

Consumers' behavioural responses to price promotions of organic products: an introspective pre-study and an online field experiment

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Abstract

Purpose – While most marketing research on organic products refers to the premium price levels of organic products, little research exists on consumers' behavioural responses to price promotions or discounts of organic products. The present study aims to fill this research gap.

Design/methodology/approach – To develop alternative hypotheses about consumers' behavioural responses to price promotions of organic fast-moving consumer good (FMCG) products, the authors used the researcher-introspection method in a pre-study. To test the hypotheses developed based on the pre-study, the authors conducted a field experiment on online advertising of an FMCG sold in drugstores. In the field experiment, the authors exposed consumers to an online ad featuring either a price promotion (–20%) or the regular price of the product. The ads also varied in terms of whether they contained explicit organic claims or not, and whether they included implicit organic cues or not.

Findings – The price promotion increased the clickthrough rate of the ad both when combined with an explicit organic claim and when combined with the implicit cue of green product pack. The results suggest that consumers do not have significant suspicions about price promotions of organic products, but rather presume that the price promotion of an organic FMCG product is a periodical promotional action, similar to the price promotions for conventional, non-organic products. Also, consumers seem to assume that the regular prices of organic FMCG products are so high that the retailer/manufacturer can well afford periodic price discounts.

Research limitations/implications – The present research shifts the focus of organic marketing research from the premium price levels to the effectiveness of price promotions and discounts. Further, the present results contrast with certain earlier studies that have questioned the effectiveness of price promotions for organic products.



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Data availability statement: The data can be made available by the authors upon request.

Practical implications – The results have different implications for marketing managers of brands not yet providing organic product versions in the market, of brands producing non-organic products, which cannot easily be rendered organic, and of brands offering organic products in the market.

Originality/value – This is, to the best of the authors' knowledge, the first empirical study and field experiment on price promotions of organic products, including explicit organic claims.

Keywords Online advertising, Organic products, Price promotions, Organic claims, Packaging colour, Digital advertising, Banner advertising, Clickthrough, Field experiment

Paper type Research paper

Introduction

While the actual organic nature of organic consumer goods is primarily determined by *supply*-side factors (e.g. no artificial fertilizers, pesticides or preservatives used in value chain), a growing body of research also addresses various *demand*-side aspects of organic consumer products, including consumer behaviour pertaining to organic products. An increasing number of such demand-side, consumer behavioural studies have been recently emerging in various disciplines, ranging from marketing (Baker *et al.*, 2004; Bernal-Jurado *et al.*, 2017; Frank and Brock, 2018; Verhoef and Van Doorn, 2016) and economics (Cecchini *et al.*, 2018), to health and nutrition sciences (Olson, 2017; Hemmerling *et al.*, 2016) and environmental sciences (Liu *et al.*, 2022; Mauracher *et al.*, 2019).

In this growing literature, one of the most commonly touched-upon aspects is the *pricing* of the organic fast-moving consumer goods (FMCGs). Indeed, nearly all studies addressing demand-side aspects of organic FMCGs at least mention pricing – usually to emphasize the generally higher price levels of organic products, compared with conventional, non-organic products. Specifically, a number of studies analyze the premium price patterns of organic products (Marian *et al.*, 2014; Nimon and Beghin, 1999), or survey consumers' willingness to pay premium prices for organic products (Bishop and Barber, 2015; Ellis *et al.*, 2012; Van Doorn and Verhoef, 2011) or their price perceptions related to organic FMCG stores (Zielke, 2010). However, within and beyond these research streams – which essentially focus on the *premium prices* of organic products—, much less research exists on consumers' behavioural responses to price *promotions* or *discounts* of organic products. These behavioural responses to price promotions of organic FMCGs constitute the research gap that the present research aims to fill.

There is a twofold reason for why it is important to study consumers' behavioural responses to price promotions of organic FMCGs in particular, even if a vast body of research literature exists on the behavioural effects of price promotions of (non-organic) FMCGs in general (Darke and Chung, 2005; Delvecchio *et al.*, 2007; Delvecchio and Puligadda, 2012; Guha *et al.*, 2018; Raghurir and Corfman, 1999; Zheng *et al.*, 2021). Firstly, it is not clear whether price promotions of organic FMCGs actually increase consumer demand for these products, such as price promotions for non-organic, conventional products tend to do. Namely, as organic FMCGs are generally perceived as high-quality products – and, to some extent, even status goods—, consumers might perceive that price promotions of these products conflict with their high quality and status image (Ngobo, 2011). This might lead price promotions of organic FMCGs to lack the positive effect on consumer demand that price promotions of conventional, non-organic FMCGs typically have.

Secondly, the few extant studies (Bezawada and Pauwels, 2013; Ngobo, 2011; Van Doorn and Verhoef, 2015) that do address price promotions of organic products tend to assume that consumers self-evidently notice, when buying FMCG products, whether they are buying an organic or a non-organic, conventional product. This assumption is mainly because of the

methodological reliance, in previous studies, on scanner data or other sales register data. Indeed, in scanner and register data, organic products (or stock-keeping units) are typically marked “organic”, regardless of how visible or explicit (vs invisible or implicit) the organic label or claims are to consumers, in product packaging, advertising and in-store promotions. This means that such studies provide, at most, indirect evidence about consumers’ behavioural responses to price promotions of organic FMCGs. Thus, in the present research, we pursue direct behavioural evidence of how consumers respond to price promotions of such organic FMCGs that they can explicitly recognize to be organic.

Against this backdrop, the research question which we focus presently on is: How do consumers’ behaviourally respond to price promotions, when combined with explicit organic claims related to an FMCG product? Rather than implicit scanner data, our primary data in investigating this research question are explicit, causal field experiment data. As such, the data provide us with evidence about how consumers’ behavioural responses are affected, when they are treated with a price promotion (vs regular price), and with explicit organic claims (vs implicit cues, vs no cues at all) related to an FMCG product. With such field experiment data, we aim to “bring behaviour back” into the study of price promotions of organic products, in the sense of providing direct evidence about consumers’ actual behavioural responses to organic products, as opposed to mere implicit or indirect evidence.

