Research

Loss Aversion and Regulatory Focus Effects in the Absence of Numbers: Qualitatively Framing Equivalent Messages on Food Labels

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Abstract

Examining effects of qualitatively framing information as nonloss and gain is important because not all messages can be communicated quantitatively to consumers. This is especially the case with many food labels addressing farming methods. Research on loss aversion cognitive bias has shown people react more strongly to messages framed negatively (loss/nonloss) than equivalent information framed positively (nongain/gain). A few studies, however, have shown an opposite reaction when comparing equivalent nonloss- to gain-framed information and offered regulatory focus theory as an explanation. Most studies have relied on quantitative descriptors to frame information as gains or nonlosses, but are the cognitive biases explained by loss aversion or regulatory focus still powerful using qualitatively framed information? The purpose of this study was to compare effects of qualitatively framed gain and nonloss messages within food labels on people's attitudes. Six-hundred-sixty subjects were assigned randomly to one of two treatment groups: nonloss- or gain-framed information about environmental impact and animal welfare on a package of chicken or a control group. Results showed no difference between the frames in the effect on subjects' attitudes toward the product. Marketers and others crafting persuasive messages who attempt to use nonloss or gain framing of information to appeal to consumers' cognitive biases may be compromising their efforts without using numbers or quantifiable information.

Key Words

Framing effects, food labels, cognitive biases, loss aversion, regulatory focus

Introduction

People will arrive at different decisions depending on how choices are framed. Framing, at a basic level, refers to the process through which individuals or groups make sense of their environment — frames are cultural structures that organize understanding of social phenomena. "Packets of incoming information pass through various cognitive, affective, and/or social filters to produce a 'perception' of the outside world. This construction of reality then drives judgment and decision-making and ultimately behavior" (Boettcher, 2004, p. 332-333). Although this may be an internal process, it is often constructed by some external actor — either deliberately or unintentionally (Boettcher, 2004).

The psychology literature's definition of a framing effect is when two "logically equivalent (but not transparently equivalent) statements of a problem lead decision makers to choose different options" (Rabin, 1998, p. 36; Tversky & Kahneman, 1981). This manipulation of information is called equivalency framing. The terminology used in the literature to describe these frames is loss (referring

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to losing something or taking something away), nonloss (referring to avoiding the loss of something), gain (achieving or gaining something), and nongain (not achieving or gaining something). Levin and Gaeth (1988) offer a good example of equivalency framing. They found variation in quality preferences regarding beef depending on whether a beef product was labeled as being 75% lean (gain frame) or 25% fat (loss frame). The ground beef was evaluated by subjects as better tasting and less greasy when it was labeled in the positive light (75%) lean. The common adage of pessimists see the glass half empty and optimists see it half full also demonstrates the same object can be viewed in two different ways. Objectively, a glass half empty is a glass half full, but people may make different decisions about that object depending on how it is presented to them. One of the key findings from research in the area of equivalency framing effects is people will react more strongly to the idea that the glass is half empty than half full because humans are more averse to the notion of losing something.

A few studies, however, have shown an opposite reaction when comparing equivalent nonloss- to gain-framed information and offered regulatory focus theory as an explanation. Furthermore, most studies have relied on quantitative descriptors to frame information as gains or nonlosses, meaning they use numerical information (e.g., 75% lean meat vs. 25% fat). However, not all messages can be communicated quantitatively, so are the cognitive biases explained by loss aversion or regulatory focus still powerful when numbers are not used in the framing of the information, in essence, when information is qualitatively framed as being a nonloss or gain? For example, a food product with labeling claims framed as avoiding loss or damage to the environment (nonloss) may or may not garner a different consumer response in comparison to claims framed as achieving gains or repairing the environment (gain). Food labels addressing farming methods, such as animal production techniques (e.g., free range, humanely raised) or "no genetically modified organisms," are an ideal case-in-point to examine since quantifying farming methods' effects are not only debated (Broom, 1991; Stolze, Piorr, Häring, & Dabbert, 2000) but also are difficult for consumers to understand (Bateman, Dent, Peters, & Glitsch, 2007). This study compared the persuasive effects of qualitatively framed gain and nonloss messages contained within food labels addressing farming methods.

