



# Development and Reliability Testing of a Food Store Observation Form for Use in Beverage Tax Evaluations

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## Key Findings

- **The Beverage Tax Food Store Observation Form provides reliable measurements of SSBs, ASBs, and other beverage and food products in food stores.**
- **The average percent agreement for dichotomous variables was 0.95.**
- **The average kappa statistic for dichotomous variables was 0.84 (“almost perfect” agreement).**
- **The average ICC for continuous variables such as regular and sale price was 0.97.**

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Consumption of sugar-sweetened beverages (SSBs) is a leading source of added sugar for people aged 2 years and older in the United States (U.S.)<sup>1</sup> and contributes to obesity.<sup>2</sup> Beverage taxes have been proposed as a policy instrument to reduce SSB consumption and generate revenue for use in health promotion programs. To date, beverage taxes have been passed in eight U.S. jurisdictions,<sup>3</sup> though one (Cook County, IL) was subsequently repealed.<sup>4</sup> Of the eight jurisdictions, six passed taxes on SSBs only, while two levied taxes on both SSBs and artificially-sweetened beverages (ASBs).<sup>3</sup>

As part of a larger beverage tax evaluation, one of our aims was to assess the impact of beverage taxes on the local retail food environment. Using a natural experimental design, we evaluated pre- and post-tax changes through short- and long-term outcomes impacted by beverage taxes in two jurisdictions: Oakland, CA, and Cook County, IL. To examine the impact on beverage and food product availability, pricing, and price promotions and marketing, we developed the Beverage Tax Food Store Observation Form. The observation form was developed based on existing validated observation tools, including those from the Illinois Prevention Research Center’s Nutrition and Obesity Policy Research Evaluation Network Collaborating Center and the Bridging the Gap Community Obesity Measures Project.<sup>5,6</sup>

To assess the reliability of the Beverage Tax Food Store Observation Form, we conducted an inter-rater reliability (IRR) study in the summer of 2017 in 56 food stores in Joliet, Illinois, a racially/ethnically diverse, mid-sized city in the Chicago metropolitan area. The purpose of this brief is to report on the development and IRR results of the overall form and individual measures.

## Methods

### INSTRUMENT AND MEASURES

The Beverage Tax Food Store Observation Form was designed to assess beverage and food product availability, pricing, and price promotions as well as food store characteristics and product marketing displayed in the interior and on the exterior of the store. The form includes potentially taxed (i.e., SSBs and ASBs) and non-taxed beverage products (i.e., unsweetened tea, 100% fruit juice, milk, water) and food products. Beverage products fall into 9 categories including soda, sports drinks, energy drinks, ready-to-drink tea and coffee, juice, children’s beverages, fountain drinks, bottled water, and milk. Food products fall into 2 categories including snacks and groceries.

Food products are included on the form to assist in determining retail response to beverage taxes in pricing, promotions, and offerings of products not subject to taxation.

Products were selected by examining national market shares and the representativeness of products in the beverage tax markets. Product sizes were selected by examining manufactured sizes for each brand. Anticipating that a tax may lead beverage manufacturers to resize beverage products, individually-sized, family-sized, and multi-packs were included for more prevalent beverage brands (e.g., Coca-Cola). Additionally, a few products that were culturally specific to the audited areas (e.g., Jarritos) were included on the form.

For each beverage and food product, availability, regular price, sale presence, and (when applicable) sale type and price were

recorded. Four types of sales were included on the form: reduced price (RP), reduced price per quantity (RP/Q), buy one get one free (BOGO), and other type of sale. A RP sale is an advertised reduced price on a single product. Like the RP sale, a RP/Q sale is an advertised reduced price, however, it is distinguished as a sale achieved through quantity purchasing. RP/Q sales may require a multiple product purchase (e.g., buy 3 for \$3.99 sale only valid with purchase of 3 products) or may suggest a multiple product purchase without the requirement (e.g., buy 3 for \$3.99 but each product may be purchased for \$1.33). A BOGO sale is a price promotion given when the consumer purchases the first product at the full or regular price and receives the second product at no additional cost. The other sale type is used when RP, RP/Q, or BOGO sale types are not appropriate or clear (e.g., buy one get one 1/2 price).