Another way in which the present study seeks to “bring behaviour back” into the study of consumer behaviour *vis-à-vis* price promotions is even more unconventional – even for the experimental paradigm of marketing and consumer research. That is, to inductively develop theoretical hypotheses to be tested in our main field experiment, we conducted a pre-study that used an introspective research method (Gummesson, 2005; Wallendorf and Brucks, 1993), in the form of researcher-focused introspection (Ekpo *et al.*, 2015; Gould, 1995; Xue and Desmet, 2019). Specifically, in the pre-study, one of the authors – who has four decades of experience and expertise in consumer behaviour in the focal sector – produced a series of narrative vignettes reflecting on his understanding regarding consumers’ thoughts and opinions about price promotions of organic drugstore products. The second author, together with the researcher–introspector author, then analyzed and interpreted the vignettes. Based on this analysis, we inductively developed alternative, competing hypotheses about consumers’ behavioural responses to price promotions of organic FMCGs.

Subsequently, to test which of the alternative hypotheses developed in the pre-study dominates in real consumers’ behaviour in the market, we collected our primary data through a field experiment. Specifically, in a split-test field experiment, we alternated eight versions of an online ad for the focal product (bottled mouthwash), in the banner advertising sections of online media sites. The experimental versions of the ad varied on three dimensions: price promotion (“–20%” price promotion vs regular price), explicit organic claims (present vs absent) and implicit organic cues (green vs purple colour of the product pack shown in the ad). The eight versions of the ad accumulated almost two million exposures ($N = 1,957,037$) by consumers in total. To answer our research question, and to test which of the alternative hypotheses held, we measured the relative effectiveness of the ad versions in terms of clickthrough rate (CTR) as the dependent variable (Orazi and Johnston, 2020).

The present research makes several contributions to the literature on behavioural, demand-side aspects of organic products. First, while most research on organic products in marketing, economics and nutrition/health sciences focus on the price premiums commanded by organic products (including consumers’ willingness-to-pay), our research shifts the focus from premium price levels to the effectiveness of price promotions and price discounts of organic products. Second, when it comes to the earlier, sparse literature

addressing price promotions of organic products, we add to those rare studies (especially [Bezawada and Pauwels, 2013](#)) that have found price promotions to be equally effective for organic products as for non-organic conventional products. At the same time, our results contrast with such pieces of earlier literature ([Ngobo, 2011](#); [Massey et al., 2018](#); [Troiano et al., 2016](#)) which have questioned the effectiveness of price promotions for organic products (because of, e.g. price promotions' potential negative effect on quality image). To these literatures, we also provide two methodological contributions: (a) We examine price promotion effectiveness through a field experiment on online banner ad messages, instead of scanner or sales register data, or surveys or lab experiments, and (b) We pilot a novel approach of integrating a qualitative researcher-introspection method with a quantitative field experiment, to inductively develop hypotheses for the main field experiment.

Third, albeit less importantly, our research also adds to literature on advertisements, which include the picture of product packaging ([Reimann et al., 2010](#); [Rundh, 2016](#); cf. [Underwood and Klein, 2002](#)). For this literature, the present findings suggest that showing a green packaging in an ad or promotional message – implying the organic or environment-friendly nature of the product – may not only influence consumer interest in organic products but it may also influence consumer interest in non-organic products, or products advertised without explicit organic claims.

Literature overview on organic products and price promotions

As mentioned above, many of the earlier studies on organic products' price promotions do not focus, explicitly, on organic product claims made in connection with the price promotion, but rather assume that consumers automatically recognize or notice the product's organic nature. This is especially true for studies using scanner, panel or sales register data ([Bezawada and Pauwels, 2013](#); [van Doorn and Verhoef, 2015](#); [Ngobo, 2011](#)), as well as non-empirical, mathematical modelling studies ([Liu et al., 2022](#)). Thus, regardless of whether these studies have suggested price promotions to be effective for organic products ([Bezawada and Pauwels, 2013](#)) or not ([van Doorn and Verhoef, 2015](#); [Ngobo, 2011](#)), they fall short of providing direct evidence of price promotions' behavioural impact on consumer demand for organic products. This is because the buying consumers in these studies may not have recognized the products to be organic in the first place. In turn, survey-based studies ([Troiano et al., 2016](#)), as well as meta-analyses ([Massey et al., 2018](#)), have only indirectly studied price promotions, as well, by typically focusing on the inverse effects of price premiums. In the present research, we attempt to overcome this shortcoming by shifting the focus on studying how *explicit* organic claims, in combination with price promotions, affect consumer behaviour towards the product under study.

Even such studies are only a few that would simultaneously address price-related variables (albeit not price promotions/discounts) and explicit organic claims. [Frank and Brock \(2018\)](#) measured consumers' perceptions of the price–quality ratio of organic products as one “purchase barrier” among others. Their results indicated, among other things, that ordinary consumers, who are not engaged in green consumerism, perceived the prices of organic products more favourably, in case explicit organic product claims were provided at the point of sales.

Second, [Liu et al. \(2019, 2022\)](#) study “behavioural-based pricing” of organic and green products, in which prices in the supply and distribution chain of organic products are set on the basis of end-consumers' behavioural characteristics (including purchase history). However, the studies of [Liu et al.](#) represent non-empirical, mathematical modelling, and as such do not provide evidence of consumers' actual behavioural responses to the prices or price discounts of organic products. A third existing study, by [Bang et al. \(2021\)](#), uses a

behavioural experiment approach to investigate prosocial product claims – which can be considered somewhat analogous to organic claims. They find that price discounts are effective for American consumers when combined with assertive prosocial claims (“must”, “should”, etc.), while not being effective for Korean consumers, regardless of the style of the claim. However, while focusing on different *styles* of claims, even the study of [Bang et al. \(2021\)](#) does not compare the effect of price promotions in the presence vs absence of prosocial claims, let alone organic claims.

Figure 1 depicts the positioning of the present research in the intersection of the aforementioned streams of literature. Furthermore, our research is, to the best of the authors’ knowledge, the first one to study the impact of price promotions on consumer interest in organic products through a field experiment. Indeed, while the earlier studies either analyze scanner, panel or sales register data; collect survey data; or conduct laboratory experiments, the previous research literature lacks experimental studies conducted in field settings. Moreover, our study is also novel for behavioural marketing and consumer research in general, in using a researcher-introspection pre-study to inductively develop hypotheses to be tested with the quantitative field experiment. We turn to this pre-study next.

Pre-study

Method

Form of introspection used. We used a “syncretic form of introspection” ([Wallendorf and Brucks, 1993](#)) to explore the subjective experiences and knowledge that one of the present authors had about consumers’ behavioural responses to pricing actions of FMCG products sold at drugstores and pharmacies. The aim of the introspective pre-study was to inductively theorize and develop alternative hypotheses for our main field experiment study – which would be conducted in the same focal domain (FMCGs sold at drugstores).

