Market Power and Off-Invoice Trade Promotions in the US: An Empirical Investigation

Laoura M. Maratou
M.S. Student
Department of Applied Economics & Management
Fulbright and Onassis Fellow from Greece
Cornell University, 146 Warren Hall, Ithaca, NY, 14853
Phone: (607) 592-8573, Fax: (607) 255-9984
E-mail: LMM55@cornell.edu

Miguel I. Gómez
Research Associate
Food Industry Management Program
Department of Applied Economics and Management
Cornell University, 149 Warren Hall, Ithaca, NY 14853
Phone: (607) 255-8472, Fax: (607) 255-9984
E-mail: MIG7@cornell.edu

David R. Just
Assistant Professor
Department of Applied Economics and Management
Cornell University, 254 Warren Hall, Ithaca, NY 14853
Phone: (607) 255-2086, Fax: (607) 255-9984
E-mail: DRJ3@cornell.edu

Selected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Denver, Colorado, August 1-4, 2004

Abstract

This article employs a Tobit model to examine whether the market power of manufacturers and retailers influence trade promotion decisions in the US food sector. Greater retailer market power increases allocation of funds to off-invoice trade promotions. We find evidence that the balance of power favors food retailers.

Keywords: trade promotions, market power, industrial organization.

AAEA Subject Code: 1 Agribusiness Economics & Management

MARKET POWER AND OFF-INVOICE TRADE PROMOTIONS IN THE US: AN EMPIRICAL INVESTIGATION

LAOURA M. MARATOU, MIGUEL I. GÓMEZ AND DAVID R. JUST

Selected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Denver, Colorado, August 1-4, 2004

Abstract. This article employs a Tobit model to examine whether the market power of manufacturers and retailers influence trade promotion decisions in the US food sector. Greater retailer market power increases allocation of funds to off-invoice trade promotions. We find evidence that the balance of power favors food retailers.

Keywords: trade promotions, market power, industrial organization

Introduction

Trade promotions comprise a growing category of manufacturer incentives directed to channel members such as wholesale and retailers rather than to consumers. These promotions are generally designed to influence resellers' sales and prices by providing various, sometimes complex, inducements. In recent years, manufacturers of consumer packaged goods (CPGs) have substantially increased the use of trade promotions (TPs) to distributors. Two decades ago, manufacturers allocated about 20 percent of their

---

Laoura M. Maratou is M.S. student under Fulbright and Onassis fellowships, Miguel I. Gomez is research associate and David R. Just is assistant professor, all at the Department of Applied Economics and Management, Cornell University, Ithaca, NY, U.S.

The authors thank the Cornell University Food Industry Management Program, director, Prof. Ed MacLaughlin, and the staff for providing the data and valuable comments. All remaining errors are the authors' alone.

marketing budgets to TPs; today this share reaches 70 percent. From 1997-2003, trade spending as a percent of CPG manufacturer gross sales grew from 13.5 percent to 17.4 percent and now represents their second largest expense after the cost of goods (Cannondale Associates, 2003). Merli (1999) reports that total spending for trade promotions in the grocery industry alone rose from $8 billion in 1990 to more than $ 75 billion by 1998, nearly a tenfold increase in eight years. Yet despite the magnitude of these promotional funds, gaps exist in the research literature regarding how the allocation of these funds are determined. Fundamental to explaining these gaps is the difficulty in gaining access to data from confidential supplier-retailer negotiations (Kasulis et al., 1999, Drèze and Bell, 2003). This article addresses both of these issues.

Starting from one-time up-front payments in the 1970s (later called slotting allowances) and simple "cents-off" propositions in the early 1980s (Blattberg and Neslin, 1990, Scheffman, 2002), TPs today have evolved into many complex contractual alternatives that influence channel behavior and performance and thus have generated a rich literature. Drèze and Bell (2003) summarize several of the most prominent reasons for the growth of trade promotion expenditures. Manufacturers often desire to counter the popularity of lower-price store brands, they may want to pass along a discount to a particularly price sensitive segment of shopper (eg. via a frequent shopper program), they may wish to enhance brand exposure with target consumers or, frequently, they simply may want to provide additional stimulus to move excess inventory or counteract competitors. Retailers favor trade spending since it builds store traffic, increases retail margins and because, generally, the majority of the costs (and risks) are borne by the

brand manufacturer. Yet despite the general research conclusion that retailers are the chief beneficiaries of TPs, some research suggests that TPs can improve manufacturer performance as well. Aliwadi, Farris and Shames (1999) conclude that certain TP strategies that link manufacturer and retailer objectives are an "effective way for a manufacturer to influence the retailer's selling activity and thereby coordinate the channel."

