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TRIPLE-CROWN ADVERTISING IMPACTS ON DEMANDS FOR ORANGE JUICE IN FIFTY NIELSEN METROPOLITAN REGIONS

BY

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Introduction

In this study, impacts of Florida Department of Citrus (FDOC) triple-crown generic orange juice (OJ) advertising on retail OJ demand in fifty metropolitan regions or cities are analyzed. The analysis is based on estimated (city) demand equations that relate retail OJ gallon sales to FDOC generic OJ advertising and the price of OJ. The equations were estimated using sales and advertising data from A.C. Nielsen.

The Nielsen sales data are for grocery store chains doing at least \$2 million annual business. The data are on a weekly basis and include OJ dollar and gallon sales. OJ prices were derived by dividing dollar sales by gallon sales. U.S. Department of Commerce data on the consumer price index (CPI) were used to deflate the OJ price data. The gallon and dollar data were complete for the period from August 5, 1995 through October 25, 1997 (117 weekly observations).

The Nielsen advertising data are generic OJ, TV gross rating points (GRP's) for the triple crown advertising program period starting week ending September 14, 1996. The GRP data are monthly and were combined with the Nielsen weekly sales data by equally allocating monthly GRP's across weeks.

Income and population may also affect demand but were treated as constant given the relatively short time period studied.

Model

For each city, a double log OJ demand equation was estimated. Formally, the model can be written as

$$(1) \quad \log q_t = \beta_0 + \beta_1 \log p_t + \beta_2 \log \left(\sum_{j=0}^{\infty} \lambda^j a_{t-j} + \beta_3 \right),$$

where subscript t stands for time (week); q_t is OJ gallon sales; p_t is the CPI deflated OJ price; a_t is Nielsen generic TV GRP's for OJ (a_t is zero before the start of the triple crown); and λ^j (λ raised to the power j , $0 < \lambda < 1$), are weights declining in value as lag length j increases. The term $\sum_{j=0}^{\infty} \lambda^j a_{t-j}$ can be viewed as the stock of triple crown advertising at time t . The parameter λ is the fraction of the stock of GRP's that survives (remembered) from one week to the next; and β_3 is a location parameter for determining the initial effect of advertising (the effect of advertising varies with the advertising stock level and β_3 helps determine the advertising effect when the advertising stock is growing from zero). The parameters to be estimated are the β 's and λ .

To examine the robustness of (1), linear and logistic specifications of OJ demand were also estimated, i.e.,

$$(2) \quad \text{linear:} \quad q_t = \beta_0 + \beta_1 p_t + \beta_2 \left(\sum_{j=0}^{\infty} \lambda^j a_{t-j} \right),$$

$$(3) \quad \text{logistic:} \quad \log q_t = \beta_0 + \beta_1 \log p_t - \log \left(1 + \exp(\beta_2 - \beta_3 \sum_{j=0}^{\infty} \lambda^j a_{t-j}) \right).$$

Equation (3) has a location parameter β_2 similar to that in equation (1), while in equation (2) there is no location parameter as the effect of advertising is constant for all advertising stock levels.

To account for seasonality, equations (1), (2) and (3) were 52nd differenced (for the 52 weeks

in a year), e.g., for equation (1)

$$(4) \quad d \log q_t = \beta_1 d \log p_t + \beta_2 (\log (\sum_{j=0}^{10} \lambda^j a_{t-j} + \beta_3)) - \log (\sum_{j=0}^{10} \lambda^j a_{t-52-j} + \beta_3)),$$

where, for variable x in general, $dx_t = x_t - x_{t-52}$.

Results

Models (1), (2) and (3) were estimated by the nonlinear seemingly unrelated regression method. The parameter λ was set at .95 based on previous research¹. The location parameters in models (1) and (3) were assumed to be equal across cities. Negative generic advertising parameter estimates were restricted to zero in all three models. For brevity, summary results for all three model are discussed below, along with detail results for only model (1).

The detailed estimates of model (1) are shown in Table 1. The R-square values ranged from .17 to .83. All of the price parameter estimates were negative and statistically significant at the $\alpha=.10$ level, i.e., statistically different from zero with a type I error of 10%. All but three of the positive advertising parameters were significant (five advertising parameters were set to zero).