The primary nature of the present introspection study was “researcher introspection”, addressing one of the authors’ own experiences, insights and knowledge (see examples in [Ekpo et al., 2015](#); [Xue and Desmet, 2019](#)). Yet, as the study focused especially on probing his second-hand experiences, insights and knowledge about consumers’ (first-hand) experiences and reactions to pricing actions in the focal domain, the method can also be considered to represent a “syncretic form of introspection” ([Wallendorf and Brucks, 1993](#)). That is, both

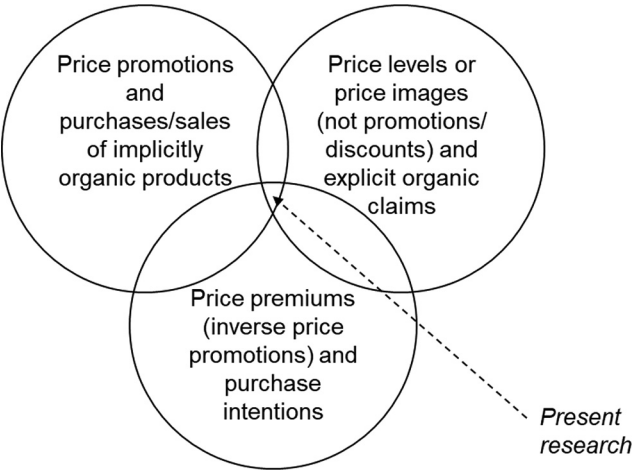


Figure 1.
Positioning of present
research in the
intersection of extant
literature streams

the experiences of the researcher and (his experiences about) the experiences of the consumers, whom the researcher is highly familiar with, are used as “elements in the sample” to be studied, “with little, if any, differentiation made between the two during data analysis” (Wallendorf and Brucks, 1993, p. 341). This syncretic approach – of sampling the researcher’s second-hand experiences about consumers’ first-hand experiences – can be considered to mitigate some of the reliability issues related to introspective studies that only focus on the researcher’s own first-hand experiences [e.g. convenience sample of one (researcher) only; lack of analytical “distance” to subjects] (Wallendorf and Brucks, 1993; cf. Gould, 1995). Moreover, these reliability issues were also mitigated by the fact that the analyses of the introspective narratives were not performed by the researcher–introspector alone. Instead, the narratives were analyzed together by the researcher–introspector and the other, present author.

Furthermore, the utilization of introspection in the pre-study also met the criteria suggested by Gould (1995) for researcher introspection: “the researcher as instrument–subject must be [a] knowledgeable and [b] motivated with respect to both [i] introspection and [ii] the topic of study” and “the topic of study must be susceptible to introspection” (p. 721).

In our case, the author taking the role of researcher–introspector was (a.ii) highly knowledgeable about the topic, having run his own company in the drugstore products industry for 45 years. His role as the entrepreneur–manager of a manufacturing firm of drugstore products (including the one experimented with in the field experiment) also ensured that he was (b.ii) highly motivated to understand and learn how consumers may behaviourally respond to price promotions of such products. With educational background both in dental health care and business administration as well as keen personal interest in psychology, he also had (b.i) a high motivation (a.i) as well as above-average knowledge and skills to engage in introspective reflection. In turn, when it comes to the susceptibility of the focal research topic to introspection, we consider that consumer behaviour in the drugstore context is a topic that is fundamentally apt to such introspection, given that the researcher–introspector is not only a professional in this field but also a consumer–customer of drugstores himself.

Documents and data. To facilitate the introspection process, the author serving as the researcher–introspector was asked to write short, narrative vignettes with the following two tasks:

- (1) Describe what thoughts or feelings might arise to a consumer visiting a drugstore, when encountering a price discount for an *ordinary* product?
- (2) Write a couple of short stories or vignettes about what positive or negative thoughts or feelings might arise to a consumer visiting a drugstore, when encountering a price discount for an *organic* product?

The aim with first asking briefly about ordinary products was to stimulate more varied and differentiated thoughts and experiences in the second, main task, as a contrast to the baseline thoughts elicited in the first task.

The aim in asking the researcher–introspector to explicitly describe both positive and negative experiences, respectively, in the second task, was to ensure that he would not ignore any negative thoughts or experiences, in case most of the prevalent thoughts were positive – and vice versa.

Analysis. As the aim of the first task (1) above was only to stimulate more varied thoughts in the second task (2), we focused our analyses on the vignettes that the researcher–introspector co-author wrote for task (2) only. Both of the authors first

independently analyzed and interpreted each of the raw vignettes, conceptualizing and summarizing the underlying reason for the positivity or negativity of the thoughts and experiences described in the vignette in an abstracted form. Furthermore, we further conceptualized and summarized the effect that the thought or experience summarized above seemed to have on the behaviour of the consumer described in the vignette.

After each of the authors had analyzed the raw vignettes in the aforementioned manner, we compared the conceptualizations drafted by both authors in a joint session. To the extent that there were differences in the content and wordings of the conceptualizations, we discussed the differences and pursued a joint understanding and consensus. Through these discussions, we crafted final conceptualizations that both authors were satisfied with. These final conceptualizations were then summarized in a single table, reproduced as [Table 1](#).

Findings

[Table 1](#) summarizes the results of the syncretic introspective pre-study. As visible in the table, the introspection-based vignettes included both experiences that implied positive effects by organic products' price discounts on consumer behaviour, and experiences that implied negative behavioural effects by such price discounts. In what follows, we briefly summarize the contents of the vignettes, regarding the potential positive and negative effects.

On the one hand, implying a positive effect, consumers may simply assume, when encountering a price promotion for an organic product, that its price is discounted periodically – just like the prices of conventional, non-organic products are also periodically discounted (vignette #1). Although not for organic products in particular, prior research has also shown that consumers expect FMCG products in general to be discounted regularly, such that consumers may even delay their purchases while waiting for the next price promotion to take place ([Blattberg et al., 1995](#); [Lewis, 2005](#); [Mela et al., 1997](#)). As also implied by vignette #1, consumers may use the occasional price discount of a high-quality product (such as an organic one) as an opportunity to purchase a product of higher quality than what they can normally afford ([Chandon et al., 2000](#)). As such, a price promotion of an organic FMCG might not raise any particular suspicions in the consumer, either, about why the manufacturer or retailer would be price-promoting an organic product. On the contrary, the consumer may further assume that because the regular prices of organic products are so high, the retailer and manufacturer can well afford to price-promote them periodically (vignette #4) – even more so than they can afford to price-promote conventional, non-organic products (of lower regular price point). Indeed, consumers may assume that the regular prices of organic products might be set at a somewhat inflated level, *vis-à-vis* their true or fair cost level ([Dekhili and Achabou, 2013](#)).

