

# Coupons and Private Labels: A Cross-Category Analysis of Grocery Products

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## ABSTRACT

**This article examines the influence of coupons on private label shares of grocery products. The impact of national brand and private label coupons, distributed by manufacturers and retailers, is examined. A consumer framework and a typology of coupon effects are developed to explain different types of coupon usage behavior. Aggregate scanner panel data on 480 product categories are used in the analysis. Both the type of coupon and the method of distribution (by manufacturer or by retailer) are found to be important determinants of private label share response. Couponing activities by the national brand manufacturer are negatively related to private label share, thus indicating that they may be effective deterrents of private label penetration. However, couponing activities related to private labels do not help increase private label shares. The surprising finding is that national brand store couponing activity is positively related to private label share. © 1992 John Wiley & Sons, Inc.**

Coupons are important tools used by brand managers for promoting their brands, particularly in the grocery business. After shelf price reductions, coupons are the most widely used promotion devices. In 1991, consumers redeemed 7.46 billion coupons worth \$4 billion, a dollar value increase of 14% over 1990 (*Marketing Briefs*, March 2, 1992).

Although there is a large body of research on coupons (see Cole, 1990, for a review of coupon research), one aspect of coupon promotion that

has not been investigated by researchers is its impact on private label penetration. Private labels, or store brands, are, in general, brands owned, controlled, and sold exclusively by a retailer, whereas national brands represent widely distributed merchandise marketed by manufacturers. Private labels have made substantial gains in grocery products in recent times. A recent study by the Food Marketing Institute shows that the percentage of grocery shoppers purchasing private labels in selected grocery categories was 44% in 1991, an increase of 7% from a year earlier (Holton, 1992). Many experts believe that this growth trend will continue in the 1990s because (a) economic downturns and prolonged recession cause consumers to focus more on prices when they choose products in the marketplace, and private labels often provide acceptable quality at reasonable prices (Karolefski, 1990), and (b) private labels are now being better managed by both retailers and the suppliers (Lenchek, 1990). This recent growth in private labels has become a major concern for national brand marketers with heavy financial investments in branded items (Gibson, 1992; McCarthy, 1992). Faced with severe competition from the store brands, the national brand managers have to find ways of protecting their market shares and limiting the share of private labels. Marketers believe an important strategy for achieving this objective is to issue coupons.

In this article we investigate the impact of coupons on private label shares through a cross-category analysis of 480 products. If, after accounting for other relevant factors, coupons explain a substantial portion of the variation or cross-category differences in private label shares, then there is reason to believe that coupons influence private label growth. Although our main focus is on the effect of national brand manufacturer coupons, we also investigate the effect of national brand and private label coupons distributed by retailers. Thus, while previous research has predominantly focused upon national brand manufacturer distributed coupons, we study coupons distributed by retailers (store coupons) as well.

This article is divided into three sections: I, Theoretical Analysis, II, Empirical Analysis, and III, Discussion and Conclusion. In the Theoretical Analysis section, we discuss how coupons of manufacturers and retailers are likely to affect private label shares. In the Empirical Analysis section, we describe the data used to assess the relationship between coupon activity and private label shares, and present the results. In the final section, we discuss the results, and provide the limitations and directions for future research.

## **I. THEORETICAL ANALYSIS**

In this section, we discuss three types of coupons—national brand manufacturer coupons, national brand store coupons, and private label store

coupons. First, we provide a consumer framework for understanding coupon effects, and then specify a typology of coupon effects. Based on these two aspects, we generate expectations about the nature and magnitude of the impact of various coupons on aggregate private label share.

## Consumer Framework

In order to understand the effect of various coupons on private label share, aggregated over time and across stores, we use the following simple framework. Let us think of the market with two periods. The first period is the coupon issue/redemption period and the subsequent period is the period with no couponing. Stores are divided into the focal store (the one that issues the store coupon), and all other stores. Because our interest is in understanding national brand-private label competition, we view the national brands as a single entity competing with private labels.

When there is no couponing in period I (i.e., all brands in all stores are sold at their regular prices), consumers will purchase either the national brand or the private label, and they will purchase their brand in either the focal store, or other stores. Thus we obtain four types of consumers based on their regular-price purchase behavior as described in the following figure:

	Focal Store	Other Stores
Regular Users of National Brand	I	II
Private Label	III	IV

## Typology of Coupon Effects

When coupons are issued on a brand (in our case the national brand or the private label), they trigger several effects. These effects, along with their impact on market shares, are listed in the following. A summary of these effects is provided in Table 1 (columns 1-5).

