



Contents lists available at ScienceDirect

## Journal of Business Research



# Larger partitions lead to larger sales: Divided grocery carts alter purchase norms and increase sales<sup>☆</sup>

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## ARTICLE INFO

## Article history:

Received 1 September 2015

Received in revised form 1 December 2015

Accepted 1 June 2016

Available online xxxxx

## Keywords:

Fruits and vegetables

Half-cart

Healthy shopping

Produce

Grocery retailers

Shopping carts

Social norms

Partitioning

Part-carts

Sectioned shopping trolley

## ABSTRACT

Before food portions are determined at home, they are determined at the supermarket. Building on the notion of implied social norms, this research proposes that allocating or partitioning a section of a shopping cart for fruits and vegetables (produce) may increase their sales. First, a concept test for on-line shopping (Study 1) shows that a large produce partition led people to believe that purchasing larger amounts of produce was normal. Next, an in-store study in a supermarket (Study 2) shows that the amount of produce a shopper purchased was in proportion to the size of this partition – the larger the partition, the larger the purchases (especially in a nutrition-reinforced environment). Using partitioned or divided shopping carts (such as half-carts) could be useful to retailers who want to sell more high-margin produce, but they could also be useful to consumers who can simply divide their own shopping cart in half with their jacket, purse, or briefcase. Divided shopping carts may lead to healthier shoppers and to healthier profits.

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## 1. Introduction

When considering portion size, the best and worst habits begin in the supermarket. Doctors, dieticians, and the Department of Agriculture endorse the adage “Healthy eating begins at home” (Koh, 2011). Yet what – and how much – is eaten at home is determined by the food that consumers put in their shopping cart at the supermarket. Before healthy eating can occur at home, healthy eating needs to start with healthier purchases in the supermarket.

Grocery shopping occurs in a stimulus-rich and often time-constrained context, and healthy options are often obscured. Consequently, most Americans consistently buy foods that are too high in fat, calories, and sodium, and they buy less than half (24.1% vs. 50%) of the amount of fruits and vegetables recommended by U.S. Dietary

Guidelines (French, Wall, Mitchell, Shimotsu, & Welsh, 2009). Increasing the purchase dollars allocated to healthy foods could contribute to healthier shoppers and to healthier profits.

When prompted in a lab, many consumers can categorize food as healthy or less healthy subjectively, or as a virtue or a vice (Chernev & Gal, 2010; Rozin, Ashmore, & Markwith, 1996; Rozin & Vollmecke, 1986). Yet when people shop for groceries, whether they actively think in terms of separate categories, such as “healthy” versus “unhealthy” unless goal-directed or unless prompted to do so by an external stimulus is unclear (Miller, 1998). Additionally, such categories may not be salient, consistently used, well-defined, or even remembered during a shopping trip (Wansink & Kranz, 2013). One way in which stores could help shoppers consider separate categories of food would be to partition a shopping cart. For instance, a visual cue could suggest that half of the shopping cart be allocated to “fruits and vegetables”, and the other half be allocated to “everything else”. Making consumers categorize their choices has been shown to alter the allocations in other contexts (Fox, Ratner, & Lieb, 2005; Morwitz, Greenleaf, & Johnson, 1998), including plating and personal food serving decisions (Riis & Ratner, 2010; Wansink, 2014).

Two primary questions follow: 1) Can partitioned shopping carts influence purchase and assortment allocations when grocery shopping?

<sup>☆</sup> Thanks to Ailing Chua, Neuri Park, Adrian Lo, Jason Yu, and Jon Elias for assisting with the research. Thanks to John Brand for helping with data collection and with data entry for Study 1. In addition, thanks to Huy Tran for analyzing the Study 1 data. Special thanks to Collin Payne (New Mexico State University) for his analysis and for his editorial help on related versions of this research.

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2) If partitioned shopping carts influence purchase, is the reason partially because they alter perceptions of purchase norms? The answer to these questions would be of interest to a wide range of stakeholders:

- Shoppers. A simple “half-cart” rule-of-thumb could subtly emphasize the tradeoffs between healthy and less healthy foods while grocery shopping.
- Supermarkets. Using modified shopping carts could shift the distribution of sales to higher-margin foods (such as perishable produce), increasing overall sales and perhaps increasing the supermarket's overall profit.
- Public policy officials. Partitioned shopping carts could be championed and more quickly accepted by supermarkets than common policy proposals that focus on nutrition information, taxation, or subsidies.
- On-line retailers. The notion of partitioning a shopping cart may also hold for partitioning a blank on-line shopping form. Having separate areas for separate types of products could increase sales or alter the on-line retail distribution of sales to higher-margin items.

To investigate how partitioned carts may influence shopping behavior, Study 1 uses a lab study that suggests that partitioning is effective because of the purchase norms that partitioning implies. Study 2 then takes this to a supermarket and consistently demonstrates that the simple act of partitioning a cart can increase the amount of healthy food purchased in relation to the size of the partition. In this paper, synergistic recommendations for shoppers, supermarkets, and public policy officials are discussed along with new opportunities for researchers who want to examine how environmental cues can be used to guide shoppers toward healthier behavior.