Model (1) parameter estimates in Table 1 along with the parameter estimates for models (2) and (3) were used to estimate the impact of advertising over the 65 week period from August 8, 1996 through October 25, 1997 (the 52 weeks prior to this period were lost due to differencing of

¹ Brown, M.G. "Incorporating Generic and Brand Advertising in The Rotterdam Model", *International Journal of Advertising*.

the data). Table 2 shows, for each model, city-by-city estimated percentage increases in OJ gallon sales as a result of the generic TV GRP's. Ranking cities by the three-model-average advertising induced increase in OJ gallon sales, advertising appears to be most effective in Phoenix, Baltimore, etc. However, note that for a number of cities the advertising impacts differ noticeably across alternative models. It appears that the data are simply not rich enough to precisely identify city specific advertising impacts. Nevertheless, each model roughly follows a somewhat similar trend in the impact of advertising across cities. For the 50 city aggregate, there is more consistency across models, with the 50 city aggregate advertising impact ranging from 3.1% to 3.4%. The average aggregate impact across models is 3.3%, the same as for the log model.

Focusing on the log model, Table 3 shows city-by-city estimated OJ gallon sales with and without advertising, corresponding GRP's, and average gallons generated per GRP. The cities are ranked by gallons generated per GRP. Using this criteria, generic TV advertising was most effective in San Francisco, Los Angeles, etc.

The present analysis suggests two ways to increase U.S. OJ sales. First, increase the effectiveness of advertising in cities where advertising appears to perform relatively poorly. Reviewing the results of the log model, generic advertising is estimated to increase the aggregate-fifty-city demand for OJ by 3.3% (Tables 2 and 4). In comparison, if the effectiveness of advertising in relatively poor advertising performing cities (those with below average estimated effectiveness) were brought up to the average, the advertising induced increase in the aggregate-fifty-city demand for OJ would be 4.2% or .9% over the fifty-city average (Table 5).

Another way to increase the overall performance of advertising in the U.S. is to allocate advertising across cities in a more optimal fashion. For example, GRP's might be taken out of cities

where they have little effect and put in cities where they are more effective. Using the log model, the impact of advertising on gallon sales in a city depends on the magnitude of the advertising parameter estimates in Table 1 and the size of the city. The advertising parameter estimates indicate percentage changes in gallon sales for a percentage change in advertising. Estimates of changes in gallon sales per unit changes in GRP's can be obtained by multiplying the estimated elasticities by the total gallon sales in the city and dividing the result by the sum of the advertising stock plus location parameter. Table 6 shows the long-run impact of advertising (GRP's) on a weekly average basis. The long-run impact of GRP's on OJ demand is the present effect of GRP's plus all the lagged GRP effects. For example, allocation of a weekly average 36 GRP's to Philadelphia would increase OJ sales by 33,562 gallons in the long-run. Average GRP allocations across the other cities would result in a fifty city long-run increase in OJ demand of 4.1%. Note that the marginal effect of one GRP in Philadelphia is 246 gallons for the above allocation, and that the cities in Table 6 have been ranked according to their marginal effects, i.e., the marginal effects are much greater for the cities on the top of Table 6 compared to the marginal effects for cities on the bottom of the table. If the given fifty-city GRP level of 1550 per week were reallocated across cities to maximize OJ sales in the long-run, OJ demand would increase by 4.5% or .4% over result for the non-optimal allocation.

Concluding Comments.

The empirical analysis shows that in the last 65 weeks the effectiveness of generic OJ advertising varied from city to city. On average, generic advertising was estimated to increase OJ demand by 3.3%. However, the effect in some cities was much greater than in other cities, with the

shifts in OJ demand across cities ranging from zero to 12.0% for the log model.

Advertising performance might be increased in two ways. First, cities where advertising does not work well might be given special attention in developing advertising programs that are more effective. If the relatively poor advertising performing cities were brought up to the average, the estimated increase in fifty-city OJ demand would be 4.2%. Alternatively, increases in OJ demand might be obtained by re-allocating GRP's towards (away from) cities where advertising performs relatively well (poorly).

Table 1. Nonlinear SUR Log Model Coefficient Estimates.

