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The Mediated Influence of a Traceability Label on Consumer's Willingness to Buy the Labelled Product

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Abstract This paper investigates the effectiveness of a new traceability label on consumer willingness to buy the labelled product and whether the effect is mediated by moral affective evaluations of the product. A between-subjects factorial design was used to test (a) the effect of a new traceability label on willingness to buy a chocolate bar, while controlling for different product features (health disclaimer, product quality) and (b) whether this effect was mediated through the consumer's moral affective evaluations of the product. A broad sample of 1,064 ordinary Danish consumers was recruited for the study from the panel of an online sample provider (667 women, 397 men), age range 18–80 (M = 46.39, SD = 13.17). We found that the traceability label has a significant impact on consumer willingness to buy a chocolate bar. This impact is mediated by moral affective evaluations of the chocolate bar. Based on the dual process models of persuasion (HSM and ELM), we conclude that consumers mainly process the traceability label in a heuristic way, through a peripheral route, making a fast and frugal, affect-based judgment, rather than one based on elaborate reasoning. Being one of the first empirical studies on the impact of a traceability label on consumer willingness to buy a product, it provides valuable insights for businesses on the effects of a traceability label on consumer behaviour. In addition, it provides new insights on the process through which an ethical label influences consumer evaluations and purchase behaviour. This study is, to the best of our knowledge, the first to show that an ethical label influences consumer decision-making through activating a holistic moral affective evaluation of the offering, rather than through strengthening the consumer's knowledge base for a more qualified reasoning process.

Keywords Traceability · Labelling · Consumer willingness-to-buy · Chocolate

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Introduction

The importance of corporate social responsibility (CSR) has grown rapidly in recent years in concert with ethical consumerism. In 2011, the Consumer Goods Forum ranked CSR as the top priority for practitioners from the global retail and consumer goods sector.[1] Consumers and the mass-media expect companies to behave responsibly (Freeman et al. 2010; Podnar and Golob 2007), and they have become intolerant of those who are not fulfilling their expectations (Dawkins and Lewis 2003). Hence, CSR issues are becoming an important driver of corporate reputation (Fombrun et al. 2000) and public opinions about companies (Dawkins and Lewis 2003).

Due to globalization, companies spread their investments in different areas of the world to take advantage of

[1] http://www.theconsumergoodsforum.com/safety.aspx, accessed 12 March 2013.

low cost labour and materials, access to raw materials, strategic locations etc. However, there is a flipside of the coin. For example, the rubber industry has attracted negative attention for lack of monitoring the working and social conditions in the rubber plantations and farms (DanWatch 2013). Few rubber companies track the rubber through the supply chain or consider the working conditions among rubber suppliers as part of their CSR policies. The cocoa and chocolate industries have similar traceability issues, due to the cocoa beans passing through a chain of various actors until they become cocoa/chocolate (ICCO 2007). In particular, the apparently never-ending list of scares and scandals in the food area, including the recent horsemeat scandal in Europe and the recent scandal about dioxins in animal feedstuffs in Belgium, have putt traceability on the agenda of the mass-media, the food industry, government regulatory bodies and non-governmental organisations (NGOs) alike. Cases such as these have also made consumers more sceptical about seller claims about 'invisible' product and process characteristics, and therefore more demanding of clear and credible information about of products and raw materials and their origin (Kehagia et al. 2007; Verbeke and Ward 2006). Obviously, manufacturers need to know where their raw materials come from, before they can be accountable for product and process characteristics at various stages of the supply chain.

In order to be able to respond to consumers' desires to be informed regarding the ethical aspects of the products that they buy (protection of human health, improving social conditions, animal welfare, sustainability etc.), traceability of raw materials is needed. Studies have found that traceability through the supply chain, all the way back to the place of origin, is a key to establish consumer confidence (Verbeke 2001).

Take the chocolate industry, for example: a multi-billion euros industry with important CSR and sustainability issues. Cocoa is produced in countries with poor infrastructure and a low, or very low, GDP (ICCO 2007), with 70 % of world production originating from West Africa. The cocoa production sector is ridden by labour problems, including child labour, price volatility, low productivity and shortfalls in both social and environmental sustainability (ICCO 2007). However, the cocoa market is expanding continuously due to global demand that is growing with rising GDP and population growth (ICCO 2007).

Being aware of these issues and believing that CSR can be an effective differentiation strategy (Heyder and Theuvsen 2012; McWilliams and Siegel 2001), the Danish chocolate company Toms strives for continuous social and environmental improvements throughout its value chain. For example, Toms has initiated the development of an international standard for sustainable and traceable cocoa by the European standards organisation CEN (Toms 2012). As a part of their CSR policy, Toms also aims to launch a traceability label with a QR code that gives consumers easy access to detailed information about their supply chain, including the origin of the cocoa used in the specific product that the consumer holds in her hand. The traceability label features the infinity symbol, illustrating that the journey towards full traceability is endless and can always be extended to new regions and new raw materials.