On the other hand, what implies a negative effect by organic products' price discounts on consumer behaviour is the suspicion that such discounts may raise in consumers, either about the quality of the product (vignette #3) or about the popularity of the product (vignette #2). Regarding the former, the thought that “higher price equals higher quality” ([Monroe and Krishnan, 1985](#); [Völckner and Hofmann, 2007](#); [Zeithaml, 1988](#); [Zheng et al., 2021](#)) may be prevalent in consumers' minds, leading them to suspect the price of the organic product would not be discounted if the product was of very good quality. Price promotions have been shown to raise such suspicions even in the case of conventional products ([Darke and Chung, 2005](#); [Raghubir and Corfman, 1999](#)), and these suspicions have been speculated (although not shown) to be especially likely for organic products ([Bezawada and Pauwels, 2013](#); [Ngobo, 2011](#)). Regarding the latter, in turn, consumers may suspect

Vignette	Summarized/conceptualized experiences	
	Positive influences (by organic products' price promotions)	Negative influences (by organic products' price promotions)
#1	Christian enters the online drugstore through his Web browser. He enters the section for sunscreen lotions. The list is long, and many of the sunscreen products are on discount. He notes that a few of the products on the list are marked organic. They have a discount as well. Christian thinks that the discount on the organic products is surprising, as they are normally quite expensive. But then he realizes that probably most sunscreen products are actually discounted this time of the year, in Autumn, whether they are organic or not. Thus, Christian decides to purchase one of the organic products, thinking that he has found a good deal, because the organic sunscreen lotions are rarely discounted. Sandra browses the toothpaste products in an online drugstore. She filters the list of products down, with the filtering criterion "organic". A list of organic toothpastes appears. Next, Sandra notices that all the organic toothpaste products of one brand, which she is unfamiliar with, are price-discounted. Sandra starts to wonder why this is the case. She comes to the conclusion that probably that brand is not selling very well, and is not very popular, in the online store, and that is why the products of that brand have been discounted. Therefore, Sandra decides to purchase one of the organic toothpaste products that do not have the discount.	Particular organic products are periodically discounted just like other non-organic products in the particular context → Desire for more information (e.g, checking whether non-organic products are discounted as well) → Increased willingness to purchase (to make savings)
#2	Maria enjoys browsing the catalogue of organic facial soaps in her favourite drugstore at the local shopping mall. Honey, Lavendel, Chamomille, ... all lovely ingredients, and most of the products are completely free of paraben. Suddenly, she notices that some of the organic soaps are sold with substantial price discounts. What is this? The discounted products are new products, unfamiliar to Maria, even if she is familiar with the brand behind the products. Maria gets a bit suspicious. Why are these organic products having a price discount. . . ? Could the reason be that the brand has reduced the quality level of these new products a bit, to cut costs and achieve a lower price point [...]? Maria gets concerned. Eventually she decides to select soaps without discounts, to stay on safe side with her shopping	Particular organic products are discounted because their quality may not be good → Decreased willingness to buy (to avoid buying products of not-so-good quality)
#3		

(continued)

Consumers' behavioural responses

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Table 1.
Pre-study analysis: vignettes (raw data) and conceptualized experiences (data interpretation) on consumers' behavioural responses to price promotions of organic FMCGs in drugstores

Table 1.

Vignette	Summarized/conceptualized experiences	
	Positive influences (by organic products' price promotions)	Negative influences (by organic products' price promotions)
#4	Matias notices that the signs outside his favourite pharmacy in the shopping street are promising outstanding price discounts for a new line of organic oral care products. Matias has been interested in organic oral care products in general for a while already, but because they are usually priced quite high, he has not yet ever purchased such products. Now as the store is offering –25% discount on this new product line, Matias decides to go into the store to find out more about the products, as well as about their regular price level. Inside the store, he learns that the price discount is temporary, and that the campaign is only there for one week. Matias still wonders why the drugstore is offering a price discount for this new organic product line, even if they could probably very well sell the product with the full price, too. However, he then reasons that even after the discount, the price remains relatively high, such that the drugstore probably makes reasonable profits even when discounting the products with a –25% discount	Particular organic products are discounted because their regular price is so high that the store makes profit even with discounted price → Desire for more information (e.g. checking the regular price) → Increased willingness to buy (to make savings vs regular price)

that the reason for why the manufacturer or retailer is price-promoting the product is that it is not selling very well. That is, the company may be trying to make the product more popular among consumers by cutting its price. However, because organic products are associated with social status, their excessive popularization, by way of price discounts, may paradoxically reduce consumers' willingness to purchase them (Bezawada and Pauwels, 2013). Thus, because of the potential association of price promotions with poor product quality and/or with the retailer's attempt to popularize the product, a price discount of an organic product might make consumers less instead of more interested in the product.

Summarizing the findings of the introspective pre-study, Table 2 presents our propositions about the psychology of price promotions of organic products, as well as poses corresponding, alternative hypotheses about their behavioural effects. Note that for both the positive and negative effects hypothesized, we assume that the organic nature of the product is explicit to the consumers, such that the price promotion message itself includes an explicit organic claim. In contrast, implicit cues (e.g. green colour) are not likely to make the thoughts and cognitions proposed in the propositions salient to the consumer. Thus, the hypotheses about the behavioural effects are mainly justified for explicit organic claims only.

