

Responsible Retailing: Stimulating Healthy Choices and Reducing Food Waste

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SPECIAL SESSION PROPOSAL
RESPONSIBLE RETAILING: STIMULATING HEALTHY CHOICES
AND REDUCING FOOD WASTE

I. Session Chairs

Niels Holtrop, Maastricht University (corresponding chair)

Bram Foubert, Maastricht University

II. Titles of Papers, Authors, Affiliations, and Presenters

“The Drivers of Consumers’ Package Size Decisions in an FMCG Context”

Mohammadreza Arabi (Maastricht University), Bram Foubert (Maastricht University), Niels Holtrop (Maastricht University)

Presenting author: Mohammadreza Arabi (Maastricht University)

“A War on Sugar? Finding the Sweet Spot in Sugar Reduction Strategies”

Kristopher Keller (Kenan-Flagler Business School, UNC – Chapel Hill), Jonne Guyt (University of Amsterdam Business School)

Presenting author: Jonne Guyt (University of Amsterdam Business School)

“The Impact of the First Light Purchase on Subsequent Purchase Behavior: A Cross-Category and Cross-Household Analysis”

Niels Holtrop (Maastricht University), Kathleen Cleeren (KU Leuven), Kelly Geyskens (Maastricht University), Peter Verhoef (University of Groningen)

Presenting author: Niels Holtrop (Maastricht University)

“From Cash to Trash? Retailer Price Promotions and their Effect on Household Food Waste”

Aylin Aydinli (Vrije Universiteit Amsterdam), Marco Bertini (ESADE Business School), Erica van Herpen (Wageningen University), Arjen van Lin (Tilburg University), Julia von Schuckmann (ESADE Business School)

Presenting author: Arjen van Lin (Tilburg University)

Declaration:

Each presenter has agreed to register for the conference and to present the paper, if the proposal is accepted; and none of the papers has been submitted to other conference tracks, and none have previously been presented at EMAC

III. Abstract of Special Session

Throughout the Western world, health and environmental issues related to the quality and amount of food intake have received increasing attention during the past decade. Obesity is a prime health concern among many governments and consumers. Similarly, food waste is a top environmental concern. What these problems have in common is the central role played by food manufacturers. In particular, manufacturers' decisions with regard to package size, nutritional content, and price promotions have often been linked with obesity and food waste. Changing consumer demands have now prompted manufactures to adopt strategies that account for these concerns.

In this special session, we consider the circumstances under which such strategies are more or less successful, and provide implications for consumers, manufactures, retailers, and policy makers. While the first three papers focus on the role of product packaging and content, and mainly study the effects on purchase behavior and sales, the fourth paper studies price promotions and analyzes the effects on post-purchase consumption behavior and waste.

The Drivers of Consumers' Package Size Decisions in an FMCG Context

Arabi, Foubert, Holtrop

Existing research has shown that consumers' purchase behavior is impacted by package size, but has failed to identify the exact mechanisms that govern actual package size purchase decisions, in particular contingent on personal considerations such as health concerns and waste aversion. Using purchase data across several categories, this paper sheds light on how these drivers shape package size decisions.

A War on Sugar? Finding the Sweet Spot in Sugar Reduction Strategies

Keller, Guyt

In response to consumers' and policy makers' health concerns, food manufacturers have started introducing low-sugar products. Two common strategies are: (a) decreasing the amount of sugar, and (b) reducing package size. This paper studies the effects of the two strategies on the brands' market share (both volume- and revenue-based) and consumers' sugar intake, and explores the moderating role of factors such as brand equity and pricing.

The Impact of the First Light Purchase on Subsequent Purchase Behavior: A Cross-Category and Cross-Household Analysis

Holtrop, Cleeren, Geyskens, Verhoef

Prior research has shown that the first purchase of low-fat chips leads to a sustained increase in purchase volume and calories in the chips category. The current research investigates whether this effect generalizes to other product categories. Moreover, the paper examines whether category characteristics such as discount intensity, and household characteristics such as health-focus and variety seeking, play a role.

