A Comparison of Rebates and Non-Rebate Promotions in a Residential Lighting Program

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Abstract

Over two years of CFL sales data and program activities have been tracked as part of the evaluation of the Northwest Energy Efficiency Alliance's Residential Lighting Program. These data were used by ECONorthwest to estimate a model of quarterly CFL sales that quantifies the effect of the individual Lighting Program components. As part of the model development, CFL data were taken from several sources. Retailer reported sales data and information on coupon redemptions were combined into one retailer database. Additional information on individual retailers was obtained from Dun and Bradstreet (D&B), including SIC code, store location, number of employees, and annual sales revenue.

The CFL sales model predicts quarterly CFL sales over a two-year period while controlling for Lighting Program actions, rebates provided by BPA's Coupon Campaign, and geographic and firmographic characteristics. By including all these influences in one model, the effect of specific Lighting Program actions can be assessed relative to the other factors driving CFL sales. Of the various program actions, the most effective on CFL sales are working lighting displays, point-of-purchase materials, and regular visits by program field staff.

Introduction

The Northwest Energy Efficiency Alliance's (the Alliance) Residential Lighting Program has promoted ENERGY STAR© compact fluorescent lightbulbs (CFL) throughout the Alliance territory of Washington, Oregon, Idaho and Montana. Through the Lighting Program, the Alliance has provided assistance to retailers to sell ENERGY STAR© CFL lamps and fixtures throughout a variety of channels. During the course of the program, the market for CFLs has changed dramatically. The West Coast Energy Crisis led to an enormous increase in awareness of CFLs and other conservation measures. In addition, the Bonneville Power Administration (BPA) sponsored a program that provided millions of residential customers with coupons for purchasing CFLs. As a consequence, both CFL awareness and sales increased as a result of both the Alliance and BPA programs.

Having the Alliance and BPA programs run simultaneously provides a unique opportunity to test the effectiveness of different promotion methods on CFL sales. The Alliance program relies primarily on market transformation efforts that typically do not rely on rebates, but rather provides resources for retailers to promote the benefits of energy-efficient technologies. BPA's Coupon Campaign, on the other hand, provided a point-of-sale rebate off the purchase price of CFLs, and in this sense resembled a more traditional demand-side management (DSM) program. As part of the evaluation of the Alliance's Lighting Program, quarterly CFL sales data were collected at the store-level for both coupon and non-coupon CFL sales.

This paper represents the latest in a series of papers written about the Alliance's Residential Lighting Program evaluation and previous papers are included in the reference section of this report.

Rather than repeat background program information in detail, the reader is referred to these prior papers. This paper has a very specific focus on the development of a CFL sales model from the data available to the evaluation. This model predicts quarterly CFL sales over a two-year period while controlling for program actions, rebates provided by the Coupon Campaign, and geographic and firmographic characteristics. By including all these influences in one model, the effects of specific Lighting Program actions can be assessed relative to the other factors driving CFL sales.

Program Background

In July 2000, the Alliance began Phase II of its ENERGY STAR© Residential Lighting Program. This program focuses on providing support for retailers within the Alliance territory for selling CFL bulbs and fixtures in the residential market. Included in the program are retailers throughout the Alliance service territory of Washington, Oregon, Idaho, and Montana. The program is scheduled to run for over 3 years, ending in December 2003. Major components of program implementation include the following:

- Regular visits to participating retailers from program field reps
- CFL Promotional materials (endcaps, tags, etc.)
- Training of retail sales staff on selling CFLs
- Cooperative marketing promotions
- Coordination with other agencies such as utilities, PUDs, BPA, and distributors
- Website for wholesale of CFLs not available through other channels

The Alliance has been an innovator in program evaluation by evaluating its programs while they are still being implemented. This allows important evaluation findings to be used to improve the current program rather than conducting the evaluation after the program has ended. In the fall of 2000, the evaluation process for the program started and will continue through 2003. Most of the major retailers involved in the program have agreed to provide CFL sales data on a quarterly basis. The evaluation will use this information to develop a lighting market characterization that tracks CFL sales over time for participating retailers and estimates CFL sales for retailers in the Alliance territory but not participating in the program.