Toms and other companies with a traceability policy need to optimally communicate, and monitor the effects of, their traceability labelling and other CSR activities. However, currently little is known about the theoretical mechanisms for consumer reactions to CSR (Romani et al. 2013). Hence, there is a need for a better understanding of how consumers process this type of information and use it in their decision-making. In this article, we present perhaps the first study of consumer responses to a modern traceability label based on QR barcode technology. Does such a label trigger consumers to act in the way the company expects? In other words, do consumers reward the company for its traceability policy and the traceability label? We also provide insight into how consumers process the label, which is important in order to optimize its impact. Specifically, we investigate if consumer responses are based on extensive information processing or if the label rather works by triggering affective responses in consumers?

Literature review

Consumers are increasingly interested in ethical aspects of products and how they were produced (e.g. decent working conditions for the small farmers that produce cocoa) and willing to buy products that live up to certain ethical standards (Andorfer and Liebe 2012; Brown and Dacin 1997). It has also been observed that CSR can act as an insurance policy for a company, reducing the negative impact of accidental events such as product-harm crises (Klein and Dawar 2004).

However, these consumer attitudes and intentions are not always transformed into purchasing behaviour (Carrigan and Attalla 2001). The resulting 'gap' between consumer attitudes and even intentions and their behaviour means that socially responsible consumption is usually lower in practice than what one would expect from survey-based studies (Auger and Devinney 2007; Eckhardt et al. 2010), which questions the reliability of these studies (Ulrich and Sarasin 1995). Part of the gap may be due to survey studies usually not requiring consumers to make trade-offs between ethical and other product features, which means that they fail to determine whether consumers

are indeed willing to make sacrifices for these ethical benefits (Auger et al. 2003, 2010). Another obvious source of bias in studies of ethical behaviour is socially desirable responding (Ulrich and Sarasin 1995).

These are some of the reasons why a growing number of studies investigate the impact of CSR initiatives on consumer choices (Taneja et al. 2011). For example, bidding and bargaining game experiments, in the laboratory or in the field, have been suggested as a way of achieving more reliable estimates of how much consumers value ethical product features (Levitt and List 2007; List 2006). Although these studies typically find less positive responses than the survey-studies, they still find that some consumers are willing to reward producers and sellers of ethical products and to pay more for these products.

Other researchers proposed choice experiments to obtain a more reliable estimate of consumers' willingness to pay for ethical products (Auger and Devinney 2007; Auger et al. 2008). These choice experiments also reveal that some consumers value ethical products attributes and that ethical product features increase their likelihood of purchasing the product (Auger et al. 2008). However, several studies find that consumers are not willing to sacrifice product quality in favour of ethical features (Auger et al. 2003, 2008).

A recent study examined the impact of CSR claims (social and environmental responsibility) versus other product attributes when making food choices (Loose and Remaud 2013). Loose and Remaud (2013) found that consumers make trade-offs between CSR claims and other product attributes, that organic claims enjoyed higher awareness and consumer valuation than CSR claims, and that consumers from the USA had higher awareness and trust than consumers from European countries. They also observed that the willingness to pay for environmental responsibility was positive for all the countries involved in the study, while there was a negative willingness to pay for social responsibility in France and Francophone Canada. Though the two included CSR attributes enjoyed the same awareness, penetration and consumer trust, the environmental CSR attribute generated a higher willingness to pay than social responsibility.

This latter study identified culture and type of claim as possible contingencies that might moderate the relationship between consumer attitudes and/or intentions and behaviour. The identification of such contingencies can be singled out as a separate approach to bridging the attitudes/intentions–behaviour gap. For example, it has been suggested that the impact of CSR initiatives on consumer responses depends on the consumers' perception of the fit, motivation and timing of the CSR initiative in the context of corporate communication and promotion in general (Becker-Olsen et al. 2006). Another important factor is consumer trust, which has been found to positively influence consumers' choices when accompanying a good corporate social reputation (Castaldo et al. 2009).

A particular challenge in this connection is that most ethical product characteristics are not visible to consumers, neither pre- nor post-purchase (Liubicic 1998), and they cannot easily be verified by the consumer (Kirchhoff 2000).

Ethical labels, such as eco-labels, fair trade labels, carbon labels, CSR and traceability labels, have been found to be an effective means to influence consumer attitudes, expectations and choice (Hoek et al. 2012; Sparks et al. 2013; Thøgersen 2002; Thøgersen et al. 2010; Vanclay et al. 2011; Verbeke and Ward 2006). It is a prerequisite, though, that the customer trust the label and the producer (Kirchhoff 2000). Other prerequisites are that consumers notice the label and understand its meaning (Thøgersen 2000, 2002).

Specifically regarding food traceability, a common understanding is still lacking, as is a coherent theoretical framework for studying traceability in the context of consumer choice (Karlsen et al. 2011). Studies suggest that consumer interest in traceability is low, but it can be increased if traceability is associated with other product quality features of importance for consumers (Hobbs et al. 2005; Verbeke and Ward 2006). These studies also show that traceability throughout the supply chain, all the way back to the place of origin, is important for consumer confidence. However, traceability seems to be confusing for consumers and an appropriate way of communicating it to them, for example, in the form of accessible and understandable traceability labels, is still missing (Kehagia et al. 2007). Currently, the most precise definition for traceability is suggested by the International Organization for Standardization (ISO) (Olsen and Aschan 2010). ISO defines traceability as the: '…ability to follow the movement of a feed or food through specified stage(s) of production, processing and distribution' (ISO 2007).