Trade promotions, or deals, have developed into many forms—off-invoices, bill – backs, free goods, co-op advertising, extended payment terms, and more (Blattberg and Neslin, 1990). Despite the proliferation of ever more creative forms of trade deals over the past 10 years—e.g., accrual funds, frequent shopper programs--at least until the mid-1990s more than 90 percent of trade promotions involved "off-invoice allowances," straightforward reductions off manufacturer list price (Blattberg and Neslin, 1990.) A number of classification schemes for trade promotions have been put forth (Kasulis et al., 1999, Bell and Drèze, 2002), but this article divides TPs into two distinct groups: performance-based contracts and discount-based contracts.

Performance-based contracts increase retail incentives to push the manufacturer's product and are tied to a measure of retailer performance (e.g., units sold, displayed or price discounts in effect during a given period). Essentially, manufacturers agree to reimburse the retailer a specified amount for each unit sold. On the other hand, discount-based promotions, primarily off-invoice allowances, tend to enhance the ability of retailers to make discretionary use of these funds, increasing the probability of opportunistic behavior from retailers. The mechanism for off-invoice allowances is

simple: suppliers provide merchandise to retailers at a price discount, usually for a brief, specified period—two-three weeks is standard. Because of the greater number of degrees of freedom it affords them, retailers generally favor off-invoices over performance-based promotions while the opposite is true of manufacturers (Drèze and Bell, 2003). This is why market power of the retailers, the manufacturers and their relative power in the negotiation of trade promotions is important in determining the allocation of trade promotions. The objective of this article is to analyze the influence of retailers' market power on the structure and function of the TPs manufacturers are willing to offer. In particular, we focus on the market power related factors that influence the share of off-invoice allowances in the total promotional funds received by the retailer. By doing this, we hope to illuminate some of the reasons for the growing importance of TPs in general.

With greater understanding of the economic forces driving the effectiveness of TPs, negotiation between retailers and manufacturers will be better informed, resulting in TPs that are consistent with the respective market positions in the channel. More informed negotiation, should lead to greater efficiency of TP programs and better decisions regarding cost, profit and gross margins of retailers and manufacturers.
Our article is organized as follows: first we review the literature on the determinants of allocation of trade promotions. Next we explain our model and data. Finally, we present our findings and conclude with the implications of our work.

Literature review

Three themes can be identified in prior trade promotion studies. First, researchers have examined the rapid growth of trade promotions and determine their returns on investment. Various studies (c.f., Ailawadi, Farris and Shames, 1999, Tyagi, 1999, Drèze and Bell, 2003) examine the retail response to TPs. In general, these studies indicate that current trade promotional practices cannot be shown to be efficient for the channel but, despite the suggestions regarding improved TP design, historical trade practices persist. A second stream of research focuses on the extent to which retailers actually pass on trade promotions to consumers in the form of lower prices rather than retain some portion of the promotional funds to contribute to other retailer expenses or profits (Tyagi, 1999, Kumar, Rajiv and Jeuland, 2001, Besanko, Dube and Gupta, 2004). The main conclusions of these studies come in the form of additional hypotheses and call for further efforts to conduct empirical tests on pass through.

Third, a strain of research primarily from industrial organization economics, examines the causes and consequences of trade promotions as a function of the relative retail-supplier power balance in the distribution channel (see, for example, Sullivan, 2002, Scheffman, 2002; Hamilton, 2003). Whereas the first two themes relate primarily to perspectives for managers, the latter market power theme has focused more on issues arising from industry structure and behavior issues and system performance, and public policy consequences. Much of this literature finds demand distortions that result from TPs and non-optimal allocation of resources leading to inefficiency. Kasulis et al. (1999) argue that different trade promotions can produce dissimilar channel performance and

consumer impacts as a result of the market power of channel participants. Hamilton (2003), however, concludes that certain promotion funds, particularly so-called slotting allowances, may actually be motivated by suppliers, not retailers. He notes that these allowances may be employed by suppliers to better coordinate channel activity, ending in greater supplier sales and improvements in consumer welfare.