Coupon Campaign

During most of 2001, BPA funded the Coupon Campaign that provided residential electricity customers six-dollar coupons for the purchase of ENERGY STAR© CFLs at participating stores throughout BPA's service territory. These coupons were distributed through local utilities that chose to participate in the program, and utility customers received the coupons with their monthly bills. In some cases, this involved multiple mailings of coupons over several months. At the end of the Coupon Campaign, over six million coupons had been distributed as part of this program. Coupon redemption data were tracked for individual stores participating in the Coupon Campaign, and this information was used for the lighting market characterization that was developed as part of the Lighting Program evaluation.

To date, over two years of CFL sales data and program activities have been tracked as part of the program evaluation. These data are being used to estimate a model that can predict CFL sales and to

quantify the effect of coupons and the individual program components. As part of the model development, CFL data were taken from several sources. Retailer reported sales data and information on coupon redemptions were combined into one retailer database. Additional information on individual retailers was obtained from Dun and Bradstreet (D&B), including SIC code, address, number of employees, and annual sales revenue. This model is useful for highlighting the relative effectiveness of various program measures and can be used to help design future versions of this program.

Figure 1 and Table 1 show how CFL sales are distributed by quarter in 2001 and 2002. The first quarter of 2001 had about half a million CFL sales across the program territory, which was well above the initial program goal of several hundred thousand for the entire year. As concerns about the energy crisis grew and California began experiencing rolling blackouts, sales rose sharply. Both the third and fourth quarter of 2001 saw CFL sales over 2 million. As shown by the lighter area in the chart, the sales due to the Coupon Campaign also occurred at this time, and coupon sales were generally less than half of all CFL sales for each quarter (with the exception of the fourth quarter of 2001). CFL sales have decreased since 2001 but have been trending upward over the latter half of 2002. Smaller versions of the original Coupon Campaign are beginning to be implemented and coupon sales will increase overall CFL sales as the program continues in 2003.

Figure 1: CFL Sales Data by Quarter

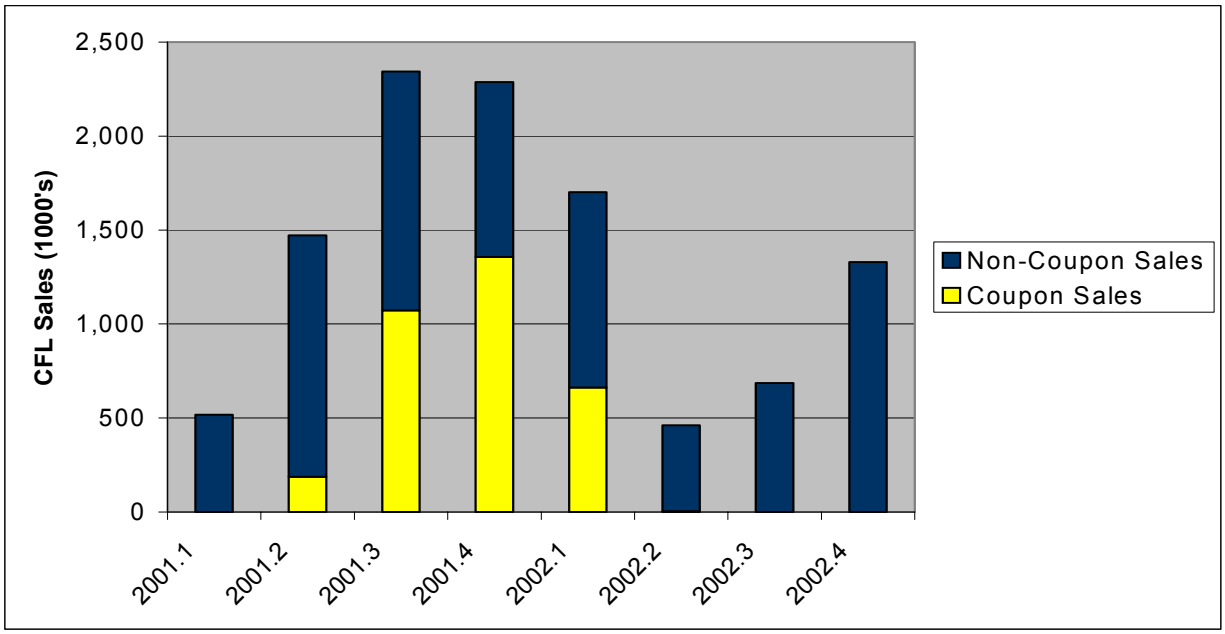

Table 1: Quarterly CFL Sales (1000's)

