+Model RETAIL-568; No. of Pages 10

ARTICLE IN PRESS



Journal of Retailing

Journal of Retailing xxx (xxx, 2015) xxx-xxx

Research Note

A COOL Effect: The Direct and Indirect Impact of Country-of-Origin Disclosures on Purchase Intentions for Retail Food Products

Christopher Berry, Amaradri Mukherjee, Scot Burton, Elizabeth Howlett*

Department of Marketing, Sam M. Walton College of Business, University of Arkansas, Business Building 302, Fayetteville, AR 72701, United States

Abstract

Retailers recently became required to provide specific country-of-origin information for muscle cuts of beef, chicken, pork, lamb, and goat. Drawing from the consumer inference and activation theory literatures, hypotheses are offered regarding how consumers use country-of-origin labeling (COOL) to draw inferences related to specific product attributes and how these inferences, in turn, lead to differences in mediation effects for purchase intentions. Results from a pilot study and two experiments reveal that consumers are more likely to purchase meat when it is identified as a U.S. product. Furthermore, the relative strength of the mediating effects of perceived food safety, taste, and freshness differs as expected. The authors show how the direct and indirect effects of the country-of-origin disclosure are attenuated by the presentation of objective information about the meat processing systems of competing countries. Given the recently mandated COOL disclosures, results have important implications for food retailers, members of the supply chain, and consumers.

© 2015 New York University. Published by Elsevier Inc. All rights reserved.

Keywords: Retail product information disclosures; Retail consumer decision-making; Mandatory country-of-origin labeling; Food safety; COOL effects

Introduction

Recent legislative changes now require U.S. retailers to provide country-of-origin labeling (COOL) for most meat and poultry products. The mandated label must identify the country in which the animal was born, raised, and slaughtered. The goal of this new rule is "to provide customers with information upon which they can make informed shopping choices" (*Federal Register* 2013, p. 31376) when making purchase decisions at the retail point-of-purchase. Given the substantial amount of meat and poultry consumed by U.S. consumers, this ruling has important implications for both retailers and their supply chains. The average American consumed approximately 202 pounds of meat in 2014 (National Chicken Council 2015). Much of this food was imported (U.S. Department of Agriculture (USDA) 2014); in 2013, 2.25 billion pounds of beef and 124 million pounds of chicken were from farms and ranches outside the U.S, including

Mexico, Canada, and Australia. The implementation of the new COOL labeling requirements is a costly undertaking for retailers and wholesalers. It is estimated that the implementation of these labeling requirements will cost \$123.3 million (*Federal Register* 2013). This estimate includes the combined costs of labeling changes for retailers and the elimination of the existing commingling flexibility among processors. These costs will be shared by an estimated 33,350 retail and processing establishments owned by 7,181 firms (*Federal Register* 2013).

Although the aim of this new COOL requirement is to help retail customers make more informed purchases, the potential benefits to consumers are unclear. On one hand, some research suggests that consumers do not value U.S labeled meat products more than products labeled as products of North America (*Federal Register* 2013; Tonsor et al. 2013). In fact, evidence within the broader COOL literature suggests that the impact of country-of-origin on consumers' attitudes and behaviors is diminishing (Ganesan et al. 2009). Other findings suggest that typical U.S. consumers are unaware of these labeling requirements and generally ignore COOL on meat products (Tonsor et al. 2013). On the other hand, some studies have found that COOL on meat and poultry products can potentially influence consumer attitudes (Gaedeke 1973; Mennecke et al. 2007;

http://dx.doi.org/10.1016/j.jretai.2015.04.004

0022-4359/© 2015 New York University. Published by Elsevier Inc. All rights reserved.

^{*} Corresponding author. Tel.: +1 479 575 3227.

E-mail addresses: cberry@walton.uark.edu (C. Berry),
amukherjee@walton.uark.edu (A. Mukherjee), sburton@walton.uark.edu
(S. Burton), ehowlett@uark.edu (E. Howlett).

C. Berry et al. / Journal of Retailing xxx (xxx, 2015) xxx-xxx

Newman et al. 2014) and willingness-to-pay (Loureiro and Umberger 2003; Umberger et al. 2002, 2003). Thus, results of prior research on the effects of COOL are mixed.

Given the high cost of compliance for retailers and questions regarding the consumer benefits associated with this new labeling requirement, the purpose of this research is to better understand how COOL impacts consumers' purchase intentions through three proposed mechanisms (i.e., food safety, taste, and freshness). Using the consumer inference and activation theory literatures as our theoretical foundation (Andrews, Netemeyer, and Burton 1998; Ross and Creyer 1992), the effects of COOL on products from the U.S. and Mexico are compared. These countries were selected because of: (1) concerns and arguments regarding the potential relative effects of the disclosure, especially among countries in North America (Federal Register 2013; Tonsor et al. 2013), (2) the significant amount of meat and poultry from Mexico obtained by retailers (USDA 2014), and (3) the differences in perceptions of food safety from these two countries (see Appendix A available online).

In this research note, we first present results from a pilot study that provides insight to both retailers and processors regarding consumers' perceptions of food safety across ten different countries and five meat and poultry products. Then, in the two main studies, both the potential direct and indirect effects of COOL and the attenuating effect of objective information about the *relative* quality of meat processing practices across different countries are examined. Finally, the implications for retailers, members of the retail supply chain, and consumers are discussed.

Theory and Hypotheses

The Inference Process and Effects on Attribute Perceptions

When evaluating products in a retail store environment, consumers must often construct product evaluations without complete information. Until recently meat and poultry products did not present nutrition information, like that typically found on most packaged food products, because they were exempt from the requirements to do so. In addition, the packaging of meat and poultry products has typically provided little detailed attribute information because the clear plastic wrap on packaging is designed to show the product, leaving little package space for product promotions or nutrition information. In such restricted information provision environments, consumers seem likely to make attribute-related inferences when country-of-origin information is disclosed. The inference making process concerns construction of meaning and judgments beyond the information explicitly provided about the product (Andrews, Netemeyer, and Burton 1998; Ross and Creyer 1992). That is, inferences pertaining to evaluations of specific 'missing' attributes for the product not directly available from the package are likely to be made based on the available information, including the country-oforigin. While consumers may have limited objective information about conditions in which the animals are raised and processed in countries outside the U.S., we anticipate that consumers' general perceptions of a country lead to inferences about specific

product attributes, including food safety, taste, and freshness.¹ Inferences about these attributes, in turn, should affect retail purchase intentions.