In some cases, food stores (e.g., convenience stores) have a fountain drink service station. Most beverages sold as fountain drinks are SSBs or ASBs. Because fountain drinks do not come in pre-packaged containers, cup size was assessed by documenting the number of ounces. Data on the availability of fountain drinks, the presence or absence of free refills, and whether the fountain drink service station is self-serve were also recorded.

For a few products (e.g., Minute Maid 100% Orange Juice 59 oz.), package type (i.e., jug vs. carton) was recorded. To assess the per unit price of some grocery products (e.g., bananas and Red Delicious apples), unit type (e.g., per pound, per piece) was specified on the form by data collectors.

Store characteristics were also included as measures on the form. Data collectors chose between 7 store types: general merchandise, supermarket, grocery, chain convenience, non-chain convenience, pharmacy/drug, or small discount. Store type was ascertained in part by the presence of different types of service counters (i.e., butcher, deli, bakery, pharmacy, bank). Additional categories for store characteristics included check-out counter product availability, product accessibility, and the acceptance of government nutrition assistance program benefits.

Exterior and interior marketing was recorded for 11 types of beverage products (i.e., regular soda, diet soda, regular energy drink, diet energy drink, regular sports drink, diet sports drink, juice drinks, 100% juice, plain bottled water, unflavored milk, and flavored milk). For exterior marketing, counts of all advertisements and advertisements listed as price promotions found on the store exterior (e.g., windows, doors) and property (e.g., cart returns, fencing) were recorded. For interior marketing, end-aisle displays and special floor displays were recorded.

## RELIABILITY STUDY DESIGN

The inter-rater reliability study for this form was conducted in Joliet, Illinois, which has the fourth largest population (~148,000) in Illinois and is located about 40 miles south

of Chicago, Illinois. Joliet was manually divided into 10 geographic areas by ArcGIS 10.4. Median household income was computed for each of the 10 geographic areas and, to achieve a representative sample, the selection of stores for observation was stratified across the geographic areas by income.

To select stores, a random seed point (geographical location) was generated within each geographic area. When present, all 7 types of food stores were selected per area. Using Google Maps and Yelp, the closest food store to the seed point was sampled by type. If a food store type was absent in any geographic area, a food store of a similar type was selected within the same area. For example, if non-chain convenience stores were absent in a geographic area, a chain convenience store in that area was selected as the replacement. If that area did not have any additional food stores to sample, the closest of the 10 geographic areas within Joliet was selected to find the replacement. If a food store was closed or data collectors were asked to leave during data collection, a replacement food store was sampled. Given the size of Joliet, few supermarkets and general merchandise stores are located within the city limits. As a result, we chose to sample all supermarkets and general merchandise stores from the full 10 geographic areas.

## DATA COLLECTION PROCEDURES

Data collection occurred during a two-week period in the summer of 2017. Two graduate students were hired to conduct the audits. Before data collection began, both individuals received a two-week training that included: a review of the Beverage Tax Food Store Observation Form; a review of the Protocol Manual; a field practice exercise; and a discussion period for questions on the form itself. While data collectors visited the stores together, the forms were completed independently.

## DATA ANALYSIS

All data analyses were performed using Stata/SE 14.2. Percent agreement and kappa statistics were used for the IRR analysis of 8 categories of dichotomous variables: availability, sale, sale type, package/unit type, store characteristics (excluding store type), fountain drinks, and interior and exterior marketing. Percent agreement is the proportion of responses for a given measure where both data collectors agreed. The kappa statistic is a more robust measure of IRR for dichotomous or categorical variables and is a chance-adjusted measure of agreement.<sup>7</sup> Kappa statistics in the range of 0.81–1.00 are considered “almost perfect” agreement, 0.61–0.80 are considered “substantial” agreement, 0.41–0.60 are considered “moderate” agreement, 0.21–0.40 are considered “fair” agreement, 0.00–0.20 are considered “slight” agreement, and anything less than 0.00 is considered “poor” agreement.<sup>8</sup>