Since pro-environmental and other ethical behaviour usually implies bigger personal costs than benefits (Vlek and Keren 1992), it usually does not come as the rational outcome of a consumer's independent decision-making (Edwards and Fasolo 2001). Rather, these are perceived as moral issues that people act on if they feel a moral obligation to do so (Harland et al. 2007; Schwartz 1977).

Research on ethical consumer behaviour motivated by pro-social reasons often refers to the norm-activation model (NAM) (Schwartz 1977; Schwartz and Howard 1981, 1984) or the value-belief-norm theory (VBN) (Stern 2000; Stern et al. 1999). According to the NAM, the direct antecedent of a pro-social behaviour is a personal or moral norm (feeling of moral obligation). Personal norms have been found to influence pro-environmental behaviours like

recycling (Guagnano et al. 1995), pro-environmental buying (Thøgersen 1999), travel mode choice (Bamberg et al. 2007) and energy conservation (Black et al. 1985).

The formation and activation of a moral norm is based on interacting social, cognitive and emotional factors (e.g. Bierhoff 2002; Schwartz 1977; Thøgersen 2009). The most important antecedents are problem awareness, knowledge and the causal attributions made by the individual (Bamberg et al. 2007). An internal attribution of a harmful behaviour triggers an unpleasant emotional arousal: guilt (Weiner 2000). Guilt is a 'painful feeling of regret that is aroused when the actor actually causes, anticipates causing or is associated with an aversive event' (Ferguson and Stegge 1998, p. 20). Because it can turn into a moral obligation to compensate for the caused harm, guilt is an important pro-ethical emotion (Baumeister et al. 1998).

Recent research on consumer decision-making from an ethical point of view also increasingly emphasize the importance of emotions (Connelly et al. 2004; Gaudine and Thorne 2001; Steenhaut and Van Kenhove 2006). For example, a recent field study found that consumer reactions to CSR is mediated by felt gratitude (Romani et al. 2013). Using the Hunt–Vittel model of ethical decision-making as a point of departure, Steenhaut and Van Kenhove (2006) found that anticipated guilt plays a role for ethical decisions (see also Baumeister et al. 1994; Cialdini et al. 1982; Marks and Mayo 1991; Strutton et al. 1994). Besides being pleasant or unpleasant themselves, emotions influence ethical behaviour because they make norm violations and serious consequences more salient (Steenhaut and Van Kenhove 2006). Communicating about traceability is made difficult by CSR issues usually not being a top-priority for most consumers (Verplanken 2002). Although socially responsible business practices can be considered important to society in general, they are experienced as less personally relevant by most consumers than issues that directly affect their personal life. Hence, most people's involvement in environmental and other CSR issues should be expected to be relatively low (Verplanken 2002). For this reason, we propose that, if at all, a traceability label is most likely to influence consumers' willingness to buy a labelled product through what dual-process models of persuasion term a 'heuristic' (Chaiken 1980) or 'peripheral route' (Petty and Cacioppo 1986) process, that is, based on automatic and affective rather than on elaborate cognitive processing. As expressed in a study on tobacco package warning labels, 'people are sometimes persuaded as a result of thinking very carefully about the content of a message and on other occasions by considering factors that have little to do with the content of a message' (Strahan et al. 2002, p. 186). When the issue in question has low personal relevance to the receiver, the latter is more likely than the former.

Hence, we propose that it is useful to frame a study of consumer responses to a new traceability label within a dual-process model of persuasion, such as Chaiken's (1980) Heuristic–Systematic Model (HSM) or Petty and Cacioppo's (1986) Elaboration-Likelihood Model (ELM). Both models distinguish between two modes of information processing in judgment and decision-making. The HSM refers to the two modes as (a) a relatively effortless, top-down heuristic mode and (b) a more effortful, bottom-up systematic mode. Systematic processing involves accessing, scrutinizing and integrating all useful information to reach a judgment or decision. In contrast, heuristic processing involves the use of simple decision rules, or cognitive heuristics, to reach a decision. When choosing which mode to adopt, decision-makers are assumed to strike a balance between effort minimization and achieving confidence in one's judgments (Bohner et al. 1995). Further, systematic processing is assumed to require adequate levels of both cognitive capacity and motivation. Heuristic processing requires less motivation and cognitive capacity, but a relevant heuristic must be 'available' and 'accessible', that is, learned and stored in memory and ready for use in a given setting. The HSM has been applied to a wide range of areas, including the effectiveness of product warning labels (Zuckerman and Chaiken 1998).