Quarter	Coupon Sales	Non-Coupon Sales	Total Sales
2001 Q1	0	517	517
2001 Q2	186	1,285	1,472
2001 Q3	1,073	1,271	2,343
2001 Q4	1,357	931	2,288
2002 Q1	663	1,040	1,702
2002 Q2	4	456	460
2002 Q3	0	685	685
2002 Q4	0	1,330	1,330

Table 2 presents some general sales information by SIC code of retailers. The body of the table presents average CFL sales for each quarter for each type of store as classified by SIC code. These averages are calculated as the combination of both coupon and non-coupon CFL sales. The first row shows the quarterly averages for all SIC codes. The last three quarters of 2001 are highlighted in grey and show significantly higher CFL sales, with average sales roughly double those observed in other quarters.

Those SIC codes with the highest average sales are also highlighted in grey in Table 2. The most aggressive sellers are in the Nondurable Goods category (SIC 5199), which is the code used for the large discount warehouse stores. As expected, the Lumber / Building Materials category (SIC 5211) is also a leading seller of CFLs, as this category contains the large "Do It Yourself" chains that have been aggressively promoting CFLs in the last few years. The Miscellaneous General Merchandise group (SIC 5399) also contains stores that have high average sales, as these stores have also promoted CFLs. Stores within this category include the large retailers that tend to sell both groceries and home-related products, which is one of the most common types of stores where light bulbs are purchased.

Table 2: Average Quarterly CFL Sales by SIC Code (2001-2002)

SIC Code	Description	2001 Q1	2001 Q2	2001 Q3	2001 Q4	2002 Q1	2002 Q2	2002 Q3	2002 Q4	Avg by SIC
	Quarterly Average	**288**	**674**	**635**	**614**	**458**	**236**	**186**	**362**	
5063	Electrical Apparatus	69	185	116	123	79	17	5	8	69
5199	Nondurable Goods	3,955	10,025	11,951	9,559	3,258	3,523	6,550	10,549	7,421
5211	Lumber / Building Materials	322	1,433	1,866	1,627	1,882	273	364	1,057	1,141
5251	Hardware Stores	48	130	136	138	53	26	15	32	73
5311	Department Stores	412	389	700	803	437	267	131	317	445
5331	Variety Stores	514	507	704	777	475	215	147	184	443
5399	Misc. General Merch.	1,018	2,662	3,412	3,045	1,209	882	1,476	2,374	2,023
5411	Grocery	229	176	111	196	123	385	38	46	118
5719	Misc. Home Furnishing	517	756	314	759	730	109	14	15	397
5722	Household Appliance	-	87	94	74	58	-	-	-	78
5912	Drug Stores	90	175	209	74	97	99	146	137	148
5999	Misc. Retail	40	144	159	200	64	15	18	28	85

As the preceding suggests, there are many factors that are contributing to CFL sales. An enormous effort by the Residential Lighting Program has resulted in over one thousand retailers participating in the program, either through cooperative marketing agreements and/or being visited regularly by field representatives of the Lighting Program that provide assistance in promoting CFLs. The Coupon Campaign has increased CFL sales for both participating and nonparticipating stores that

chose to accept the coupons. Finally, other factors such as seasonal timing, store type, and geography also influenced sales.

CFL Sales Model

To separate out these effects requires a statistical model that estimates CFL sales as a function of all the different factors. The general form of the model developed in this analysis is shown below:

$$\text{CFL Sales} = \beta'W + \beta'X + \beta'Y + \beta'Z + \varepsilon$$

Where

CFL Sales = Quarterly CFL sales for an individual retailers
W = CFL sales from coupons
X = Variables relating to Lighting Program activities (field rep visits, promotions)
Y = Variables controlling for economic and time factors
Z = Store characteristics (SIC code, size, location)
β = Coefficients to be estimated
ε = Random error term assumed normally distributed

This general model form is used to predict the amount of CFL sales while taking into account the various factors that might affect CFL sales, including the Coupon Campaign, economic and other factors that vary over time, retailer characteristics, and various Lighting Program activities. When all these factors are included in the model, the relative importance of each of these factors can be determined.