City	R-Square	PRICE		ADVERTISING		Approx. Prob> t
		Coefficient Estimate	't' Ratio	Coefficient Estimate	't' Ratio	
ALBANY	0.44	-1.0496	-27.07	0.0083	2.71	0.0086
ATLANTA	0.44	-0.7816	-17.64	0.0098	4.74	0.0001
BALTIMORE	0.45	-1.3353	-26.04	0.0122	2.52	0.0143
BIRMINGHAM	0.46	-1.0105	-25.18	0.0155	4.10	0.0001
BOSTON	0.18	-0.7722	-9.90	0.0067	2.32	0.0234
BUFFALO	0.65	-1.6559	-23.73	0.0219	3.41	0.0011
CHARLOTTE	0.28	-0.9153	-10.17	0.0239	4.94	0.0001
CHICAGO	0.32	-0.8364	-10.63			
CINCINNATI	0.74	-1.1264	-28.56	0.0124	4.34	0.0001
CLEVELAND	0.50	-1.0852	-23.55	0.0086	3.31	0.0016
COLUMBUS	0.81	-1.5505	-47.55	0.0128	4.78	0.0001
DALLAS	0.52	-1.2111	-20.17	0.0183	5.17	0.0001
DENVER	0.72	-1.3569	-26.01	0.0290	5.56	0.0001
DES MOINES	0.53	-0.6918	-18.61	0.0099	3.30	0.0016
DETROIT	0.49	-1.1429	-17.84	0.0098	3.40	0.0012
GRAND RAPIDS	0.83	-1.5863	-31.43	0.0077	2.62	0.0111
HARTFORD	0.17	-1.0170	-9.06	0.0029	0.52	0.6041
HOUSTON	0.43	-0.8729	-18.74	0.0001	0.060	4.85
INDIANAPOLIS	0.83	-1.1642	-39.49	0.0162	3.62	0.0006
JACKSONVILLE	0.66	-0.8048	-22.96	0.0082	4.71	0.0001
KANSAS CITY	0.63	-1.2541	-20.86	0.0154		
LITTLE ROCK	0.64	-1.3136	-24.10			
LOS ANGELES	0.52	-0.9806	-22.77	0.0127	4.78	0.0001
LOUISVILLE	0.81	-1.2844	-36.75	0.0072	3.46	0.0010
MEMPHIS	0.70	-1.4310	-26.83			
MIAMI	0.51	-0.7242	-17.07	0.0029	1.28	0.2049
MILWAUKEE	0.50	-1.6137	-17.11	0.0071	1.96	0.0541
MINNEAPOLIS	0.50	-1.0927	-14.86	0.0157	4.26	0.0001
NASHVILLE	0.25	-1.2397	-12.34	0.0086	3.18	0.0023
NEW ORLEANS	0.57	-1.4541	-18.37	0.0032	1.89	0.0635
NEW YORK	0.35	-1.2192	-13.04	0.0062	2.17	0.0336
OKLAHOMA CITY	0.52	-1.2016	-18.45	0.0043	1.73	0.0881
OMAHA	0.45	-1.1864	-16.99			
ORLANDO	0.68	-0.7804	-22.42	0.0107	4.62	0.0001
PHILADELPHIA	0.42	-1.2594	-34.83	0.0158	4.59	0.0001
PHOENIX	0.64	-1.2596	-24.78	0.0330	5.92	0.0001
PITTSBURGH	0.73	-1.3820	-32.77	0.0034	0.99	0.3250
PORTLAND	0.78	-1.3645	-36.23	0.0243	5.95	0.0001
RALEIGH	0.51	-0.8629	-15.91	0.0132	4.26	0.0001
RICHMOND	0.34	-0.8257	-11.82	0.0092	3.78	0.0004
SACRAMENTO	0.47	-0.8993	-19.37	0.0226	4.82	0.0001
ST. LOUIS	0.60	-1.4793	-20.98	0.0088	3.32	0.0015
SALT LAKE CITY	0.74	-1.6369	-30.34			
SAN ANTONIO	0.26	-1.1992	-16.75	0.0132	4.30	0.0001
SAN DIEGO	0.19	-0.6030	-11.94	0.0164	3.95	0.0002
SAN FRANCISCO	0.36	-0.9900	-18.38	0.0199	4.90	0.0001
SEATTLE	0.64	-1.3552	-24.54	0.0162	4.53	0.0001
SYRACUSE	0.64	-1.3204	-22.41	0.0225	4.61	0.0001
TAMPA	0.70	-0.8108	-24.35	0.0121	4.69	0.0001
WASHINGTON D.C	0.55	-1.2821	-19.45	0.0067	2.24	0.0288

Table 2. Alternative Model Percentage Increases in Gallon Sales Due To Advertising, By City, Over Sample Period (65 Weeks).