The ELM refers to the two different routes through which communication can influence consumer attitudes and behaviour as the central and the peripheral route, respectively (Cacioppo et al. 1986; Petty and Cacioppo 1986; Petty et al. 1983). Also according to this model, decision-makers' motivation and ability to process information, in addition to their opportunity to do so, determine which route the influence attempt is likely to follow (Nørgaard and Brunsø 2009; Petty and Cacioppo 1986). Consumer information processing can also follow a combination of the central and the peripheral route (Batra et al. 1996).

Persuasion following the 'central route' involves a strategic, conscious and elaborated processing of relevant information (about product features, label information and the labelled aspects in our case), which requires a high level of interest, attention and involvement from the consumer (Baumeister et al. 1998). Consumers carefully scrutinize the merits of the arguments and assess their validity, they may form inferences that go beyond the information presented and they may even seek out additional information (Strahan et al. 2002). Among other things, persuasion depends on the strength of the arguments when this route is used. Persuasion through the 'peripheral route' utilises easily processed cues in or surrounding the communication, which permit simple and often automatic consumer inferences. Then persuasion relies mostly on

affective processing without recourse to strong arguments or elaborate cognitive processing (Petty and Cacioppo 1986).

Like other informative labels on a package, traceability labels can '… serve as cues when consumers are shopping in the grocery store and trying to complete their shopping list' (Rucker and Petty 2006, p. 49). In the visual stimuli that we used for the empirical study, reported below, we included an easily processed pictorial of the label, in addition to a short text presenting three arguments for traceability. Under conditions of low personal relevance, the label can function as a peripheral cue signalling the traceability message independent of content (Sparks et al. 2013; Strahan et al. 2002), and it can cue a decision heuristic stored in memory (Thøgersen et al. 2012).

The presence of a text presenting three arguments for traceability means that, in principle, both central and peripheral route processing is possible in this case. However, due to the presumed low personal relevance of the traceability issue, we expect heuristic, peripheral processing to dominate. Hence, we do not expect consumers to consider the strength of the arguments, but instead to use simple characteristics of the message or the context as cues to determine whether they should yield to the traceability message. It is believed that such non-central features can be just as persuasive as message content (Strahan et al. 2002), depending on which affective responses are cued.

Notably, for a consumer considering buying a chocolate bar, cues to negative social consequences of producing the cocoa in a poor country may trigger negative affect (anticipated guilt), which might influence the consumer's choice (Steenhaut and Van Kenhove 2006). The same cues might evoke positive affect (the warm glow of a good conscience) if the consumer anticipates choosing a socially responsible chocolate, conforming to personal and perceived social norms (cf., Williamson and Clark 1992).

Hypotheses

Based on previous research on consumer ethical decision-making in general and specifically on consumer responses to ethical product labels (e.g. Hoek et al. 2012), we expect that a new traceability label on a chocolate bar will increase consumers' willingness to buy the chocolate. Hence, we hypothesize:

H1 A credible traceability label on a chocolate bar will increase consumers' willingness to buy that chocolate bar.

Based on previous research on anticipated emotions in connection with pro-social decisions and behaviour, we expect that anticipating buying or not buying a traceability-labelled chocolate bar will trigger emotional responses in consumers and we assume that the emotions that are most likely to be triggered, and to influence consumers' willingness to act in a socially responsible way, are anticipated bad (i.e. guilt) or good conscience (Parker et al. 1995; Richard et al. 1996; Steenhaut and Van Kenhove 2006; Zeelenberg and Beattie 1997). Hence, we hypothesize:

H2 A credible traceability label on a chocolate bar will make consumers anticipate feeling better conscience and/or less guilty from buying that particular chocolate.

Based on the assumption that consumer involvement with production-related ethical issues is usually low (Verplanken 2002), we expect that consumers will not be motivated to spend a lot of effort on processing traceability information and the influence of a traceability label will therefore primarily employ rather effortless (i.e. heuristic, peripheral) mechanisms, involving only a quick and primarily affective processing of the information contained in the label. Hence, we hypothesize:

H3 The influence of a credible traceability label on consumers' willingness to buy is mediated through their moral affective evaluation of the product

Our research model and hypotheses are illustrated in Fig. 1. Notice that we assume that all other effects than those from the consumer's moral affective evaluation (i.e. anticipations of guilt and conscience), including the possible effects of more elaborate cognitive evaluations, are reflected in the residual direct effect of product features on consumer willingness to buy, after controlling for the consumer's affective evaluation.