The specific variables used in the model are summarized in Table 3. The variables have been defined to control for the multiple influences that will potentially affect CFL sales. These influences and the variables that represent them in the model are grouped into the following general categories.

Seasonal Factors. Lighting sales tend to follow seasonal patterns, with fall considered "lighting season" by retailers. In addition, other factors such as the West Coast Energy Crisis also affected the Lighting Program over a distinct period of time. The effects of these factors are controlled for in the model by using quarterly dummy variables (Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8) that account for those influences that occur over time (or during limited periods within the analysis period) that are not accounted for by the other variables in the model. Within the model, the first quarter variable Q1 is omitted to enable model identification and as a consequence the coefficient estimates on the remaining quarterly variables reflect the impact relative to the first quarter.

Retailer characteristics. The type of retailer will have an impact on the amount of CFLs sold. Some stores within the "Do It Yourself" channel have embraced CFLs and aggressively marketed them over the last several years. Other stores, such as grocery stores, do not generally have staff on hand to help promote CFLs and rarely have working lighting displays to demonstrate these bulbs. Surveys have shown, however, that grocery stores are where most residential customers usually by light bulbs. In the CFL Sales Model, dummy variables for each SIC code (S5063, S5199, S5211, etc.) have been included to capture these types of effects.

Separate retailer variables were created to reflect store size based on employees. Stores with 10 or fewer employees were categorized as small, 11 to 40 employees are medium, and more than 40

employees as large. These categories correspond roughly to the break points observed in the D&B data, with approximately one third of the retailers falling in each category. These variables were then interacted with the program variables to isolate the effects of program actions on retailers of different sizes.

Geography. Even if stores are similarly sized and sell identical products, CFL sales will still vary based on store location. For example, a hardware store will have higher sales in an urban area than an identical store in a remote rural area simply because there are more customers in the urban area. In the model, we account for this by including dummy variables to indicate either a rural or urban store location (RURAL, URBAN). (A third "suburban" category was dropped to allow model identification.)

Coupons. Quarterly CFL coupon redemptions for each store are included as a predictor of overall CFL sales. As shown in Figure 1, coupon sales are an important factor contributing to CFL sales in particular quarters, but they are by no means the only factor as most CFLs were sold without coupons during this period.

Program Assistance. A separate set of variables is used to signify various promotional activities and assistance provided by the Alliance's Lighting Program. Three variables are used to show the frequency of field rep visits. The variable REP1 indicates retailers that are considered high priority by field reps and were visited 1 or 2 times each month. Medium priority retailers (REP2) were visited once every four to six weeks. Low priority retailers (REP3) were still visited occasionally by field reps, but less frequently at one visit every 2 to 4 months.

Additional variables are included to reflect specific assistance provided by the Lighting Program to that retailer during each quarter. If there was some assistance with a display (DISPLAY) or working demonstration (DEMO) of CFLs, these are captured in the model for that quarter. Similarly, the program may have provided assistance with advertisements (ADS) or buy-down dollars (BUYDOWN) to reduce the retail price of CFLs. The Lighting Program also provides 'point-of-purchase' materials to retailers that inform customers of the benefits of CFLs (POP).[1]

Before estimating the model, correlation coefficients were calculated for all variables to determine if there was a high level of correlation for any of the variables that might confound the parameter estimates. If variables display a high level of correlation (say a correlation coefficient of 0.80 or higher), then multicollinearity may be an issue and variables might falsely appear to be statistically insignificant. In this application, none of these tests revealed a high degree of correlation for any of the variables included in the model.[2]

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[1] The program also provides other types of assistance such as field rep demonstration of CFLs and training of sales staff. Within the data used for this model, only a small number of stores received this type of assistance and due to the small number of sample points reliable coefficient estimates could not be obtained. These variables were dropped from the final version of the model presented here.