The inference formation conceptual framework is consistent with an activation theory for concepts in memory (Andrews, Netemeyer, and Burton 1998). According to activation theory, memory is a network of interconnected or linked concepts. When a specific concept is activated, the activation is spread through the network of linked concepts (Andrews, Netemeyer, and Burton 1998; Collins and Loftus 1975). We propose that a country-of-origin label activates general perceptions based on the specific country-of-origin which influence product-related inferences. Specifically, inferences related to food safety, taste, and freshness should be relatively positive for some countries and less positive for other countries. These attribute related inferences should, in turn, affect purchase intentions.

Others suggest that COOL is used as a cue in the assessment of food-related attributes (Hoffmann 2000; McCarthy and Henson 2004). Consumers typically tend to trust U.S. health standards more than the health standards of other countries and believe that food safety inspections, regulations, and standards are less rigorous outside the U.S. (Umberger et al. 2003). Similarly, a study of Swedish consumers found that COOL influences consumers' evaluations of food safety, animal welfare, and antibiotic use (Hoffmann 2000). Thus, both the inference and activation theories and previous research suggest that COOL may impact inferred product-related attributes.

As mentioned above, the direct and indirect relationships between COOL of meat products and purchase intentions of U.S. consumers have not been previously examined. Research has shown that households report they are willing to pay more annually for a mandatory COOL program and for meat labeled as "U.S Certified" compared to an unlabeled control (Loureiro and Umberger 2003). Thus, we propose that COOL will have similar effects on purchase intentions; consumers will have higher purchase intentions for meat labeled "born, raised, and slaughtered in the USA," compared to both Mexico and an unlabeled control. Formally, we predict:

H1. The country-of-origin disclosure for meat products affects inferences related to perceived (a) food safety, (b) taste, and (c) freshness. Meat disclosed as born, raised, and slaughtered (BRS) in the U.S. will be perceived as safer, tastier, and fresher than both meat (1) without a label (control) and (2) labeled as BRS in Mexico.

H2. The country-of-origin disclosure for meat products affects purchase intentions, such that purchase intentions will be greater

Please cite this article in press as: Berry, Christopher, et al, A COOL Effect: The Direct and Indirect Impact of Country-of-Origin Disclosures on Purchase Intentions for Retail Food Products, *Journal of Retailing* (xxx, 2015), http://dx.doi.org/10.1016/j.jretai.2015.04.004

 $^{^{1}}$ The meat-related attributes of safety, taste, and freshness were initially selected because extant literature suggests that these specific attributes should be considered in studies focusing on COO (as discussed below). However, a pilot study was also performed to support the use of these three focal attributes. In the pilot study participants rated the importance of seven different meat-related attributes (safety, taste, freshness, leanness, cut type, feed type, and tenderness). The results revealed that safety, taste, and freshness were perceived as more important than each of the other attributes ($p\!<\!.001$ for each comparison).

C. Berry et al. / Journal of Retailing xxx (xxx, 2015) xxx-xxx

for meat labeled as BRS in the U.S. compared to meat (1) without a label and (2) labeled as BRS in Mexico.

The Mediating Roles of Consumers' Attribute Inferences

We also propose that inferences drawn about perceived food safety, taste, and freshness should mediate the effect of the COOL disclosure on purchase intentions. As inferences regarding the perceived safety, taste, and freshness become more favorable, these attributions, in turn, should be positively related to purchase intentions. We predict that perceived safety, taste, and freshness are three mediating mechanisms through which COOL affects consumers' purchase intentions (H3). When the meat product is labeled as BRS in the U.S., perceived safety, taste, and freshness will be more favorable (H1), and these effects will be associated with higher purchase intentions.

Will each of these attribute-based inferences have similar mediating effects on purchase intentions? Safety is a credence quality that cannot be easily evaluated by consumers, even after consumption. Food safety-related effects are potentially both long-term and serious, and they have been well-publicized (e.g., consider food-related illnesses such as BSE (mad cow disease), listeria, and so forth). The CDC (2014) reports that some 48 million Americans become sick from contaminated food each year, and around 3,000 die. We anticipate large differences between countries such as the U.S. and Mexico in terms of perceived food safety. Safety appears to be an important attribute linked to COOL; one study reported that almost one-half of consumers appeared to favor COOL due to specific concerns about food safety (Umberger et al. 2003). Thus, when comparing outcomes between COOL for the U.S. and Mexico, we anticipate strong positive indirect effects through inferred food safety. In contrast, for experience-oriented attributes such as taste and freshness, the mediating effects are expected to be positive, yet somewhat weaker than the indirect effect through safety.³ Formally, we propose the following:

- **H3.** The perceived safety, taste, and freshness of the product will mediate the effect of the country-of-origin disclosure on purchase intentions.
- **H4.** Compared to a Mexico disclosure, the positive mediating role for inferences of safety for a U.S. COOL disclosure is *greater* than the positive mediating roles of taste and freshness.

The Moderating Role of the Provision of Processing Information

As stated earlier, when product-related information is limited, consumers are expected to use the COOL disclosure to make attribute-related inferences based on their general

perceptions of the countries. However, contrary to most consumers' expectations, U.S. audits indicate the meat processing systems in the U.S. and Mexico are relatively similar. Specifically, the USDA Food Safety and Inspection Service (FSIS) makes determinations of 'processing system equivalence' prior to meat importation and then makes subsequent evaluations periodically to ensure equivalence. This determination includes document reviews, on-site audits, and product inspections (USDA 2013). When presented with objective information that supports the relative equivalence of the meat processing systems used in the U.S. and Mexico, consumers most likely integrate this information into attribute-related evaluations instead of drawing inferences based on broad generalizations of the countries.

This assertion is based on prior research that demonstrated that consumers' country-of-origin perceptions are subject to change. Nebenzahl and Jaffe (1997) argue that, although the specific types of marketing strategies that most effectively modify consumers' prior country-related beliefs and the time horizon needed to do so are unclear, it can be done. We suggest that the presentation of objective information about the processes used by the Mexican meat and poultry industries will alter consumers' beliefs and subsequent responses. Thus, we predict that this results in a moderating influence of the processing information; if presented with objective information which indicates that Mexico's meat processing systems are similar to those used in the U.S., consumers' attribute-related inferences will be attenuated for the U.S. in comparison to Mexico (H5). This leads to a conditional mediation effect of the attributes for the equivalence of processing by COOL interaction (H6). Specifically, we propose that the mediating roles of the attribute inferences are attenuated when consumers are presented with objective information about the equivalence of meat processing procedures used in the U.S. and Mexico.