Equivalent Gains and Nonlosses: Loss Aversion and Regulatory Focus

The attempt to explain and predict how people will react to different frames of information is explained by both the principle of loss aversion and regulatory focus theory. "Loss aversion is perhaps the most successful and widely used explanatory construct in behavioral decision research" (Brenner, Rottenstreich, Sood, & Bilgin, 2007, p. 369). As one of the main components of Kahneman and Tversky's (1979, 1981) prospect theory, it shows losses have a steeper value function than gains. The concept of loss aversion does not necessarily imply people pay more attention to losses over gains, rather, the reaction to a loss is stronger than a gain (Brenner et al., 2007).

> Although seemingly irrational in the context of business and market transactions, it has roots in lower-level psychological laws that seem adaptive to basic environmental demands. Thus, the asymmetry of people's reactions to pain versus pleasure is eminently sensible in a world that punishes those who ignore danger signs more than it rewards those who pursue signs of pleasure. (Newell, Lagnado, & Shanks, 2007, p. 119)

Many studies have found support for loss aversion (for example, Gamliel, 2010; see Levin, Schneider, & Gaeth, 1998, for a review). One of the more recent studies testing loss aversion, however, found a greater hedonic reaction to losses than to non-gains (supportive of loss aversion) but a greater hedonic reaction to gains than non-losses (not supportive of loss aversion) (Liberman, Idson, & Higgins, 2005). The figure used to depict prospect theory and loss aversion in the study includes

a depiction of nongains and nonlosses (see Figure 1), which makes the conflicting finding regarding the stronger reaction to gains than nonlosses more visible. Similar findings were presented in Idson, Liberman, and Higgins (2000) and Idson, Liberman, and Higgins (2004). All three studies offered regulatory focus theory as a possible explanation for the findings.

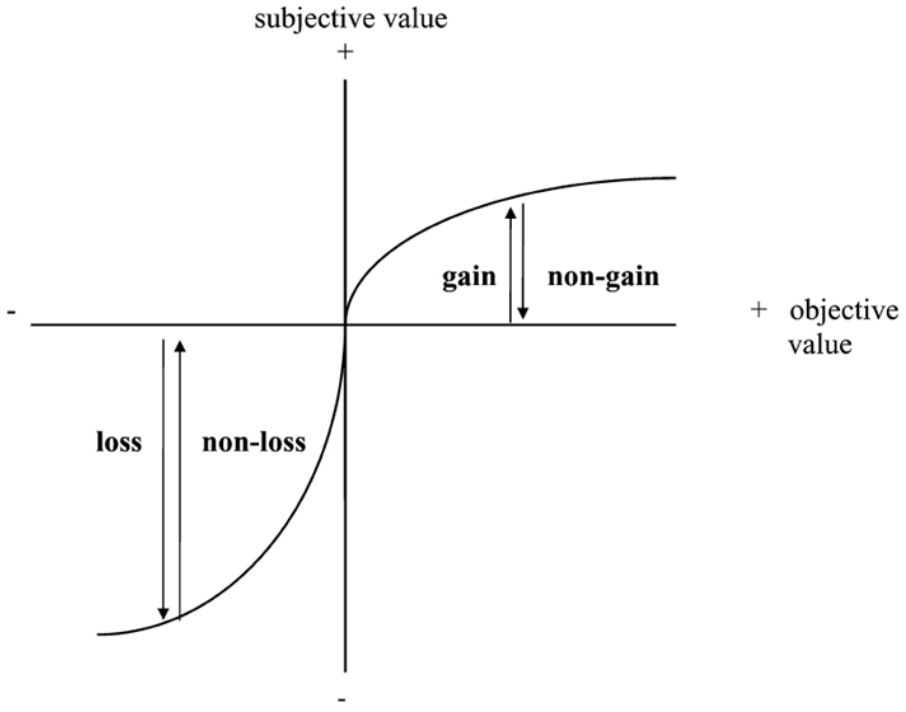

Figure 1. Subjective value function under prospect theory with reference to gains/non-gains and losses/non-losses. Shows loss-framed information garners a stronger subjective reaction than equivalent gain-framed information. Obtained from Liberman et al. (2005).