From Cash to Trash? Retailer Price Promotions and their Effect on Household Food Waste

Aydinli, Bertini, Van Herpen, Van Lin, Von Schuckmann

Retailer price promotions, and in particular buy-one, get-one-free (BOGOF) deals, are often singled out as a principal cause of household food waste. Counter to popular wisdom, this paper indicates that BOGOF deals and other types of multi-unit promotions actually reduce food waste: households in this condition waste less food and take more preventive action (by freezing leftovers) than households in the no-promotion and standard discount conditions.

IV. Individual Paper Abstracts

1. The Drivers of Consumers' Package Size Decisions in an FMCG Context

Mohammadreza Arabi (Maastricht University), Bram Foubert (Maastricht University), Niels Holtrop (Maastricht University)

While quite some research recognizes the role of package size as a driver of consumer choice (e.g., Fader and Hardie, 1996), many researchers do not consider it as a focal variable, but merely control for its influence. Only a handful of studies, executed in laboratory settings, focus on package size choice and some of the underlying, often psychological, mechanisms (e.g., Yan, Sengupta, and Wyer, 2014). Even though these studies have improved our understanding of package size choice, they fail to shed light on how the investigated mechanisms play out in a real-life purchase setting, and do not offer managers concrete guidelines to select proper package sizes and optimize brand lines. Moreover, these studies ignore several motives that are particularly important in the context of package size purchase decisions. Another set of studies takes a more theoretical and normative perspective and sheds light on package line design, but abstracts away from the psychological drivers of package choice and realistic purchase settings (e.g., Jain, 2012). Hence, there is a dearth of research examining the influence of package size on consumer choice, and the underlying drivers thereof, in actual purchase situations. Yet such knowledge is crucial for effective assortment decisions by product manufacturers and retailers, as well as for policy makers concerned with consumer health.

In this study, we aim to fill this gap by introducing self-regulation and waste-aversion concerns on top of deal-proneness as the main mechanisms that govern size-price trade-offs and drive consumers' package size decisions. Moreover, we argue that choice context can substantially influence the salience of these mechanisms via composition (i.e., variation in price and size) and nature (i.e., healthiness and perishability) of the product category. We adjust existing consumer purchase (in particular choice and quantity) models to accommodate the phenomena of interest. We employ large scanner-panel datasets obtained from IRI for different product categories and spanning 208 consecutive weeks from January 2008 to December 2011 in order to calibrate our models. First, preliminary empirical analyses provide support for our expectation that the distinct mechanisms – deal proneness, self-regulation, and waste-aversion – are simultaneously present and drive consumer package size choice. This study provides numerous crucial implications for brand line managers who want to identify the most promising combinations of package size and price or optimize the performance of the

entire brand line. Specifically, by conducting counterfactual simulations we illustrate how our models can assist brand managers in designing appropriate package sizes, setting the right prices, and optimizing the performance of their brand line. Retailers, focusing on the performance of the entire product category, can also benefit from such simulations.

2. A War on Sugar? Finding the Sweet Spot in Sugar Reduction Strategies

Kristopher Keller (Kenan-Flagler Business School, UNC – Chapel Hill), Jonne Guyt (University of Amsterdam Business School)

Worldwide, consumers are becoming increasingly aware of the need to maintain a healthy weight to prevent numerous diet-related diseases, such as obesity, diabetes, and heart conditions. Consumers often see sugar as “public enemy no. 1” and prime driver for these diseases (Week, 2017, p. 1). As such, it does not come as a surprise that 58% of American adults want to cut back on their sugar intake (Reuters, 2016). Yet, consumers in both emerging and developed markets such as the US consume considerably more sugar than is recommended by the FDA, facilitating serious illnesses, a reduced quality of life, and increasing health care costs (Ma, Ailawadi, and Grewal, 2013).

Given the shift in consumers’ attitude towards sugar (Euromonitor, 2017), many consumer-packaged goods (CPG) manufacturers and retailers have recently joined the fight and increasingly try to contribute to solving this crisis without endangering sales. A survey among more than 100 CPG companies showed that global brands reduced unhealthy ingredients, such as sugar, in more than 180,000 products in 2016, representing 20% of their entire product portfolio (Bloomberg, 2017).

Effectively, brands can adjust the sugar content in their product portfolio through two (non-exclusive) *sugar-reduction strategies*. They can launch versions of their sugary products that (a) decrease the amount of sugar (“reduced sugar version”), and/or (b) are smaller in package size, which results in less total sugar intake (“smaller portion sizes”).

