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Consumer response to uncertain promotions: An empirical analysis of conditional rebates ☆

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ABSTRACT

We formulate, estimate, and analyze a model of consumer response to promotions where consumers' receipt of the promotional reward is uncertain. The model incorporates consumers' risk aversion and their subjective assessment of the probability that they will get the reward. It is used to assess the effectiveness of a "conditional rebate", where the uncertainty arises because the reward is contingent on an external event, versus a traditional rebate, which is similar in all respects except that it is certain. We estimate the model using a conjoint choice experiment. Response to conditional rebates is highly segmented and related to perceived thinking costs and savings and entertainment benefits of conditional rebates as well as to event involvement and gambling proneness. In our application, conditional rebates are more cost effective than certain rebates, mostly because consumers' subjective probability of the event occurring is higher than what market wisdom suggests.

1. Introduction

Marketers are always looking for promotions that generate excitement and interest, stimulate sales, and increase profits. Promotions offer a reward, for example a discount, gift, or extra product, to the consumer who buys the company's product. For the majority of promotions, receipt of the reward is a certainty, but there are also several promotions where it is not. Uncertainty may be due to (a) the consumer's own skill, e.g., contests; (b) pure luck, e.g., sweepstakes; (c) the marketer's decision to express the reward level as "tensile", e.g., "X% to Y% off this week"; or (d) whether an external event occurs, e.g., "Buy the product now and get $X off if the Red Sox win the World Series".

Two issues immediately come into play with uncertain promotions: (1) consumers' risk aversion, and (2) consumers' perceptions of the probability, i.e., their "subjective probability", of receiving the reward. Consumers are typically risk averse, which should work against uncertain promotions. However, consumers may believe that the likelihood of receiving a reward is higher than it really is, due to innate optimism or an upward bias in assessing the probability of positive events. This should work in favor of uncertain promotions.

Laboratory research provides important insights on how consumers respond to some types of uncertain promotions (e.g., Dhar, Gonzalez-Vallejo, & Soman, 1995, 1999; Goldsmith & Amir, 2010; Mazar, Shampanier, & Ariely, 2012). However, these studies simply document average purchase likelihood or the percentage of consumers who prefer one or the other type of promotion. To the best of our knowledge no one has developed and estimated a model of consumer response to uncertain versus certain promotions. The benefit of a model is that, in addition to the insights one can obtain from lab studies, it provides a decision tool to predict consumer response to choices not necessarily presented in the measurement.

We develop such a model in this paper and show how it can be used by marketers to determine whether, and for whom an uncertain promotion may be more effective than its certain counterpart. Our model captures risk aversion and the consumer's subjective probability of getting a reward, and allows for heterogeneity in these as well as other model parameters. We apply this model to a class of uncertain promotions that has become increasingly prevalent in recent years. In these promotions, often termed "conditional rebates", the consumer makes a purchase at time t and receives a reward at a subsequent time $t + x$ *conditional* on an uncertain external event occurring between t and $t + x$. For example, many companies offer their customers money back if their home team wins a sports championship.

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Table 1
Examples of conditional rebates.