Regulatory focus theory adds to the concept of loss aversion by proposing a cognitive mechanism (regulatory focus) that regulates how people attend to gain, nongain, loss, and nonloss messages. Those with a prevention focus will regulate their behaviors away from negative outcomes (losses/nonlosses), while those with a promotion focus will regulate their behaviors toward positive outcomes (gains/nongains) (Higgins, 1998). Regulatory focus can be primed, but it is also a cognitive style (referred to as chronic regulatory focus). The theory also offers a rationale for why gain-framed information should garner a stronger reaction than equivalent nonloss-framed information, regardless of chronic regulatory focus.

Now, for comparing the effects of gains versus nonlosses, regulatory focus theory predicts:

> … because promotion success (gain) is success in achieving a maximal goal (a standard one hopes to achieve), it should be experienced more intensely than prevention success (nonloss), which is success in achieving a minimal goal (a standard one must achieve). (Liberman et al., 2005, p. 269)

Loss aversion, however, predicts a nonloss should garner a stronger reaction than a gain. These findings suggest an area for continued study in other contexts before conclusions can be made regarding the explanatory strength of loss aversion with respect to gains versus nonlosses.

Furthermore, most studies examining equivalent gain- versus nonloss-message framing have used quantitative descriptors (Boettcher, 2004; Idson et al., 2004; Kahneman & Tversky, 1979; Liberman

et al., 2005; McDermott, 2004; Tversky & Kahneman, 1981). Attempting to qualitatively frame equivalent nonloss and gain messages are of interest because not all information necessary to make a decision can be communicated quantitatively, such as messages about environmental impact or animal welfare on a farm. In fact, research has shown holistic environmental impact and animal welfare, in particular, are difficult to quantify objectively (Broom, 1991; Stolze et al., 2000). At best, quantified messages would be difficult for the average person to fully interpret (Bateman et al., 2007). Additional research is needed to test whether the predictions of loss aversion or regulatory focus hold for qualitatively defined frames/descriptors of equivalent gains and nonlosses.

Determining Framing Effects through Attitude

Framing effects can be measured through a variety of outcomes, but preferences (choices or decisions) and attitudes are common assessment methods. The concept of a preference is, in some ways, the counterpart in economics to the concept of an attitude in psychology, "but the logic of attitudes and the logic of preferences are quite different" (Kahneman & Sugden, 2005, p. 164). Preferences are subjective, but their logical structure is objective. If a consumer prefers a ground beef product that is 25% fat, they should prefer a product that is 75% lean. Attitudes are not objective in structure, and a consumer might have a negative attitude toward a ground beef product that is 25% fat but a positive attitude toward one that is 75% lean. The occurrence of framing effects does not violate the logic of attitudes as it does the logic of preference (Kahneman & Sugden, 2005). Preferences are best measured by making people choose between two options, while attitudes are best measured by affective responses to a single object.

Attitudes have a reasonable amount of stability. "This stability of attitudes lends some stability to the choices people make, but attitudes are also susceptible to a lot of manipulations that are not allowed to have any effect in a rational theory of preferences" (Kahneman & Sugden, 2005, p. 165). Attitudes, therefore, are susceptible to framing effects. Researchers have explained the framing of information affects the hedonic reaction people have toward the information (Brenner et al., 2007; Liberman et al., 2005). Because attitudes are composed of both hedonic and utilitarian components (Batra & Ahtola, 1981), this provides additional support for using attitude as a measure of framing effects.

Purpose and Hypotheses

The purpose of this study was to compare effects of qualitatively framed gain and nonloss messages on attitude. The theory of loss aversion (Tversky & Kahneman, 1981) predicts losses and potential losses garner a stronger hedonic reaction than gains. Therefore, avoiding a loss should yield a stronger response than achieving a gain. Although two studies specifically suggested gains are reacted to more strongly than nonlosses (Idson et al., 2004; Liberman et al., 2005) and offer the regulatory focus theory as an explanation, the literature testing and supporting the predictions of loss aversion is far more extensive.