Studies on market power in trade promotions develop rigorous models based on microeconomic theory, yet empirical studies on the subject are scarce (Kasulis et al., 1999). In particular, extant literature does not model the influence of balance of market power between manufacturers and retailers on the allocation of dollars across alternative TP activities. Prior research did not take into account the effect of TP policies of manufacturers and retailers on the aforementioned allocation. Our article addresses these issues. We follow Kasulis et al. (1999), who develop a theory of managing TPs in the context of market power. They argue that horizontal market power of retailers (i.e., the market power within the retail industry) should have a large impact on the effectiveness, and therefore structure of TPs. A retailer with greater market power will exert greater control over its sale promotions, and provide greater exposure for the promoted brands. In this article, we test the arguments posited by Kasulis et al. (1999). We focus on off-invoice TPs, which are more beneficial to the retailers, as they do not require attitudinal commitment (i.e. increased sales to the end consumer). It is of great importance for manufacturers to be able to monitor off-invoice TPs, and for retailers to determine the appropriate amount of spending by manufacturer.

Model and data

Economic model

We examine the percent of trade promotions allocated to off-invoice allowances as a function of the horizontal (over all 'peers') market power of the manufacturer, the horizontal market power of the retailer and the relative power between the specific negotiating dyad of manufacturer and retailer (i.e. dyad M-R). Following Kasulis et al. (1999), we posit that the allocation of TP funds is a direct function of the market power of the retailer and the manufacturer. We focus exclusively on off-invoice TPs, estimating the reduced form equation

(1) $$TP\_offinvoice = f(Market\_Power\_R, Market\_Power\_M, Relative\_Power(R / M))$$

where *TP_offinvoice* is the percent of promotional funds allocated to off-invoices, *Market_Power_R* is the horizontal market power of the retailer, *Market_Power_M* is the horizontal market power of the manufacturer, and *Relative_Power* is a measure of the specific balance of power in the dyad (figure 1).

[Figure 1 About Here]

Market power of retailer is expected to have a positive relationship with the percent of funds allocated to off-invoice TPs. This is because theory tells us as that when the retailer has increased market power it will try to increase allocation to off-invoice TPs as this is a short-term commitment and very beneficial for the retailers (Kasulis et al., 1999). This concept of retailer market power includes the outlet distinctiveness of the

retailer (e.g. commercial type), its competitive position, the product category importance and the consumer loyalty. Competitive position of retailer can be measured with constructs such as value-added capabilities (e.g. advertising support, loyalty card, merchandising expertise, cost-saving programs, Every day low prices –EDLP), financial data (e.g. market share, sales growth, etc.), share of private labels that the retailer carries, and the product category.

Market power of manufacturer should have a negative relationship with the share of off-invoices in total TP expenditures, because theory tells us that when the manufacturer has increased market power it will avoid off-invoice TPs. This happens because off invoices allow forward buying by retailers (carrying excess inventory during discount period), diverting (the retailer resells the discounted product to other retailers in higher price) and inventory management cost (resulting from the excess inventory carried by the retailer) (Drèze and Bell, 2003). Market power of the manufacturer refers to horizontal power, across all other manufacturers. This concept of the manufacturer's market power includes the brand distinctiveness (e.g. price difference compared to other brands), life cycle of manufacturer's brand, product category importance and consumer loyalty. The competitive position of manufacturer can be measured in terms of value-added capabilities (e.g. advertising support, merchandising expertise, cost-saving programs) and in financial data (e.g. market share, sales growth, etc.).

The relative power (R/M), gives the balance of power in the specific dyad of the manufacturer and the retailer that is negotiating for a trade promotion contractual arrangement. It includes the perception of each company for the other, and it could be

measured through brand's relative importance, the ability to influence and some policy established between the dyad (Kasulis et al., 1999).

Data

We employ a unique data set collected from 43 supermarket companies and 12 food manufacturers operating in the US and representing about $250 billion of annual sales, about 50 percent of the total US supermarket sales. These data were obtained by the Food Industry Management Program (FIMP) at Cornell University in 2003, Trade Promotion Study. Each company provided data related to its trade promotions for the leading brand, the second brand, and a growing brand (i.e. a brand that has gained substantial market in recent years/months), for two product categories randomly selected from a total of six (ready-to-eat cereal, frozen dinners/entrees, coffee, laundry detergent, pet food, and chocolate bars).