Field experiment

Method

Product category context. We conducted the field experiment in the same context as the researcher-introspection pre-study: FMCGs sold in drugstores. Moreover, the focal FMCG in

Positive or negative effect (implied by introspective vignettes)	Proposition on psychology of price promotion of organic products	Hypothesis on behavioural effect of price promotion of organic products
Positive	<i>P1a:</i> Consumers presume that the price promotion of an organic FMCG product is a periodical promotion action, similar to the frequent price promotions for conventional products <i>P1b:</i> Consumers do not doubt the motivations of the retailer/manufacturer, as they assume that the regular price of the organic FMCG product is so high that the retailer/manufacturer can well afford the periodic price discount	<i>H1:</i> A price promotion of an explicitly organic FMCG product has a <i>positive</i> effect on consumers' purchase interest in the product
Negative	<i>P2a:</i> Consumers presume that the price promotion of an organic FMCG product, which tends to be premium-priced, is a signal of poor quality of the particular product <i>P2b:</i> Consumers presume that an organic FMCG is being price-promoted, because it might not be selling well otherwise, and the retailer attempts to make it more popular by cutting the price	<i>H2:</i> A price promotion of an explicitly organic FMCG product has a <i>negative</i> effect on consumers' purchase interest in the product

Table 2.
Inductive propositions based on pre-study and hypotheses for field experiment

the experiment is manufactured by the same company owned by researcher–introspector of the pre-study. Of the different products produced by the company, we selected a new bottled mouthwash product as the focal product for the experiment. Bottled mouthwash was considered a suitable focal product for the present experiment because of the following reasons. First, bottled mouthwash is one of the highest-volume pharmacy products, the purchase of which does not necessitate a doctor's prescription. Thus, the purchase decisions for this product are made by consumers themselves (instead of doctors/physicians). Second, among non-prescription pharmacy products, bottled mouthwash is one of the most common products that are consumed orally. We considered that for a product consumed orally, the organic ad claims are particularly relevant for consumers. Third, for many other orally consumable, prescription-free pharmacy products (e.g. dietary supplements), organic claims cannot be made in a very convincing way, because of the artificial nature of their production.

Participants. To test which of the behavioural hypotheses (*H1* or *H2*) holds in a real market setting, we conducted an online field experiment on a promotion message of the focal mouthwash product in the Finnish drugstore market. The experimental promotional messages were published in the banner advertising sections of online sites of seven popular newspapers and magazines in Finland. Consumers were exposed to the ad messages altogether almost two million times ($N_{\text{impressions}} = 1,957,037$). The advertising platform estimated that the gender split was equal among the participants: 50.4% females and 49.6% males. This suggests that the participant sample is rather representative of the consumer population in Finland overall.

Design and procedure. The experiment had a full-factorial $2 \times 2 \times 2$ design, with 2 price promotion (present vs absent), 2 explicit organic claim (present vs absent), and 2 implicit organic cue (green vs non-green) between-subject conditions. For the key treatment variable, price promotion, the banner ad included a text “–20%” in the present condition, while in the absent condition, the ad stated the price point as “14.90€”. This was the real regular price for the product in question, and the –20% discount was a typical discount percentage in the online store for the product category in question (oral care products). The reason for only including the discount percentage (i.e. for not including the discounted price in Euros) in the present condition was twofold. First, the online banner ad was relatively small in size, such that including a longer text (“–20% off original price 14.90€, now 11.92€”) was not practically feasible, or would have resulted in the font size to be so small that consumers seeing the ad on their mobile devices would have had difficulties in reading the text. Second, we were concerned about the fact that such a longer text would have made the price promotion ad to include much more detailed numeric information (both the price in Euros and the discount percentage, plus the discounted price with several decimals) than the regular price ad. This would likely have reduced the readability and processing fluency of the price promotion ad considerably.

When it comes to the other main treatment variable, explicit organic claim, in the present condition, the product was described as “Domestic, healing mouthwash – with organic berries and herbs as effective ingredients. Produced with the energy of the Northern sun”. In the absent condition, the text did not include references to organic aspects: “Domestic novelty – The healing mouthwash contains 0.15% fluoride, which helps to effectively prevent cavities in your teeth. The unique combination of xylitol and erytritol provides strong additional protection against caries”.

Finally, regarding the third treatment variable, implicit organic cue, in the present condition, the label of the product bottle depicted in the promotion message had a green colour, whereas in the absent condition, the colour was purple. The green colour was chosen because of its implicit association with organic products, while the purple colour was

considered to be free of such associations or connotations. Moreover, the product manufacturer had earlier used the purple colour in its other products' labels and packages.

We used a professional graphic designer and user interface designer to draw the layout for the eight ad versions, given the standard, rectangular banner ad frame of the advertising platform. The designer invested considerable effort to implementing the text and photos of the ad versions in a reader- and user-friendly format.

The algorithm of the advertising platform assigned one of the eight versions of the ad to each unique browser visiting the website of the newspapers and magazines included in the study, over three weeks' time (May 18th, 2020–June 7th, 2020).

Measures. As the key dependent variable, we measured the CTR, i.e. what proportion of the consumers who were exposed to the ad (in the form of "impressions") in fact clicked the ad. We selected CTR as the focal outcome measure following [Orazi and Johnston \(2020\)](#), who assessed the feasibility of different ad effectiveness measures in field experiments conducted as split tests on online advertising platforms, such as Facebook. [Orazi and Johnston \(2020\)](#) concluded that CTR is superior to other measures (such as amount of clicks or cost-per-click), as the CTR is a simple "indicator of effectiveness of one condition over another" (p. 194). The overall CTR in our experiment was 0.28%. According to the experts of the advertising platform company, this is a typical CTR level for banner ads such as the present one.

Results

Validation check for manipulations. We conducted a validation check experiment for the field experiment's treatment manipulations with a separate sample of consumers. An invitation to participate in the validation check experiment was sent by email to a subset ($n = 130$) of the customer register of the same product manufacturer whose online ads were tested in the field experiment. Within a two-week answering time, complete responses were obtained from $n = 42$ customers, with a satisfactory response rate of 32%.

The participants of the validation check experiment were randomly assigned to the same eight ($2 \times 2 \times 2$) experimental treatments that were used in the field experiment. That is, the online experiment questionnaire first showed each participant one of the eight versions of the ad. On the following pages of the questionnaire, validation check questions about the ad were presented to the participants.

In validating the manipulation of price promotion, an ANOVA revealed a significant main effect [$F(1, 40) = 9.84, p = 0.03$] by this treatment factor on participants' responses to the question "Was the price level mentioned in the ad inexpensive or expensive in your opinion?" (1 = "very inexpensive" ... 7 = "very expensive"). Specifically, participants seeing the ad with the price discount percentage viewed that the product was significantly less expensive ($M_{\text{W/Price discount}} = 3.50, SE = 0.23$) than participants who saw the ad that only stated the product's price level without the price discount percentage ($M_{\text{W/O Price discount}} = 4.45, SE = 0.20$). Thus, the manipulation of price promotion was effective.

