores had no more than three changes. Forty-four percent had price increases only; 42 percent had some going both up and down.

Of the 690 items purchased each week, about twice as many were from supermarkets as from neighborhoods. The number purchased in individual stores ranged from 10 to 28 with an overall average of 18 per store, the highest number in any of the survey cities. Eight out of every 10 items purchased were price marked both weeks--again the largest share in any city. Even in neighborhood stores, two-thirds of all items were marked both weeks.

Sixteen percent of the items purchased changed prices between the two survey dates. Other than fresh milk, changes were most likely to occur on evaporated milk, chicken, and margarine.

There was a total of 109 price changes--almost twice as many increases as decreases. Supermarkets had 48 increases out of 70 changes in price, and neighborhoods had 21 increases out of 37 changes. Although about half the increases amounted to only 1 or 2 cents on an item, about a fifth of the increases and decreases amounted to 10 cents or more. These latter increases ranged from 10 to 20 cents with a clustering between 10 and 14 cents. The decreases ranged from 10 to 18 cents with most of these clustering around the lower level. Three of the large increases and two of the decreases were the result of changes in price owing to advertised specials during one of the 2 survey weeks.

In supermarkets, the net difference in all price changes between the first and second shopping trips was an increase of \$1.14; in neighborhoods, it was 3 cents; and in the convenience store, 1 cent. Altogether this amounted to an increase of \$1.18, or 0.4 percent on an expenditure of \$287.27 per week.

Both the number of price increases in low-income area stores and in supermarkets as a group were found to be statistically significant. In addition to the overall character of price changes, one low-income area supermarket with seven increases and no decreases in price was found by the Sign test to be statistically significant. Although data provide these results, note that in Cleveland, as in Detroit, the survey was conducted during a period of rapidly rising prices as shown by the Consumer Price Index. Between July and August, the Index for Food at Home in this city rose about 2 percent.

Four of the 39 stores included in the low-income area samples charged the same price for an identical basket of food on both shopping trips. Of the

rest, 23 charged more and 12 charged less the second week. The net difference in the cost of these market baskets from the first to second week amounted to an increase of \$1.18.

As in all other survey cities, errors were made by checkers in ringing up the prices of items. There were 51 of these errors made in 17 of the 39 stores. Around half were due to miscalculating the cost of single items that were multiple priced.

About 60 percent of all errors on items were only 1 or 2 cents. Four fell between 11 and 32 cents--all undercharges. In one supermarket, a checker was responsible for a 52-cent undercharge resulting from four errors ranging from 7 to 23 cents each. Total undercharges on items were almost three times as large as overcharges--\$1.79, compared with \$0.62. There was only one error on the total bill--a 38-cent overcharge in the neighborhood store--which could not be accounted for.

Nine percent of the items purchased the first week were out of stock on the next trip. In supermarkets, 7 percent were unavailable; in neighborhood stores, the rate was 12 percent. Bread, frankfurters, and margarine were most likely to be out of stock, and fresh milk and rice were usually available.

#### Oakland, Calif.

One confusing practice in Oakland was the double price marking of a major brand of bread. During the survey period, a price of 29 cents was printed on the wrapper. Pasted on the wrapper and, not always over the 29-cent mark, was a sticker giving the price as 4/95 cents. Some of the stores noted this latter price, but still charged 25 cents a loaf or at the rate of 4/\$1.00. Most of the stores, however, charged the 29-cent price both weeks.

In each survey city, an attempt was made to keep brands as constant as possible in sample stores. This effort was most successful in Oakland where there was more uniformity in brands purchased than in any other city. Oakland stores also had the smallest share (6 percent) of items out of stock the second week.

Thirty-eight stores were shopped in the low-income areas--four supermarkets, one convenience store, two delicatessens, and 31 neighborhood stores. Eleven stores--nearly 30 percent of the sample--did not change prices from one week to the next. Among those not changing were one supermarket, the convenience store, a delicatessen, and eight neighborhoods. Boston was the only city with a larger share of stores maintaining the same prices on both survey dates.