CITY	Logit	Log	Linear	Average
	% Change			
PHOENIX	8.4	12.0	17.5	12.6
BALTIMORE	5.3	3.8	15.5	8.2
DENVER	7.7	9.3	3.9	7.0
SACRAMENTO	5.6	6.3	8.4	6.8
CHARLOTTE	6.8	7.6	4.7	6.4
PORTLAND	8.5	8.8	1.4	6.2
BUFFALO	8.4	6.9	2.1	5.8
GRAND RAPIDS	2.2	2.2	11.6	5.3
HOUSTON	4.6	4.7	6.4	5.2
SYRACUSE	8.3	6.8	0.0	5.0
BIRMINGHAM	4.1	4.1	6.5	4.9
SAN FRANCISCO	5.1	5.8	3.5	4.8
DALLAS	5.5	6.1	2.5	4.7
ALBANY	8.6	2.5	2.7	4.6
MINNEAPOLIS	4.6	5.1	3.7	4.5
WASHINGTON D.C	3.0	2.1	8.1	4.4
SEATTLE	4.8	5.5	1.4	3.9
PHILADELPHIA	5.3	5.2	1.2	3.9
TAMPA	3.4	3.9	3.6	3.6
COLUMBUS	4.3	3.9	2.6	3.6
NEW YORK	2.4	1.9	5.9	3.4
RALEIGH	3.0	3.4	3.3	3.2
CINCINNATI	4.0	3.5	2.2	3.2
ORLANDO	3.2	3.6	2.8	3.2
SAN ANTONIO	3.4	4.0	1.1	2.8
SAN DIEGO	3.8	4.7	0.0	2.8
MIAMI	0.6	0.9	6.8	2.8
JACKSONVILLE	3.6	4.5	0.0	2.7
CLEVELAND	3.5	2.8	1.5	2.6
DES MOINES	2.2	2.7	2.7	2.5
DETROIT	3.2	3.4	1.0	2.5
RICHMOND	2.5	2.7	2.3	2.5
LOS ANGELES	3.0	3.9	0.0	2.3
ST. LOUIS	2.6	3.0	0.9	2.2
ATLANTA	3.2	3.2	0.0	2.1
BOSTON	3.8	2.1	0.2	2.0
INDIANAPOLIS	2.9	2.5	0.0	1.8
NEW ORLEANS	0.7	0.9	3.7	1.8
NASHVILLE	2.8	2.5	0.0	1.8
MILWAUKEE	2.1	2.2	0.3	1.5
OMAHA	0.0	0.0	4.5	1.5
LOUISVILLE	2.1	2.1	0.0	1.4
HARTFORD	3.0	0.8	0.0	1.3
LITTLE ROCK	0.0	0.0	3.7	1.2
OKLAHOMA CITY	1.2	1.3	1.1	1.2
PITTSBURGH	1.6	1.1	0.0	0.9
CHICAGO	0.0	0.0	2.1	0.7
KANSAS CITY	0.0	0.0	0.0	0.0
SALT LAKE CITY	0.0	0.0	0.0	0.0
MEMPHIS	0.0	0.0	0.0	0.0
50 City Total	3.4	3.3	3.1	3.3

Table 3. Log Model Gallon Sales Generated Per GRP, By City, Over Sample Period (65 Weeks).