[2] Because the quarterly CFL sales data were not highly correlated across periods, we did not attempt to reorganize the data and conduct a more formal Durbin Watson test for serial correlation. If there were a significant seasonal trend in CFL sales, additional years of data would be needed to formally test for autocorrelation.

Table 3: Variables Used in CFL Sales Model

Variable Name	Description	Units
Q#	Quarterly indicator variables to capture seasonal effects	1,0
CPNSALES	Coupon Sales	# CFLs sold in quarter
RURAL	Store located in rural area	1,0
URBAN	Store located in urban area	1,0
S####	Dummy variables indicating retailer SIC code.	1,0
REP1	High priority retailer for field rep visits (1 or 2 visits per month)	1,0
REP2	Medium priority retailer for field rep visits (1 visit every 4 to 6 weeks)	1,0
REP3	Low priority retailer for field rep visits (1 visit every 2 to 4 months)	1,0
SMALL_AD	Small store, received advertising assistance from program	1,0
MED_AD	Medium store, received advertising assistance from program	1,0
LARGE_AD	Large store, received advertising assistance from program	1,0
SMALL_DISP	Small store, CFL display provided by Program	1,0
MED_DISP	Medium store, CFL display provided by Program	1,0
LARGE_DISP	Large store, CFL display provided by Program	1,0
SMALL_BUY	Small store, program provided 'buy down' dollars to reduce CFL price	1,0
MED_BUY	Medium store, program provided 'buy down' dollars to reduce CFL price	1,0
SMALL_POP	Small store, program provided 'point-of-purchase' info on CFLs	1,0
MED_POP	Medium store, program provided 'point-of-purchase' info on CFLs	1,0
LARGE_POP	Large store, program provided 'point-of-purchase' info on CFLs	1,0

Model Results

A simple Ordinary Least Squares (OLS) regression model was used to estimate the CFL sales model. Estimation results are shown below in Table 4 and are discussed below for each general variable category.

Non-Program Factors

Seasonal Effects. The first quarter variable (Q1) was omitted from the model and the remaining variables reflect sales relative to the first quarter. For the seven quarterly variables, five were statistically significant at the 10 percent level and all had positive coefficient estimates ranging from 11.99 (Q4) to 460.35 (Q2). This indicates that seasonal patterns and other events such as the Energy Crisis that occurred outside the Lighting Program had a significant impact on CFL sales in each quarter.

Coupons. The coupon sales variable (COUPON) had a pronounced effect on overall CFL sales. With a coefficient estimate of 1.33, this indicates that each coupon redeemed at a store contributed to an additional 0.33 CFL sales sold. This indicates that on average customers are purchasing more bulbs than they have coupons to redeem for those quarters where coupons were available.

Retailer Characteristics. The SIC code variables show that the characteristics of certain retailers have a very large influence on CFL sales that are independent of both the Lighting Program and the BPA Coupon Campaign. In particular, retailers in the Nondurable Goods category (SIC 5199) and Miscellaneous General Merchandise (SIC 5399) have been very successful in selling CFLs based on the characteristics of these stores, with these classifications adding over 6,500 and almost 1,300 CFLs per quarter, respectively. The Building Supply category (SIC 5211) also had a positive effect, adding 223 CFL sales per quarter on average. These were the largest impacts of the retailer industry variables and are consistent with the sales averages shown in Table 2. All the other retailer categories had negative

coefficient estimates, indicating that sales in these stores were lower than average. With the exception of the Miscellaneous Household Appliance category (SIC 5722), all of the coefficient estimates for the retailer categories were statistically significant at the 5 percent level, and the estimate for stores in the Miscellaneous Household Appliance category was significant at 16 percent and should not be completely discounted. This indicates that retailer characteristics have a significant effect on CFL sales independent of actions taken by the Lighting Program.

Geography. For all stores, retailers located in urban areas saw larger amounts of sales with an average effect of 257 CFLs per quarter (relative to stores located in suburban areas) – regardless of retailer type. This is not surprising given that most retail activity occurs in urban areas. Conversely, stores in rural areas on average had fewer sales, with a coefficient estimate of –106.69. This indicates that stores in rural areas on average sold roughly 107 fewer CFLs per quarter relative to similar stores located in suburban areas.