### 1.1. The social norms of shopping

Starting with the U.S. Dietary Guidelines, nutrition education has been dominated by an information processing approach which emphasizes that nutrition knowledge is nutrition power (Nestle, 2007). Yet, this approach presupposes a high level of motivation and engagement that might not reflect a typical shopper's state of mind (Cobb & Hoyer, 1986; Kuenzel & Musters, 2007). Instead of potentially wrongly assuming that shoppers have a strong motivation to process nutrition information (Andrews, Burton, & Kees, 2011), assortment allocation cues – such as a partitioned shopping cart – might make healthy shopping decisions easier without requiring a strong health-related motivation.

In ambiguous allocation contexts, perceived social norms can powerfully influence a wide range of consumer behaviors (Goldstein, Cialdini, & Griskevicius, 2008; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007), including many related to food (Herman, Roth, & Polivy, 2003; Robinson, Thomas, Aveyard, & Higgs, 2014b). This has been shown with a wide range of food choices (Herman & Polivy, 2005) including dieting (Stroebe, Mensink, Aarts, Schut, & Kruglanski, 2008; Woody, Costanzo, Liefer, & Conger, 1981), healthy versus unhealthy eating (Robinson, Benwell, & Higgs, 2013; Robinson & Higgs, 2013), serving size (Wansink & van Ittersum, 2007), the timing of meals (de Castro, Bellisle, Feunekes, Dalix, & De Graaf, 1997), and one's need for social acceptance (Robinson, Fleming, & Higgs, 2014a; Robinson et al., 2014b). In these areas, even gentle suggestions of what might be a general consumption norm can alter what or how much a person consumes (Robinson et al., 2014a). For instance, consider the “Half-Plate Rule” (Wansink & Tran, 2017 (working paper)) explored in a recent study in which diners were told that half of their dinner plate needed to be reserved for fruit, vegetables, or salad. The diners' reported serving of fruits and vegetables increased, and their serving of meat and grain items significantly decreased. Not only did the half-plate provide a visual benchmark, but the half-plate may have also provided an implied social consumption norm (Wansink & Kranz, 2013).

When shopping for groceries, how much of a healthy food – such as fruits or vegetables – is the right amount to buy is unclear. This amount is variable, subjective, and situation-specific. Yet similar to the “Half-Plate Rule”, any implied suggestion of what is normal might also alter how much shoppers may otherwise purchase (Tran et al., under review). In the case of fruits and vegetables, only 24.1% of the items purchased in a typical U.S. shopping trip are fruits and vegetables (French et al., 2009). Signs that suggest or imply social norms have been effective when explicitly stating a norm (Robinson et al., 2014a; Robinson et al., 2014b). Similarly, if a shopping cart reserved and labeled 50% of the shopping cart's area for fruits and vegetables, a social norm might be implicitly suggested. This may lead shoppers to consider purchasing more fruits and vegetables than if only 25% of the shopping cart was explicitly reserved and labeled for fruits and vegetables. Although this reserved space would not be binding or physically restrictive, such a partition could continuously suggest that grocery shoppers who generally buy less than these amounts should consider at least offsetting or balancing their less healthy food purchases with healthier ones. This may not only increase the amount of healthy foods purchased, but this may also decrease the amount of less healthy foods purchased. In such a case, social norms would become purchase norms.

Partitions could be used to differentiate any distinctions between target foods that can be easily made by consumers – snack foods versus meal foods; processed versus non-processed – but the more clear the distinction, the more effective the partitioning might be. This research is focused on target foods that are healthy. A wide range of healthy foods exist that a grocery store could encourage shoppers to purchase, including fruit, vegetables, lean meat, dairy, and whole grains. Because some debate exists about what constitutes a healthy percentage of fat or whole grain, fruits and vegetables will be the categories of food used throughout this paper as generally representative of a larger class of “healthy foods”.

Supposing that partitioning will be used to focus on the norms of purchasing fruits and vegetables, the following is hypothesized:

**H1.** A partitioned shopping cart will alter the number of fruits and vegetables purchased.

If partitioned carts influence the number of fruits and vegetables purchased, then perhaps the reason is because they suggest a shopping norm. Such a norm would serve as an aspirational quality that might lead a shopper to be continually more motivated to balance the allocation of items between the partitions. Just as this is believed to be what motivates more balanced food serving decisions with divided (partitioned) plates at mealtime (Wansink & van Ittersum, 2007), this might lead to more balance in one's purchase decisions. If the size of a partition changes, then this change might also change the target of how much a person believes is appropriate to buy. Although this relationship may not be proportional, the size of the partition should be positively related to the amount one purchases.

**H2.** The size of a partition will alter the number of fruits and vegetables purchased.

A partition could take a variety of forms. In a traditional retail context, a shopping cart or a basket could simply be divided with metal, plastic, or a visual divider. In an on-line context, a shopping basket could have a divided line on the order form, or the shopping basket could be explicitly labeled with distinct categories for products. Key differences exist between traditional retail shopping and on-line shopping in terms of fatigue, processing involvement, timing, and impulsivity (Childers, Carr, Peck, & Carson, 2002). Being able to examine the role of partitioning in both instances would provide confidence on whether partitioning's impact can be generalized. Because of this, the hypotheses in this paper are explored in a field study involving a simulated on-line grocery store concept and in an in-store supermarket field study. In Study 1, a simulated on-line shopping study suggests that partitions

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