**1. Regular Usage Effect.** Some of the regular users of the brand will avail of the coupon for purchasing their normal quantity (quantity they would have purchased if there had been no coupons). This effect does not alter the quantities sold of any brand, and hence has no influence on store level or aggregate market shares.

**2. Acceleration Effect.** Some (predominantly) regular users will avail of the coupons and buy more than the normal quantity (accelerate purchase quantity) and buy less in the subsequent periods. In this case, although the quantity sold of the couponed brand, and hence the market share, increases during the coupon issuing period, the effect on market share aggregated over time would be zero. Coupons simply redistribute purchase quantities over time.

**Table 1. Effects of Coupon Usage.**

(1)	(2)		(3)	(4)		(5)	(6)	(7)	(8)
	Effect on Focal Store in the Coupon Issuing Period		Effect on Competitor Sales (not couponed)	Effect on Market Share of Couponed Brand	Effect on Market Share of Coupon Brand Across Time and Stores	Coupon Usage Effect			
Effect	Sales of Couponed Brand	Competitor Sales (not couponed)	Effect on Market Share of Couponed Brand	Effect on Market Share of Coupon Brand Across Time and Stores	NBMFCOU	NBSTCOU	PLSTCOU		
Regular usage effect	0	0	0	0	Strong	Strong	Strong	Strong	Strong
Acceleration effect	+	0	+	0	Strong	Strong	Strong	Strong	Strong
Brand switching (within store) effect	+	-	++	++	Strong	Strong/Weak	Strong/Weak	Strong/Weak	Weak
Store switching (within brand) effect	+	0	+	0	None	Strong	Strong	Strong	Weak
Brand and store switching effect	+	0	+	+	None	Weak	None	Weak	None
Primary demand effect	+	0	+	+	Weak	Weak	Weak	Weak	None
			Expected net effect		Strong	> Weak	> Weak	> Weak	Weak

**3. Brand Switching (within Store) Effect.** Some users of competing brand(s) in a store may switch to the brand that has issued the coupons. In this case, sales of the brand couponed increase and the sales of the competing brand decrease. These two changes result in a strong increase in market share of the coupon issuing brand in the coupon issuing period, and when aggregated across time and stores.

**4. Store Switching (within Brand) Effect.** Some users of the couponed brand from other stores may switch to the focal store issuing coupons and buy the normal quantity. In this case, the sales and market share of the couponed brand will increase in the focal store. But the net effect on market share, aggregated across stores, will be zero. Coupons simply redistribute total quantity purchased over the different stores.

**5. Brand and Store Switching Effect.** Some consumers may switch brand and store to avail of the coupon. In this case, sales and market share of the couponed brand in the focal store will increase, and sales and market share of the competing brand in other stores will decrease. Thus, the aggregate effect is a strong increase in market share of the couponed brand.

**6. Primary Demand Effect.** Coupons may cause a net increase in the demand for the couponed brand, without switching consumers of competing brands, in the following ways: (a) some consumers who are currently in the market may purchase more than the normal quantity because of availability of coupons, and (b) some consumers who are not currently in the market may avail of the coupons and purchase the product. When there is a primary increase in demand, the quantity sold of the couponed brand, and hence the market share, increases during the coupon period, and when aggregated across time and stores.

The impact of the various coupons on aggregate private label shares depends on the strength of each of these effects for these coupons. We discuss these effects for each of the coupon types.

## **National Brand Manufacturer Coupons**

**1. Regular Usage Effect.** Consumers are likely to use a coupon if the perceived effort involved in collecting and redeeming the coupon is lower than the perceived value obtained from redeeming it (Henderson, 1985). Regular users of the national brand (segments I and II) are likely to have high perceived value for their brand, and hence are likely to use the coupons for their regular purchases. Empirical findings indicate that national brand manufacturer coupons often attract consumers who would purchase the brand at the regular price (Bawa & Shoemaker, 1987). Thus, we expect strong regular usage effect.

**2. Acceleration Effect.** Some empirical research indicates that consumers may accelerate their purchases resulting in a quantity increase in that period and a quantity decrease in subsequent periods (Neslin, Henderson, & Quelch, 1985; Neslin & Shoemaker, 1983). Thus, we expect a fairly strong acceleration effect.