- **H5.** The effects of COOL disclosures on (a) perceived food safety, (b) taste, (c) freshness, and (d) purchase intentions are moderated by information regarding the equivalence of the U.S. and Mexico meat processing systems. Specifically, the positive effect of a U.S. country-of-origin disclosure will be attenuated by the processing system information disclosure.
- **H6.** The indirect effects of COOL on purchase intentions, through perceived (a) safety, (b) taste, and (c) freshness, will be positive for meat labeled as BRS in the U.S. compared to Mexico, but the mediation effect will be attenuated when consumers are presented with information regarding the similarity of the meat processing systems used in the U.S. and Mexico.

Pilot Study

An initial pilot study was conducted to compare perceptions of food safety of five different meat and poultry products from ten countries. This study used a within-subjects design to assess perceptions of beef, pork, chicken, turkey, and lamb from the U.S., Canada, Mexico, Brazil, New Zealand, Nicaragua, Russia, India, Thailand, and China. Participants were asked to indicate how safe it is to consume varying meat products from different countries using a seven-point scale ranging from "not safe at all"

3

² We also assess and confirm this difference between countries for perceived safety in a pilot study.

³ For H₃ and H₄, we test the three proposed mediators simultaneously in parallel mediation models (Hayes 2013, p. 126) which is sensitive to the relative effects of the separate proposed mediators.

ARTICLE IN PRESS

C. Berry et al. / Journal of Retailing xxx (xxx, 2015) xxx-xxx

to "very safe". The order of the meat products and countries was counterbalanced to minimize possible order effects. Fifty U.S. participants who had eaten meat in the past month were recruited to this web-based pilot study through Amazon Mechanical Turk (mTurk). The median age of the participants was 33.4 years old and 66 percent were males. The median household income level was between \$30,000 and \$39,000.

Using a repeated-measures ANOVA, we find a significant effect of COOL on perceived safety of consumption for each of the five meat products (F's(9, 441) range from 43.1 to 51.9, p < .001; see Appendix A available online). The U.S. has the highest safety evaluation for each meat product except pork ($M_{BEEF} = 6.10$, $M_{PORK} = 6.00$, $M_{CHICKEN} = 6.04$, $M_{TURKEY} = 6.14$, $M_{TURKEY} = 6.00$). A repeated-measures ANOVA comparing the safety of the five meat products for the U.S. is not significant (F(4, 196) = 0.73, p = .56), while the same comparison for countries such as Mexico reaches significance (F(4, 196) = 2.96, p < .05), ranging for $M_{BEEF} = 3.86$ to $M_{LAMB} = 3.50$.

Meats from countries such as Mexico, India, Brazil, New Zealand, Nicaragua, Russia, Thailand, and China were perceived to be less safe than meat from the U.S. or Canada. The perceived safety of meat from countries other than the U.S., Canada, and New Zealand is relatively low. Given the pattern of findings, coupled with the fact that Mexico provides a substantial amount of beef to the U.S., we chose to examine manipulations of COOL for the U.S. and Mexico (and a no label control) and two types of meat (beef and chicken) in Experiment 1. To confirm the significance of differences between the U.S. to Mexico across the five meat products, five paired samples t-tests were performed. All five were significant with t-values ranging from 9.40 to 10.22 (p's < .001).

Experiment 1

Methodology

Design. Experiment 1 was a 3 (COOL: U.S. vs. Mexico vs. no label control) × 2 (Meat type: beef vs. chicken) mixed-factorial design. The country-of-origin label was a between-subjects factor and meat type was a within-subjects factor. Participants were randomly presented beef and chicken labeled as born, raised, and slaughtered (BRS) in the (1) U.S., (2) Mexico, or (3) a control not containing a country-of-origin label (see Appendix B available online). Consistent with the COOL requirement, the only difference between the beef and chicken labels is the language that either states "Country-of-Origin: From animals..." or "Country-of-Origin: From birds...", respectively (Federal Register 2013).

Measures. We used four sets of measures to assess purchase intention and perceived food safety, freshness, and taste. Purchase intention was measured using three seven-point scale items (α =.97) drawn from prior nutrition labeling research (Kozup, Creyer, and Burton 2003). An example is "How likely would you be to purchase the product, given the information shown?" with endpoints of "very unlikely/very likely." Perceived food safety was measured using three seven-point

scale items (α = .87) modified from the FDA Food Safety Survey (Lando and Carlton 2011). Items include "Based on the information provided, how safe do you think it is to consume this product?" (endpoints of "not safe at all/very safe") and "I think that the food safety level of this product is:" with endpoints of "very poor/very good." Perceived food taste was measured with two seven-point scale items (r=.97, p<.0001): "I believe that the taste of this product would be:" with endpoints of "very poor/excellent" and "very bad/very good." Perceived food freshness was evaluated by two seven-point scale items (e.g., "I believe this product is fresh" with endpoints of "strongly disagree/strongly agree"; r=.46, p<.0001). Discriminant validity was assessed and supported for the four dependent variable measures.

Sample and procedure. A sample of 123 adult U.S. participants was obtained using Amazon's mTurk. Participants had a median household income of \$40,000–\$49,999, 54.5 percent of the participants were females, and the mean age was 38.8. Participants were randomly assigned to one of the three COOL experimental conditions (U.S/Mexico/Control) and presented with both types of product (beef/chicken) packages. We used counterbalancing procedures to control for possible order effects, and subsequent analyses showed no effect of presentation order of the stimuli.