Two-way random intraclass correlation coefficients (ICCs) were used to assess IRR for 5 categories of continuous variables: regular price, sale price-RP, sale price-RP/Q, fountain drinks'

cup size by ounce, and the number of cash registers. The ICC is only a valid measure of IRR when there is enough variation in the variable being assessed.<sup>9</sup> To ensure adequate variation for analyses, we calculated overall ICCs for each category of continuous variables instead of ICCs for each individual continuous variable. For example, the overall ICC for regular price was based on all regular price observations across all stores.

The IRR analysis of exterior marketing variables from the original version of the form was restricted to dichotomous variables indicating the presence of given advertisements (e.g., regular soda advertisements) rather than the tallies indicating the number of advertisements. Due to challenges on the part of data collectors in properly filling in the tallies, we do not consider the tallies from the original version of the form to be reliable nor do we consider them appropriate for analyses. To further improve reliability of exterior marketing, we subsequently revised this section and tested it in 33 stores in Cook County, Illinois. The IRR analysis of exterior marketing variables from the revised form was based on the actual number of advertisements present rather than indicators for whether advertisements were present.

Observations with missing values were excluded from this analysis. We did not conduct IRR analyses for variables that had an insufficient sample size of observations (i.e., < 10 pairs). For kappa statistics, we excluded observations for dichotomous variables whose prevalence was very high (i.e., > 0.8) or very low (i.e., < 0.2). One limitation of using kappa statistics is that if the distribution of one variable is highly skewed (i.e., the prevalence of a specific category is high), the kappa statistic

may be low because the level of agreement expected due to chance alone is very high.<sup>10</sup> Because of this, we only report kappa statistics for dichotomous variables that have an average prevalence across the two data collectors between 0.2 and 0.8 for the choice coded as “yes” (or “1 lb” for unit of measure). Given this exclusion criterion, we have percent agreement estimates for a greater number of variables than we have for kappa statistics.

Sub-questions (e.g., regular price for 7.5 oz Coca-Cola) were assessed for reliability when data collectors agreed on the relevant parent questions (e.g. availability for 7.5 oz Coca-Cola). Specifically, for analyses of package/unit type, regular price, and sale variables (and ounces for fountain drinks), observations were only included if both data collectors agreed that a given product was available within the store. For sale type variables, observations were included only if both data collectors agreed the product was available and the product was on sale. For sale price variables, observations were included only if both data collectors agreed the product was available, the product was on sale, and the corresponding sale type was present. For measures of fountain drinks, observations were only included if both data collectors agreed on the presence of a fountain drinks service station in a store. Otherwise, we only compared availability for each cup size. For the original version of exterior marketing, this IRR analysis only compared the presence of advertisements for specific beverage types if data collectors agreed on whether beverage advertisements were present on the given part of the store exterior.

## Results

In Joliet, 57 food stores were identified for audit. Data collectors were asked to leave during data collection in one chain convenience store. Data from this store were incomplete and excluded from the analyses. In total, 56 food stores were fully audited and included in the analyses. The sample included: 2 general merchandise stores, 2 supermarkets, 9 grocery stores, 22 chain convenience stores, 9 non-chain convenience stores, 7 pharmacy/drug stores, and 5 small discount stores.

Overall, our kappa statistics and ICC estimates showed high agreement between data collectors. We were able to evaluate 185 dichotomous variables with a kappa statistic. Table 1 shows the average kappa statistic was 0.84 (“almost perfect” agreement) for all 8 categories of dichotomous variables (e.g., availability, sale, exterior marketing). Four categories had an average kappa statistic within the “almost perfect” agreement range. The lowest average kappa statistic was found for interior marketing (0.55), which corresponds to “moderate” agreement. Appendix 1 shows individual kappa statistics for the 185 dichotomous variables of which 94% (n=173) had “substantial” to “almost perfect” reliability.