Our data set contains information on the amount of trade promotion dollars received from suppliers, the percent allocation of these funds across trade promotion activities (off-invoices versus pay-for-performance contracts), the policies in place regarding the negotiation of TPs, and the perceived impacts of each type of TP. The managers responded on the *actual* allocation of TP spending and not on their willingness to accept or change them. Additionally, we collected relevant variables from secondary sources concerning manufacturers and supermarket companies in our sample. The survey employs brand as the unit of observation.

The survey was not specifically designed for the current analysis, and there is the possibility of selection bias in our data, as we have a sample of convenience. However, it is the first time that trade promotion data is collected from food retailers and it is therefore the best available. Further, our data represent close to 50% of retail sales in the CPG industry. Thus we expect this data to be representative of at least the most important TP relationships considered in our study. Table 1 contains a list of variables used in our analysis and accompanying descriptions.

[Table 1 About Here]

We capture horizontal market power of manufacturer (Market_Power_M) employing share of brand in the national market (brand distinctiveness) and average percent sales growth in the last three years (competitive position). We measure horizontal market power of retailers using customer loyalty, retailer sales, type of retailer (retailer and retailer/wholesaler or hybrid) and share of private label. We measure relative power using brand's relative power (leading, second or growing brand), ability of manufacturer and retailer to influence the negotiation of TP contracts, as well as the existence of formal policies for the negotiations of trade promotions.

Data on consumer loyalty for the retailer are from published Consumer Reports (2003) that measure the customer satisfaction of 25,000 readers of reports. Scores are on as scale of 0 to 100% and indicate general satisfaction with the shopping experience. Relative power is estimated through the answers to the empirical survey and includes whether the retailer initiates and/or selects the TP type and whether the two parties have formal policies for the negotiation of trade promotions. Regarding TP policies, our data

set includes variables measuring whether manufacturer has TP policies favoring pay-for-performance promotions, whether retailer has TP policies favoring off-invoice contracts and whether the manufacturer-retailer dyad has TP policies favoring co-marketing contracts. Including company policies is a key contribution of our article, because they can serve as a framework of measuring relative power and can have policy implications.

We measure competitive position of the retailer using data on the retailer market share in major metropolitan areas of trading region and on the retailer average sales growth in the last 3 years. For the category importance for the retailer we use retailer sales for the product category. For a measure of brand distinctiveness of the manufacturer we employ data on price difference of the brand.[1] We measure competitive position of the manufacturer using annual sales and share of total manufacturer sales in the national market. Product category importance of the manufacturer is measured using share of the brand in the national market of the product category. We employ self-assessment of the impact (high-medium-low) of the off-invoice TP type on product category sales, on product category margins and on product category administration efforts. As a proxy for the consumer loyalty of the manufacturer we use the manufacturer's brand share in the product category's national market. While this is not a perfect measure of consumer loyalty, it should be highly correlated with consumer attachment to a particular manufacturer or group of brands.

Our sample consists of two commercial types of retailers, namely those that are only retailers ('Pure') and these that have integrated wholesaling activities as well as

retailing ('Hybrids'). Our sample consists of 185 observations from the empirical survey and the relevant descriptive statistics are shown in table 2.

[Table 2 About Here]

We also created a subset including only the 'Pure' retailers, as we are interested in their behavior and the comparative effect of consumer loyalty relative to the total sample. Table 3 shows the descriptive statistics for this sub-sample, which contains 136 observations.

[Table 3 About Here]

Empirical model

We estimate the relationships described in the previous section using a simple linear representation of the function in (1). We have a *censored sample* as our dependent variable, percent of off-invoice dollars from the total TP expenditure, which is constrained to be non-negative. Thus, we use maximum likelihood *Tobit* estimation (Tobin, 1958).

Slightly less than 30% of the *consumer loyalty* responses were missing. In order to reduce efficiency losses, we replaced missing observations with conditional mean imputed values based on dependent and independent variables (see Little, 1992 for a discussion of this method). This method generates missing independent variables employing a weighted least squares regression on all other variables, and replacing the missing values with the predicted values from the regression. The original and the

generated values are shown in table 2. Because this procedure induces heteroscedastic errors, we obtain robust estimates of the Tobit model.