Program Factors

The bottom rows of Table 4 show the effect of the Lighting Program variables on total CFL sales. The field rep visitation variables (REP1, REP2, REP3) indicate that regular visits by program field reps have a positive and significant effect on CFL sales in all three cases. In addition, the magnitude of the effect increases with an increase in the regularity of field rep visits. For stores where visits were a low priority (occurring maybe once every 2 to 4 months) the coefficient estimate is 55.86 for REP3, indicating an increase in CFL sales of 55.86 per quarter relative to stores with no field rep visits. For stores given a medium priority (REP2) with field reps visiting once every 4 to 6 weeks, CFL sales increased by 291.99 relative to stores with no field rep visits. For the high priority stores with 1 or 2 visits each month (REP1), CFL sales increased by 684.82 per quarter on average.

The advertising variables (SMALL_AD, MED_AD, LARGE_AD) reflect the effect on CFL sales of Program-provided advertising assistance for retailers of various sizes. For the small and medium sized stores, this effect was negative but not statistically different from zero. For large stores, the coefficient estimates was, negative, statistically significant, and very large in magnitude. Again, this does not mean that the model shows that advertising in general has a negative effect on sales. Rather, for large retailers, those that the Program helped with advertising sold fewer CFLs than other large retailers participating in the program – and these other retailers likely did their own advertising outside the program.[3] It is also possible that these stores would have sold even fewer CFLs without the advertising assistance from the Lighting Program. Despite this counterintuitive result, the negative coefficients on the advertising variables are informative. Taking all three coefficient estimates together and considering the positive influence of the other types of assistance, it may be more effective for the Lighting Program to focus on other non-advertising forms of retailer support.

The variables indicating a working CFL display (SMALL_DISP, MED_DISP, LARGE_DISP) illustrate how the Lighting Program has varying effects on retailers of different sizes. For the small and medium retailers, the coefficient estimates are negative and not statistically significant at the 10 percent level of significance (but are significant at 20 percent.) This indicates that these displays are not

[3] Another possibility is that these stores differ from the other participating stores in a way that is not captured by the model but is related to the advertising variable for large stores. In this case, the coefficient estimate for advertising would be biased as it is picking up some of the influence of the omitted variable(s).

effective for these stores, at least when obtained through the Lighting Program. For large stores, however, the effect is much different with a large coefficient estimate of 3208.81 that is statistically significant. This indicates that larger retailers that utilize the CFL lighting displays obtained through the program are selling over 3,000 more CFLs per quarter on average relative to other large retailers that did not get a display through the Lighting Program.

For the variables indicating program buydown dollars (SMALL_BUY, MED_BUY), the effect was positive but not statistically significant. (No large retailers received buy down dollars from the Lighting Program.) The insignificance of these variables may be reflecting the fact that buydown dollars are being phased out of the Lighting Program and few buydown funds were distributed after the early stages of the Lighting Program.

The point-of-purchase variables (SMALL_POP, MED_POP, LARGE_POP) provide another instance where Lighting Program support has varying effects on retailers of different size. For the small and medium retailers, the point-of-purchase materials had a positive and significant effect, with quarterly CFL sales increasing by approximately 358 for small stores and 693 for medium stores relative to similarly sized stores that did not receive point-of-purchase materials. For large stores, stores receiving point-of-purchase materials sold significantly less CFLs than other large retailers. For these stores, quarterly CFL sales were lower by 3,262 on average

Table 4: CFL Sales Model Estimation Results

Dep Var =	Quarterly CFL Sales	F Stat =	869.961
R-square =	0.5891	Prob>F	0.0001
Adj R-square =	0.5884	Obs =	21,884