Results

Effects on inferences about product attributes and purchase intentions. Hypotheses 1 and 2 predicted that inferences about primary product attributes and purchase intentions will be higher for meat disclosed as BRS in the U.S. compared to meat disclosed as BRS in Mexico or a no COOL control. The data were analyzed using mixed-factorial ANOVA's in which the COOL disclosure (U.S./Mexico/Control) served as a between-subjects factor and meat type (beef/chicken) was a within-subjects factor. As expected and as shown in Table 1, COOL effects were the same for beef and poultry as indicated by the nonsignificant interaction of COOL and meat type across all dependent variables $(F(2, 120) < 1.75; p > .10 \text{ for all}).^5$ As hypothesized, results show a main effect for COOL on all of the attribute inferences (F's(2, 120) range from 7.19 to 18.67, p < .001, partial eta squared (η_p^2) from .11 to .24) and purchase intentions (F(2,120) = 27.76, p < .001, $\eta_p^2 = .32$). Plots of the means are shown in Fig. 1. Supporting H1 and H2, all contrasts reveal that participants had stronger attribute perceptions (p < .001 for all) and were more likely to purchase meat labeled as BRS in the U.S. compared to Mexico (p < .001, $\eta_p^2 = .36$). In addition, compared to meat packages without a country-of-origin label, participants had more positive perceptions of each of the attributes (p < .05

Please cite this article in press as: Berry, Christopher, et al, A COOL Effect: The Direct and Indirect Impact of Country-of-Origin Disclosures on Purchase Intentions for Retail Food Products, *Journal of Retailing* (xxx, 2015), http://dx.doi.org/10.1016/j.jretai.2015.04.004

⁴ Discriminant validity was assessed among the measures by comparing the average AVE of each pair of measures to the square of the ϕ estimate between the two measures. For each pair of measures, the AVE exceeded ϕ^2 , offering evidence of discriminant validity.

⁵ Given that the interaction of COOL and meat type was not significant for any outcomes, the effects of COOL were similar for both beef and chicken. Moving forward, the main effects of COOL will be discussed as 'meat' in general.

Table 1 Results for Experiment 1 and Experiment 2: effects on perceived safety, taste, freshness, and purchase intentions.

	Univariate F-values						
IVs:	Safety	Taste	Fresh	PI			
Panel A: Experiment 1: effects of	COOL and meat type						
COOL	18.67**	7.19**	9.16**	27.76**			
Meat type (MT)	15.62**	2.83	0.91	1.01			
$COOL \times MT$	0.38	0.25	0.59	1.72			
Panel B: Experiment 2: effects of	COOL and processing system	18					
COOL	9.38***	6.39**	4.32*	11.79***			
Processing systems (PS)	8.83**	1.23	8.75**	3.58			
$COOL \times PS$	5.84**	3.36^{*}	3.23*	2.85			

Note: PI = purchase intentions.

^{**} *p* < .01.
*** *p* < .001.

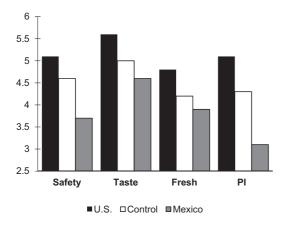


Fig. 1. Effects of COOL on perceived food safety, taste, freshness, and purchase intentions. Notes: For safety and purchase intentions, all mean differences are significant (p < .05 or better). For taste and freshness, there is a significant difference between the U.S. and both the control and Mexico (p < .05 or better), but the difference between the control and Mexico is nonsignificant. A complete set of cell means and contrasts for all dependent variables is available upon request.

or better) and higher purchase intentions (p < .01, $\eta_p^2 = .07$) for the U.S. label. Results shown in Fig. 1 also indicate that participants were less likely to purchase products labeled as BRS in Mexico as compared to the no label control ($M_{\text{Control}} = 4.31$ vs. $M_{\text{MX}} = 3.08$, F(1, 120) = 16.78, p < .001, $\eta_p^2 = .12$). In contrast, the difference between the control and Mexico label did not reach significance for taste or freshness (p's > .10), but meat from Mexico was perceived to be less safe than the unlabeled control (p < .001).

Thus, purchase intentions and inferences related to food safety, freshness, and taste are higher for meat packages that were labeled as BRS in the U.S. compared to Mexico. However, there are differences in the *relative* strength of the effects of COOL on perceived food safety, taste, and freshness. As indicated by the η_p^2 and plot in Fig. 1, the effect of COOL on inferences related to the safety are relatively stronger ($\eta_p^2 = .24$) than the effect of COOL on inferences related to the attributes of taste ($\eta_p^2 = .11$) and freshness ($\eta_p^2 = .13$). This pattern suggests differences in the strengths of the inferences' mediation effects.

Mediation effects through attribute inferences for the U.S. versus Mexico. Hypothesis 3 predicts an indirect effect of COOL on purchase intentions through the proposed mediators of perceived food safety, taste, and freshness, and H4 proposes differences in the strength of these mediation effects. To examine this parallel mediation model (i.e., all mediators examined simultaneously), we used model 4 in PROCESS with 10,000 bootstrap samples (Hayes 2013). Results relevant for H3 and H4 are shown in Fig. 2.

Fig. 2 shows several separate mediation effects and the total indirect effect of COOL on purchase intentions through the attribute inferences (i.e., the sum of the three indirect effects; Hayes 2013), which is significant (total indirect effect = 1.24, bias-corrected bootstrap CI [.76, 1.72]). This indicates an overall mediating role of the inferences in aggregate and supports H3. To assess H4, we examine mediation effects for COOL for the U.S. versus Mexico. As shown in Fig. 2, there is a positive indirect effect $(a_1b_1 = 0.75)$ of COOL on purchase intentions for meat products through food safety, such that a bias-corrected bootstrap confidence interval (CI) for the indirect effect did not contain a 'zero' (CI [0.29, 1.28]). This indirect effect is the result of consumers drawing more positive inferences related to safety for meat with a U.S. label $(a_1 = 1.39)$ compared to a Mexico label, and safety, in turn, is positively related to purchase intentions ($b_1 = 0.54$). Similarly, there is a second positive indirect effect of COOL through food taste ($a_2b_2 = 0.44$, CI [0.19, 0.84]). This indirect effect is the result of consumers drawing more positive taste-related inferences for meat with a U.S. label $(a_2 = 0.96)$ compared to meat from Mexico, which in turn, is positively related to purchase intentions ($b_2 = 0.46$). However, the indirect effect of COOL on purchase intentions, through food freshness, does not reach significance ($a_3b_3 = 0.05$, CI [-0.11, 0.30]) because the bias-corrected bootstrap CI contains a 'zero' value.

^{*} p < .05.