Overall, we were able to calculate percent agreement for 420 dichotomous variables. Table 2 shows that the average percent

TABLE 1 Kappa Summary Table

CATEGORY	Number of Variables	Average (Range)
<b>OVERALL</b>	<b>185</b>	<b>0.84 (0.18 – 1.00)</b>
<b>Availability</b>	86	0.86 (0.18 – 1.00)
<b>Sale</b>	47	0.80 (0.44 – 1.00)
<b>Sale Type</b>	18	0.95 (0.66 – 1.00)
<b>Package/Unit Type</b>	2	1.00 (1.00 – 1.00)
<b>Store Characteristics</b>	11	0.88 (0.61 – 0.96)
<b>Fountain Drinks</b>	1	0.72 (0.72 – 0.72)
<b>Interior Marketing</b>	10	0.55 (0.23 – 0.84)
<b>Exterior Marketing</b>	10	0.78 (0.38 – 1.00)

agreement was 0.95, ranging from 0.55 to 1.00. Except for interior marketing, which had an average percent agreement of 0.86, all categories had an average percent agreement above 0.90. Appendix 2 shows the percent agreement for the 235 dichotomous variables which could not be evaluated with a

**TABLE 2 Percent Agreement Summary Table (including the 185 dichotomous variables with kappa values)**

CATEGORY	Number of Variables	Average (Range)
<b>OVERALL</b>	<b>420</b>	<b>0.95 (0.55 – 1.00)</b>
Availability	156	0.96 (0.62 – 1.00)
Sale	95	0.93 (0.65 – 1.00)
Sale Type	76	0.98 (0.83 – 1.00)
Package/Unit Type	5	0.98 (0.90 – 1.00)
Store Characteristics	27	0.97 (0.80 – 1.00)
Fountain Drinks	2	0.93 (0.86 – 1.00)
Interior Marketing	22	0.86 (0.55 – 1.00)
Exterior Marketing	37	0.94 (0.77 – 1.00)

kappa statistic. From the 235 dichotomous variables, all but one (i.e., sale indicator for bananas) had a percent agreement equal to or above 0.70.

The average kappa statistic for exterior marketing dichotomous variables was 0.78, which was within the “substantial agreement” range. The revised exterior marketing section was highly reliable with an ICC of 0.97.

Table 3 shows that the average ICC for the 5 categories of continuous variables was 0.97. The ICCs for regular price and each of the two types of sale prices were very high at 0.99 or

**TABLE 3 Intraclass Correlation Coefficient Summary Table**

CATEGORY	ICC
<b>AVERAGE</b>	<b>0.965</b>
Number of Cash Registers	0.939
Fountain Drink Cup Size (Ounce)	0.904
Regular Price	0.997
Sale Price – RP	0.997
Sale Price – RP/Q	0.990

above (ICC regular price = 0.997, ICC sale price-RP = 0.997 and ICC sale price-RP/Q = 0.990, respectively). The lowest ICC was for fountain drink cup size at 0.90.

The IRR results for this form were consistent when we conducted a sensitivity analysis. For our primary analysis, we excluded all observations with a missing value. If one data collector missed a variable while the other data collector reported a value for that variable, the two observations were not compared, nor were they counted as a disagreement and thus, they were not part of the IRR analysis. As a sensitivity analysis, we did, however, include these observations and treat them as disagreements in computing percent agreement and kappa statistics. This decreased the average kappa statistic for dichotomous variables from 0.84 to 0.82 and the average percent agreement from 0.95 to 0.94.

## Discussion

Findings from this study suggest that the IRR for most of the in-store products fell in the “almost perfect” range, as indicated by the average kappa statistic for all categories of dichotomous variables of 0.84, the average percent agreement for all dichotomous variables of 0.95, and the average ICC for continuous variables of 0.97. These estimates are comparable to those reported for similar food store audit tools.<sup>11, 12</sup>

Although most measures on the form showed high reliability, the interior marketing measures were less reliable. Two types of interior marketing were evaluated: end-aisle displays and special floor displays. The low reliability may have been caused by interpretation differences of the definition of each type of display. Additional training and refinement of operational definitions may reduce ambiguity with the interior marketing measures and improve reliability estimates.