Methods

It is impossible to directly observe the amount of deliberation going on when participants evaluate visual and textual stimuli. Instead, we investigate this in an indirect way by studying mediators of the effects of the visual and textual stimuli on willingness to buy a chocolate bar that are

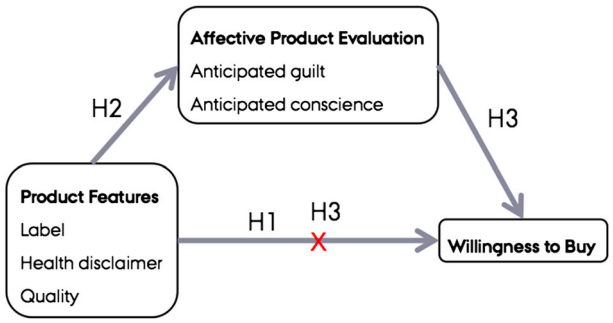

Fig. 1 Direct and mediated influence of product features on willingness to buy

suggestive of the type and amount of information processing going on. We also study various correlates and moderators for manipulation control and supportive evidence:

- We included the popular national organic label in our experimental design, in addition to the traceability label, in order to benchmark the findings regarding the latter against a well-known label with a well-documented influence on consumer choices (Thøgersen 2010).
- We included a health warning in the design as a manipulation check for the guilt measurement. We did not have any theoretically motivated hypotheses about the effects of a health warning, but expected that its presence would activate feelings of guilt and bad conscience in some. This would strengthen our confidence in our measures of affective responses.
- We included two different chocolate types (a standard and a premium brand) to gauge the generalizability of the findings across product types. There are reasons to expect label effects to vary across products in this dimension (Larceneux et al. 2012), and therefore we were interested in whether effects of the traceability label would depend on the 'luxury' dimension of products. Naturally, other types of product differences could have been controlled as well. However, in a between-subjects design, with a constant number of participants per condition, each additional category would have increased the sample size by 50 %.

Participants

A sample of 1,064 participants was recruited from an online sample provider (667 women, 397 men), age range 18–80 ($M = 46.39$, $SD = 13.17$). Participants answered a questionnaire about their associations towards chocolate as well as other industry related questions not pertinent to the present study (see limitations for a further discussion), before they were presented with the experimental stimuli described in the following.

Experimental Design

The experimental intervention followed a $3 \times 2 \times 2$ between-subjects design manipulating label type (no label, organic label, traceability label), chocolate type (premium quality brand, standard quality brand) and health warning (no warning, health warning).

Materials and Measures

The experimental stimuli consisted of visual slides closely mimicking actual product representations. High-resolution images of two existing dark chocolate bars were shown with or without labels and health warnings, see Fig. 2. Labels were inserted on the products in a size that fitted the product and in a magnified version next to the product. To ensure readability, the health warning was inserted in a white box with a black rim next to the product and contained the wording 'Contains 46 % fat and 28 % sugar. The ministry of health informs that consumption of chocolate can lead to obesity'. The traceability logo included an integrated infinity sign and integrated text ('Towards Traceability'). This logo was supplemented by a QR barcode (which would in practice be placed on the back of the package) and a text explaining what traceability means: 'Traceability means that we know where the cocoa beans come from and that children in the cocoa areas can go to school and the farmers can increase their earnings'.[2]

After being exposed to a picture of a chocolate bar with or without a label and/or a health warning, participants expressed their agreement with three claims using a 7-point Likert scale with the endpoints 'completely agree' and 'completely disagree'. The claims were (in this order): 'It would give me a good conscience to buy this chocolate' (good conscience), 'I would feel guilty eating this chocolate' (guilt feelings) and 'I would like to purchase this chocolate' (willingness to buy).

For manipulation check, we used four items measuring the respondent's attitude towards eating chocolate and three items measuring their attitude towards CSR, using a 7-point Likert scale with the endpoints 'completely agree' and 'completely disagree'.

The attitude towards eating chocolate was measured with the following four items: 'I feel unattractive after eating chocolate', 'After eating chocolate, I often wish that I had not done it', 'I feel guilty after eating chocolate' and 'I feel unhealthy after eating chocolate'. The composite reliability of this attitude construct is acceptable (Cronbach's alpha = 0.89). Hence, we used the (reversed) mean of the four items to represent the attitude towards eating chocolate in the following.

The attitude towards companies' social responsibility was measured with the following three items: 'Companies that buy raw materials in Africa and other developing regions, are responsible for ensuring that …', (1) '… the products are made in an environmentally sound way', (2)

[2] QR barcodes have become very popular as a medium for giving consumers access to additional information about products, using a scanner app on their smartphone. In the context of the study, QR barcodes are so well known that their 'news value' is rapidly declining (Larsen 2013). A nationally representative survey ($n = 1,101$) a few months after the data collection for this study found that more than 90 % of smartphone users knew what a QR barcode is and 80 % had scanned at least one QR barcode with their smartphone (Larsen 2013).

Fig. 2 Visual product stimuli

'… children in the area can go to school' and (3) '… farmers and commodity producers in the area get a decent price for the products'. The composite reliability of this attitude construct is also acceptable (Cronbach's alpha = 0.78). Hence, we used the mean of the three items to represent this construct in the following.

Mediation Analysis

We study the process through which the traceability label and other product characteristics affect willingness to buy by investigating the possible mediation of the effects of product characteristics (the initial variables) on consumer willingness to buy (the outcome) through anticipated guilt and/or good conscience (the mediators). Because we manipulated exposure to product characteristics in our experimental design, we can be sure that the causality assumption inherent in the mediational model is correct with regard to the initial variable. We asked participants to express their anticipations regarding good conscience and guilt before they were asked to report their willingness to buy the presented chocolate bar, which makes it more likely that the former influenced the latter than vice versa. However, our study design does not guarantee that this causal assumption is correct. This reservation should be kept in mind when interpreting the results.