Of the stores that changed prices, about half made only one or two changes. At the other extreme, seven stores--most of which were neighborhoods--had five to seven changes. The largest share (44 percent) of stores had some prices going both up and down with the remaining ones about equally divided between those having decreases only and increases only. In all types of stores, there were more decreases than increases in prices of items.

Of the 565 items purchased both weeks, 75 or 13 percent changed prices between the first and second shopping trips. Almost 60 percent of these were decreases. About half the changes, whether increases or decreases, amounted to only 1 or 2 cents. Nearly all of those of 10 cents or more were decreases.

Evaporated milk, eggs, and chicken were items most likely to change price; frankfurters, fresh milk, flour, and sugar were least likely to do so. A statistically significant decrease in the cost of evaporated milk occurred in neighborhood stores.

About two-thirds of the items purchased had prices marked on them 1 or both weeks. Supermarkets had a much larger share (82 percent) than neighborhoods (59 percent). Bread was nearly always marked, and all other items except margarine, eggs, fresh milk, and evaporated milk were marked at least half the time. The correlation between the number of items unmarked and the number of price changes was statistically significant for the neighborhood stores.

Overall, a third of the stores charged the same both weeks for an identical basket of food and about an equal share of the stores charged less. Total decreases were about  $2\frac{1}{2}$  times as great as increases--\$1.41, compared with 54 cents. Overall, there was a net decrease of 87 cents or 0.4 percent on an expenditure of \$221.93 per week.

In contrast to the other six cities, the Bureau of Labor Statistics' Index for Food at Home for the San Francisco-Oakland area was declining at the time of the survey. It reached a peak in July and in August dropped about 1.2 percent to approximately the June level. The September Index showed a still further decline. The drop in the Index reflects the decreases shown by the Oakland data.

Checkers in the Oakland stores also made errors in ringing up the grocery items. Twenty-six such errors were made, 11 of which were due to miscalculating the cost of a single unit when the product was priced in multiples. These errors were likely to be small overcharges. In contrast, undercharges were the largest share of other types of errors. The net difference from all errors on items was to the customer's advantage--a decrease of \$1.15.

Only one store made an error in totaling the bill. This 6-cent overcharge--a mistake in addition--was made in a neighborhood store, the only one in which the enumerator received a handwritten list of the purchases.

#### CONDUCT OF SURVEY

The primary objective of this study was to check prices of selected food items in low-income area stores before and after the issuance of welfare checks. The seven cities included in the survey were suggested by the Food and Nutrition Service, which administers USDA consumer food programs. With the exception of Boston, all cities participated in the Food Stamp Program. Washington, D.C., served as a pilot city for the survey. As noted earlier, the other survey cities were Newark, Detroit, Cleveland, Jackson, and Oakland.



Dates for the survey were determined by the date of issuance of welfare checks. In all cities except one, the largest share of checks was mailed around the first of the month. The exception was Jackson, Miss., where most checks were mailed on the 16th of each month. The cities and the 1969 survey dates were: Washington--April 29, 30 and May 6, 7; Jackson--June 11, 12 and June 18, 19; Boston, Newark, Detroit, Cleveland, and Oakland--July 29, 30 and August 5, 6. Enumerators visited stores on Tuesday or Wednesday before the issuance of checks and on the same day 1 week later. Midweek days were selected to minimize the influence of weekend advertised specials.

An important outcome of the pilot survey in Washington, D.C., was confirming that available lists of stores were inadequate as a basis for sampling. In this city, some of the stores on the list had been torn down to make way for new housing projects, some had gone out of business, some had changed their type of operations, and still others were not shown on the most recent lists. The inadequacy of lists precluded sampling by types of stores and necessitated sampling areas within the city.

As a result of the Washington survey, two minor procedural changes were made. During the pilot survey, enumerators were instructed to buy such items as baby food and evaporated milk in the units or multiples as priced in each store, causing some difficulty in reducing prices to a common denominator. Because of this, single units of all products were specified for purchase in the six other cities.

The second change was to give greater attention to out-of-stock situations. Recall visits to check for out-of-stock items--particularly fresh items--which were not emphasized in Washington became standard procedure in other survey cities. If any doubt existed that an item may have been overlooked, a second individual was sent back to the store the same day to check and buy it, if available.