Most contractual arrangements result from the simultaneous interactions of both parties and their corresponding preferences. Here we have modeled TPs as if they are designed and offered by a manufacturer, and the retailer has the opportunity to reject the TP. Our model assumes that TP allocation is determined primarily by market power of the manufacturer and the retailer. We suppose that market dominance is determined prior to the negotiation of TPs, and is therefore exogenous. Still, three variables present the potential problem of endogeneity. In particular, product category sales, product category margins, and product category administration efforts may all three affect one another. Controlling for this possible endogeneity is impossible within the constraints of our current article. Further, because of the lagged effect of spending on category development, it is likely that the endogeneity effect will be small relative to the bias introduced by omitting these three variables.

We estimate the following three Tobit models: (1) a model for the total sample without the *consumer loyalty* variable; (2) a model for the total sample with imputed *consumer loyalty*; and (3) a model for the subset including only the 'Pure' retailers with consumer loyalty (same variables as in model 2). Our *hypotheses* are as follows. First the market power of *retailer* increases the percentage of promotional funds allocated to off-invoice allowances; second, market power of *manufacturer* decreases the percentage of promotional funds allocated to off-invoice allowances; third, formal *policies* to negotiate TPs of retailer increases the percentage of promotional funds allocated to off-invoice

allowances; fourth, formal *policies* of manufacturer and cooperation through co-marketing decrease the percentage of promotional funds allocated to off-invoice allowances.

Findings

We present our results in table 4. All components of retailer's market power are significant across all three models and have the expected signs, which indicate that greater retailer power results in significant increases the allocation of funds to off-invoice TPs. In addition the ability of the retailer to influence the TP decision (retailer selects) is significant and has a high size across all models.

[Table 4 About Here]

In contrast, it is interesting that few variables describing market power of the manufacturer are significant in the TP negotiation. Specifically, only the share of manufacturer's brand in the national market is significant across all models, and it confirms the literature of shifting of the *balance of power* from manufacturers toward retailers. Our results suggest that increases in market power of manufacturers have modest effects in reducing the amount of funds allocated to off-invoice TPs (in contrast to the significant power of the retailer).

Formal TP policy of manufacturer (which increases allocation to pay-for-performance TPs) is significant across all models. Likewise co-marketing policy variables are significant in model 1 and model 2. The magnitude of these variables is higher than the magnitude of the variables measuring market power of retailer. So our

estimates show that manufacturers can outweigh their slightly weaker position of the manufacturer when they have specific TP policies favoring pay-for-performance promotions.

Consumer loyalty of retailer is significant in model 3, but not nearly so when hybrid companies are included in the sample. A possible explanation is that the hybrid companies have integrated wholesaling and retailing activities and may base their market power more on their economies of scale and not on the end consumer. Product categories are not significant, apart from pet food, which appears to have a high magnitude, and suggests higher market power of pet food manufacturers. The commercial type of retailer (when it is a 'hybrid') is significant across all models, and it is logic as the cost structure and economies of scale are usually more favorable to hybrid companies than to companies that ere retailer only.

Variables concerning whether the brand is leading or second brand are insignificant and show that they do not have a strong pattern. Moreover, it is surprising that increased ability of retailer to select the type of TP has a significant negative effect on the amount of finds allocated to off-invoice TPs. These results might be due to endogeneity, or that the behavior of firm is not what we assumed.

We conduct joint tests of the elements of each hypothesis using the Wald test. Here we conduct a one tailed test of hypotheses with inequalities as the null (e.g. < 0). The market power of the *retailer* should increase the percentage of off-invoice TP. This is a joint test that the following variables have a positive sign: retailer sales, share of

private label of retailer and consumer loyalty (for models 2 and 3). For all three models we reject the null hypothesis at the 1% level of confidence, so the hypothesis holds.

Secondly, the market power of the *manufacturer* should decrease percent funds allocated to off-invoice TPs. We use a joint test that the following variables have a negative sign: share of manufacturer's brand in national market and manufacturer sales growth. Here we fail to reject the hypothesis of a positive relationship. While all variables have the expected sign, the standard errors are somewhat large. Insignificance may be primarily a result of a small data set or problems with quality of the data. Still this results provide compelling evidence of the so-called shifting of the *balance of power* from food manufacturers toward supermarket companies. Alternatively there may be other factors that better explain the behavior of the manufacturer.