To measure the effects of framing in this study, attitude toward the product was chosen as the dependent variable. An attitude is defined as an association between an object of thought and a valence evaluation with three components: cognitive, emotional, and behavioral (Ostrom, Bond, Krosnick, & Sedikides, 1994). Attitudes are not objective in nature (like preferences) and "are also susceptible to a lot of manipulations that are not allowed to have any effect in a rational theory of preferences" (Kahneman & Sugden, 2005, p. 165). Therefore, a framing effect should yield a change in attitude. In this study, participants' attitudes toward two products were assessed: one with claims and one

identical product without claims.

The literature, therefore, suggests the following hypotheses:

Hypothesis 1: Subjects exposed to nonloss-framed claims will have a stronger positive attitude toward the product with claims than those exposed to gain-framed labeling claims or control group claims.

Hypothesis 2: Subjects exposed to nonloss-framed claims will have a weaker positive attitude toward the product without claims than those exposed to gain-framed labeling claims or control group claims.

It is assumed the attitude for the products will remain positive (rather than negative) because the stimulus — boneless, skinless chicken breasts — is frequently consumed and no negative information was provided about either product. It is the top consumed protein in the United States, eaten at home an average of four times in a two-week period, and this specific cut is preferred 2:1 over other cuts (National Chicken Council, 2013a, 2013b).

Methodology

Subjects

To test the hypotheses, a posttest-only, randomized experimental design was used with a convenience sample of 660 college students at a large U.S. university. Students were offered course extra credit to incentivize participation. Cognitive psychologists argue that when examining cognitive mechanisms, such as memory, attention, or biases, college students are an acceptable sample because they maintain the same information processing systems in the brain into the future (Peterson, 2001). The nature of the study was to examine cognitive mechanisms (framing effects, loss aversion, and regulatory focus) that have shown prevalence in multiple nonstudent samples (Druckman, 2001) as well as student samples (Liberman et al., 2005).

In the case of marketing meat and poultry products with enhanced animal welfare and environmental, a key issue is identifying consumers or potential consumers for the product category. Young adults, specifically college students, are one segment of consumers for food products. There are more than 15.9 million college students in the United States, representing a $9.2 billion market that is viewed by packaged goods marketers as "a meaningful segment" on its own, with distinct characteristics, brand loyalties, and preferences for consumable goods, including food (Ness et al., 2002, p. 506). As a segment, traditional 18- to 24-year-old college students have been shown to differ from their similarly aged nonstudent peers, in that they are much more likely to live away from home, and thus are able to establish an independent lifestyle, including the need to develop life skills such as food shopping and meal preparation (Ness et al.). Students may even spend more on food as a percentage of their total living expenses compared with other consumers (Ness et al.). They are also more likely to be aware of diet and health issues as compared with the population as a whole (Ness et al.), which makes them a relevant target for marketing new food products and technologies. Also, research shows young consumers (ages 18 to 32), and those with a college education are more likely to purchase organic food products (Onyango et al., 2007).

Stimuli

To test the persuasive effects of qualitatively framed nonloss and gain messages, a virtual setting was designed to mimic a common food product comparison scenario in which subjects were presented with chicken product with advertising claims about environmental impact and animal welfare (referred to later as production claims) and a chicken product without these claims. The advertising

claims were chosen based on researcher observations of 33 farming methods claims regarding the environment or animal welfare on meat and chicken products at six different U.S. grocery store companies (two chain superstores, two chain supermarkets, two local stores).

The claims were pre-tested with 66 college students (who were not part of the sample included in the experiment) via survey to determine which of the 33 strongly suggested a gain or nonloss. Respondents were asked to evaluate each claim as to whether they thought it suggested avoidance of a negative outcome/impact or achieving a positive outcome/impact. Based on this survey and a Chi-square analysis of the data, the environmental gain-framed claim chosen was "good for the environment," and the nonloss-framed claim chosen was "no negative environmental impacts." These two claims are qualitatively equivalent in that a product produced in a way that does not have negative environmental impacts is good for the environment. In the same line of logic, a product produced in a way that is good for the environment does not have negative environmental impacts. The animal welfare nonloss-framed claim chosen was "no cages," and the gain-framed claim chosen was "free to roam." These two claims are qualitatively equivalent in that animals raised in a production system with no cages would be free to roam, and animals free to roam are not in cages. It is important to note broilers (chickens raised for meat) are not raised in cages like layer hens (egg-producing chickens) and are group-housed in large barns on the floor and are all "free to roam."