Although the characteristics of each city required some procedural changes, the following general sampling technique was used. Poverty areas 5/ were delineated on detailed maps of each city. Known food stores were plotted on the map as a guide in dividing the city into small sampling areas. Six or more sample areas of at least 10 city blocks each were then randomly selected throughout the low-income area.

Each sample area was canvassed and each food store located within the boundary lines of the area was identified. A boundary line was defined as the center line of a road, creek, or railroad track. Each store was included in the survey if it carried 10 or more of the items on the survey shopping list.

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5/ These poverty areas, with the exception of Jackson, were those designated in Maps of Major Concentrations of Poverty in Standard Metropolitan Statistical Areas of 250,000 or More Population (Vols. 1-3), U. S. Bureau of Census for Office of Economic Opportunity, 1966 (using 1960 Census data). A statistician located in Jackson drew the boundaries of the low-income areas in that city.

Specific items, representing 16 different food products frequently purchased by low-income families, made up the shopping list. Although a few changes were necessary, the specifications for items were kept the same, insofar as possible, from city to city. For example, in one city, 20-ounce loaves of bread were more widely available than the 1-pound size suggested in the list, so specifications were changed to achieve the maximum number of comparisons. The following list gives the preferred specifications for all items.

Preferred Specifications for Items

<u>Item</u>	<u>Quantity to be purchased</u>
1. Milk, whole, grade A, homogenized, Vit. D added	1 qt.
2. Margarine, regular, quarter-pound sticks	1 lb.
3. Eggs, grade A, large size	1 doz.
4. Baby food, strained vegetables	1 4½-oz. jar
5. Green beans, cut, canned	1 #303 can 15-17 oz.
6. Fruit cocktail, heavy syrup, canned	1 #303 can 15-17 oz.
7. Evaporated milk, unsweetened, canned	1 14½-oz. can (13 fl. oz.)
8. Rice, long grain	1-lb. pkg.
9. Flour, white, enriched, all purpose	2-lb. pkg.
10. Sugar, white, granulated	2-lb. pkg.
11. Bread, white, enriched, sliced	1-lb. loaf
12. Coffee, regular grind	1-lb. can
13. Frankfurters, all meat, skinless	1-lb. pkg.
14. Ground beef--store ground and packed	Smallest quantity and lowest price per pound avail- able. (One lb. if available.)
15. Ground beef--prepared in casing	1-lb. pkg.
16. Chicken, fryers, whole, ready-to-cook	Smallest size available--about 2-3 lb.

Prior to the start of the survey, each store in the sample areas was visited to determine the brands and sizes carried. For the first shopping trip, each enumerator was given a list of items to buy in a specific store, based on what had been observed during the pretest. To assure an adequate number of items, enumerators were allowed to purchase a different brand of the same item or different size package if the specified one was not available. In contrast, during the second week, enumerators were told to buy only the items on the list--those purchased the first week. No changes were to be made. Items not available were listed as out of stock.

Enumerators were instructed to act as much like ordinary shoppers as possible. They were not to ask questions about the prices charged unless



items were not price marked or there was no printed tape. Purchases were taken, twice daily, to a central point where items were checked and prices recorded.

## STATISTICAL ANALYSIS OF DATA

In accordance with the primary objective of this study, the analysis focused on price change--week 2 price minus week 1 price. This price difference was calculated for each item purchased in each store. On the basis of these data, statistical t-tests and analyses of variance were computed. The results of these tests confirmed and clarified the findings from the Sign test.

The Sign test was used to determine if the number of price changes was greater than could be expected by chance; i.e., whether there might be a tendency for prices to increase or decrease from week 1 to week 2. Statistical tests were made on the number of price changes within each store without regard to which food items were involved. Subtotals of these price changes were made of each store type and tested. Similar tests were made on the number of price changes within each food item without considering the type of store involved.

To be classed as a supermarket, a store had to stock a wide range of foods and more than one brand of several products, have at least 6 linear feet of frozen food space, and sell meats.

Convenience stores offered limited variety--usually only one brand and possibly only one size of an item--had limited freezer space, and did not sell fresh meat.

Delicatessens were carryout stores that also stocked a limited selection of groceries.