Only one measure, availability of cheapest bottled water (the non-priority size 16.9 oz.), had a kappa statistic less than 0.20 within the “slight” agreement range (0.18). For “cheapest bottled water”, data collectors were trained to collect available

data regardless of whether the “cheapest bottled water” was brand (e.g., Ice Mountain) or generic (store brand). Moreover, if a 16.9 oz. bottled brand of water (e.g., Dasani) was the only available option, it would have also been the cheapest by default and the data collectors should have recorded this price in the “cheapest bottled water” section. Our low kappa statistic suggests that data collectors had difficulty following the training instructions for this particular measure. For example, we found cases where a 16.9 oz. brand of bottled water such as Dasani or Aquafina was reported as available, but the cheapest bottled water (16.9 oz.) was reported as unavailable. Therefore, these instructions should be clarified in future trainings for this instrument.

Overall, we found the Beverage Tax Food Store Observation Form provides reliable measurements of SSBs, ASBs, and other beverage and food products in food stores. This supports the use of this form in future studies evaluating the availability, pricing, marketing, and price promotions of food and beverage products at food stores.

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## APPENDIX 1

### Individual Kappa Statistics for Dichotomous Variables

Kappa: N=185

#### Almost Perfect (0.81–1.00): N=120

**AVAILABILITY** Aquafina Water (20 oz), Arizona Green Tea (23 oz, 128 oz), Bananas, Capri Sun Juice (10 pk/6 oz), Chocolate Milk (14 oz, 0.5 gal), Coca-Cola (12 oz, 16.9 oz, 20 oz, 1 L, 1.25 L, 6 pk/7.5 oz, 12 pk/12 oz), Cookies Original Oreos (14.3 oz), Del Monte Green Beans (14.05 oz), Diet Coke (12 oz, 20 oz), Diet Dr. Pepper (20 oz, 2 L, 12 pk/12 oz), Diet Mountain Dew (2 L), Diet Pepsi (12 oz, 20 oz), Dr. Pepper (12 pk/12 oz), Fountain Drinks (Medium), Frosted Flakes Cereal (10.5 oz), Gatorade (20 oz, 32 oz), Ice Mountain (16.9 oz), Jarritos (12.5 oz), Kool Aid Jammers (10 pk/6 oz), Lay's Regular Potato Chips (10 oz), Milk 1% Unflavored (1 gal), Milk 2% Unflavored (0.5 gal), Milk Skim Unflavored (1 gal), Milk Whole Unflavored (0.5 gal), Minute Maid (Cranberry Cocktail) (15.2 oz), Minute Maid 100% Juice (Orange) (15.2 oz), Monster (24 oz), Monster Zero Ultra (24 oz, 4 pk/16 oz), Original Cheerios Cereal (12 oz), Pepsi (12 oz), Powerade (32 oz), Powerade Zero (32 oz), Pringles Regular Potato Chips (2.36 oz, 5.2 oz), Pure Leaf Sweet Tea (18.5 oz), Pure Leaf Unsweetened Tea (18.5 oz), RC Cola (2 L), Red Bull Sugarfree (8.4 oz, 12 oz, 16 oz, 4 pk/8.4 oz), Red Delicious Apples, Starbucks Frappuccino (13.7 oz), Tomatoes, Tropicana 100% Juice (Orange) (12 oz, 59 oz), Vitamin Water (20 oz), Vitamin Water Zero (20 oz), White Bread, White Eggs, Yellow Onions