The claims were printed on a label, placed on a package of boneless, skinless chicken breasts, and photographed (labels were used on the same chicken package to ensure reliability). Chicken was chosen to ensure reliability of the study because it is a uniform product with little to no differences of product characteristics that are visually detectable within a given cut category (e.g., chicken breasts, thighs, whole chicken, etc.). In addition, chicken is a product consumers choose primarily based on color with no consideration for marbling or other visual quality cues (Becker et al., 2000). Because of the standardization of this product, chicken was ideal for experimental purposes to ensure participants are making their decisions based on the claim and not on physical quality characteristics. Variables of price, weight, brand, and product were controlled to test the framing effects exclusively.

Measures

After viewing the product with claims and product without claims simultaneously, subjects' attitudes toward each product (with claims and without claims) were measured. The measure of attitude toward product without claims was included because advertising offers product comparison information to consumers. Advertising works by influencing consumers' assessment of not only the advertised product, but also the competing product(s). The scale developed by Batra and Ahtola (1991) measures the hedonic and utilitarian sources of consumer attitudes using 12 semantic-differential questions. The researcher added four items to this scale to measure product-specific attitude: safe/unsafe, humane/inhumane, good for environment/bad for environment, healthy/unhealthy. All 16 items were measured on a five-point semantic differential scale where 1 = negative and 5 = positive; none were reversed.

Procedure

Subjects were randomly assigned (with the use of a random number generator) to either the nonloss-framed claims condition, the gain-framed claims condition, or the control claims condition to test the hypotheses. In the gain-frame and nonloss-frame conditions, subjects simultaneously viewed a package of chicken with two production claims, brand, cut, weight, and price on the label and a package of chicken with only brand, cut, weight, and price on the label (referred to hereafter as the

product without claims). In the control condition, subjects simultaneously viewed a product without claims and a product with general product claims (boneless and skinless, and chicken breasts). The claims and treatment conditions are shown in Figure 2. Subjects' attitude toward the product with claims and the product without claims were measured. After the dependent measures were assessed, demographic data was collected, manipulation checks were conducted, and subjects read a debriefing statement about the study. Data were analyzed using one-way analysis of variance to determine framing effects on attitudes.