**3. Brand Switching Effect.** The brand switching (from private label to national brand) effect is likely to be strong for the following reasons: (a) Theoretical and empirical evidence (Narasimhan, 1984) indicate that coupons often attract consumers with lower reservation price (willingness to pay) for whom the perceived monetary value of redeeming a coupon is high (because they are highly price sensitive) and/or the perceived cost of collecting and redeeming a coupon is low (because they have spare time). Private labels are generally priced lower than the national brands, and it is believed that private label consumers have lower reservation price and are more price sensitive relative to national brand consumers (Stern, 1966). These two characteristics of private label consumers would facilitate their switching to national brand when there is a coupon. (b) Relatedly, Blattberg and Wisniewski (1989) point out that when the higher-price-tier national brands are promoted, they draw consumers from the lower-price-tier private label consumer segment. (c) A recent consumer survey (Donegan, 1989) indicates that it is coupons rather than quality differential that make consumers buy the national brands.

**4. Store Switching (within Brand) Effect and 5. Brand and Store Switching Effect.** Because national brand manufacturer coupons can be redeemed at any store selling the brand, there is likely to be no store switching.

**6. Primary Demand Effect.** Because national brand manufacturer coupons are distributed extensively, coupons can increase primary demand. So, the net increase effect may be present, but, because most grocery products are mature, we do not expect the effect to be strong.

The strength of these various effects are indicated in column 6 of Table 1. Taken together, the strengths of these effects along with their potential impact on aggregate market shares (column 5) indicate a strong positive impact of national brand manufacturer couponing on its shares relative to private labels. Hence,

*we expect a strong negative relationship between national brand manufacturer couponing activity and private label share.*

## **National Brand Store Coupon**

**1. Regular Usage Effect.** As in the case of national brand manufacturer coupons, a substantial number of regular users of the national brand will use the store coupon to make their purchases. In fact, often these store coupons are available at the point of purchase and placed close to

the product location. To the extent that the store coupons are closer to the point of redemption, the cost of collection and redemption will be lower for store coupons than for a manufacturer coupon. Hence, we may find greater redemption of store coupons by regular users of the brand.

**2. Acceleration Effect.** By the same argument as before, we may find a fairly strong acceleration effect due to store coupons.

**3. Brand Switching Effect.** National brand store coupons will also switch some private label consumers to the national brand. There is reason to believe that the brand switching effect for national brand store coupons is likely to be weaker than the effect for manufacturer coupons. Store coupons are issued by retailers either to encourage shoppers of other stores to switch to their store, or to prevent their customers from switching to another store. However, national brand store coupons will also attract private label consumers in their own store (segment III). In general, the retailers' margin on their private labels is higher than the margin they obtain on the national brand (Fitzell, 1982). Hence, when providing a national brand store coupon, a retailer may take steps to defend his private label sales through some form of simultaneous promotion. To the extent that retailers can develop good defensive strategies for their private labels, the brand switching (within store) effect will be weakened.

**4. Store Switching Effect and 5. Brand and Store Switching Effect.** Store coupons are likely to switch consumers from other stores though the extent of this effect has not been adequately researched. Kumar and Leone (1988) find some store switching effects when retailers engage in price promotion and feature activities. However, because users of other stores have to travel to the focal store for redeeming a coupon, the perceived cost of redemption is relatively high. Further, some supermarkets have announced that they will honor store coupons of competing stores. Thus, the store switching effect may be strong or weak. A similar argument holds for the brand and store switching effect.

**6. Primary Demand Effect.** Store coupons may bring in some new customers, or increase the purchase quantity of some regular customers.

The strength of these various effects are indicated in column 7 of Table 1. Taken together, the strengths of these effects along with their potential impact on aggregate market share (column 5) indicate that national brand store coupons will have a positive impact on national brand shares relative to private labels. However, the strength of the relationship depends on the ability of the retailers to protect their private label share. Hence,

*we expect a negative relationship between national brand store couponing activity and private label share. But the relationship is likely to be weaker than in the case of national brand manufacturer coupon.*

## Private Label Store Coupon

**1. Regular Usage Effect and 2. Acceleration Effect.** There has been little research on private label coupons. We expect the regular usage and acceleration effects to be fairly strong.

**3. Brand Switching Effect.** Retailers issue coupons on their store brands with the expectation of switching some national brand consumers from their store and several consumers from competing stores. However, Blattberg and Wisniewski (1989) argue that when the lower-price-tier, lower-quality private brands are promoted, the national brand consumers would, in general, not switch to the private labels. This argument would indicate that the brand switching (within store) effect would be weak.

**4. Store Switching Effect.** This effect may not be strong for two reasons: First, traveling to another store for redeeming a coupon may imply greater effort on the part of the consumer, or higher perceived cost. Second, although national brands are the same across stores, and hence price comparison is easier, price comparisons across private labels may be more difficult. As Farris and Albion (1980, p. 29) point out, consumers can easily compare Del Monte peas sold by A&P and Safeway, but they may not be able to adequately compare A&P private label peas with Safeway private label peas.