**SALE** Capri Sun Juice (10 pk/6 oz), Coca-Cola (20 oz, 2 L, 6 pk/7.5 oz, 12 pk/12 oz), Cookies Original Oreos (14.3 oz), Diet Coke (20 oz, 2 L), Diet Pepsi (20 oz), Fanta Orange (2 L), Frosted Flakes Cereal (10.5 oz), Lay's Regular Potato Chips (10 oz), Little Debbie Honey Buns (10.6 oz), Monster (24 oz, 4 pk/16 oz), Monster Zero Ultra (4 pk/16 oz), Pepsi (20 oz, 2 L), Red Bull (4 pk/8.4 oz), Vitamin Water (20 oz), Vitamin Water Zero (20 oz)

**SALE TYPE** Coca-Cola (20 oz: RP/Q, Other), Diet Coke (20 oz: RP/Q, Other), Diet Pepsi (20 oz: RP/Q, Other; 2 L: RP, RP/Q, Other), Pepsi (20 oz: RP/Q, Other; 2 L: RP/Q, Other), Powerade (32 oz: RP), Vitamin Water (20 oz: RP, RP/Q)

**EXTERIOR MARKETING** Building Exterior (Total Advertisement: Any Beverages, Regular Energy Drink; Price Promotion Advertisement: Any

Beverages, Regular Energy Drink), On Property (Total Advertisement: Any Beverages, Regular Energy Drink)

**INTERIOR MARKETING** End-Aisle Displays (Regular Sports Drink)

**PACKAGE/UNIT TYPE** Bananas, Red Delicious Apples

**STORE CHARACTERISTICS** "Does the store accept EBT/SNAP?"; "Does the store accept WIC?"; "Does the store sell any tobacco products?"; "Does the store sell gasoline?"; "Is there fresh meat available?"; Items Offered at Self-Serve Check-out (Bottled Water Plain, Diet Soda, Other Sweetened Beverage, Regular Soda)

#### Substantial (0.61–0.80): N=53

**AVAILABILITY** Dasani Water (20 oz), Diet Coke (1.25 L, 2 L, 12 pk/12 oz), Diet Pepsi (2 L, 12 pk/12 oz), Dr. Pepper (2 L), Fanta Orange (2 L), Fountain Drinks (Small, Large), Little Debbie Honey Buns (3 oz), Monster (4 pk/16 oz), Monster Zero Ultra (16 oz), Mountain Dew (2 L), Pepsi (1.25 L, 12 pk/12 oz), Red Bull (16 oz, 4 pk/8.4 oz), Reese's Peanut Butter Cups (1.5 oz-2 pk)

**SALE** Aquafina Water (20 oz), Chocolate Milk (14 oz), Coca-Cola (1.25 L), Dasani Water (20 oz), Diet Coke (1.25 L, 12 pk/12 oz), Diet Dr. Pepper (20 oz), Diet Mountain Dew (2 L), Diet Pepsi (2 L, 12 pk/12 oz), Dr. Pepper (20 oz, 12 pk/12 oz), Monster (16 oz), Monster Zero Ultra (16 oz, 24 oz), Mountain Dew (2 L), Powerade (32 oz), Powerade Zero (32 oz), Red Bull (8.4 oz, 12 oz, 16 oz), Red Bull Sugarfree (8.4 oz, 4 pk/8.4 oz)

**SALE TYPE** Coca-Cola (12 pk/12 oz: RP), Powerade (32 oz: RP/Q)

**EXTERIOR MARKETING** Building Exterior (Price Promotion Advertisement: Regular Soda), On Property (Total Advertisement: Regular Soda)

**INTERIOR MARKETING** End-Aisle Displays (Diet Soda, Juice Drinks, Plain Bottled Water, Regular Soda)

**FOUNTAIN DRINKS** "Are free refills offered for fountain beverages at this location?"

**STORE CHARACTERISTICS** "Is there food or other individual, ready-to eat items available?"; "Is there a plexiglass or other divider at the register?"