For the manipulation of explicit organic claim, an ANOVA also revealed a significant treatment effect [$F(1, 40) = 18.84, p < 0.001$] on the question "Did the ad verbally state that the product would be a natural, organic product?" (1 = "didn't state anything about [the product's] organic nature" ... 7 = "emphasized much [the product's] organic nature"). Here, participants who saw the ad that included the explicit organic claim found the ad to be significantly more organic ($M_{\text{W/Expl. organic}} = 4.92, SE = 0.37$) than participants seeing the ad with functional, non-organic claims ($M_{\text{W/O Expl. organic}} = 2.61, SE = 0.37$). This result confirms that the manipulation of explicit organic claim was also successful.

Finally, to validate the manipulation of implicit organic cue, we asked the participants: “What was, in your opinion, the main colour of the ad on the previous page?” (“white”, “blue”, “green”, “lila/purple” or “red”). A full 100% of participants (std. res. = 3.0) who had seen the ad with the green colour chose “green” as their answer. Among the participants who had seen the ad with the non-green, purple colouring, 81% answered “lila/purple” (std. res. = 2.9), while 14% answered “blue” (std. res. = 1.2) and only 1% “green” (std. res. = -3.0). A Chi square test further indicates that these percentages depended significantly on the treatment condition [χ^2 (2, n = 42) = 38.18, p < 0.001; Cramer’s V = 0.953]. Thus, the manipulation of implicit organic cue can also be considered effective.

Test of hypotheses. Figure 2 displays the main results of the field experiment: the CTR % of ads with vs without the price promotion, in the presence vs absence of the explicit organic claim. To estimate the CTR %, we used a log linear model, which is analogous to extending a cross-tabulation analysis from two to four dimensions or categorical variables (three experimental conditions plus the CTR/click of the ad). In this log linear model, the parameter estimate for the interaction of price promotion and CTR obtained a positive and significant sign (b = 0.532, SE = 0.064, Z = 8.30, p < 0.001). As visible in Figure 2, the CTR was clearly higher for ads including the price discount (CTR_{W/Price discount} = 0.34%) than those that did not contain the price discount (CTR_{W/O Price discount} = 0.25%). However, our main focus, in testing whether $H1$ or $H2$ holds, is on the interaction effect of price promotion, explicit organic claim and CTR. In the log linear model, this interaction effect also obtained a positive and significant sign (b = 0.197, SE = 0.077, Z = 2.55, p = 0.01). Specifically, as again visible in Figure 2, the presence of the price promotion increased the ad’s CTR to a greater extent in the presence of the explicit organic claim (CTR_{W/Expl. organic, W/O Price discount} = 0.21%; CTR_{W/Expl. organic, W/Price discount} = 0.35%) than in the absence of the explicit organic claim (CTR_{W/O Expl. organic, W/O Price discount} = 0.27%; CTR_{W/O Expl. organic, W/Price discount} = 0.33%). This result confirms $H1$ (and rejects $H2$): a price promotion of an FMCG product, with explicit organic claims, has a positive (not negative) effect on consumers’ purchase interest in the product.

While the main treatment factors of interest in the field experiment were the aforementioned price promotion and explicit organic claim, we also performed additional analyses on the secondary treatment factor, implicit organic cue. Figure A1 in Appendix depicts the effects of the implicit organic cue, in the absence of explicit organic claim, while Figure A2 depicts its effects in the presence of explicit organic claim. In the log linear model, the interaction of price promotion, implicit organic cue and CTR obtained a positive but only marginally significant sign (b = 0.163, SE = 0.093, Z = 1.74, p = 0.08), as does the four-way interaction, including the former three as well as explicit organic claim (b = 0.203, SE = 0.123, Z = 1.65, p = 0.098). The former result suggests that while the price promotion

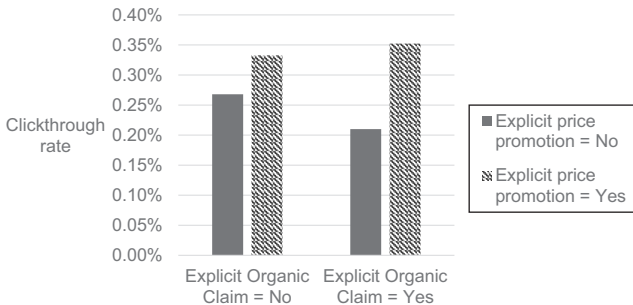


Figure 2.
Field experiment
results: clickthrough
rate of ads with vs
without price
promotion – with vs
without explicit
organic claim

increased the ad's CTR to a clearly greater extent in the presence of the explicit organic claim than in its absence (see the result in the previous paragraph and Figure 2), the same occurred to a certain but lesser extent when the ad included an implicit organic cue (i.e. green colour). In other words, the price promotion increased the ad's CTR somewhat but not substantially more in the presence of the implicit organic cue than in its absence.

Finally, the marginally significant four-way interaction effect implies, on the one hand, that if both the explicit organic claim and the implicit organic cue were present, then the price discount's effect got somewhat reinforced still. On the other hand, if the ad did *not* include either the explicit organic claim or the implicit organic cue (Figure A1), then the price promotion had a null effect on CTR. This is somewhat surprising considering that in the absence of both the explicit organic claim and the implicit cue, a conventional (non-organic) price promotion ad could have been, *ex ante*, expected to increase consumer interest in the product. At the same time, the results suggest that even when there is no explicit organic claim to make, a mere green label in the product may enhance the effectiveness of the price promotion ($CTR_{W/Impl. organic, W/Price discount, W/O Expl. organic} = 0.37\%$) compared with a non-green label ($CTR_{W/O Impl. organic, W/Price discount, W/O Expl. organic} = 0.27\%$). However, being only marginally significant statistically, these results must be taken with caution – and the main result of the field experiment remains in the non-negative, significantly positive moderating effect that the explicitly organic ad claim had on the effect of the price discount on the ad's CTR.

Discussion

Summary of results and theoretical implications

Our focal research question was: How do consumers' behaviourally respond to price promotions, when combined with explicit organic claims related to an FMCG product? The results of the field experiment suggest that including a price promotion in an online ad for an FMCG product (bottled mouthwash) increased consumer interest in the product in the form of CTR – both when combined with an explicit organic product claim and when combined with an implicit cue of green product label. If, in turn, the implicit organic cue was added to an ad which also included an explicit organic claim, the effectiveness of the price promotion was further reinforced. In contrast, interestingly enough, when combined with *neither* the explicit organic claim *nor* the implicit green cue, the price promotion did not increase the CTR of the ad. In other words, the price promotion appeared to be relatively ineffective when used in a conventional manner, in combination with a non-organic claim and a non-green product label.