⁶ For brevity, the mediation results for the U.S. versus the COOL disclosure control and Mexico versus the disclosure control are not presented here. However, these analyses are available upon request.

ARTICLE IN PRESS

C. Berry et al. / Journal of Retailing xxx (xxx, 2015) xxx-xxx

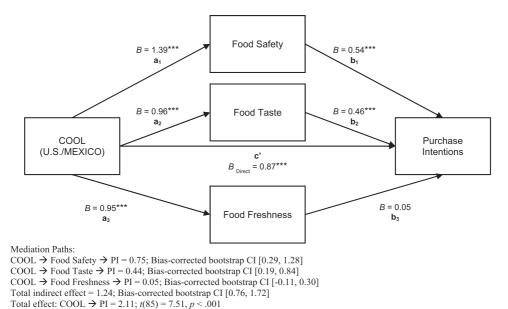


Fig. 2. Experiment 1: parallel mediation for COOL (U.S./Mexico) on purchase intentions. *Note*: ***p<.001.

Supporting H4, pairwise comparisons between mediation effects show that the indirect effect of COOL on purchase intentions through safety is stronger (more positive) than the indirect effect of COOL on purchase intentions through freshness $(a_1b_1-a_3b_3=.70, \text{ CI } [.12, 1.30])$. The indirect effect of COOL on purchase intentions through safety $(a_1b_1=.75)$ also appears more positive than the indirect effect through taste $(a_2b_2=.44)$, but this difference did not reach significance $(a_1b_1-a_2b_2=.31, \text{ CI } [-.44, .92])$. Thus, H4 is partially supported.

Experiment 1 Discussion

Findings from Experiment 1 show that COOL of meat products influences perceptions of food safety, taste, and freshness. These inferences, in turn, affect purchase intentions; the total indirect effect for the U.S. versus Mexico is strong and significant. However, there are differences in the strength of the mediating roles of each of these inferences. The mediation effect through safety is significantly stronger than the effect through freshness, but the difference between safety and taste, while in the predicted direction, did not reach significance. This pattern of differences in mediation effects extends not only what is reported in the COOL literature, but to the best of our knowledge, the information disclosure literature in general.

The results show that consumers use COOL to infer product-related attributes which, in turn, influence purchase intentions. Will additional (objective) information about meat processing systems moderate these effects? The USDA conducts audits of the processing conditions for countries supplying meat products to the U.S. If consumers are made aware of the audit information, will the direct and indirect effects of consumer inferences related to COOL disclosures be attenuated? Experiment 2 extends the findings of the first study and offers tests of H5 and H6.

Experiment 2

Methodology

Design. A 3 (COOL: U.S. vs. Mexico vs. control) × 2 (meat processing information disclosure: U.S. and Mexico meat processing system equivalence versus no processing system disclosure) between-subjects design was conducted online. Similar to prior research (e.g., Howlett et al. 2012), participants were randomly assigned to read either a USA Today article concluding that the meat processing systems in the U.S. and Mexico are equivalent or an unrelated article regarding identity theft (see Online Supplement Appendix C). Participants then completed an unrelated filler task. Next, participants were presented with a beef product that was unlabeled, labeled as born, raised, and slaughtered (BRS) in the U.S., or labeled as BRS in Mexico.

Sample, procedure, and measures. A sample of 183 adult participants was obtained using Amazon's mTurk. The sample had a median household income of \$40,000–\$49,999, 49 percent were females, and the mean age of the participants was 35.9. After examining the beef products, participants responded to measures of purchase intentions, food safety, taste, and freshness. We used the same four sets of items used in Experiment 1, and reliabilities of the multi-item measures again were all satisfactory.

To assess the effect of the information regarding the equivalence of the meat processing systems in the U.S. and Mexico (vs. the control), a manipulation check question asked the following seven-point item: "The meat processing systems and procedures in Mexico and the U.S. are equivalent" (anchored by "strongly disagree/strongly agree"). Manipulation check items and demographic variables followed the dependent measures.

Please cite this article in press as: Berry, Christopher, et al, A COOL Effect: The Direct and Indirect Impact of Country-of-Origin Disclosures on Purchase Intentions for Retail Food Products, *Journal of Retailing* (xxx, 2015), http://dx.doi.org/10.1016/j.jretai.2015.04.004

6



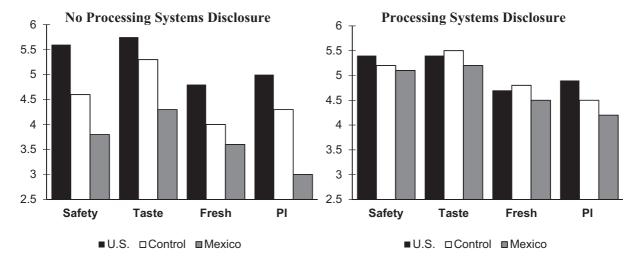


Fig. 3. Experiment 2: interaction of COOL and processing system disclosure on safety, taste, freshness, and purchase intentions. *Notes*: In the no processing systems disclosure condition, for safety and purchase intentions, all mean differences are significant (p<.05 or better). For taste, there is a significant difference between Mexico and both the U.S. and the control (p<.05 or better), but the difference between the U.S. and the control and Mexico (p<.05 or better), but the difference between the control and Mexico is nonsignificant. ANOVA's and contrasts are all nonsignificant in the processing system disclosure condition. A complete set of contrast tests and cell means for all dependent variables is available upon request.

Results

Manipulation check. Results for the manipulation check measure showed that participants who read the article discussing meat processing systems rated the systems used in the countries as higher in equivalence (M = 5.06) than participants in the no processing system disclosure condition (M = 3.15, F(1, 181) = 81.65, p < .001). The mean was significantly below the scale midpoint in the no system disclosure condition and significantly above the scale midpoint when the processing information was disclosed (p's < .01).