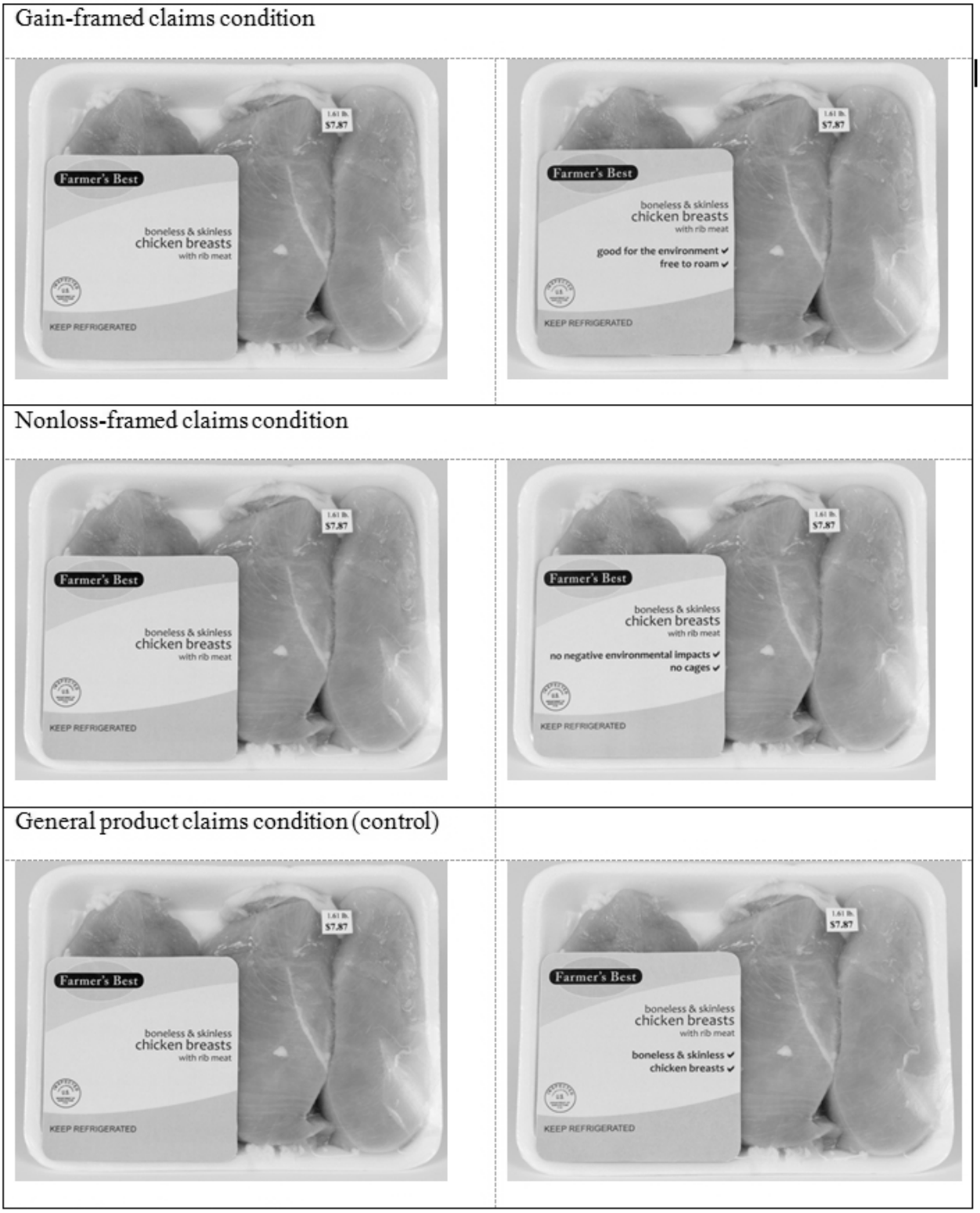

Figure 2. Experimental conditions

Results

Descriptive analysis indicated 459 of subjects were female (69.5%) and 201 were male (30.5%); 660 subjects participated in the study. Subjects ranged in age from 18 to 33 years old, with a mean of 21 years old (*SD* = 1.69). Most described the community in which they grew up in as a subdivision in a city or town (*n* = 491, 74.4%), followed by rural, not a farm (*n* = 98, 14.8%), downtown in a city or town (*n* = 47, 7.1%), and farm (*n* = 23, 3.5%). The majority of subjects indicated they consumed meat or poultry on a regular basis, with most eating it 4–7 times per week (*n* = 258, 39.1%) and 8–14 times per week (*n* = 216, 32.7%). Only 27 (4.1%) indicated they never eat meat or poultry, and 14 (2.1%) indicated they eat it less than once per week.

The grand mean on attitude toward the products without claims was 3.53 (*SD* = .84). The grand mean attitude toward the products with claims was higher (*M* = 4.04, *SD* = .74). Overall, attitude toward the product with claims was more positive than attitude toward the product without claims. Table 1 shows the descriptive statistics for each item in the attitude scale between the treatment groups. The alpha reliability coefficient for the scale in this study was $\alpha = .96$ on attitude toward product without claims and $\alpha = .96$ on attitude toward product with claims. Therefore, the 16-item scales were collapsed into two separate scores representing subjects' attitude toward the products in preparation for analysis for the hypotheses.