Theoretically, these results can be interpreted in light of the findings of the qualitative pre-study. *H1* suggested that a price promotion of an explicitly organic FMCG product has a *positive* effect on consumers' purchase interest in the product. This hypothesis was based on the findings of the qualitative pre-study, proposing that (*P1a*) consumers presume that the price promotion of an organic FMCG product is a periodical promotional action, similar to the frequent price promotions for conventional products. As such, consumers do not seem to have substantial suspicions about a price promotion of an organic product, or about the motivations of the manufacturer or retailer offering the price promotion. Instead, consumers just seem to (*P1b*) assume that the regular price of the organic FMCG product is so high that its manufacturer and retailer can well afford the periodic price discount. At the same time, consumers do *not* seem to (cf. *P2a*) reason that the price promotion of an organic FMCG product signals its poor quality, or (cf. *P2b*) that the product is not selling well and is being made more popular through the price cut.

Figure 3 summarizes the above findings of the present empirical research, as well as the theoretical mechanisms which the found effects can be concluded to support.

Contributions to research

Overall, the present research contributes to and extends extant research on organic products in marketing, economics and nutrition/health sciences by shifting the research focus to price *promotions and discounts* – rather than focusing on the price *levels* of organic products and consumers’ willingness to pay premium prices for them. Also, a general contribution of our research is to study the price promotions of organic products in the behavioural setting of a real market, through a field experiment, rather than through scanner or sales register data, or lab experiment or survey data.

Regarding specific earlier studies, our results add to marketing research that has found price promotions to be effective even for organic products (Bezawada and Pauwels, 2013), or for analogous products such as ones making pro-social claims (Bang *et al.*, 2021). At the same time, the present results contrast with earlier pieces of literature (Ngobo, 2011; Massey *et al.*, 2018; Troiano *et al.*, 2016) which have questioned the effectiveness of price promotions for organic products. Theoretically, the previous studies have questioned the effectiveness of price promotions of organic FMCGs by speculating that such price promotions may signal poor product quality, or a motivation of the retailer to make the product more popular through price discounts (Bezawada and Pauwels, 2013; Ngobo, 2011). In revealing a positive effect by price discount on consumer interest in products advertised with either an explicit

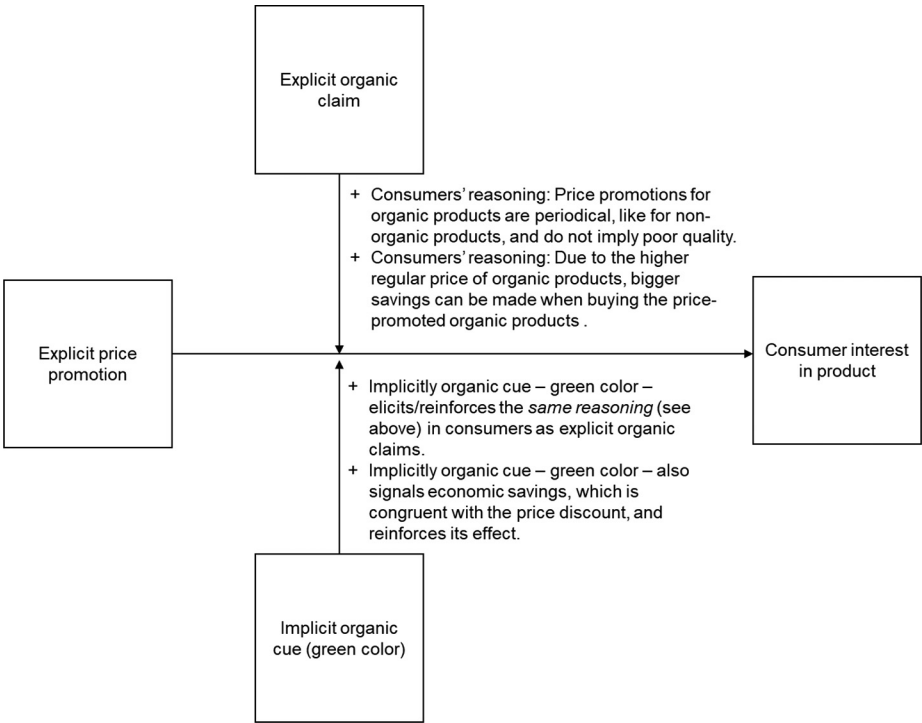


Figure 3.
Summary of
empirical effects
found and theoretical
mechanisms
supported

organic claim or an implicit green cue, our results refute those speculations. Table 3 summarizes the findings of the present research *vis-à-vis* these earlier studies.

Finally, the present research also adds to literature on advertisements that include the picture of product packaging (Reimann *et al.*, 2010; Rundh, 2016), as well as literature on colours of product packaging or advertisements (Kauppinen-Räsänen, 2014; Singh, 2006; Spence and Velasco, 2018; Underwood, 2003). Especially, the present findings add to research (Gollwitzer and Bragh, 1994; Chartrand, 2005; Mueller *et al.*, 2010; Spence, 2012; Su *et al.*, 2019) implying that colours (and other design features) in advertising and packaging may have unconscious influences on consumer behaviour, even if the colours had little to do with the product features themselves, or the explicit advertising claims. In our results, we observed this when the green colour of the product label shown in the advertising increased the effectiveness of the price promotion even in the absence of the explicit organic claim. Nevertheless, another possible explanation to this result is that the green colour is not only a cue for organic products but also a cue for economically attractive product pricing [1]. In this

Study	Data	Theoretical anticipation regarding the effect of price promotions	Empirical finding regarding the effect of price promotions
Van Doorn and Verhoef (2015)	Household purchase/ scanner data	Negative (in product categories wherein price promotions are frequent for ordinary products <i>and</i> organic products, consumers select organic products less often)	Negative (same as left)
Bezawada and Pauwels (2013)	In-store sales register data	Positive or negative	Positive (price promotion breadth and depth had positive effects on purchases of organic products, and greater than for conventional, non-organic products)
Ngobo (2011)	Household purchase/ scanner data	Negative	Negative (feature and display advertising/promotions, which often announce price discounts, had negative effects on organic brand choice and purchase quantity)
Massey <i>et al.</i> (2018)	Meta-analysis of studies on perceptions and purchases of organic products	Positive (negative for price premiums)	Negative (when consumers perceived organic products to be cheaper, their purchase intentions decrease)
Troiano <i>et al.</i> (2016)	Survey/choice experiment	Positive (negative for higher price in choice experiment)	Negative (the higher the price, the more likely consumers were to choose the organic wine in a choice experiment)
Present research	Researcher-introspection pre-study; field experiment (split test) on online ad	Positive or negative	Positive

Table 3.
Present research *vis-à-vis* earlier literature on price promotions of organic products

sense, the finding would also be in line with prior research emphasizing the importance of congruence between packaging colours and explicit marketing cues (Garber *et al.*, 2008; Huang and Lu, 2015; Van Ooijen *et al.*, 2017; Piqueras-Fiszman and Spence, 2015; Velasco and Spence, 2019).

