# The effect of a default-based nudge on the choice of whole wheat bread 

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#### Abstract

Consumer choices are often influenced by the default option presented. This study examines the effect of whole wheat bread as a default option in a sandwich choice situation. Whole wheat bread consists of $100 \%$ whole grain and is healthier than other bread types that are commonly consumed, such as brown or white bread. A pilot survey $(\mathrm{N}=291)$ examined the strength of combinations of toppings and bread type as carrier to select stimuli for the main study. In the main experimental study consisting of a two (bread type) by two (topping type) between-subjects design, participants ( $\mathrm{N}=226$ ) were given a free sandwich at a university stand with either a relatively unhealthy deep-fried snack (croquette) or a healthy topping. About half of the participants were offered a whole wheat bun unless they asked for white bun, and the other half were offered a white bun unless they asked for a whole wheat bun. Regardless of the topping, the results show that when the whole wheat bun was the default option, 108 out of 115 participants $(94 \%)$ decided to stick with this default option. When the default of bread offered was white, 89 out of 111 participants ( $80 \%$ ) similarly chose to stick with this default. Across conditions, participants felt equally free to make a choice. The attractiveness of and willingness to pay for the sandwich were not affected by default type of bread. This study demonstrated a strong default effect of bread type. This clearly shows the benefit of steering consumers towards a healthier bread choice, by offering healthier default bread at various locations such as restaurants, schools and work place canteens. © 2017 Elsevier Ltd. All rights reserved.


## 1. Introduction

After decades of disappointing results from educational campaigns and an increasing number of people with overweight or obesity, an increasing interest can be observed in nudging approaches to change the eating behaviours of consumers. The idea behind the nudging approach is to rearrange aspects of the choice environment ('choice architecture' in nudging terminology) to which people are exposed, with the aim of helping consumers make better choices. A key characteristic of nudging is that it does not ban options or tell people explicitly what is best for them. Nudging is referred to as 'libertarian paternalism' by Thaler and Sunstein (2003). It is paternalistic in its aim to stimulate the choice that is in the 'personal best interest' of the consumer. The libertarian aspect refers to the freedom to make choices within the

[^0]choice context. In other words, nudges attempt to 'subtly guide' consumers towards more desirable choices by targeting a variety of biases and heuristics (rules of thumb) in decision making. Examples of nudges that have been developed to increase the relative number of healthier foods sold include verbal prompts at the restaurant checkout (Van Kleef, Van den Broek, \& Van Trijp, 2015), changes in the position of foods on menus (Dayan \& Bar-Hillel, 2011) and improvements to the accessibility of healthy food on supermarket shelves (De Wijk et al., 2016).

The status quo bias or default effect is one of most well-known biases that has been exploited as a nudge (Kahneman, Knetsch, \& Thaler, 1991). Individuals have the tendency to stick with the current or default choices, even when other options are available. Smith, Goldstein, and Johnson (2013) emphasize that default refers to the activity of choosing in a particular situation: does the situation require an active choice? In this context, Brown and Krishna (2004) define default options as the choice alternative a consumer receives if he or she does not explicitly specify otherwise'.

The influence of default options has been shown in many different ways and contexts. An illustrative example of this tendency to stick with the standard (default) is that of organ donation schemes. Countries that record people as organ donors unless they choose to opt out (presumed consent) see considerably higher rates of donors (more than $90 \%$ ) than do countries in which the default rule is not to donate, where the average rate is below $30 \%$ (Johnson \& Goldstein, 2003). Default effects have been studied extensively in health care settings, pension savings (e.g., Thaler \& Benzartzi, 2004) and even the sales of racing bikes (Herrmann et al., 2011).

Explanations that have been offered for the generally strong default effect include the required effort, the implied endorsement and the reference dependence (Smith et al., 2013). Sticking with the default requires less effort than making a switch does. Implied endorsement refers to the tendency of people to interpret the default as a suggestion or recommendation by the choice architect. It may even be interpreted as being preselected as a sign of what most decision-makers choose. As a result, the risk-averse nature of humans makes it more likely that people are hesitant to deviate from the suggestion of the 'expert' (e.g., Kahneman et al., 1991). Reference dependency is the tendency of decision-makers to see the default as a reference point and something that they have already chosen. Giving up the default may be experienced as a loss, and the pain of losing is stronger than the pleasure of gaining, which would make switching from the default seem more negative (Dinner, Johnson, Goldstein, \& Liu, 2011).