Neighborhood stores offered a limited range of products, a few frozen items, and, usually, some meat.

Data from the surveyed cities are summarized in the following tabulations. More complete data, including prices paid for all items purchased, are included in this publication's companion report, "Food Prices Before and After Distribution of Welfare Checks ... Low-Income Areas, Seven Cities, 1969--A Statistical Summary."

Summary of data from pricing survey, by type of store and city, 1969

Item	Washington, D.C.					Jackson, Miss.				
	Type of store				Total	Type of store				
	Super- market	Conven- ience	Delica- tessen	Neighbor- hood		Super- market	Conven- ience	Delica- tessen	Neighbor- hood	Total
STORES--										
In sample .....	11	6	3	31	51	4	1	--	20	25
Changing price of at least one item .....	7	6	2	24	39	4	1	--	15	20
Having price:										
Increases only .....	3	1	0	8	12	2	0	--	5	7
Decreases only .....	0	3	1	8	12	2	0	--	5	7
Both increases and decreases .....	4	2	1	8	15	0	1	--	5	6
Having errors on items:										
Overcharges .....	6	2	0	2	10	3	1	--	2	6
Undercharges .....	2	1	0	5	8	2	1	--	7	10
ITEMS--										
Purchased:										
Week 1 only .....	25	10	3	73	111	3	2	--	27	32
Both weeks <u>2</u> / .....	202	72	31	411	716	89	14	--	279	382
Increasing in price .....	11	5	4	22	42	2	3	--	23	28
Decreasing in price .....	6	6	3	31	46	2	1	--	22	25
Price marked:										
Both weeks .....	165	55	5	182	407	80	9	--	150	239
1 week only .....	10	6	1	63	80	0	2	--	31	33
Not price marked .....	27	11	25	166	229	9	3	--	98	110
Changing price that were:										
Price marked:										
Both weeks .....	13	5	0	9	27	3	1	--	16	20
1 week only .....	0	1	0	15	16	0	1	--	5	6
Not price marked .....	4	5	7	29	45	1	2	--	24	27
Having price errors:										
Overcharges .....	11	3	0	2	16	9	1	--	4	14
Undercharges .....	4	1	0	5	10	12	1	--	10	23

1/ None of this type of store in sample. 2/ All further references are based on items purchased both weeks (pairs of prices).  
 ---Continued

Summary of data from pricing survey, by type of store and city, 1969--Continued

Item	Boston					Newark				
	Type of store					Type of store				
	Super- market	Conven- ience	Delica- tessen	Neighbor- hood	Total	Super- market	Conven- ience	Delica- tessen	Neighbor- hood	Total
STORES--										
In sample .....	7	--	2	34	43	6	--	2	24	32
Changing price of at least one item .....	6	--	1	17	24	4	--	2	19	25
Having price: .....										
Increases only .....	1	--	0	5	6	0	--	0	9	9
Decreases only .....	0	--	1	4	5	1	--	1	2	4
Both increases and decreases .....	5	--	0	8	13	3	--	1	8	12
Having errors on items:										
Overcharges .....	3	--	0	4	7	2	--	0	7	9
Undercharges .....	3	--	2	8	13	2	--	2	8	12
ITEMS--										
Purchased:										
Week 1 only .....	17	--	3	38	58	9	--	2	26	37
Both weeks <u>2</u> / .....	156	--	26	458	640	130	--	22	332	484
Increasing in price .....	12	--	0	23	35	4	--	2	43	49
Decreasing in price .....	10	--	3	22	35	10	--	7	17	34
Price marked:										
Both weeks .....	132	--	12	237	381	99	--	9	131	239
1 week only .....	6	--	1	34	41	8	--	0	25	33
Not price marked .....	18	--	13	187	218	23	--	13	176	212
Changing price that were:										
Price marked:										
Both weeks .....	17	--	1	10	28	5	--	1	10	16
1 week only .....	1	--	0	1	2	3	--	0	8	11
Not price marked .....	4	--	2	34	40	6	--	8	42	56
Having price errors:										
Overcharges .....	6	--	0	6	12	2	--	0	9	11
Undercharges .....	3	--	3	12	18	3	--	2	8	13

1/ None of this type of store in sample. 2/ All further references are based on items purchased both weeks (pairs of prices).