**5. Brand and Store Switching Effect.** Given that store switching (within brand) and brand switching (within store) effects are weak, the effect due to brand and store switching is likely to be very weak.

**6. Primary Demand Effect.** We also do not expect a substantial net increase in quantity of private labels purchased as a result of private label couponing.

The strength of each of these effects are indicated in column 8 of Table 1. Taken together, the strengths of these effects along with their potential impact on aggregate market shares (column 5) indicate a weak positive impact of private label coupons on its market share. Hence,

*we expect a weak positive relationship between private label store couponing activity and private label share.*

We now describe the empirical analysis used to assess the relationship between coupons and private label shares.

## II. EMPIRICAL ANALYSIS

First, we describe the data and the measures used. Then, we present the method and the results.



## Data

Marketing Factbook™ data set for the year 1988 was obtained from Information Resources, Inc. and used in this analysis. The Marketing Factbook™ records the aggregate behavior of thousands of households, tracking their purchase behavior of hundreds of grocery and nongrocery products sold at grocery outlets. Data are collected electronically via UPC codes found on the products, and they are reported annually. The Factbook records what brands a consumer purchased, what he/she paid, whether a coupon was used, whether it was on feature or display, as well as comparable information on all competing brands. Aggregated across households and purchase occasions, the Factbook reflects purchase behavior of consumers under a variety of conditions and provides aggregate information on market behavior.

There are 911 product observations in the Factbook. Of these, 501 product categories showed sale of private labels. Twenty-one of these observations did not have information on all the relevant variables, and were deleted. Thus, the final data set used in this analysis consisted of 480 product observations.

## Measures

**Dependent Variable.** The dependent variable is the aggregate share of private labels. We use dollar share of private labels in this analysis. The analysis with unit volume share of private labels as the dependent variable also yielded virtually the same results.

**Independent Variables.** The independent variables are activities related to national brand manufacturer coupons, national brand store coupons, and private label store coupons. We operationalized the level of couponing activities in a given product category as the unit volume percent of the product category sold through coupons. For instance, national brand manufacturer couponing activity is measured as the unit volume percentage of national brands sold through manufacturer coupons. We used this measure because (a) as the couponing activity increases, the volume percentage sold on coupons should increase, and (b) this measure is comparable across product categories, whereas other direct measures of couponing activity—such as value and frequency of coupons—are neither available nor comparable at the category level.

**Covariates.** In addition to couponing activities, private label shares are likely to be affected by several other factors. We use 12 variables listed in Table 2 as covariates.<sup>1</sup>

<sup>1</sup>See Sethuraman (1992) for a discussion of these covariates.

Table 2. Regression Results for P. L. Dollar Share.<sup>b</sup>

Name	Operationalization	Regression Coefficient
NBMFCOU	Unit volume percent national brand sold with manufacturer coupons	-0.54 <sup>a</sup>
NBSTCOU	Unit volume percent national brand sold with store coupons	2.40 <sup>a</sup>
PLSTCOU	Unit volume percent private label sold with store coupons	0.92
CATDSALE	Category dollar sales (in millions of dollars)	0.00
CATPCTBU	Percent of households purchasing the product category (%)	0.007
PRPERPU	Price per purchase (average price per volume × volume per purchase, in dollars)	-2.79 <sup>a</sup>
CATPCYCL	Average category interpurchase time (days)	0.05
PRDIF	Difference between average price of national brands and average price of private labels, expressed as a percentage of national brand price	-0.05
NUMBRAND	Number of brands in category	-0.06
NBSPR	Unit volume percent of national brands sold with shelf price reduction	-0.09
NBFEAT	Unit volume percent of national brands sold with features	-0.02
NBDISP	Unit volume percent of national brands sold on display	-0.25 <sup>a</sup>
PLSPR	Unit volume percent of private labels sold with shelf price reductions	-0.01
PLFEAT	Unit volume percent of private labels sold with features	0.07
PLDISP	Unit volume percent of private labels sold on display	0.07

<sup>a</sup>Significantly different from zero at the 1% level. <sup>b</sup>These are results of the original regression model with all covariates. Caution should be used in interpreting the significance of the coefficients of covariates, due to problems of multicollinearity.  $R^2 = 0.35$ ,  $F_{21,112} = 10.05$ ,  $p < 0.0001$