Managerial implications

For managers of companies and brands that do not yet provide organic product versions in the market, our results suggest that launching organic versions to the market should not be hesitated – at least not for a fear that conventional promotional tactics such as price promotions would not be effective for organic products. Indeed, our results show that price promotions were consistently effective in increasing consumer interest in the product, when combined with explicit organic product claims, with implicit cues such as a green product label, or with both.

For non-organic products, which cannot easily be rendered organic or claimed to include organic features, the present results suggest that managers should still consider using green colour in advertising and product packaging, especially when engaging in price promotion campaigns. This is because our results showed that even in the case of ads for products with no explicit organic claims whatsoever, a green label in the product pack displayed in the ad increased the effectiveness of its price promotion. In other words, the CTR of a price promotion ad without actual organic product claims was higher when the product label displayed in the ad was green instead of purple.

Finally, for companies and brands offering organic products in the market, our results consistently point out that price promotions can increase consumer interest in the product, even in the presence of organic product claims or green product labels in the price promotion ad. Whether to engage in price promotions for organic products can therefore be largely decided based on conventional criteria: whether the price promotion increases the product's unit sales sufficiently, such that the decreased sales margin per unit sold is exceeded. Of course, the managers also have the option not to use organic product claims or green colour in the ads, even if the product itself was organic. Nevertheless, in our study, when engaging in price promotions, using organic product claims or green colour, or both, was always at least equally effective in terms of CTR, as not using either organic claims or green colour. Only when *not* engaging in price promotions *and* not using green colour, managers may want to refrain from emphasizing organic claims: in our results, the ad without price promotion and without green colour but including explicit organic claims led to a lower consumer interest than a similar ad excluding organic claims.

Limitations and avenues for future research

As the main empirical limitation of our research, the dependent variable of our field experiment was the CTR of the product ad, and not actual purchase of the product. Even if Orazi and Johnston (2020) also recommended CTR as the effectiveness measure (over number of clicks, or cost-per-click) for online ads, future research should aim to gather complementary data about actual conversion and purchase rates, as well.

A further theoretical limitation arises from our focus on CTR. Because clicking an online ad also has to do with information search behaviour (besides being a proxy for purchase interest), part of the results might be explained by information search-related theories, in addition to the theoretical mechanisms proposed presently (in *P1a* and *P1b*; Table 2). Notably, being exposed to a combination of a price promotion and an organic product cue may elicit some cognitive dissonance (see Lindsey-Mullikin, 2003; Festinger, 1957) in

consumers, because they are used to the fact that organic products are relatively expensive, rather than cheap. Thus, when perceiving the dissonant relationship of organic product information and price discount, some consumers may have clicked the ad to seek further information about the product and its pricing, hoping that the further information would clarify and explain the initial, dissonant information. This additional theory might also partly explain why the price promotion did not increase consumers' CTR in case the ad contained neither the explicit organic claim nor the implicit green cue. In that case, the consumers were not exposed to dissonant information (because price promotions for non-organic products are so expectable), and partly for this reason, might not have been motivated to click the ad to seek further information. At any rate, this theory is likely to be complementary to our theoretical propositions (*P1a* and *P1b*), rather than an alternative or competing theory. Namely, as part of our proposition (*P1a*), we also suggested that consumers may be motivated to check for further information, regarding whether some non-organic products are also price discounted, when encountering the price promotion offer for an organic product.

Yet another limitation of our data is that even if we studied the effect of the explicit organic claims in the ads, we cannot be sure that all the consumers still noticed, or carefully read, the claim texts. Thus, for some participants, the found effects might also have been partly elicited by the length of the text, for instance, rather than by the organic vs non-organic content of the text only. Nevertheless, what increases our confidence in our main result – that price promotion increases rather than decreases consumers' purchase interest for organic FMCGs – is the fact that this effect was observed in the presence of both explicit organic claims and implicit green cues.

Note

1. The validation check for the field experiment's manipulations indicated some support for this complementary theorization as well. As a response to question "Is this colour [i.e. the main colour used in the ad], in your opinion, a colour for an inexpensive or expensive product", participants who saw the green-coloured ad viewed that this colour signalled a somewhat less expensive product ($M = 3.48$) than participants who saw the purple-coloured ad ($M = 3.86$; pair-wise comparison t -value = 1.11; one-sided $p < 0.14$).

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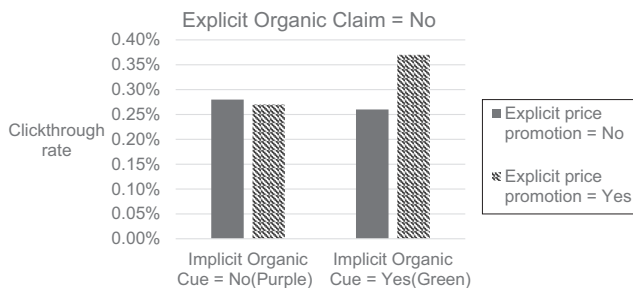


Figure A1.
Field experiment
results: clickthrough
rate of ads *without*
explicit organic claims

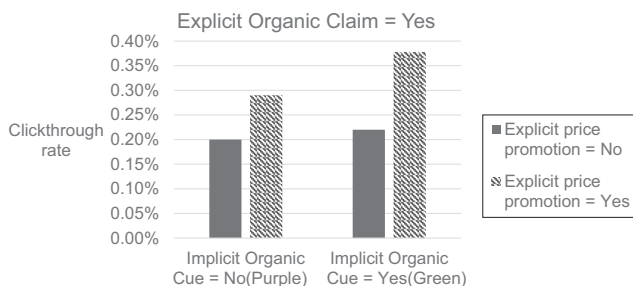


Figure A2.
Field experiment
results: clickthrough
rate of ads *with*
explicit organic claims

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