In the marketplace, both strategies are being used, sometimes non-exclusively. As brands have two viable options to reduce the overall sugar content in their product portfolio, it is not trivial to select a fitting strategy. Thus far, both practitioners and academics have yet to reach consensus on the outcomes of different sugar-reduction strategies. An additional layer of complexity is added as one strategy may not be uniformly preferable over the others, but its

effectiveness is likely to be context-dependent (Zeithaml, Varadarajan, and Zeithaml, 1988). As such, brands need to take not only their own positioning, but also their competitors' conduct into account when setting their strategy.

This study aims to resolve the ambiguity regarding brands' sugar strategies by (i) assessing the effectiveness of both sugar strategies in terms of brand sales and consumers' sugar consumption, (ii) studying to what extent the effectiveness depends on brand's own positioning as well as external market forces, and (iii) identifying "win-win" situations in which both brands and the general public win. To answer these questions, we study the carbonated beverage industry in the US (which has the highest per capita sugar intake in the world) from 2006-2017. We make use of store-scanner sales data from Nielsen, with proprietary extensive nutritional content information (e.g., sugar, other nutritional information and health claims) provided by a market leader in product content evaluation.

We study the effects of the two strategies, "reduced sugar version" and "smaller portion sizes", on the brands' market share (both volume- and revenue-based) at retailers, while controlling for a wide set of marketing mix variables and fixed effects. We find that (on average) manufacturers harm their market share (volume and revenue-based) by offering "reduced sugar versions" of their SKUs, whereas "smaller portion sizes" positively impact their market share.

In (currently ongoing) work, we explore how factors relating to (a) the brand's positioning (e.g., brand equity), (b) the brand's health focus (e.g., health claims on packaging), (c) marketing conduct (e.g., pricing decisions), and (d) the market's external forces (e.g., competitive pressure) make it more/less likely for a brand to create a win or win/win situation with respect to the sugar strategies (or prevent a lose, or lose/lose situation). This will provide brands with actionable insights as to how to most effectively implement and support (in terms of brand's health focus, marketing conduct, selection of markets, etc.) a change in their sugar strategy. On top of that, brands will have the option to adjust their strategy such that it is not only beneficial for them, but also for society at large.

3. The Impact of the First Light Purchase on Subsequent Purchase Behavior: A Cross-Category and Cross-Household Analysis

Niels Holtrop (Maastricht University), Kathleen Cleeren (KU Leuven), Kelly Geyskens (Maastricht University), Peter Verhoef (University of Groningen)

Health is a very important issue in most Western countries. Several diseases have been linked to the quality and amount of food intake, and an estimated 300,000 deaths per year can be attributed to obesity. Among many other possible remedies, health organizations suggest the stimulation of healthier products to reduce overall caloric intake. Not surprisingly, companies have realized this opportunity, and healthier products have now become big business. Indeed, a recent Dutch market research report indicated that more than 70% of Dutch consumers occasionally buy low-fat or low-sugar (i.e., 'light') products. Experimental research has established that these claims indeed influence consumer behavior, but not always positively. Several studies report short- and long-term increases in quantity and caloric content after an initial purchase (intent) of a product with a nutrition claim. Recent work (Cleeren et al., 2016) similarly established this phenomenon in a real-life setting using actual purchase data from the chips category. However, that study was executed in one category (chips), and assumed a common effect across households, masking potential heterogeneity. The objective of the current study is therefore threefold: 1) To test whether the effect generalizes to multiple categories; 2) to investigate whether specific category characteristics influence consumption changes after the first 'light purchase'; and 3) to investigate whether specific household characteristics drive consumption changes after the first 'light purchase'.

To answer these questions, we rely on consumer panel data provided by Kantar UK tracking household purchases in 26 categories. For a majority of SKUs in these categories we have information available on the presence of nutrition claims. We use this information to identify when households made their first purchase of a 'light' (i.e., low-fat or low-sugar) product. We employ an event-study approach, considering changes from the twelve months before to the twelve months after this purchase. Our final sample includes 1,299 households, for 39,324 household-month observations. We develop a three-level hierarchical structural break model, explaining short- and long-term changes in the category volume and caloric content purchased using a set of category and household characteristics.