Third, formal policies for negotiation of TPs of the retailer should increase the percentage of off-invoice TPs, whereas the policies of the manufacturer and the cooperation through co-marketing should decrease the percentage of off-invoice TPs. We jointly test that the following variables have the correct signs: retailer policy dummy, manufacturer policy dummy and co-marketing dummy, and we reject the null hypothesis across all models, at the 1% level of confidence.

Conclusion

Our results provide industry executives and public policy makers a better understanding on key market power factors driving trade promotion negotiations, and how these factors differ by product category and company. Such understanding is essential for private firm

profitability, improved food distribution system coordination and performance. The methodology that we employ illustrates the importance of retailer and manufacturer's market power as well as their relative position in the supply chain in the formulation and structure of TPs. Our results suggest that market power of retailers positively affects the amount of funds that manufacturers allocate to off-invoice TPs. In contrast, our findings show that market power of manufacturers has a weaker influence on expenditures. This result confirms the apparent trend of power shifting across the supply chain to retailers.

Yet, our estimates indicate that when manufacturers have formal policies of the negotiation of trade promotions, they are able to improve their slightly weaker position relative to retailers. In future research, more effort should be made to understand the behavior of the firms and the impact on TP when the retailer selects the final outcome, as our results find no particular pattern of influence in this regard. Finally, there is a need for further research to improve the quality of the data allowing more robust estimation procedures commonly used in estimating joint bargaining relationships. By illuminating the process by which TP are negotiated and the factors affecting power sharing, greater efficiency within the supply chain can be achieved.

Footnotes

[1] Price difference of the brand are calculated as [(price of brand - average product category price)/average product category price]*100

Figure 1. Scheme of the theoretical model

(1) TP_offinvoice Market_Power_R Market_Power_M Relative_Power(R/M)

- % Off-Invoice from total TP expenditure
- Outlet distinctiveness_R
- Competitive position_R
- Category importance_R
- Consumer loyalty_R
- Brand distinctiveness_M
- Competitive position_M
- Category importance_M
- Consumer loyalty_M
- Brand's Relative Importance
- Ability to influence
- Policies

Table 1. Variables Descriptions

Variables	Explanation
% Off-invoice TP	Share allocation of Off-invoice Trade Promotion from Total TP expenses
Product Category Dummies	
Coffee	1 if product category is coffee; zero otherwise
RTE	1 if product category is ready-to-eat cereal; zero otherwise
Pet	1 if product category is pet food; zero otherwise
Laundry	1 if product category is Laundry; zero otherwise
Frozen dinner	1 if product category is frozen dinners & entrees; zero otherwise
Market Power of Retailer	
Outlet distinctiveness	
'Hybrid' Retailer Type*	Type of retailer (1-grocery, 2- warehouse, 3-hybrid)
Consumer Loyalty	Scores are on as scale of 0 to 100% and indicate general satisfaction with the shopping experience.
Competitive position	
Retailer Sales*	Retailer annual sales, 2002
Share of Private Label*	Private labels % of retailer
Market Power of Manufacturer	
Brand distinctiveness	
Share of Manuf. Brand in National Market*	Manufacturer's brand share in the pc's national market
Competitive position	
Manufacturer Sales growth*	Manufacturer average sales growth in the last 3 years
Relative Power (R/M)	
Brand's Relative Importance:	
Leading Brand	1 if leading brand; zero otherwise
Second Brand	1 if second brand; zero otherwise
Ability to influence	
Retailer Initiates TP procedure	Percent of times retailer initiates TP procedure
Retailer Selects TP type	Percent of times retailer selects TP type
Policies	
Retailer Policy dummy	1 exists TP policy of retailer for increasing off-invoice; zero otherwise
Manufacturer Policy dummy	1 exists TP policy of retailer for increasing pay-for-performance; zero otherwise
Co-marketing dummy	1 exists co-marketing policy of R & M; zero otherwise

* Note: these variables came from *secondary sources* (published data for publicly traded companies).