The moderating role of objective processing information. H5 predicts that consumers' attribute inferences (H5a-c) and purchase intentions (H5d) are positively affected for a U.S. COOL disclosure, but the effect will be attenuated when presented with objective information about the equivalence of the meat processing systems. To test H5, the data were analyzed using 3×2 between-subjects ANOVA's. As shown in Panel B of Table 1 and consistent with H1, there is a significant effect of COOL on each of the four outcomes. As predicted in H5, there is a significant interaction for each of the attribute inferences. Plots are shown in Fig. 3. For the no processing system disclosure condition, there is a significant effect of the COOL disclosure on each of the attribute inferences (F's(2, 177) range from 7.20 to 14.59, p < .001). All contrasts reveal that participants have more positive attribute perceptions for products labeled as BRS in the U.S. compared to Mexico (p < .001 for all attributes). However, as suggested by the plot in Fig. 3, when the meat processing information is disclosed, the effect of the COOL disclosure is attenuated and does not reach significance for any of the attribute inferences (F's(2, 177) range from 0.22 to 1.05, p > .20 for all). This pattern of findings supports H5a-c.

As shown in Panel B of Table 1, the effect of the interaction on purchase intentions did not reach significance (F(2,

177) = 2.85, p = .06). However, given the specific prediction, a priori contrasts were performed (Keppel 1991). As shown in Fig. 3, when participants were not presented with the processing system information, purchase intentions differ based on COOL (F(2, 177) = 12.23, p < .001). In contrast, when participants were presented with processing system information, the effect of COOL is not significant (F(2, 177) = 1.70, p = .19).

Conditional mediation effects through attribute inferences for the U.S. versus Mexico. H6 predicts a conditional indirect effect of COOL on purchase intentions through the proposed mediators of perceived food safety, taste, and freshness. To examine this conditional mediation model, we used model 8 in PRO-CESS with 10,000 bootstrap samples (Hayes 2013). As shown in Table 2, Panel A, perceived safety (Effect = -.86; CI [-1.68, -0.34]) and taste (Effect = -.61; CI [-1.37, -0.14]) mediate the COOL × processing system interaction. In the no processing system disclosure condition, there is a positive indirect effect of COOL on purchase intentions through safety (Indirect effect (IE) = .98, CI [.47, 1.71]) and taste (IE = .70, CI [.31, 1.30]). For safety and taste, this indirect effect is the result of consumers drawing more positive inferences from a U.S. label than from a Mexico label, and this in turn, is positively related to purchase intentions. For freshness, the indirect effect did not reach significance (IE = .02, CI [-.26, .35]). These results are consistent with findings from Experiment 1. As predicted in H6 and shown in Panel A of Table 2, when participants were presented with objective information on the processing systems, the two positive indirect effects were no longer significant. This suggests that participants made similar inferences about food safety and taste when provided with the processing information disclosure. This overall pattern of results supports the conditional mediation predicted in H6a and b, but not H6c.

While for parsimony, we offered no explicit predictions for the comparisons between the control condition versus the U.S. or

ARTICLE IN PRESS

C. Berry et al. / Journal of Retailing xxx (xxx, 2015) xxx-xxx

Table 2
The indirect and conditional effects of COOL and processing system information interaction through attribute inferences.

Mediation paths	Effect	95% CI	Conditional indirect effects of the processing system information			
			No Proc. disclosure		Proc. disclosure	
			IE	95% CI	IE	95% CI
Panel A: indirect effects for U.S. versus Mexico						
$COOL \times Proc. Info \rightarrow Safety \rightarrow Purchase intentions$	86	[-1.68,34]	.98	[.47, 1.71]	.12	[19, .52]
$COOL \times Proc. Info \rightarrow Taste \rightarrow Purchase intentions$	61	[-1.37,14]	.70	[.31, 1.30]	.09	[24, .37]
$COOL \times Proc. \ Info \rightarrow Freshness \rightarrow Purchase \ intentions$	02	[38, .22]	.02	[26, .35]	.003	[05, .12]
Panel B: indirect effects for U.S. versus Control						
$COOL \times Proc. Info \rightarrow Safety \rightarrow Purchase intentions$	27	[73,02]	.30	[.07, .70]	.03	[13, .27]
$COOL \times Proc. Info \rightarrow Taste \rightarrow Purchase intentions$	30	[92, .12]	.23	[07, .63]	08	[48, .26]
$COOL \times Proc. \ Info \rightarrow Freshness \rightarrow Purchase \ intentions$	32	[72,06]	.27	[.10, .58]	04	[28, .13]
Panel C: indirect effects for Mexico versus Control						
$COOL \times Proc. Info \rightarrow Safety \rightarrow Purchase intentions$.35	[06, 1.02]	40	[-1.00,06]	05	[41, .23]
$COOL \times Proc. Info \rightarrow Taste \rightarrow Purchase intentions$.28	[11, .93]	42	[-1.02,09]	14	[48, .09]
$COOL \times Proc.$ Info \rightarrow Freshness \rightarrow Purchase intentions	.01	[17, .27]	06	[36, .04]	05	[27, .03]

Notes: The effects are the tests of mediated moderation for each mediation path. The IEs are the indirect effects and CIs are the bias-corrected 95% bootstrap confidence intervals. Proc. info indicates whether the participant received information regarding the similarity of the processing systems between the two countries (i.e., processing system disclosure condition) or no information regarding the similarity of the processing systems (i.e., no processing system disclosure condition).

Mexico labels, results indicate conditional mediation. The provision of the processing information attenuates any mediation due to the attribute inferences, leading to nonsignificant indirect effects. (See Panels B and C of Table 2.)

Experiment 2 Discussion

When informed that meat processing systems in Mexico are equivalent to those of the U.S., consumers' product-related inferences no longer differ. In general, this leads to conditional mediation in which all indirect effects through the attribute inferences are nonsignificant when the processing information is provided. Thus, in restricted information environments, consumers use COOL to make attribute-related inferences based on broad generalizations of the country. However, when provided with additional (objective) information regarding the conditions in which animals are BRS in specific countries, consumers tend to rely on this information and it affects attribute perceptions. These inferences then are positively related to consumers' purchase intentions.

General Discussion

Retailers are now required to present labels on meat and poultry products specifying where the animals were born, raised, and slaughtered (BRS), and this change has important implications for retailers, meat and poultry processors, and consumers. Considering the cost of implementation for retailers and given the stated objective "to provide customers with information upon which they can make informed shopping choices" (*Federal Register* 2013, p. 31376), it is critical to understand the effects of COOL on attribute-related inferences and in turn, their direct and indirect effects on consumers' purchase intentions.