In the mediation analysis, we follow the steps proposed by Baron and Kenny (1986):

1. Establish that there is an effect that may be mediated by showing that the initial variables are significantly related to the outcome.
2. Show that the initial variables are significantly related to the mediator.
3. Show that the mediators affect the outcome variable while controlling for the initial variables.

If these three criteria are met, the data are consistent with the hypothesis that the mediators mediate the relationship between the initial variables and the outcome.

To establish that the mediation is 'complete', the effect of initial variables on the outcome should be zero when controlling for the mediator. 'Partial' mediation has occurred if the paths from initial variables to the outcome is reduced in absolute size, but is still different from zero when the mediators are introduced.

At his mediation website,[3] Kenny cautions that the criteria should be stated in terms of zero and non-zero coefficients rather than statistical significance; because trivially small effects can be statistically significant with large sample sizes and very large effects can be non-significant with small sample sizes.

Results

Manipulation Checks

For manipulation check, we investigate whether participants' willingness to buy a traceability-labelled chocolate

[3] http://davidakenny.net/cm/mediate.htm#IE, accessed 12 March 2013.

bar is related to their attitudes. This would document that the hypothesized impacts of the traceability label are indeed rooted in participants' ethical opinions. In addition, it would document that a relevant heuristic is available and accessible for participants. Finally, a strong (weak) relationship would indicate that participants hold strong (weak) attitudes on this issue (Petty and Krosnick 1995), and hence the issue is of high (low) personal relevance. This would suggest that systematic, central route processing of the information is likely (unlikely) (Bloemer and de Ruyter 2001).

For this purpose we compare responses from participants that were exposed to a chocolate bar with the traceability label to responses from participants in the no label condition (i.e. those exposed to a bar that neither contained the traceability label nor the organic label; hence, we excluded those being exposed to a chocolate bar carrying an organic label from this analysis). We report separate multiple regression analyses (using SPSS20) for each of the two mentioned label conditions in Table 1, regressing willingness to buy the presented chocolate bar on the persons' attitude towards companies' social responsibility and, as an additional control, attitude towards eating chocolate. If the reported willingness-to-buy is based on systematic deliberation or on the prior learning of an available and accessible heuristic, the chocolate bar should be related to the person's attitude towards companies' social responsibility when cues in the situation make that aspect salient and relevant to the choice, that is, when the chocolate bar carries a traceability label. Willingness-to-buy should also be related to the attitude towards eating chocolate, especially when there are no distractors in the choice situation that diverts consumer attention away from the chocolate per se.

As can be seen from Table 1, these regression analyses confirm our expectations. Participants' willingness to buy a chocolate bar is significantly and positively related to their attitude towards companies' social responsibility when the bar is labelled with a traceability label ($B = 0.25$, $t = 3.424$, $p = 0.001$), but not in the no label condition ($B = 0.07$, $t = 0.979$, $p = 0.33$). Willingness to buy is significantly related to the attitude towards eating chocolate, with the expected sign, in the no label condition ($B = 0.15$, $t = 2.140$, $p < 0.05$), but not in the label condition ($B = 0.06$, $t = 0.88$, $p = 0.38$). The difference in regression weights between the two groups is significant for the attitude towards companies' social responsibility ($t = 1.695$, $p < 0.05$, one-tailed), but not for the attitude towards eating chocolate ($t = 0.982$, $p > 0.1$). Another important finding is that both regression analyses explain a fairly small share of the variance in willingness to buy (1 % in the no label condition, 4 % in the traceability label condition).

These results document that participants' willingness to buy a traceability-labelled chocolate bar is indeed rooted in their ethical opinions. Further, that it reflects goal-directed deliberation, in the situation or earlier. Earlier deliberation may have made relevant heuristics available and accessible, whereas deliberation in the situation would be an instance of systematic or central route processing. The low share of explained variance is the expected outcome in cases where consumers engage in relatively shallow deliberation, primarily using peripheral route processing.[4] Hence, these results are consistent with this being a case of ethical decision-making and more consistent with the processing of the traceability information being heuristic rather than systematic.

Mediation Analysis

We also used multiple regression analysis for the mediation analysis, coding the various experimental conditions as dummy variables. We used two dummy variables for labelling conditions (reference condition = no label), one for product quality (reference condition = standard quality brand), and one for health warning (reference condition = no warning). All regression analyses are reported in Table 2, presenting first the analyses with the assumed mediators as dependent variables, followed by the analyses with willingness to buy as dependent variable. For the latter, we first present the results without and then the results with the mediators included in the equation. In addition to explained variance for all of the analyses, we report the change in explained variance from including the mediators in the latter analysis.