CITY	65 Weeks : 8-03-96 ... 10-25-97			GRP's	Gal./GRP
	Actual Gallons	Without Adv. Estimated Gallons	With Adv. Estimated Gallons		
SAN FRANCISCO	24681786	23321349	24678339	1527	889
LOS ANGELES	42734994	41028227	42613903	1793	884
PHILADELPHIA	36662555	34862289	36671389	2212	818
NEW YORK	80987649	81294143	82878193	2104	753
DENVER	15313860	14072453	15376417	2022	645
PHOENIX	15091868	13222782	14809839	2945	539
HOUSTON	17430788	16382355	17156619	1702	455
BUFFALO	14122085	13073820	13970550	2038	440
BOSTON	41750552	41238710	42099612	2018	427
DALLAS	16602757	15532870	16472661	2260	416
RALEIGH	13294311	12808840	13248736	1080	407
SACRAMENTO	9140848	8504739	9044616	1401	385
SYRACUSE	8829499	8284973	8848464	1640	344
TAMPA	19061304	18291201	19004576	2125	336
BIRMINGHAM	10378182	10056191	10467725	1249	330
PORTLAND	11587647	10459101	11376135	2882	318
MINNEAPOLIS	13627850	12824376	13475121	2168	300
CHARLOTTE	8083464	7390081	7952727	1951	288
SEATTLE	13538728	12698073	13397326	2446	286
DETROIT	23336607	22555002	23317425	2887	264
WASHINGTON D.C	26371854	25855943	26390821	2074	258
CINCINNATI	11895013	11602017	12010111	1609	254
BALTIMORE	12582386	12505130	12977075	1930	245
SAN DIEGO	7635895	7095122	7426158	1402	236
ATLANTA	18049901	17310750	17871703	2404	233
SAN ANTONIO	10542863	10087556	10489930	1817	221
CLEVELAND	16900535	16456126	16921212	2397	194
RICHMOND	11547931	11219947	11519706	1664	180
JACKSONVILLE	6312992	5986050	6253407	1559	172
COLUMBUS	8130938	7800769	8108828	1990	155
ORLANDO	11354150	10881559	11276033	2796	141
INDIANAPOLIS	10780931	10575371	10838539	1926	137
NASHVILLE	8304581	8178919	8383654	1595	128
ST. LOUIS	11527365	11239792	11580393	2812	121
MIAMI	25772470	25576524	25801835	1905	118
ALBANY	8260272	8132087	8333318	1805	112
GRAND RAPIDS	8122091	7901226	8077094	1613	109
LOUISVILLE	8132373	8015559	8181768	1586	105
DES MOINES	4644561	4576701	4698244	1259	97
MILWAUKEE	8579670	8313135	8496257	1910	96
PITTSBURGH	16738941	16210872	16388505	2100	85
HARTFORD	14645118	14835880	14952280	1496	78
NEW ORLEANS	13947970	13909901	14036019	1664	76
OKLAHOMA CITY	7853156	7788114	7891725	1922	54
KANSAS CITY	7004594	6969053	6969053	1777	0
SALT LAKE CITY	10809201	10770021	10770021	2052	0
MEMPHIS	6666794	6715365	6715365	1724	0
LITTLE ROCK	4735425	4774484	4774484	1668	0
CHICAGO	37186128	37688852	37688852	1802	0
OMAHA	4646569	4658282	4658282	1412	0
50 City Total	795940002	771532680	797341046	96120	269

Table 4. Log Model Advertising Impacts, By City, Over Sample Period (65 Weeks).