Variable	Coefficient Estimate	Std Error	t statistic	Prob > |T|
Q2	460.35	64.43	7.15	0.00
Q3	105.13	57.65	1.82	0.07
Q4	11.99	57.80	0.21	0.84
Q5	131.30	57.85	2.27	0.02
Q6	54.11	68.12	0.79	0.43
Q7	157.56	58.03	2.72	0.01
Q8	273.02	57.81	4.72	0.00
CPNSALES	1.33	0.01	136.56	0.00
S5063	-323.20	72.93	-4.43	0.00
S5199	6504.36	167.78	38.77	0.00
S5211	222.95	59.58	3.74	0.00
S5251	-309.00	61.07	-5.06	0.00
S5311	-161.01	61.85	-2.60	0.01
S5331	-453.25	91.39	-4.96	0.00
S5399	1299.20	71.12	18.27	0.00
S5411	-182.79	57.83	-3.16	0.00
S5719	-313.35	137.24	-2.28	0.02
S5722	-293.90	207.29	-1.42	0.16
S5912	-266.41	62.87	-4.24	0.00
S5999	-248.06	67.37	-3.68	0.00
URBAN	256.75	23.82	10.78	0.00
RURAL	-106.69	30.52	-3.50	0.00
REP1	684.82	37.76	18.13	0.00
REP2	291.99	35.98	8.12	0.00
REP3	55.86	31.37	1.78	0.08
SMALL_AD	-154.25	229.44	-0.67	0.50
MED_AD	-325.72	267.17	-1.22	0.22
LARGE_AD	-3262.34	176.93	-18.44	0.00
SMALL_DISP	-569.98	422.83	-1.35	0.18
MED_DISP	-774.62	481.80	-1.61	0.11
LARGE_DISP	3208.81	182.71	17.56	0.00
SMALL_BUY	357.84	571.16	0.63	0.53
MED_BUY	693.24	503.09	1.38	0.17
SMALL_POP	789.77	432.18	1.83	0.07
MED_POP	1134.97	509.99	2.23	0.03
LARGE_POP	-5277.82	250.16	-21.10	0.00

Program Implications

A couple of important caveats are needed for interpreting the coefficient estimates for the Lighting Program variables. These program coefficients reflect the benefits of actions taken through the program but do not provide any indication if any of these actions would have been done otherwise – or are being done outside the Lighting Program. For example, the variable LARGE_DISP indicates the effect of a working CFL display for a large retailer that is put in place through the Lighting Program, but other stores may also have installed these outside the program. As a consequence, the coefficient estimate is an estimate of the effectiveness of displays obtained *through the Lighting Program* and not

the effectiveness of lighting displays in general. This is particularly important to keep in mind when interpreting some of the large negative coefficient estimates such as those observed for advertising.

A related issue is determining what would have been done in absence of the program. Given the enormous amount of publicity associated with CFLs, some of the retailers that received help from the program would undoubtedly have done many of the same things in absence of the program, including utilizing displays and product demos and advertising for CFLs. Consequently, the coefficient estimates for the program variables reflect gross effects rather than net effects and thus overstate the impact of the program. Nevertheless, these estimates do provide information on the relative impact of various types of Lighting Program assistance, which was the primary purpose of this analysis.

With these caveats in mind, the CFL sales model does provide some useful information on program effectiveness. Field rep visits are shown to be effective for stores of all sizes, with the effect increasing with the frequency of visits. Other program actions have varying effects across retailers and the program may want to consider differentiating the types of assistance it offers based on retailer size. For large retailers, working CFL displays appear to have a large positive impact on CFL sales, but the effect for medium and small stores is minimal (and possibly negative.) Similarly, point-of-purchase materials obtained through the Lighting Program for small and medium retailers have a large positive impact on CFL sales, but the effect was negative for large retailers. Future program efforts should build on these positive areas. Conversely, advertising assistance done through the Lighting Program does not appear to have a positive effect on CFL sales for stores of any size, and the program may want to re-evaluate this form of assistance.

Summary

This paper presents a model that estimates the effect of both rebates and non-rebate assistance on quarterly CFL sales. When the effects of time, geography, and retailer characteristics are controlled for, several types of non-rebate assistance have a positive and significant effect on CFL sales. In particular, regular visits by program field staff have a positive impact on CFL sales, with CFL sales increasing with the frequency of visits. Lighting Program assistance in the form of working CFL displays appear to be a large and a significant factor for CFL sales in large retail stores. For small and medium sized stores, point-of-purchase materials have a large and statistically significant impact on CFL sales. For large stores, program-supplied point-of-purchase materials were less effective, as was assistance in advertising. Based on the model results, future retailer support in the form of field rep visits, working CFL displays, and point of purchase materials is recommended.

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