Table 1
Attitude toward Products

	Attitude Toward Product Without Claims			Attitude Toward Product With Claims		
	n	*M*	*SD*	*n*	*M*	*SD*
Useless:Useful	660	3.98	.98	660	4.18	.87
Worthless:Valuable	660	3.86	.97	660	4.14	.85
Harmful:Beneficial	660	3.62	1.08	660	4.17	.85
Foolish:Wise	660	3.42	.94	660	3.82	.96
Unpleasant:Pleasant	660	3.49	1.04	660	3.93	.93
Awful:Nice	660	3.49	.96	660	3.91	.91
Disagreeable:Agreeable	660	3.54	.99	660	3.90	.93
Sad:Happy	660	3.23	.99	660	3.71	.92
Bad:Good	660	3.53	1.08	660	4.01	.92
Negative:Positive	660	3.41	1.05	660	4.04	.91
Dislike:Like	660	3.57	1.13	660	4.05	.93
Unfavorable:Favorable	660	3.42	1.15	660	4.08	.95
Unhealthy:Healthy	660	3.70	1.09	660	4.27	.84
Unsafe to eat when cooked: Safe to eat when cooked*	660	4.25	.97	660	4.46	.85
From an animal treated inhumanely: From an animal treated humanely*	660	2.92	1.15	660	3.95	1.10
Bad for the environment: Good for the environment*	660	3.08	1.04	660	3.96	1.02

Note: Scores based on semantic differential scale from 1= negative to 5= positive. *Researcher-developed item to measure product-specific attitude.

Hypothesis 1: Subjects exposed to nonloss-framed claims will have a stronger positive attitude toward the product with claims than those exposed to gain-framed labeling claims or control group claims.

A one-way between-groups analysis of variance was conducted to compare the different claim framing effects on attitudes toward the product with the claims. The independent variable was the frame of the claim (nonloss, gain, control), and the dependent variable was attitude toward the product with the claims. Preliminary assumption testing showed no serious violations.

There was a significant effect of claim frame on attitudes toward the product with production claims, $F(2, 657) = 16.87$, $p < .001$ (see Table 2).

Table 2
Effects of Claim Frame on Attitudes Toward Product with Claims

Source	*SS*	*df*	*MS*	*F*	*p*
Claim Frame	17.49	2	8.75	16.87	< .001
Error	340.53	657	.52		
Total	358.02	659			

Planned contrasts revealed subjects exposed to gain-framed claims had more positive attitudes toward the product with the claims than those exposed to general product claims $t(424) = -5.26$, $p < .001$, and those exposed to nonloss-framed claims had more positive attitudes in comparison to the control group as well $t(452) = -4.79$, $p < .001$. The difference between gain and nonloss claim frames, however, was not significant $t(444) = -.64$, $p = .52$ (2-tailed) (see Table 3).

Table 3
Planned Comparisons t-test for Differences between Treatment Groups on Attitude toward Product with Claims

	n	*M*	*SD*	*t*	df	*p*
Gain-Framed Production Claims	208	4.17	0.67	-5.26	657	< .001
General Product Claims (Control)	216	3.80	0.81			
Nonloss-Framed Production Claims	236	4.13	0.68	-4.79	657	< .001
General Product Claims (Control)	216	3.80	0.81			
Gain-Framed Production Claims	208	4.17	0.67	-.64	657	.52
Nonloss-Framed Production Claims	236	4.13	0.68			

Note. Means ranged from 1 (most negative) to 5 (most positive).

Hypothesis 2: Subjects exposed to nonloss-framed claims will have a weaker positive attitude toward the product without claims than those exposed to gain-framed labeling claims or control group claims.

A one-way between-groups analysis of variance was conducted to compare the different claim

framing effects on attitudes toward the product without the claims. The independent variable was the frame of the claim (nonloss, gain, control), and the dependent variable was attitude toward the product without the claims. Preliminary assumption testing was conducted with no serious violations noted.

There was a significant effect of claim frame on attitudes toward the product without production claims, $F(2, 657) = 6.41, p = .002$ (see Table 4).

Table 4
Effects of Claim Frame on Attitudes toward Product without Claims

Source	*SS*	df	*MS*	*F*	*p*
Claim Frame	9.86	2	4.43	6.41	.002
Error	453.90	657	.69		
Total	462.76	659			

Planned contrasts revealed subjects exposed to gain-framed claims had less positive attitudes toward the product without the claims than those exposed to general product claims $t(424) = 2.12, p = .035$, and those exposed to nonloss-framed claims had less positive attitudes in comparison to the control group, as well $t(452) = 3.56, p < .001$. The difference between gain and nonloss claim frames, however, was not significant $t(444) = -.1.37, p = .17$ (2-tailed) (see Table 5).