CITY	65 Weeks : 8-03-96 ... 10-25-97			% Increase
	Actual Gallons	Without Adv. Estimated Gallons	With Adv. Estimated Gallons	
PHOENIX	15091868	13222782	14809839	12.0
DENVER	15313860	14072453	15376417	9.3
PORTLAND	11587647	10459101	11376135	8.8
CHARLOTTE	8083464	7390081	7952727	7.6
BUFFALO	14122085	13073820	13970550	6.9
SYRACUSE	8829499	8284973	8848464	6.8
SACRAMENTO	9140848	8504739	9044616	6.3
DALLAS	16602757	15532870	16472661	6.1
SAN FRANCISCO	24681786	23321349	24678339	5.8
SEATTLE	13538728	12698073	13397326	5.5
PHILADELPHIA	36662555	34862289	36671389	5.2
MINNEAPOLIS	13627850	12824376	13475121	5.1
HOUSTON	17430788	16382355	17156619	4.7
SAN DIEGO	7635895	7095122	7426158	4.7
JACKSONVILLE	6312992	5986050	6253407	4.5
BIRMINGHAM	10378182	10056191	10467725	4.1
SAN ANTONIO	10542863	10087556	10489930	4.0
TAMPA	19061304	18291201	19004576	3.9
LOS ANGELES	42734994	41028227	42613903	3.9
COLUMBUS	8130938	7800769	8108828	3.9
BALTIMORE	12582386	12505130	12977075	3.8
ORLANDO	11354150	10881559	11276033	3.6
CINCINNATI	11895013	11602017	12010111	3.5
RALEIGH	13294311	12808840	13248736	3.4
DETROIT	23336607	22555002	23317425	3.4
ATLANTA	18049901	17310750	17871703	3.2
ST. LOUIS	11527365	11239792	11580393	3.0
CLEVELAND	16900535	16456126	16921212	2.8
DES MOINES	4644561	4576701	4698244	2.7
RICHMOND	11547931	11219947	11519706	2.7
ALBANY	8260272	8132087	8333318	2.5
INDIANAPOLIS	10780931	10575371	10838539	2.5
NASHVILLE	8304581	8178919	8383654	2.5
MILWAUKEE	8579670	8313135	8496257	2.2
GRAND RAPIDS	8122091	7901226	8077094	2.2
LOUISVILLE	8132373	8015559	8181768	2.1
BOSTON	41750552	41238710	42099612	2.1
WASHINGTON D.C	26371854	25855943	26390821	2.1
NEW YORK	80987649	81294143	82878193	1.9
OKLAHOMA CITY	7853156	7788114	7891725	1.3
PITTSBURGH	16738941	16210872	16388505	1.1
MIAMI	25772470	25576524	25801835	0.9
NEW ORLEANS	13947970	13909901	14036019	0.9
HARTFORD	14645118	14835880	14952280	0.8
CHICAGO	37186128	37688852	37688852	0.0
LITTLE ROCK	4735425	4774484	4774484	0.0
KANSAS CITY	7004594	6969053	6969053	0.0
SALT LAKE CITY	10809201	10770021	10770021	0.0
MEMPHIS	6666794	6715365	6715365	0.0
OMAHA	4646569	4658282	4658282	0.0
50 City Total	795940002	771532680	797341046	3.3

Table 5. Log Model With Minimal Advertising Impacts, By City, Over Sample Period (65 Weeks).

CITY	65 Weeks : 8-03-96 ... 10-25-97		% Increase	
	Actual Gallons	Without Adv. Estimated Gallons		With Adv. Estimated Gallons
PHOENIX	15091868	13222782	14809839	12.0
DENVER	15313860	14072453	15376417	9.3
PORTLAND	11587647	10459101	11376135	8.8
CHARLOTTE	8083464	7390081	7952727	7.6
BUFFALO	14122085	13073820	13970550	6.9
SYRACUSE	8829499	8284973	8848464	6.8
SACRAMENTO	9140848	8504739	9044616	6.3
DALLAS	16602757	15532870	16472661	6.1
SAN FRANCISCO	24681786	23321349	24678339	5.8
SEATTLE	13538728	12698073	13397326	5.5
PHILADELPHIA	36662555	34862289	36671389	5.2
MINNEAPOLIS	13627850	12824376	13475121	5.1
HOUSTON	17430788	16382355	17156619	4.7
SAN DIEGO	7635895	7095122	7426158	4.7
JACKSONVILLE	6312992	5986050	6253407	4.5
BIRMINGHAM	10378182	10056191	10467725	4.1
SAN ANTONIO	10542863	10087556	10489930	4.0
TAMPA	19061304	18291201	19004576	3.9
LOS ANGELES	42734994	41028227	42613903	3.9
COLUMBUS	8130938	7800769	8108828	3.9
BALTIMORE	12582386	12505130	12977075	3.8
ORLANDO	11354150	10881559	11276033	3.6
CINCINNATI	11895013	11602017	12010111	3.5
RALEIGH	13294311	12808840	13248736	3.4
DETROIT	23336607	22555002	23317425	3.4
ATLANTA	18049901	17310750	17882005	3.3
ST. LOUIS	11527365	11239792	11610705	3.3
CLEVELAND	16900535	16456126	16999178	3.3
DES MOINES	4644561	4576701	4727732	3.3
RICHMOND	11547931	11219947	11590205	3.3
ALBANY	8260272	8132087	8400446	3.3
INDIANAPOLIS	10780931	10575371	10924358	3.3
NASHVILLE	8304581	8178919	8448824	3.3
MILWAUKEE	8579670	8313135	8587468	3.3
GRAND RAPIDS	8122091	7901226	8161967	3.3
LOUISVILLE	8132373	8015559	8280073	3.3
BOSTON	41750552	41238710	42599587	3.3
WASHINGTON D.C	26371854	25855943	26709190	3.3
NEW YORK	80987649	81294143	83976849	3.3
OKLAHOMA CITY	7853155	7788114	8045121	3.3
PITTSBURGH	16738941	16210872	16745831	3.3
MIAMI	25772470	25576524	26420549	3.3
NEW ORLEANS	13947970	13909901	14368928	3.3
HARTFORD	14645118	14835880	15325465	3.3
CHICAGO	37186128	37688852	38932584	3.3
LITTLE ROCK	4735425	4774484	4932042	3.3
KANSAS CITY	7004594	6969053	7199031	3.3
SALT LAKE CITY	10809201	10770021	11125432	3.3
MEMPHIS	6666794	6715365	6936972	3.3
OMAHA	4646569	4658282	4812005	3.3
50 City Total	795940002	771532680	804166658	4.2

