The role of rebates in the hybrid competition between a national brand and a private label with present-biased consumers

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A B S T R A C T

Over the past years, rebates have been increasingly used by national brand (NB) manufacturers. Conventional wisdom suggests that rebates are beneficial to firms as long as positive slippage exists. Based on the present-biased preference theory, we investigate the performance of NB rebates as a counterstrategy to the retailer's private label (PL). Game theoretic models are developed to characterize channel dynamics. Involving consumers' knowledge levels of the present-biased preferences, our model reveals multiple insights. First, a positive slippage rate does not necessarily benefit the NB manufacturer if the rebates fail to expand the demand of the NB. Second, the retailer's commitment to the original NB price plays a positive role in improving the equilibrium profits of both parties. Third, for loss-averse consumers under preference uncertainties, the NB manufacturer and the retailer prefer a low redemption cost, in contrary to the conventional idea that sellers take advantage of consumers with high redemption costs.

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1. Introduction

The rapid emergence of private labels (PLs) has posed great pressure on existing national brands (NBs) these days. Conventional wisdom suggests that PLs are usually positioned to the price-sensitive segments, while NBs are to quality-sensitive segments. Promotional strategies are respectively developed for NBs and PLs to compete for the overlapped demands (Lal, 1990; Raju et al., 1990; Narasimhan and Wilcox, 1998; Choi and Coughlan, 2006). Although promotions contribute to sales, they are harmful to brand images in the long run (Jørgensen et al., 2003; Steenkamp et al., 2010). Unlike most PLs, NBs worry more about the negative impact on the brand reputation caused by promotional deals. Therefore, consumer promotion tools, such as coupons and rebates, are increasingly applied by NBs. In the automobile industry, cash rebates alone exceed $3 billion per year (Bruce et al., 2006). Estimated by the engagement management company Parago in 2011, the volume of post-purchase rebates has soared to $8 billion annually (Arya and Mittendorf, in press). Instead of direct price cuts, post-purchase rebates are paid back to consumers after purchases, by which demands are stimulated without lowering future price expectations (Folkes and Wheat, 1995). For instance, a 13-W Philips LED bulb is listed as $39.97 at Home Depot, while the price of a 13-W EcoSmart (Home Depot's

PL of lightening products) bulb is $25.97. After consumers claim the 'Get $10 back at $30 purchase' mail-in rebate provided by Philips (issued in February, 2012), the effective price of the Philips bulb drops close to EcoSmart, without compromising the listed price $39.97. Unless stated, rebates refer to post-purchase rebates in the rest of the paper. Although most rebates are distributed by national brands (e.g., P&G, AMD, Philips, etc.), studies that investigate the performance of rebate programs in the competition of NBs and PLs are scarce. To the best of our knowledge, Mills (1999) is the only work that considers consumer promotions as the counterstrategies of NBs. However, the author assumes that rebates resemble coupons, neglecting consumers' inconsistency caused by rebates.

There is a solid theory base of the effectiveness and the profitability of rebates. A wealth of literature has pointed out that rebates benefit firms by generating slippage, besides the demand stimulation effect that all other promotional tools can incur (Gerstner and Hess, 1991a, 1991b; Chen et al., 2005, 2007; Soman and Gourville, 2005; Lu and Moorthy, 2007; Arcelus et al., 2007, 2008, 2012). The observation of 'slippage', referring to the phenomenon that consumers are attracted by the rebates but fail to redeem them, is believed to contribute to sellers' profits. However, several recent studies raise questions on whether slippage alone is enough to make profit improvements. Demirag et al. (2010) point out that rebate slippage benefits firms only under stochastic demand, but does not improve profits without market expansion under deterministic demand. Yang et al. (2010) also reject the idea that rebates should be provided whenever

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positive slippage exists, by considering the situation in which consumers have low loss-aversion and high redemption rates. Motivated by their studies, one aim of our research is to investigate the validity of slippage in the performance of the NB rebate.

The second question is how channel intermediaries affect the rebate performance. Many studies have reported that retailers behave opportunistically by raising retail prices during manufacturers' rebate programs (Bruce et al, 2006; Busse et al., 2006; Khouja and Zhou, 2010; Martín-Herrán and Sigué, 2011). Yang et al. (2010) suggest the performance of rebates can be improved with the manufacturer suggested retail price (MSRP). They assume that consumers are loss-averse and the MSRP performs as a reference price that affects consumers' utility. Khouja and Zhou (2010) also combine MSRP with rebates, but in a more enforcing way that works as a real price rather than a reference price. They develop an incentive scheme that negatively links the rebate value to the retail price to mitigate this opportunistic behavior. When the incentive applies, the manufacturer offers a certain amount of rebate conditionally on the suggested price.