The third analysis from the top shows that the manipulation of product characteristics accounts for a significant amount of variance in willingness to buy a chocolate bar (adj. $R^2 = 0.029$). This shows that there is an effect that may be mediated. Neither the product quality (premium vs. standard) nor the health warning apparently made any difference for participants' willingness to buy the chocolate bar. However, both the organic and the traceability label produced a significantly higher willingness to buy the chocolate bar than the reference condition (no label). Hence, this analysis confirms hypothesis H1. Noticeably, the new and unknown traceability label produced a considerably stronger effect on willingness to buy than the wellknown organic label. The statistical significance of the difference in the effects of the two labels can be tested by changing the reference condition from no label to one of the two included labels. When doing this, we find that the

[4] This result can also, at least partly, be attributed to measurement issues (e.g., the dependent variable being measured with a single item, omitted variables), though.

Table 1 The influence of attitudes towards eating chocolate and attitudes towards CSR on willingness to buy a chocolate bar with and without a traceability label

	No traceability label, $n = 340$. R^2-adj = 0.01					Traceability label, $n = 325$. R^2-adj. = 0.04				
	B	SE	Beta	*t*	*p*	*B*	SE	Beta	*t*	*p*
(Const.)	4.21	0.444		9.505	0.000	3.79	0.447		8.481	0.000
Attitude CSR	0.07	0.076	0.06	0.979	0.329	0.25	0.074	0.20	3.424	0.001
Attitude choc	0.15	0.069	0.12	2.140	0.033	0.06	0.063	0.05	0.880	0.380

Tests of differences between regression weights: Attitude CSR: $t = 1.695$, $p < 0.05$ (one-tailed), Attitude choc: $t = 0.982$, $p > 0.1$

Table 2 The impact of labelling on willingness to buy a chocolate bar, mediated through anticipated guilt and conscience

DV	IVs	*B*	Std. error	Beta	*t*	Sig.	Adj. R^2	ΔR^2	ΔF	Sig.
Conscience	(Constant)	3.17	0.14		22.095	<0.001	0.094			
	Product quality	0.47	0.13	0.12	3.681	<0.001				
	Health warning	−0.33	0.13	−0.08	−2.547	0.011				
	Traceability label	1.39	0.16	0.32	8.794	<0.001				
	Organic label	0.71	0.16	0.17	4.556	<0.001				
Guilt	(Constant)	2.53	0.13		19.239	<0.001	0.026			
	Product quality	−0.17	0.12	−0.05	−1.406	0.160				
	Health warning	0.48	0.12	0.13	4.065	<0.001				
	Traceability label	−0.46	0.15	−0.12	−3.153	0.002				
	Organic label	−0.14	0.14	−0.04	−0.957	0.339				
WtB	(Constant)	4.05	0.14		28.006	<0.001	0.029			
	Product quality	0.11	0.13	0.03	0.838	0.402				
	Health warning	−0.04	0.13	−0.01	−0.272	0.786				
	Traceability label	0.87	0.16	0.21	5.388	<0.001				
	Organic label	0.53	0.16	0.13	3.338	0.001				
WtB	(Constant)	2.83	0.18		16.079	<0.001	0.324	0.294	190.321	<0.001
	Product quality	−0.15	0.11	−0.04	−1.399	0.162				
	Health warning	0.18	0.11	0.05	1.624	0.105				
	Traceability label	0.03	0.14	0.01	0.199	0.843				
	Organic label	0.13	0.13	0.03	0.955	0.340				
	Conscience	0.52	0.03	0.54	18.060	<0.001				
	Guilt	−0.15	0.03	−0.14	−4.954	<0.001				

Multiple regression analysis ($N = 997$)

difference is indeed statistically significant ($t = 2.144$, $p < 0.05$).

The two first analyses from the top in Table 2 show that the manipulation of product characteristics also accounts for a significant amount of variance in the anticipation of having a good conscience when buying and in the anticipation of feeling guilty when eating the chocolate bar (adj. $R^2 = 0.094$ and 0.026, respectively). Hence, the second criterion for mediation is also fulfilled in this case. Again, the traceability label appears to have a stronger effect than the organic label on both anticipated good conscience and guilt. The effect of the organic label on anticipated guilt is not statistically significant in this case. This analysis confirms hypothesis H2.

The fulfilment of the third prerequisite for mediation is tested in the last analysis in Table 2. The analysis confirms that the effects of the assumed mediators, anticipated conscience and guilt, on willingness to buy the chocolate bar are statistically significant, also when controlling for the manipulated product characteristics. Further, it shows that the effects of the latter are no longer significant when controlling for the mediators. Hence, in this case the impacts of the two analysed labels (traceability and organic) on willingness to buy are completely mediated

through anticipated conscience and guilt, thus confirming hypothesis H3.

Impacts of Other Product Features

To address if the other manipulated product features influenced these results, we ran a full factorial MANOVA using willingness to buy, conscience and guilt as dependent variables, and label, health warning and product quality (standard vs. premium brand) as independent variables. As it should be, this analysis revealed the same direct effects as the regression analyses reported in Table 2.[5] However, most importantly for the present analysis, no interactions between manipulated product features were significant. Hence, the found effects of the traceability label are independent of the other manipulated product features.