The findings of these studies are consistent with our conceptualization based on prior inference making and activation

theories used to hypothesize both direct and indirect effects of COOL. These results show that COOL on meat products has both a direct and indirect impact on purchase intentions by affecting inferences related to perceived food safety, taste, and freshness. Because consumers have limited information of the conditions in which animals from countries outside the U.S. are BRS, consumers must rely on their general perceptions of conditions in the specific country to draw attribute-related inferences. Thus, given consumer's limited knowledge of meat processing procedures and systems, meat products labeled as having been BRS in the U.S. are perceived to be safer, tastier, and fresher than meat products from Mexico.

However, when consumers are provided with information suggesting that the processing systems in Mexico are equivalent to those in the U.S., they infer that meat from Mexico and the U.S. are similar in terms of safety, taste, and freshness. Inferences related to these attributes, in turn, are related to purchase intentions, leading to a conditional mediation effect. When there is no objective processing information disclosed, there is significant mediation in six of the nine tests shown in Table 2. In contrast, when the processing information is made available, the indirect effects are nonsignificant in all nine tests of mediation.

Implications for Retailers and Their Supply Chains

For retailers and meat processors, the relative strength of the direct and indirect effects demonstrated in Experiment 1 should be of substantial interest. In the absence of information about the equivalence of meat processing procedures used in the U.S. and Mexico, the effect size for purchase intentions are large ($\eta_p^2 = .36$). These effects suggest an opportunity for some retailers, yet raises concerns for other firms. For example, the results suggest that COOL may be used as an effective promotional tool if appropriately presented and positioned. A retailer might position and promote itself as selling *only* meat and

Please cite this article in press as: Berry, Christopher, et al, A COOL Effect: The Direct and Indirect Impact of Country-of-Origin Disclosures on Purchase Intentions for Retail Food Products, *Journal of Retailing* (xxx, 2015), http://dx.doi.org/10.1016/j.jretai.2015.04.004

9

poultry products BRS in the U.S. Such positioning then may motivate consumers who do not normally consider country-of-origin to use this information in their subsequent evaluation and choices of meat products. In addition, a *U.S. only* positioning may lead to other positive inferences about general quality of product offerings in other categories, support for U.S. businesses, and overall concern for their customers. Taken in aggregate, these effects may positively impact retailer attitudes and patronage decisions, and future research may examine these possible effects.

Both positive and negative effects will extend up the supply chain. For example, if consumers show a strong preference for meat and poultry from countries with positive perceptions like the U.S., then demand at the retail level will impact retailers' product stocking decisions. These stocking decisions could have a significant impact on the financial welfare of meat suppliers (Bloom and Perry 2001). Processors and distributors of meat from less desirable countries will be at an obvious disadvantage; this is a relatively significant fact given the 2.25 billion pounds of beef that is currently imported into the U.S. In contrast, the pilot results suggest that some other countries may be viewed similarly to the U.S. This suggests that promotion programs could be used to establish a premium brand position for products BRS from certain countries or seek to raise the perception of countries viewed less favorably.

The implications for promotion and retailer positioning are largely based on inferences about attributes based on consumers' lack of information and broad misconceptions. Consumers generally will have little objective information about the conditions in which livestock is raised and slaughtered in other countries (or even conditions in the U.S.). This allows retailers and marketers selling and promoting meat BRS in the U.S. to use this *lack* of knowledge and misperceptions to their advantage. However, Experiment 2 demonstrates that, when presented with objective information regarding the USDA equivalence audits, consumers' attribute related inferences are similar for the U.S., Mexico, and the label control conditions, and consumers are equally likely to purchase the imported (or unlabeled) meat product. This presents an opportunity for retailers promoting meat from less desirable countries. These retailers may design promotion programs using retail signage or posters to inform consumers about the equivalence of meat processing systems between countries. Based on the results of Experiment 2, these disclosures should be effective in increasing attribute-related inferences and purchase intentions.

If the goal of the COOL legislation is to provide consumers with more specific country-of-origin information to benefit consumers when making purchasing decisions (*Federal Register* 2013), then it is only partially meeting this stated objective. That is, there is most likely very limited knowledge among U.S. consumers regarding the USDA audits of the meat processing systems conducted in countries that supply meat to the United States. Thus, if the USDA is truly striving to help consumers make more informed decisions, they should consider educating consumers about the outcomes of their international processing system audits. This could be accomplished through the

provision of information on product packaging or via public service announcements.

Limitations and Suggestions for Future Research

In this research, participants were exposed to package stimuli in an experimental setting outside of the retail store in which judgments and decisions are made. Consumers were not exposed to competing promotion, price, or branding information that may have a significant influence on purchase intention. Therefore, to enhance external validity, future research should examine the effects of COOL on inferences and purchase intentions outside of this specific experimental context. In addition, we examined both rib eye and chicken breasts, but future researchers may want to examine other premium cuts of meat. We measured consumer product attributes in a manner consistent with prior research, but we acknowledge that it is possible that when asked specific attribute questions respondents may spontaneously generate inferences about these attributes. Also, because the U.S. receives a substantial amount of beef from Mexico (USDA 2014), we examined meat labeled as BRS in the U.S compared to Mexico. However, there is a significant amount of meat that is imported from several other countries (USDA 2014). Thus, inferences of meat-related attributes, as well as purchase intentions for meat products from these countries, should be addressed in future studies.

Experiment 1 shows that despite substantial indirect effects through the inferred attributes, the direct effect of the COOL disclosure remains significant, indicating partial mediation. What other mediators might explain additional variance in purchase intent? Here, we focused on critical food attributes based on the literature and a pilot test; however, other researchers may consider other meat-related attributes. In addition, country-of-origin information may have broader effects. For example, are there concerns about worker competence or hygiene that extends beyond these specific food characteristics, or is there a general desire to support U.S. business? It would be interesting to replicate the study with Mexican retail shoppers to determine if the mediating roles related to the COOL are reversed.

In addition, given the moderating effect found in Experiment 2, future researchers should determine what type of disclosure intervention would be most effective under different retail contexts. That is, we provided information in a news story from a known newspaper and USDA reviews, but how would a package disclosure or other type of presentation affect results? Similarly, are there certain groups of consumers who would be more or less likely to accept information about processing and would this vary across countries? For example, would consumers naturally infer that processing under which cattle, poultry, or other animals were raised and processed in China less likely to be similar to U.S. standards, and subsequently be less likely to find certain disclosures suggesting equivalence credible?