--Continued

Summary of data from pricing survey, by type of store and city, 1969--Continued

Item	Detroit					Cleveland				
	Type of store					Type of store				
	Super- market	Conven- ience	Delica- tessen 1/	Neighbor- hood	Total	Super- market	Conven- ience	Delica- tessen 1/	Neighbor- hood	Total
----- Number -----										
STORES--										
In sample .....	8	2	--	23	33	21	1	--	17	39
Changing price of at least one item .....	8	1	--	21	30	20	1	--	15	36
Having price:										
Increases only .....	7	1	--	7	15	8	0	--	8	16
Decreases only .....	0	0	--	2	2	2	0	--	3	5
Both increases and decreases .....	1	0	--	12	13	10	1	--	4	15
Having errors on items:										
Overcharges .....	3	1	--	4	8	9	0	--	1	10
Undercharges .....	4	0	--	4	8	12	0	--	4	16
ITEMS--										
Purchased:										
Week 1 only .....	32	6	--	62	100	36	0	--	31	67
Both weeks 2/ .....	158	20	--	278	456	448	11	--	231	690
Increasing in price .....	20	1	--	37	58	48	1	--	21	70
Decreasing in price .....	1	0	--	25	26	22	1	--	16	39
Price marked:										
Both weeks .....	136	12	--	170	318	409	8	--	152	569
1 week only .....	11	4	--	25	40	30	1	--	30	61
Not price marked .....	11	4	--	83	98	9	2	--	49	60
Changing price that were:										
Price marked:										
Both weeks .....	13	1	--	12	26	60	0	--	12	72
1 week only .....	6	0	--	9	15	6	0	--	7	13
Not price marked .....	2	0	--	41	43	4	2	--	18	24
Having price errors:										
Overcharges .....	3	2	--	4	9	17	0	--	1	18
Undercharges .....	6	0	--	4	10	27	0	--	6	33

1/ None of this type of store in sample. 2/ All further references are based on items purchased both weeks (pairs of prices).  
--Continued

Summary of data from pricing survey, by type of store and city, 1969--Continued

Item	Oakland						Seven cities					
	Type of store			Type of store			Type of store			Type of store		
	Super- market	Conven- ience	Delica- tessen	Neighbor- hood	Total	Number	Super- market	Conven- ience	Delica- tessen	Neighbor- hood	Total	Number
<b>STORES--</b>												
In sample .....	4	1	2	31	38		61	11	9	180	261	
Changing price of at least one item .....	3	0	1	23	27		52	9	6	134	201	
Having price:												
Increases only .....	0	0	0	7	7		21	2	0	49	72	
Decreases only .....	1	0	1	6	8		6	3	4	30	43	
Both increases and decreases .....	2	0	0	10	12		25	4	2	55	86	
Having errors on items:												
Overcharges .....	2	0	0	6	8		28	4	0	26	58	
Undercharges .....	3	0	1	6	10		28	2	5	42	77	
<b>ITEMS--</b>												
Purchased:												
Week 1 only .....	3	2	3	28	36		125	20	11	285	441	
Both weeks <sup>1/</sup> .....	76	15	21	453	565		1,259	132	100	2,442	3,933	
Increasing in price .....	3	0	0	29	32		100	10	6	198	314	
Decreasing in price .....	6	0	1	36	43		57	8	14	169	248	
Price marked:												
Both weeks .....	54	7	18	224	303		1,075	91	44	1,246	2,456	
1 week only .....	8	1	1	41	51		73	14	3	249	339	
Not price marked .....	14	7	2	188	211		111	27	53	947	1,138	
Changing price that were:												
Price marked:												
Both weeks .....	5	0	1	15	21		116	7	3	84	210	
1 week only .....	2	0	0	15	17		18	2	0	60	80	
Not price marked .....	2	0	0	35	37		23	9	17	223	272	
Having price errors:												
Overcharges .....	3	0	0	10	13		51	6	0	36	93	
Undercharges .....	5	0	1	7	13		60	2	6	52	120	

<sup>1/</sup> All further references are based on items purchased both weeks (pairs of prices).



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