Our initial findings suggest that both category volume and caloric content increase, both at the first purchase occasion (short-term effect) and the periods beyond (long-term effect). The short-term elasticity is estimated to be .66, while the long-term elasticity is lower at .17.

Thus, we establish that across 26 categories (compared to one category, as in Cleeren et al. 2016), both short- and long-term volume and calories significantly increase, generalizing the previously found effect. A tentative explanation for this finding is that consumers purchase ‘light’ products on top of their regular purchases, instead of substituting their regular purchases (cfr. Cleeren et al., 2016).

The effects of the increase are more pronounced in unhealthier categories, while for healthier categories the effects are less positive or even negative. Thus, in those categories where overall health benefits would be greatest (i.e., unhealthier categories such as chips), the first-purchase of a ‘light’ product in fact increases consumption. One factor reducing the positive effect of the first ‘light’ purchase across categories are price discounts; they provide an effective instrument to draw consumer attention to desired (e.g., healthier) products.

Household characteristics also influence the size of the increase. In particular, the effect is attenuated for households with a larger health focus, while it is more pronounced for households that engage more in variety seeking. This implies that stimulating health consciousness across households can reduce the increase in purchased volume and calories. Moreover, increasing the number of healthy options within the category can reduce the impact for those households that seek variety.

4. From Cash to Trash? Retailer Price Promotions and their Effect on Household Food Waste

Aylin Aydinli (Vrije Universiteit Amsterdam), Marco Bertini (ESADE Business School), Erica van Herpen (Wageningen University), Arjen van Lin (Tilburg University), Julia von Schuckmann (ESADE Business School)

Every year 1.3 billion tons of food—around one third of all food produced—is wasted according to the UN’s Food and Agriculture Organization (FAO), including 45% of all fruits and vegetables, 35% of fish and seafood, 30% of cereals, and 20% of meat and dairy products (FAO, 2013). The carbon footprint of food waste is estimated at 3.3 billion tonnes of CO₂ equivalent greenhouse gas emissions per year, with food waste being the third-largest emitter after the United States and China (FAO, 2013). Thus, wasting food is not only an ethical and economic problem, it also drains the environment of restricted natural resources, driving up

costs and inflating food prices. Food waste is therefore considered to be one of the most urgent problems to be addressed in marketing (Porpino, 2016).

Retailers are one of the biggest contributors to food waste and are under a lot of pressure from governmental and non-governmental organizations to reduce waste. In response, many initiatives are taken to reduce waste by retailers, such as standardizing expiration labels on products and introducing lines of “ugly”, misshaped fruits and vegetables that would otherwise go to waste. At the same time, retailers are under attack for transferring the problem to the household. Retailer price promotions, and in particular buy-one, get-one-free (BOGOF) deals, are often singled out as a principal cause of household food waste. The typical argument is that promotions prompt shoppers to purchase more frequently or in larger quantities than they need, which subsequently boosts waste. Or, as the vice chairman of the Environment Board of the British Local Government Association put it: “With more than five million tonnes of edible food thrown out each year, way too much food is being brought into homes in the first place. Retailers need to take a large slice of responsibility for that. Buy-one, get-one-free deals, which give consumers a few days to munch through 16 clementines, are not about providing value for money. They are about transferring waste out of retail operations and into the family home.” (WRAP, 2011).

While heavily criticized, there is limited empirical evidence that price promotions actually increase household food waste. In this research, we combine household purchase data and survey data to examine the relationship between retailer price promotions and household food waste. For a set of perishable products, we survey households that purchased these products about 1 to 2 weeks after purchase in no promotion, standard (money-off) discount, and multi-unit promotion conditions. After reminding households about their purchase, we ask them how they used the product, most importantly: whether they (fully) consumed it, froze (part of) it, or threw (part of) it away.

Counter to popular wisdom, our data indicate that BOGOF deals and other types of multi-unit promotions actually reduce food waste: households in this condition wasted less food and took more preventive action (by freezing leftovers) than households in the no promotion and standard discount conditions. We consider different explanations for this surprising finding, and the leading explanation is that multi-unit promotions make households more responsible because they increase the salience of the purchase.

VI. References

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