**Moderate (0.41–0.60): N=7**

**AVAILABILITY** Cheapest Bottled Water (20 oz)

**SALE** Diet Dr. Pepper (12 pk/12 oz), Red Bull Sugarfree (12 oz, 16 oz)

**EXTERIOR MARKETING** Building Exterior (Total Advertisement: Regular Soda)

**INTERIOR MARKETING** Special Floor Displays (Diet Energy Drink, Plain Bottled Water)

**Fair (0.21–0.40): N=4**

**EXTERIOR MARKETING** On Property (Total Advertisement: Regular Sports Drink)

**INTERIOR MARKETING** Special Floor Displays (Diet Soda, Regular Energy Drink, Regular Soda)

**Slight (0.01–0.20): N=1**

**AVAILABILITY** Cheapest Bottled Water (16.9 oz)

## APPENDIX 2

### Individual Percent Agreement for Dichotomous Variables without Kappa Statistics

Percent Agreement: N=235

**>=0.7: N=234**

**AVAILABILITY** Aquafina Water (16.9 oz), Arizona Zero Calorie Green Tea (23 oz, 128 oz), Capri Sun 100% Juice (6 oz, 10 pk/6 oz), Capri Sun Juice (6 oz), Chocolate Milk (1 gal), Coca-Cola (7.5 oz, 2 L), Cookies Original Oreos (2 oz), Dasani Water (16.9 oz), Diet Coke (7.5 oz, 16.9 oz, 1 L, 6 pk/7.5 oz), Diet Dr. Pepper (12 oz), Diet Mountain Dew (12 oz), Diet Pepsi (1.25 L), Diet Rite (12 oz, 2 L), Dr. Pepper (12 oz, 20 oz), Fanta Orange (12 oz), Fountain Drinks (Kids, XL, XXL), Gatorade (8 pk/20 oz), Gatorade G2 (20 oz, 32 oz, 8 pk/20 oz), Generic Hugs (8 oz, 20 pk/8 oz), Ice Mountain (8 oz, 20 oz, 24 pk/16.9 oz), Jarritos Light (12.5 oz), Kool Aid Jammers (6 oz), LaCroix Sparkling Water (12 oz), Lay's Regular Potato Chips (2.75 oz), Little Debbie Honey Buns (10.6 oz), Little Hugs (8 oz, 20 pk/8 oz), Milk 1% Unflavored (0.5 gal), Milk 2% Unflavored (1 gal), Milk Skim Unflavored (0.5 gal), Milk Whole Unflavored (1 gal), Minute Maid (Cranberry Cocktail) (12 oz), Minute Maid (Fruit Punch) (59 oz), Minute Maid 100% Juice (Orange) (12 oz, 59 oz), Monster (16 oz), Mountain Dew (12 oz), Pepsi (20 oz, 2 L), Powerade (20 oz, 8 pk/20 oz), Powerade Zero (20 oz, 8 pk/20 oz), Pure Leaf Sweet Tea (64 oz), Pure Leaf Unsweetened Tea (64 oz), RC Cola (12 oz), Red Bull (8.4 oz, 12 oz), Starbucks Frappuccino (4 pk/9.5 oz), Tropicana (Cranberry Cocktail) (12 oz, 15.2 oz), Tropicana 100% Juice (Orange) (15.2 oz), Tropicana Twister (Fruit punch) (59 oz), Vitamin Water (6 pk/16.9 oz), Vitamin Water Zero (6 pk/16.9 oz)

**SALE** Arizona Green Tea (23 oz, 128 oz), Cheapest Bottled Water (20 oz), Chocolate Milk (0.5 gal), Coca-Cola (12 oz, 1 L), Del Monte Green Beans (14.05 oz), Diet Coke (12 oz, 1 L), Diet Dr. Pepper (2 L), Diet Pepsi (12 oz), Dr. Pepper (2 L), Fountain Drinks (Medium, Large), Gatorade (20 oz, 32 oz), Ice Mountain (16.9 oz, 20 oz), Jarritos (12.5 oz), Kool Aid Jammers (10 pk/6 oz), Lay's Regular Potato Chips (2.75 oz), Little Debbie Honey Buns (3 oz), Milk 1% Unflavored (1 gal), Milk 2% Unflavored (0.5 gal, 1 gal), Milk Skim Unflavored (1 gal), Milk Whole Unflavored (0.5 gal, 1 gal), Minute Maid (Cranberry Cocktail) (15.2 oz), Minute Maid 100% Juice (Orange) (15.2 oz), Original Cheerios Cereal (12 oz), Pepsi (12 oz, 12 pk/12 oz), Pringles Regular Potato Chips (2.36 oz, 5.2 oz), Pure Leaf Sweet Tea (18.5 oz), Pure Leaf Unsweetened Tea (18.5 oz), RC Cola (2 L), Red Delicious Apples, Reese's Peanut Butter Cups (1.5 oz-2 pk), Starbucks Frappuccino (13.7 oz), Tomatoes, Tropicana 100% Juice (Orange) (12 oz, 59 oz), White Bread, White Eggs, Yellow Onions