Discussion and Conclusions

Food companies, including the ones from the chocolate industry, need to deal with important CSR and traceability issues in order to live up to the increasing expectations by consumers and mass media (Freeman et al. 2010; Podnar and Golob 2007). At the same time, CSR communication can bring benefits such as brand enhancement, employee satisfaction and corporate reputation (Heyder and Theuvsen 2012; McWilliams and Siegel 2001). However, despite these potential benefits, CSR communication is challenging, and companies often fail to efficiently communicate their CSR activities to their stakeholders, including the consumers. CSR communication is made especially difficult by the fact that, even if socially responsible practices are important for society, they are not as important for consumers as the issues that directly affect themselves in their everyday life (Verplanken 2002). Thus, companies need to have a comprehensive approach to CSR and to communicate and monitor the effects of their CSR activities in an appropriate manner (Hartmann 2011). Considering the increasing popularity of and the scarce research on ethical labelling as a way of communicating CSR (Hartmann 2011), there is a need for more research on consumer responses to such labelling, including the emerging traceability labels.

In this study, we investigated the possible effects of traceability labelling and other product characteristics on consumer willingness to buy the labelled product. We also investigate if consumer responses to a traceability label are based on systematic information processing or if they rather respond in an affective way to the label, following what in the ELM model is referred to as the 'central' or the 'peripheral' route to persuasion (Petty and Cacioppo 1986). Considering that consumer involvement in ethical or prosocial product characteristics is usually low (Verplanken 2002), we expected that a traceability label would influence the consumer's willingness to buy a labelled product through the 'peripheral' route. Further, given that a traceability label is an ethical label, we assumed that the most likely affective processing triggered by the label would be anticipations about guilt and/or good conscience, which in turn would have an impact on the consumer's willingness to act socially responsible.

The results of our study indeed confirm that a traceability label has a significant impact on consumers' willingness to buy, a chocolate bar in this case. Further, we find that this impact is completely mediated through anticipated guilt and good conscience, which is consistent with the hypothesized affective processing of the label information. Thus, the presented results are consistent with the assumption that a new traceability label persuades consumers following the so-called 'peripheral route', inducing heuristic rather than systematic information processing. Indeed, as hypothesized, the traceability label made consumers anticipate feeling better conscience from buying the product. Similar effects are produced by an organic label, but in the studied case the new traceability label had even stronger effects than the wellknown organic label.

Limitations and Future Research

The most important limitation of this study is that the experiment was made in the artificial environment of an online 'laboratory', rather than in the natural context of a store. Although participants were presented with high-quality visual stimuli: pictures of wellknown products (i.e. brands of chocolate bars), with or without certain labels, their choice situation obviously missed a long range of intrinsic and extrinsic cues, present in a natural setting. We assume that the effects of the product characteristics in focus of this study are independent of any omitted characteristic or cue. The finding that neither the chocolate type (premium quality vs. standard), nor the health claims, made any differences for consumers' willingness to buy a chocolate bar, supports that assumption. Still, we have no

[5] We found a significant effect of the health warning on anticipated guilt ($F(1, 926) = 15.75$, $p < 0.01$), with the no health warning group anticipating less guilt (M = 2.26, SD = 1.71) than the health warning group (M = 2.76, SD = 2.00). The health warning also had a significant effect on anticipated conscience ($F(1, 926) = 4.83$, $p < 0.05$), with the no health warning group anticipating a better conscience (M = 4.07, SD = 2.09) than the health warning group (M = 3.77, SD = 1.98). There was no effect of the health warning on willingness to buy, though. The analysis also revealed a significant effect of product quality on conscience ($F(1, 926) = 17.43$, $p < 0.01$), with the group evaluating the premium quality brand anticipating a better conscience (M = 4.19, SD = 2.07) than the standard quality group (M = 3.65, SD = 1.98).

way of being sure. Hence, there is a need for more research, varying the context in which the effects of a traceability label is studied. Another limitation is the fact that we used a sample of consumers from one country, Denmark. The fact that our participants are ordinary consumers, rather than a student sample, obviously increases the ecological validity of the results. However, we have no way of knowing how culturally dependent our findings are. Hence, our study should be replicated in different countries as well.

Implications

The finding that a traceability label significantly impact consumer choices of chocolate bars have important implications for consumer policy, for the chocolate industry and for other industries facing a need for traceability. It shows that a traceability label is a valuable means for consumers wanting to make a responsible choice and for companies wanting to offer consumers the opportunity to choose ethical products. As a side benefit, it is a means to inform consumers about the company's CSR activities.

The study's insights about how consumers make ethical decisions based on a traceability label also has important implication. Rather than input to elaborate reasoning and informed decision-making, the label allows the consumer to make an ethical decision in a fast and frugal way, based on moral-affective feelings. Since consumers are not usually motivated to spend a lot of time making everyday decisions about product choices, a traceability label fits well with the ethical consumer's need to make these decisions as fast as other consumers make their decisions (Thøgersen et al. 2012). This may be the most important reason why companies are well advised to consider a traceability label as part of their CSR communication.

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