Conclusion

The COOL requirement appears to be an effective way to provide consumers with additional information that has both C. Berry et al. / Journal of Retailing xxx (xxx, 2015) xxx-xxx

direct and indirect effects on purchase intentions. The requirement impacts inferred attributes, such that meat products from the U.S are perceived to be safer, tastier, and fresher than meat products from Mexico. These attribute inferences, in turn, have differentially positive effects on purchase intentions. However, the direct and indirect effects only occur when consumers are operating in a restricted information provision environment, which is consistent with current retail environments. When presented with information suggesting that the meat processing systems in a country are similar to those found in the U.S., direct and indirect effects of COOL are attenuated and are no longer significant.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.jretai.2015.04.004.

References

- Andrews, J. Craig, Richard G. Netemeyer and Scot Burton (1998), "Consumer Generalization of Nutrient Content Claims in Advertising," *Journal of Marketing*, 62 (4), 62–75.
- Bloom, Paul N. and Vanessa G. Perry (2001), "Retailer Power and Supplier Welfare: The Case of Walmart," *Journal of Retailing*, 77 (3), 379–96.
- Centers for Disease Control and Prevention (2014), "Estimates of Foodborne Illness in the United States," [available at http://www.cdc.gov/foodborneburden/].
- Collins, Allan M. and Elizabeth F. Loftus (1975), "A Spreading Activation Theory of Semantic Processing," *Psychological Review*, 8 (6),
- Federal Register (May 24, 2013), "Mandatory Country of Origin Labeling of Beef, Pork, Lamb, Chicken, Goat Meat, Wild and Farm-Raised Fish and Shellfish, Perishable Agricultural Commodities, Peanuts, Pecans, Ginseng, and Macadamia Nuts," 78 (101), 31367–85
- Gaedeke, Ralph (1973), "Consumer Attitudes Toward Products 'Made In' Developing Countries," *Journal of Retailing*, 49 (2), 13–24.
- Ganesan, Shankar, Morris George, Sandy Jap, Robert W. Palmatier and Barton Weitz (2009), "Supply Chain Management and Retailer Performance: Emerging Trends, Issues, and Implications for Research and Practice," *Journal of Retailing*, 85 (1), 84–94.
- Hayes, Andrew F. (2013), in *Introduction to Mediation, Moderation, and Conditional Process Analysis*, Little Todd D. ed. New York: The Guilford Press.
 Hoffmann, Ruben (2000), "Country of Origin A Consumer Perception Per-
- Howlett, Elizabeth, Scot Burton, Andrea Tangari and My Bui (2012), "Hold the Salt! Effects of Sodium Information Provision, Sodium Content, and

spective of Fresh Meat," British Food Journal, 102 (3), 211-29.

- Hypertension on Perceived Cardiovascular Disease Risk and Purchase Intentions," *Journal of Public Policy & Marketing*, 31 (1), 4–18.
- Keppel, Geoffrey (1991), *Design and Analysis: A Researcher's Handbook*, Englewood Cliffs, NJ: Prentice Hall.
- Kozup, John C., Elizabeth H. Creyer and Scot Burton (2003), "Making Healthful Food Choices: The Influence of Health Claims and Nutrition Information on Consumers' Evaluations of Packaged Food Products and Restaurant Menu Items," *Journal of Marketing*, 67 (2), 19–34.
- Lando, Amy and Ema Carlton (2011), 2010 Food Safety Survey: Key Findings and Topline Frequency Report, Center for Food Safety and Applied Nutrition, FDA.
- Loureiro, Maria and Wendy Umberger (2003), "Estimating Consumer Willingness to Pay for Country-of-Origin Labeling," *Journal of Agricultural and Resource Economics*, 28 (2), 287–301.
- McCarthy, Mary B. and Spencer J. Henson (2004), "Irish Consumer Perceptions of Meat Hazards and Use of Extrinsic Information Cues," *Food Economics*, 1 (2), 99–106.
- Mennecke, Brian E., Anthony M. Townsend, Dermot J. Hayes and Steven M. Lonergan (2007), "A Study of the Factors that Influence Consumer Attitudes Toward Beef Products Using the Conjoint Market Analysis Tool," *Journal of Animal Science*, 85 (10), 2639–59.
- National Chicken Council (2015), "Per Capita Consumption of Poultry & Livestock," (accessed January 18, 2015), [available at www.nationalchickencouncil.org/about-the-industry/statistic].
- Nebenzahl, Israel D. and Eugene D. Jaffe (1997), "Measuring the Joint Effect of Brand and Country Image in Consumer Evaluation of Global Products," *Journal of Marketing Practice: Applied Marketing Science*, 3 (3), 190–207.
- Newman, Christopher L., Anna M. Turri, Elizabeth Howlett and Amy Stokes (2014), "Twenty Years of Country-of-Origin Labeling Research: A Review of the Literature and Implications for Food Marketing Systems," *Journal of Macromarketing*, 25, 505–19.
- Ross, William T. and Elizabeth H. Creyer (1992), "Inferences about Missing Information: A Process-Based Model," *Journal of Consumer Research*, 19 (June), 14–25.
- Tonsor, Glynn T., Jayson L. Lusk, Ted C. Schroeder and Mykel R. Taylor (2013), "Mandatory Country of Origin Labeling: Consumer Demand Impact," *Journal of Agricultural Economics*, 64 (3), 676–92.
- Umberger, Wendy J., Dillon M. Feuz, Chris R. Calkins and Karen Killinger-Mann (2002), "U.S. Consumer Preferences and Willingness-to-Pay for Domestic Corn-Fed Beef Versus International Grass-Fed Beef Measured Through and Experimental Auction," Agribusiness, 18 (4), 491–504.
- Umberger, Wendy J., Dillon M. Feuz, Chris R. Calkins and Bethany M. Sitz (2003), "Country-of-Origin Labeling of Beef Products: U.S. Consumers' Perceptions," *Journal of Food Distribution Research*, 34 (3), 103–16.
- U.S. Department of Agriculture (2013), "Equivalence Process Overview," (accessed June 11, 2014), [available at http://www.fsis.usda.gov/wps/portal/fsis/topics/international-affairs/importing-products/equivalence].
- U.S. Department of Agriculture (2014), "Livestock & Meat International Trade Data," (accessed March 30, 2014), [available at http://www.ers.usda.gov/ data-products/livestock-meat-international-trade-data.aspx#26050].

10