**SALE TYPE** Coca-Cola (20 oz: RP, BOGO; 12 pk/12 oz: RP/Q, BOGO, Other), Diet Coke (20 oz: RP, BOGO), Diet Dr. Pepper (20 oz: RP, RP/Q,

BOGO, Other), Diet Pepsi (20 oz: RP, BOGO; 2 L: BOGO), Dr. Pepper (20 oz: RP, RP/Q, BOGO, Other), Monster (16 oz: RP, RP/Q, BOGO, Other), Monster Zero Ultra (16 oz: RP, RP/Q, BOGO, Other), Pepsi (20 oz: RP, BOGO; 2 L: RP, BOGO), Powerade (32 oz: BOGO, Other), Red Bull (8.4 oz: RP, RP/Q, BOGO, Other; 12 oz: RP, RP/Q, BOGO, Other; 16 oz: RP, RP/Q, BOGO, Other), Red Bull Sugarfree (8.4 oz: RP, RP/Q, BOGO, Other; 12 oz: RP, RP/Q, BOGO, Other; 16 oz: RP, RP/Q, BOGO, Other), Vitamin Water (20 oz: BOGO, Other)

**EXTERIOR MARKETING** Building Exterior (Total Advertisement: 100% Juice, Diet Energy Drink, Diet Soda, Diet Sports Drink, Flavored Milk, Juice Drinks, Plain Bottled Water, Regular Sports Drink, Unflavored Milk; Price Promotion Advertisement: 100% Juice, Diet Energy Drink, Diet Soda, Diet Sports Drink, Flavored Milk, Juice Drinks, Plain Bottled Water, Regular Sports Drink, Unflavored Milk), On Property (Total Advertisement: 100% Juice, Diet Energy Drink, Diet Soda, Diet Sports Drink, Flavored Milk, Juice Drinks, Plain Bottled Water, Unflavored Milk; Price Promotion Advertisement: Any Beverages)

**INTERIOR MARKETING** End-Aisle Displays (100% Juice, Diet Energy Drink, Diet Sports Drink, Flavored Milk, Regular Energy Drink, Unflavored Milk), Special Floor Displays (100% Juice, Diet Sports Drink, Flavored Milk, Juice Drinks, Regular Sports Drink, Unflavored Milk)

**PACKAGE/UNIT TYPE** Tomatoes, Tropicana 100% Juice (Orange) (59 oz), Yellow Onions

**FOUNTAIN DRINKS** "Is the fountain beverage machine self-serve?"

**STORE CHARACTERISTICS** "Is there a security mirror/camera/Security Guard?"; "Is 50% or more of the stores inventory beer, wine, and/or liquor?"; "Does the store have parking on-site?"; "Does the store have a bakery?"; "Does the store have a bank?"; "Does the store have a butcher of fresh meat service counter?"; "Does the store have a deli counter?"; "Does the store have a pharmacy?"; Items Offered at Self-Serve Check-out (Flavored Milk, Unflavored Milk), Items Offered at Clerk-Assisted Check-out (Bottled Water Plain, Diet Soda, Flavored Milk, Other Sweetened Beverage, Regular Soda, Unflavored Milk)

**<0.7: N=1**

**SALE** Bananas