SAN FRANCISCO	358790	384503	25	302	394526	91	85
LOS ANGELES	631203	661141	29	282	671407	99	85
PHILADELPHIA	536343	569905	36	246	579659	107	85
NEW YORK	1250679	1280500	34	226	1288294	93	85
DENVER	216499	241552	33	205	247981	84	85
PHOENIX	203427	233158	48	157	238077	91	85
HOUSTON	252036	266830	27	153	269375	50	85
RALEIGH	197059	205444	18	145	206908	31	85
BUFFALO	201136	218293	32	144	220869	56	85
SACRAMENTO	130842	141131	22	143	142827	37	85
BOSTON	634442	650601	33	130	652462	51	85
DALLAS	238967	256404	36	129	258385	55	85
BIRMINGHAM	154711	162744	20	123	163681	29	85
SYRACUSE	127461	138033	26	114	138974	36	85
TAMPA	281403	294642	34	102	295288	41	85
CHARLOTTE	113694	124289	32	91	124501	34	85
PORTLAND	160909	177879	47	90	178111	50	85
MINNEAPOLIS	197298	209535	36	90	209700	38	85
CINCINNATI	178493	186507	26	87	186549	26	85
SAN DIEGO	109156	115359	22	84	115326	21	85
SEATTLE	195355	208314	40	83	208212	39	85
WASHINGTON D.C.	397784	408019	34	79	407817	31	85
BALTIMORE	192387	201298	32	75	200993	28	85
DETROIT	347000	361235	47	74	360719	41	85
SAN ANTONIO	155193	162850	29	73	162499	24	85
ATLANTA	266319	276689	39	69	276101	31	85
RICHMOND	172615	178385	27	59	177781	18	85
JACKSONVILLE	92093	97169	25	59	96601	17	85
CLEVELAND	253171	261834	39	57	260907	25	85
COLUMBUS	120012	125872	32	49	124965	18	85
INDIANAPOLIS	162698	167634	29	45	166764	15	85
NASHVILLE	125830	129736	26	41	128919	12	85
ORLANDO	167409	174841	45	40	173442	21	85
GRAND RAPIDS	121557	124863	25	37	124055	10	85
MIAMI	393485	397738	31	36	396752	13	85
DES MOINES	70411	72729	20	35	72089	8	85
ALBANY	125109	128952	30	35	128003	12	85
LOUISVILLE	123316	126442	25	35	125635	10	85
ST. LOUIS	172920	179270	46	34	177808	18	85
MILWAUKEE	127894	131294	30	30	130323	10	85
HARTFORD	228244	230486	23	27	229739	7	85
PITTSBURGH	249398	252680	34	25	251613	9	85
NEW ORLEANS	213998	216426	27	25	215578	7	85
OKLAHOMA CITY	119817	121751	31	17	120890	5	85
CHICAGO	579828	579828	29	0	579828	0	0
KANSAS CITY	107216	107216	29	0	107216	0	0
LITTLE ROCK	73454	73454	27	0	73454	0	0
MEMPHIS	103313	103313	28	0	103313	0	0
OMAHA	71666	71666	23	0	71666	0	0
SALT LAKE CITY	165693	165693	33	0	165693	0	0
50 City Total	11869734	12356126	1550		12402271	1550	
Percentage Increase*		4.1			4.5		

* Over Gallon Sales without Advertising.