Following their work, the original price commitment proposed in the present research serves the same purpose. We combine the original retail price of the NB with the rebate value as an incentive, to reduce the retailer's utility arbitrage. The original price commitment is widely observed in marketing practices, usually in a way that both the rebate value and the original retail price are advertised. For instance, the Newegg announces the 1-year Norton anti-virus software will cost $9.99 after the $10 rebate from Symantec Corp., comparing to the original Newegg price at $19.99 (issued in December, 2012). We search on the deal information in the website Dealmoon.com on March 24, 2013, and find 79 among 84 consumer rebates are advertised together with the original retail price. Table 1 shows several typical consumer rebates advertisements via Dealmoon.com for reference. The advertisement of the regular selling price together with the rebate value is twofold: to convince consumers of the promotion benefit and to force the retailer to honor the commitment. As long as retailers agree to publicize the original price, they cannot violate the commitment after the announcement of the rebate value, as regulated by the law. Otherwise, the retailer can be involved in fraud to consumers. Compared to the incentive designed by Khouja and Zhou (2010), we find the original price commitment can make profit improvements with present-biased consumers, and easier to apply in various marketing conditions.

Our research extends the work of Mills (1999), by considering consumers' inconsistencies in the rebate promotion. Following the work of Gilpatric (2009), the present-biased preference is introduced to model consumers' time-inconsistent behavior. The present-biased preference refers to the behavioral concept that people weigh immediate payoffs more salient than future payoffs (O'Donoghue and Rabin, 1999; Gilpatric, 2008, 2009). As suggested by Soman (1998), consumers are more sensitive to the rebate value than to the redemption effort at the time of purchase, but the valuation reverses at the time of redemption. Gilpatric (2009) defines consumers who are ignorant of the present-biased preferences as naive consumers. Because naive consumers fail to

expect that the evaluation of the rebate decreases in the future, slippage is resulted and the seller gains extra profits. Our model extends the work of Gilpatric (2009) by introducing channel intermediaries and consumers' knowledge levels of the present-biased preferences. After consumers' preference uncertainty is incorporated, our model suggests the scenarios in which slippage does not necessarily produce extra profits, and a low redemption cost is preferred.

Our model is expected to answer the following questions:

How do consumers' knowledge levels of the present-biased preferences affect the rebate-based promotion?

Do the NB manufacturer and the retailer benefit as long as slippage is observed?

How do the pricing strategies of the retailer affect the equilibriums?

What is the role of the PL during the NB manufacturer's rebate promotion?

The model is established under a Stackelberg game framework. The NB manufacturer acts as the leader and the retailer as the follower. The rebate games are investigated in scenarios both with and without the retailer's price commitment. The main findings are as follows. First, counter intuitively, a positive slippage rate does not necessarily benefit the NB manufacturer if the rebates fail to expand the demand of the NB. With consumers who are uncertain of the present-biased preference, the NB manufacturer even suffers a profit loss due to rebates distribution. Second, the retailer's commitment to the original NB price plays a positive role on improving the equilibrium profits of both parties. Without the retailer's price commitment, the NB manufacturer provides a lower rebate value, even though the optimized NB price is identical to the original one. Third, the retailer switches part of the PL demand to the NB, only if the incremental quantity of the NB is so significant that the PL would be ejected from the market. Fourth, for loss-averse consumers under preference uncertainties, the NB manufacturer and the retailer prefer a lower redemption cost. By positively correlating the reservation price and the redemption cost, Dogan (2010) also suggests a situation that the seller would prefer low redemption costs. We derive the insight under the assumption that the redemption cost is independent of the reservation price.

Our research contributes to the existing literature in three aspects. First, the application of the present-biased preference theory is amplified through the introduction of consumers' knowledge levels of the preference, especially the scenario with consumers' present-biased preference uncertainties. Our model proves that consumers' uncertain preferences negatively affect the performance of the NB rebates. Second, similar to the works of Demirag et al. (2010) and Yang et al. (2010), our results do not support the theory that positive slippage leads to profit improvements. The results indicate that market expansion dominates slippage in profitability, especially for a competing environment with deterministic demands. Third, the original price commitment is proved to be a supplemental incentive to rebates. We relax the assumption of Khouja and Zhou (2010) on the demand expansion effect of the rebate. Instead, our model concerns the minimal

Table 1
The consumer rebate advertisements via Dealmoon.com.

Item	Retailer	Manufacturer	Rebate	Retail price
Netgear NeoTV 200 multimedia receiver	Newegg	Netgear	$10	$39.99
ASUS PA248Q Black 24.1" LED monitor	Newegg	ASUS	$20	$309.99
Toshiba C855-S5194 15.6-in. laptop	TigerDirect.com	Toshiba	$50	$379.99
OCZ ZT Series Rewriter Bundle	TigerDirect.com	OCZ	$10	$94.99
KitchenAid 4.5-qt. stand mixer	Kohl's	KitchenAid	$30	$165.49
Patriot Memory 32 GB USB 3.0 flash drive	Beach camera	Patriot memory	$12	$29.99