Name of company	Year	Country	Product category	Nature of external event
PanelCraft Inc.	1998	U.S.	Sun rooms, spas, gazebos	Sports: Minnesota Vikings win last 5 games of year by ≥ 7 points (football)
BrandsMart	1999	U.S.	Electronics	Sports: Kansas City Chiefs beat San Diego Chargers on Halloween (football)
Epson	2003	Multiple	Printer	Sports: Home nation wins rugby World Cup
Canandaigua Wine Company	2003	U.S.	Champagne	Weather: ≥ 4 in. of snow on New Year's Day
Media Markt	2004	Germany	TV	Sports: Germany wins soccer EURO
Hipercor	2004	Spain	Electronics	Sports: Spain wins soccer EURO
Bayerische Hypo- und Vereinsbank AG	2006 (yearly)	Germany	Savings account	Sports: FC Bayern Munich scores/becomes German soccer champion
Media Markt	2006	Germany	TV	Sports: Germany scores in soccer World Cup
Media Markt	2006	Italy	TV	Sports: Italy wins soccer World Cup
Ashley Furniture HomeStore	2007	U.S.	Furniture	Sports: Memphis Tigers win NCCA championship (basketball)
Furniture & Appliance Mart	2007	U.S.	Furniture, appliances	Sports: Green Bay Packers win Super Bowl (football)
Jordans' Furniture	2007	U.S.	Furniture	Sports: Boston Red Sox win World Series (baseball)
Springers Jewelers	2007	U.S.	Jewelry	Weather: ≥ 6 in. of snow on Christmas
World Furniture Mall	2007	U.S.	Furniture	Sports: Chicago Bears shut-out Green Bay Packers (football)
Media Markt	2008	Germany	Electronics	Sports: Germany scores in soccer EURO final
Panasonic	2008	Germany	TV	Sports: Germany wins Olympics gold
PAYBACK Rabattverein	2008	Germany	Purchases in partner stores	Sports: Germany wins Olympics gold
Powerade	2008	U.K.	Sports drink	Sports: Great Britain wins medal in randomly assigned Olympics event
Jordans' Furniture	2008	U.S.	Furniture	Sports: Boston Red Sox sweep World Series (baseball)
Stacy Furniture	2008	U.S.	Furniture	Sports: Dallas Mavericks win NBA Finals (basketball)
Paradise Leisurescapes	2009	Canada	Spas, hot tubs	Sports: Saskatchewan Roughriders win Grey Cup (football)
Golfsmith	2009	U.S.	Golf driver	Sports: Phil Mickelson or Rocco Mediate wins U.S. Open (golf)
Jordans' Furniture	2009	U.S.	Furniture	Sports: Boston Red Sox sweep World Series (baseball)
Simpson Furniture	2009	U.S.	Furniture	Weather: ≥ 2 in. of snow on January 14, 2010
TomTom	2010	Multiple	GPS	Sports: Home nation wins soccer World Cup
Currys	2010	England	TV	Sports: England scores in soccer World Cup
Nationwide	2010	England	Bond	Sports: England wins soccer World Cup
Trafalgar Wharf	2010	England	Boat storage	Sports: Andy Murray wins Wimbledon (tennis)
Toshiba	2010	Multiple	Laptop, TV	Sports: Home nation wins soccer World Cup
Carrefour	2010	France	TV	Sports: France advances at least to semi-final in soccer World Cup
Saturn	2010	France	TV	Sports: France wins soccer World Cup
Media Markt	2010	Germany	TV	Sports: Germany advances at least to round of last 16 in soccer World Cup
Banesto	2010	Spain	Deposit account	Sports: Spain wins soccer World Cup
Media Markt	2010	Spain	TV, projector or TFT monitor	Sports: Spain wins soccer World Cup without losing
Pc City	2010	Spain	TV	Sports: Spain scores in soccer World Cup
Slovenian tourist board	2010	U.K.	Trip to Slovenia	Sports: Slovenia advances at least to quarterfinal in soccer World Cup
Golfsmith	2010	U.S.	Golf driver	Sports: Phil Mickelson wins Masters (golf)
Perry's Emporium	2010	U.S.	Jewelry	Weather: ≥ 3 in. of snow on Christmas
Tom Kadlec Honda	2010	U.S.	Cars	Weather: ≥ 5 in. of snow on Christmas
Trafalgar Wharf	2011	England	Boat storage	Sports: England wins rugby World Cup
Trafalgar Wharf	2011	England	Boat storage	Weather: ≥ 1 in. of snow on Christmas
Victor Chandler	2011	U.K.	Sports bets	Sports: Andy Murray wins Wimbledon (tennis)
Jordans' Furniture	2011	U.S.	Furniture	Sports: Boston Red Sox player hits homerun on Jordans' sign (baseball)
Mysportworld	2012	Germany	Sports goods	Sports: Germany wins soccer EURO
PAYBACK Rabattverein	2012	Germany	Purchases in partner stores	Sports: Germany wins Olympics gold
Cadbury	2012	U.K.	Chocolate bars	Sports: Randomly assigned British athlete wins Olympics medal
Santander	2012	U.K.	Bank account	Sports: Rory McIllroy wins a "Major" (golf)

Table 1 lists examples of conditional rebates that we have compiled from the internet. As the table shows, these promotions are used in many countries; they are offered on big-ticket and relatively high-involvement products; and the external event usually involves sports or the weather. An entire industry has been built around such promotions, consisting of companies like Oddsonpromotions.com, Interactive Promotions Group, Sadler Sports and Recreation Insurance, SCA Promotions, and GrandPrizePromotions.com. These companies help client firms implement conditional rebates, contests, and sweepstakes and offer insurance indemnification for these promotions.

As noted above, conditional rebates are characterized by uncertainty and delayed rewards. Fig. 1 categorizes different types of promotions in terms of these attributes. Given our goal of modeling the effectiveness of uncertain versus certain promotions, and our specific interest in examining conditional rebates, we compare conditional rebates to their closest certain analog, i.e., traditional rebates (hereafter termed "certain rebates"). As discussed for example by Baucells and Heukamp (2012), consumers have both a monetary discount rate (trading off outcomes they receive immediately versus with a delay) and a probability discount rate (trading off outcomes they receive with uncertainty versus certainty). Since we are interested in isolating the impact of uncertainty, it is important to ensure that the comparison is between promotions that are similar in terms of delay. Both conditional rebates and rebates are delayed.

To summarize, our objective is to present a model for quantifying consumer response to conditional rebates, as an example of the broader class of uncertain promotions, compared to certain rebates. Our substantive contribution lies in (a) assessing the relative attractiveness of a unique but prevalent type of uncertain promotion that has not been studied previously; (b) quantifying the market share impact of conditional rebates compared to rebates; and (c) characterizing segments of consumers who differ in their response to such promotions. Our methodological contribution lies in developing a consumer utility model that incorporates risk aversion and subjective probability. We estimate the model using a conjoint experiment, establish its superior fit and predictive validity over simpler benchmark models, and use the estimated model to simulate market shares of competing products in different promotion scenarios. Our model is useful for understanding consumer response to conditional rebates as well as other types of uncertain promotions, and as a tool that can help managers decide whether and for whom to utilize these promotions rather than their certain counterparts.