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Regular or low-fat? An investigation of the long-run impact of the first low-fat purchase on subsequent purchase volumes and calories

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ABSTRACT

Health organizations stimulate the development of low-fat variants to fight the obesity epidemic. We examine the effectiveness of this policy by studying the short- and long-term consequences of the first low-fat purchase on subsequent purchased volume and calories. Using a structural break analysis, we show that purchases increase in the short run after the first low-fat purchase, thereby confirming the single-occasion overconsumption effect of low-fat as shown in the experimental literature. Importantly, our results also show a significant positive long-term effect, which suggests that overpurchasing persists in the long run. In addition, our findings show that the long-term overpurchasing after the first low-fat purchase is solely due to the overpurchasing of low-fat items and not of regular items. These results provide support for the overgeneralization of claim effects and habit formation resulting in the enduring effect of healthier variants of unhealthy food.

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1. Introduction

Several Western governments declared obesity as one of today's most urgent challenges. Since 1980, the number of overweight and obese people has more than doubled, with globally approximately 1.9 billion overweight (BMI ≥ 25) adults in 2014 (Ng et al., 2014; World Health Organization, 2015). Guided by the notion that overweight causes emotional and social problems and has recently also been linked to different diseases (e.g., different types of cancer, cardiac problems, and diabetes), health organizations suggest the stimulation of healthier products to improve the quality and reduce the quantity of food intake. More specifically, the WHO states that one of the remedies for solving obesity is “creating environments through public policies that promote the availability and accessibility of a variety of low-fat, high-fiber foods, and that provide opportunities for physical activity” (World Health Organization, 2004). Not surprisingly, companies realized this opportunity, and products that claim to be low-fat have now become big business.

While the proliferation of lower-fat alternatives might be beneficial for individuals who tend to make healthier food choices when given the opportunity to do so, experimental research unequivocally shows that these low-fat claims may actually backfire and increase the quantity and caloric value of single-occasion low-fat as well as regular food intake (Belei, Geyskens, Goukens, Ramanathan, & Lemmink, 2012; Geyskens, Pandelaere, Dewitte, & Warlop, 2007; Wansink & Chandon, 2006). This is mainly

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due to the fact that consumers tend to perceive these low-fat snacks as less dangerous to the long-term health goal (Andrews, Netemeyer, & Burton, 1998; Ebnetter, Latner, & Nigg, 2013) and believe that they can indulge without implications on their health (Finkelstein & Fishbach, 2010; Fishbach & Dhar, 2005; Fishbach & Zhang, 2008; Wilcox, Vallen, Block, & Fitzsimons, 2009). Prior experimental research thus seems to point to an immediate “boomerang effect” of low-fat claims to the extent that they may actually increase a consumers’ total snack consumption in terms of volume and calories. Most imperative for policy makers, however, is whether or not these single-occasion immediate overconsumption effects translate in a long-term effect in terms of purchase volume and/or calories, which may occur because of habit formation (Aarts & Dijksterhuis, 2000).

Experimental studies have only considered immediate responses of healthy food consumption. This mainly occurs due to the experimental set-up of these studies and the lack of longitudinal behavioral data. In this study, we examine whether the first snack purchase with a low-fat claim translates in a long-term effect on subsequent purchases in the same category by means of a unique dataset consisting of the purchase behavior of a large panel of households over time combined with product-specific health claim and nutritional information. The first purchase is often considered as an important and risky decision (Rogers, 1995). Moreover, repeat purchases are contingent on trial while trial is not contingent on repeat purchases (Steenkamp & Gielens, 2003).

Our study contributes to the existing literature on the effects of low-fat claims on purchase behavior by showing empirical evidence that the frequently-found single-occasion boomerang effect in experimental studies translates in a long-term overpurchasing effect. Using actual behavioral longitudinal data, we provide strong evidence for the already experimentally reported short-term overconsumption effect of low-fat claims. In addition, we show the persistence of this effect, and, importantly, that the effect is due to adding low-fat to the basket rather than any new SKU. In a more in-depth analysis, we find that this effect mainly arises because consumers start to purchase low-fat items without decreasing their purchases of regular items. The remainder of this paper is organized as follows. In the next section, we provide an overview of different theories explaining a short- as well as long-term impact of the first purchase of low-fat. Next, we describe the data. Subsequently, we describe our structural break methodology and describe its results. We end with a general conclusion of the paper and provide some directions for future research.

2. The impact of the first low-fat purchase on subsequent purchase volume and calories

We study the short- and long-term impact of the first low-fat purchase on subsequent purchase volume and calories. Below, we discuss theories that predict low-fat purchases to translate in overpurchasing in the short and long run.

2.1. How low-fat purchases influence purchase volume and calories in the short run

Previous literature has demonstrated that the purchase of a product with a low-fat claim may lead to a single-occasion snack overconsumption because the claim influences (i) the accessibility of the long-term health goal, (ii) the healthiness perception of the low-fat product, and (iii) the eating intentions of more indulgent choices.

First, hedonic food claims, such as low-fat, highlight the attributes that are strongly associated with the food’s tastiness given that individuals operate under the implicit intuition that “unhealthy food = tasty” (Raghunathan, Naylor, & Hoyer, 2006; Wertenbroch, 1998). Therefore, because of the word “fat,” low-fat claims direct attention to the hedonic qualities of the food and make the health goal less accessible (Chandon & Wansink, 2007). As a result, low-fat claims turn the focus to the short-term pleasure goal rather than to the long-term health goal, which leads to an increased immediate consumption relative to food without such a claim (Belei et al., 2012).

Second, despite the fact that the actual decrease in calories of food with low-fat claims is much less than generally assumed by consumers (Wansink, 2004), Wansink and Chandon (2006) showed that the mere mention of low-fat significantly decreased the perceived calorie content and the anticipated consumption guilt, resulting in a larger perceived appropriate serving size. The low-fat product is thus perceived as less dangerous to the long-term health goal, prevents self-control mechanisms to intervene (Geyskens, Dewitte, Pandelaere, & Warlop, 2008; Myrseth, Fishbach, & Trope, 2009), and significantly increases the immediate eating intentions of the specific product (Geyskens et al., 2007; Wansink & Chandon, 2006), possibly resulting in a higher purchase volume. Given that the calorie content of products with a low-fat claim typically is only marginally lower than the calorie content of regular products (National Institutes of Health, 2004), the resulting average single-occasion calorie intake of the product might, as a consequence, be higher than when consumers would stick to the regular product.

Third, the consumption of the low-fat product itself may also impact the consumption of the regular or “unhealthier” items in the category (Wilcox et al., 2009). Indeed, research indicates that individual consumers license themselves to indulge in temptations when they previously acted in line with the longer-term goal, that is, purchased a low-fat product (Finkelstein & Fishbach, 2010; Fishbach & Dhar, 2005; Fishbach & Zhang, 2008). This implies that a first low-fat purchase might lead consumers to allow themselves to indulge in regular snack products as well. Therefore, it is of particular interest to explore the effects of low-fat snack purchases on the consumption behavior of the regular versions of these snack products.

To date, experimental research thus indicates that snack products with low-fat claims may increase single-occasion consumption volumes and calories of both low-fat and regular snack products. Most imperative for policy makers, however, is whether or not these single-occasion overconsumption effects translate in a long-term category overconsumption in terms of purchased volume and/or calories.

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