Table 2. Descriptive Statistics for sample with both types of Retailer ('Pure' and 'Hybrid')[a]

Variables	Obs.	Mean	Std. Deviation	Min	Max
Dependent Variable					
% Off-invoice TP from Total TP expenses	185	0.257	0.323	0	1
Explanatory variables					
Product Category Dummies					
Coffee	186	0.161	0.368	0	1
RTE	186	0.258	0.438	0	1
Pet	186	0.129	0.336	0	1
Laundry	186	0.145	0.353	0	1
Frozen dinner	186	0.242	0.429	0	1
Market Power of Retailer					
Outlet distinctiveness					
Type of Retailer categorical variable	186	1.484	0.858	1	3
Consumer Loyalty R					
Consumer Loyalty	144	73.666	3.162	68	82
Consumer Loyalty *Generated*	186	73.773	2.843	68	82
Competitive position					
Retailer Sales	186	9.508	10.679	1	51.8
Share of Private Label of Retailer	183	0.066	0.061	0	0.3
Market Power of Manufacturer					
Brand distinctiveness					
Share of Manuf. Brand in National Market	185	17.974	13.169	1	46.3
Competitive position					
Manufacturer Sales growth	185	4.706	9.566	-22.9	55.6
Relative Power (R/M)					
Brand's Relative Importance:					
Leading Brand	186	0.333	0.473	0	1
Second Brand	186	0.333	0.473	0	1
Ability to influence					
Retailer Initiates TP procedure	185	0.498	0.238	0	1
Retailer Selects TP type	183	0.589	0.269	0	1
Policies					
Retailer Policy dummy	186	0.123	0.330	0	1
Manufacturer Policy dummy	186	0.107	0.310	0	1
Co-marketing dummy	186	0.0860	0.281	0	1

[a] Correlations*:* policy of manufacturer & co-marketing: correlation of 0.47 and leading & second brand: correlation of –0.50

Table 3. Descriptive Statistics for subset including only the 'Pure' Retailers[b]

Variables	Obs.	Mean	Std. Deviation	Min	Max
Dependent Variable					
% Off-invoice TP from Total TP expenses	140	0.288	0.332	0	1
Explanatory variables					
Product Category Dummies					
Coffee	141	0.170	0.377	0	1
RTE	141	0.276	0.448	0	1
Pet	141	0.127	0.335	0	1
Laundry	141	0.127	0.335	0	1
Frozen dinner	141	0.276	0.449		
Market Power of Retailer					
Outlet distinctiveness					
Only 'Pure' Retailers included	Na	Na	Na	Na	Na
Consumer Loyalty					
Consumer Loyalty *Generated*	141	73.586	3.195	68	82
Competitive position					
Retailer Sales	141	9.296	11.775	1	51.8
Share of Private Label of Retailer	138	0.0713	0.066	0	0.3
Market Power of Manufacturer					
Brand distinctiveness					
Share of Manuf. Brand in National Market	140	17.320	12.460	1.5	46.3
Competitive position					
Manufacturer Sales growth	185	4.706	9.566	-22.9	55.6
Relative Power (R/M)					
Brand's Relative Importance:					
Leading Brand	141	0.333	0.473	0	1
Second Brand	141	0.333	0.473	0	1
Ability to influence					
Retailer Initiates TP procedure	140	0.497	0.252	0	1
Retailer Selects TP type	139	0.599	0.288	0	1
Policies					
Retailer Policy dummy	141	0.142	0.350	0	1
Manufacturer Policy dummy	141	0.113	0.318	0	1
Co-marketing dummy	141	0.092	0.290	0	1

[b] Correlations*:* policy of manufacturer & co-marketing: correlation of 0.53 and leading & second: correlation of –0.50

Table 4. Tobit estimates[c]