Within the food domain, the study and promotion of the effect of default rules are relatively recent (e.g., Radnitz et al., 2013). Default rules are in place when consumers are allowed to make a choice to change the default, but they do not have to in order to receive the product or service. For example, default side dishes at fast food restaurants are often unhealthy and part of a bundled meal. The purchase of this default bundled meal at a fast food restaurant is more common than is the selection of single options separately. It is therefore increasingly advocated to change default kids' meals to include low-fat milk, juice or water rather than soft drinks and sides such as carrots instead of fries (Nestle, 2016). In a qualitative study, mothers of 3 - to 8 -year-old children felt that healthier fast food meal options by default were a good idea, but they also felt that it would particularly be other people benefitting from such a default when making their ordering decisions (Henry \& Borzekowski, 2015). Loeb et al. (2017) studied the effect of default menu options (healthy versus less healthy) in a community centre where parents were asked to make a breakfast choice for their child. The results showed that the large majority of parents remained with the default options presented, regardless of whether they were healthy or less healthy.

There are also examples of more subtle default rules. Most sandwich shops, catering outlets and lunchrooms have a default bread type, or a type of bread that is suggested by accompanying pictures at the menu card. For example, although Subway gives customers the choice between bread types, white breads are presented as implicit defaults at menu boards and online. As such, default rules can be either damaging (i.e., making the unhealthy choice more likely) or beneficial (i.e., making the healthy choice more likely) for consumers.

In this study, we examined the default effect for the type of bread offered as part of a sandwich with topping (white versus whole wheat). Whole wheat bread must be made of whole grain flour, consisting either of coarse or fine bran. International nutrition guidelines (e.g., United States Department of Health and Human Services and United States Department of Agriculture, Dietary Guidelines for Americans 2015-2020; Health Council of the Netherlands, Dutch Dietary Guidelines 2015) advise replacing refined grains with whole grains. Unfortunately, in many countries,
the intake of whole grains by children and adults falls well below the recommendations (e.g., Van Rossum, Fransen, VerkaikKloosterman, Buurma-Rethans, \& Ocké, 2011).

Making whole wheat bread the default bread could lead to a higher intake of whole grains. However, it has been argued that the power of the default is limited when preferences are strong, such as the preference for a particular (side) dish with a meal (e.g., fries with a hamburger) (Just \& Wansink, 2009). In one study, children between the ages of 6 and 8 were given chicken nuggets and a drink. Half of them were given fries unless they asked for apple slices, and the other half were given apple slices unless they asked for fries. Nearly $87 \%$ of all children switched from apple slices to fries, but only $7 \%$ decided to switch from fries to apple slices (Wansink \& Just, 2016). This same issue might apply when whole wheat bread becomes the default carrier in a sandwich. Research shows that whole wheat bread is considered less attractive due to its coarser texture, taste and appearance (Adams \& Engstrom, 2000; Kuznesof et al., 2012).

The aim of the main study is to examine the effect of whole wheat bread as a default option in a sandwich choice situation on individuals' choice of whole bread. To select appropriate stimuli for the main study, we first explored the strength of preferences of Dutch consumers for a set of common toppings and bread types in a pilot study.

## 2. Pilot study

The aim of the pilot study was to select appropriate combinations of bread and toppings by understanding which bread types (i.e., white, brown and whole wheat) are more appreciated by consumers in combination with common toppings.

### 2.1. Methodology

In a survey, respondents were exposed to photos (see Fig. 1 for examples), with text, of all possible combinations of three types of bread (white, brown and whole wheat) and seven types of toppings (cheese, ham, "healthy" ${ }^{1}$, salmon, chocolate sprinkles, croquette ${ }^{2}$, and filet American). The selection of bread and toppings was based on an analysis of what is commonly served at Dutch homes, worksite canteens and sandwich shops. Thus, in total, respondents had to rate 21 different combinations (within-subjects design). The types of bread and topping were also described to participants (e.g., 'Give your opinion about the combination below: brown bread with cheese'). Individuals were recruited using a university mailing list. The survey was administered online using Qualtrics and completed by 291 respondents. Of these, $79 \%$ were female, their ages ranged from 17 to 83 (mean age $=41.5, S D=18.3$ ), and $9 \%$ were vegetarian. The study was conducted according to the guidelines established in the Declaration of Helsinki and complied with the code of conduct of Wageningen University. Written consent was obtained for all participants.

The combinations of toppings and bread type were rated on fit, attractiveness and choice intention, all on seven-point scales with the end points labelled $1=$ 'not at all' and $7=$ 'to a large extent'. The perceived fit between the bread and the topping was measured by one item: 'Do you consider the combination of bread and topping to fit well?' Attractiveness was determined by the question 'How attractive do you think this combination is?' The intention to

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[^1]:    ${ }^{1}$ A 'healthy" sandwich is the Dutch name of a typical sandwich ("broodje gezond") consisting of ham, cheese, lettuce, tomato, cucumber and egg (Fig. 1 bottom left).
    ${ }^{2}$ A roll of minced meat and thickened sauce fried in breadcrumbs.