## Method

The relationship between private label share and couponing were assessed from correlation and regression analyses. The correlation analysis provides the zero-order relationship. In order to assess the effect of coupons, after accounting for other factors, we ran the following regression model:

$$\text{Private label share} = a + b(\text{NBMFCOU}) + c(\text{NBSTCOU}) \\ + d(\text{PLSTCOU}) + \sum_{i=1}^{12} e_i(\text{covariate}_i) + \text{error},$$

where NBMFCOU, NBSTCOU, and PLSTCOU represent measures of activities of national brand manufacturer coupons, national brand store coupons, and private label store coupons, respectively. We expect coefficient  $b$  to be negative and highly significant, coefficient  $c$  to be negative but perhaps not as highly significant as  $b$ , and coefficient  $d$  to be positive but weakly significant.

## Results

The regression results are presented in Table 2. The correlation of NBMFCOU with private label share ( $-0.36$ ) and the regression coefficient are negative and significantly different from zero. The correlation of NBSTCOU with private label share ( $0.08$ ) and the regression coefficient are positive and significantly different from zero. The correlation of PLSTCOU with private label share ( $0.05$ ) and the regression coefficient are positive but they are not significantly different from zero.

## Robustness of Regression Results

The independent variables and the covariates are likely to be highly correlated among themselves, leading to the problem of multicollinearity. Tests for multicollinearity (Belsley, Kuh, & Welsh, 1980) indicated the problem is present. We ran several regressions, removing variables and forming various composites of the promotional variables. In all the regressions, the results for coupon variables were consistent with original regression results.<sup>2</sup>

The diagnostic procedure using the BPG test (Judge, Griffith, Hill, Lutkepohl, & Lee, 1985) did not reject the null hypothesis of constant error variance (homoscedasticity):  $X^2_{(170)} = 183.3, p < 0.23$ . Thus, heteroscedasticity is not a problem in our data set.

<sup>2</sup>All regression results are available from the authors.

In addition, 22 products with potentially extreme values on one or more of the variables analyzed were identified from their relatively large or small magnitudes and/or infrequent occurrences. The analysis was repeated after deleting these observations. The results did not change.

In summary, the results related to the effect of coupons on private label share are robust.

### III. DISCUSSION AND CONCLUSION

Consistent with our expectation, we find a strong negative relationship between national brand manufacturer couponing activity and private label share. Thus, national brand manufacturer coupons appear to be effective deterrents of private label penetration. From a consumer behavior standpoint, the reason for the noticeable impact of manufacturer coupons is as follows. Recently there has been a marked increase in purchase decisions made at the point of purchase, that is, inside the grocery store (Miler, 1990). Because retailers control the in-store environment, they have the ability to influence consumers' in-store purchase decisions and may use it to sell more store brands. Manufacturer coupons represent a way of countering this effect and nailing down buying intentions before consumers get to the store, and thus inducing consumers to buy the national brands.

We find no significant relationship between private label share and the level of private label (store) couponing activity. Thus, although increasing national brand manufacturer couponing has the expected effect of reducing private label share, an increase in private label coupons has no impact. This result is consistent with the findings of Blattberg and Wisniewski (1989). As pointed out, regular consumers of national brands are unwilling to "trade down" to a private label even when it is promoted.

Contrary to expectations, we find a positive relationship between national brand store coupons and private label share. That is, private labels actually increase in share when a national brand is promoted with store coupons. One possible explanation is as follows.

When the retailer introduces a national brand store coupon, the coupon is likely to attract regular users of that brand (segments I and II). The resulting regular usage effect and store switching effect will increase coupon usage and percentage sold through coupons. But, they will not change market share of private labels. The coupons may also be redeemed by a portion of private label buyers (segments III and IV), thus eroding private label share. To guard against this possibility, the retailers may develop defensive strategies (such as monetary incentives) for their private labels. This strategy will attract a substantial portion of segment III, and perhaps a portion of other segments who

may purchase the private label. To the extent that this effect is dominant, we may observe an increase in private label shares.

There are several limitations in this study. First, our inferences are based on a cross-category analysis. If this analysis were supplemented by a study of changes in couponing activity and share of private labels over time, it would provide additional insights into the underlying relationships. In general, we lack time-series data for several product categories, and this limits the extent to which we can generalize such analysis. Second, our attempt has been to provide some broad generalizations based on aggregate U.S. market data. Our results may vary from an individual retail outlet or product market.

These limitations are potential areas for future research. In particular, a dynamic analysis of individual consumer purchasing behavior would provide additional insights into the relationship between private label purchase and coupons. Further, the finding of a positive relationship between national brand store coupons and private label share raises the need for more research on store coupons.

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