Explanatory variables:	(1)	(2)	(3)	Expected sign
Product Category Dummies				
Coffee	-0.134 (0.149)	-0.156 (0.150)	-0.267 (0.229)	+/-
RTE	-0.102 (0.135)	-0.088 (0.135)	-0.123 (0.215)	+/-
Pet	-0.299* (0.169)	-0.279* (0.169)	-0.298 (0.239)	+/-
Laundry	-0.066 (0.152)	-0.048 (0.152)	-0.099 (0.228)	+/-
Frozen dinner	0.094 (0.168)	0.102 (0.168)	-0.038 (0.229)	+/-
Market Power of Retailer				
Outlet distinctiveness				
'Hybrid' Retailer Type	-0.145** (0.073)	-0.151** (0.073)	Na	+/-
Consumer Loyalty				
Consumer Loyalty *Generated*	Not used	0.014 (0.0114)	0.018 (0.0029)***	+
Competitive position				
Retailer Sales	0.009*** (0.0028)	0.010*** (0.0028)	0.013*** (0.637)	+
Share of Private Label of Retailer	2.615*** (0.602)	2.635*** (0.600)	2.889*** (0.637)	+
Market Power of Manufacturer				
Brand distinctiveness				
Share of Manuf. Brand in National Market	-0.003 (0.0037)	-0.003 (0.004)	-0.007* (0.004)	-
Competitive position				
Manufacturer Sales growth	-0.003 (0.003)	-0.003 (0.003)	-0.0024 (0.004)	-
Relative Power (R/M)				
Brand's Relative Importance:				
Leading Brand	0.033 (0.092)	0.034 (0.092)	0.103 (0.100)	+/-
Second Brand	-0.0087 (0.082)	-0.008 (0.082)	0.037 (0.091)	+/-
Ability to influence				
Retailer Initiates TP procedure	0.107 (0.155)	0.088 (0.155)	-0.043 (0.159)	+/-
Retailer Selects TP type	-0.242* (0.127)	-0.232* (0.127)	-0.239* (0.130)	+
Policies				
Retailer Policy dummy	0.087 (0.107)	0.058 (0.109)	0.0781 (0.107)	+
Manufacturer Policy dummy	-0.336*** (0.119)	-0.334*** (0.119)	-0.363*** (0.130)	-
Co-marketing dummy	-0.271* (0.139)	-0.236* (0.142)	-0.156 (0.149)	-
Constant	0.198 (0.170)	-0.828 (0.872)	-1.041 (0.236)	
Number of obs	180	180	136	
Pseudo R2	0.2539	0.2597	0.3228	
Left censored	63	63	43	
LR chi2	LR chi2(17) = 62.59	LR chi2(18) = 64.02	LR chi2(17) = 61.09	
Log likelihood	-91.96214	-91.242877	-65.35671	

[c] Standard errors in parentheses; *** p-value<0.01; ** p-value<0.05; * p-value<0.10;

References

Ailawadi, Kusum, Paul Farris, and Ervin Shames. "Trade Promotion: Essential to Selling Through Resellers." *Sloan Management Review* (Fall 1999): 83-92.

Bell, David R and Xavier Drèze "Changing The Channel: A Better Way To Do Trade Promotions.", MIT Sloan Management Review. Cambridge: (Winter 2002). 43(2), p. 42.

Besanko, David, Jean-Pierre Dube, and Sachin Gupta. "Own-Brand and Cross-Brand Retail Pass-through." *Marketing Science* (2004), in press.

Blatterberg, R.G., S. A. Neslin, "Trade Dealing." *Sales Promotions; Concepts, Methods, And Strategies*, pp. 313-343. Prentice-Hall, NJ., 1990.

Cannondale Associates. "Trade Promotion Spending & Merchandising Industry Study.", *2003.*

Consumer Reports. "Ratings and recommendations for supermarkets." (September 2003). www.consumerreports.org

Drèze, X., David R Bell. "Creating Win-Win Trade Promotions: Theory And Empirical Analysis Of Scan-Back Trade Deals.", *Marketing Science*. Linthicum: 22(1), (Winter 2003): 16-39.

Hamilton, Stephen F. "Slotting Allowances as a Facilitating Practice by Food Processors in Wholesale Grocery Markets: Profitability and Welfare Effects." *American Journal of Agricultural Economics* 85(4) (November 2003.): 797-813.

Kasulis, J., F. Morgan, D. Griffith and J. Kenderdine. "Managing Trade Promotions in the context of Market Power.", *Journal of the Academy of Marketing Science*, 27 (1999): 320-332.

Kumar, Nanda, Surendra Rajiv, and Abel Jeuland. "Effectiveness of Trade Promotions: Analyzing the Determinants of Retail Pass Through." *Marketing Science*, 20(4) (Fall 2001): 382-404.

Little, Roderick J.A. "Regression with Missing X's: A Review." *Journal of the American Statistical Association*, 87(420) (December 1992): 1227 – 1237.

Merli, R. "Retailers and Suppliers Agree: Trade Promo Stinks." *Frozen Food Age*, September 1999. pp.: 51-52.

Scheffman, David T. "Antitrust Economics and Marketing." *Journal of Public Policy & Marketing* 21(2) (Fall 2002.): 243-246.

Sullivan, M. W. "The Role of Marketing in Anitrust." *Journal of Public Policy & Marketing*, 21(2) (2002): 247-249.

Tyagi, Rajeev K. "A Characterization of Retailer Response to Manufacturer Trade Deals." *Journal of Marketing Research* 36 (November1999): 510-516.