Table 5
Planned Comparisons t-test for Differences between Treatment Groups on Attitude toward Product without Claims

	n	*M*	*SD*	*t*	df	*p*
Gain-Framed Production Claims	208	3.51	0.81	2.12	657	.035
General Product Claims (Control)	216	3.68	0.81			
Nonloss-Framed Production Claims	236	3.41	0.87	3.56	657	< .001
General Product Claims (Control)	216	3.68	0.81			
Gain-Framed Production Claims	208	3.51	0.81	-1.37	657	.170
Nonloss-Framed Production Claims	236	3.41	0.87			

Note. Means ranged from 1 (most negative) to 5 (most positive).

Summary

Based on the theories of framing effects, loss aversion, and regulatory focus, the first hypothesis predicted subjects exposed to nonloss-framed claims would have more positive attitudes toward the product with production claims than those exposed to gain-framed labeling claims or control group claims. This hypothesis was partially supported. The gain- and nonloss-framed claims did not lead to significantly different attitudes toward the product with the claims. Subjects in both treatment conditions had positive attitudes toward the product with claims, regardless of whether the claims were framed as nonlosses or gains. Subjects exposed to gain or nonloss claims had more positive attitudes towards the product with the claims than those exposed to neutral, general product claims, but this

points to an effect of the treatment conditions' use of production claims than the frames themselves.

The second hypothesis predicted subjects exposed to nonloss-framed claims would have less positive attitudes toward the product without production claims than those exposed to gain-framed labeling claims or control group claims. This hypothesis was partially supported. Subjects exposed to gain claims did not differ from those exposed to nonloss claims in their attitudes toward the product without the claims. Subjects exposed to gain or nonloss claims had less positive attitudes towards the product without the claims than those exposed to neutral, general product claims. Again, this was likely because of the production claims subjects were exposed to in the treatment conditions rather than the framing.

Discussion/Conclusions

Previous loss aversion research consistently showed people have stronger reactions to information presented as potential losses/nonlosses when compared to equivalent potential gains/nongains (Boettcher, 2004; Kahneman & Tversky, 1979; McDermott, 2004; Tversky & Kahneman, 1981). Conversely, a few other studies suggested gains garner a stronger reaction than nonlosses (Idson et al., 2000; Idson et al., 2004; Liberman et al., 2005).

The present study did not find loss/gain asymmetry in support of either prediction. Whether subjects were exposed to gain-framed production claims or nonloss claims did not matter,attitudes toward the products were affected similarly. This could be because the application of the message/information was directly connected with an ordinary market good: food. Horowitz and McConnell (2002) found the more a product is like an "ordinary market good," the lower the degree of gain/loss asymmetry. The production claims themselves, however, were less about the product itself and more about the product's implications for environmental impact and animal welfare. The environment and animal welfare are non-market goods and cannot be directly experienced by the consumer, such is the nature of these attributes (Darbi & Karni, 1973). Perhaps the predictions of loss aversion would hold when testing the production labeling claims in the absence of the food product. While that would be a clearer test of the prediction, it is less representative of the reality of how these production claims are frequently encountered by consumers.

Another reason framing effects were not found could be that the messages (the production claims) in this study were presented in a qualitative manner rather than the typical quantitative manner used in many previous studies supporting loss aversion (Kahneman & Tversky, 1979; Tversky & Kahneman, 1981; Levin et al., 1998; Boettcher, 2004; McDermott, 2004) and in those supporting regulatory focus theory (Idson et al., 2000; Idson et al., 2004; Liberman et al., 2005). As mentioned in the literature review, holistic environmental impact and animal welfare are difficult to quantify objectively (Broom, 1991; Stolze et al., 2000), or, at best, would be difficult for the average consumer to fully interpret (Bateman et al., 2007). Consumers rely on food production certification agencies (government and third-party) to make the interpretations and provide them a trustworthy generalization of the meanings of good animal welfare and environmental impact (Caswell & Mojduszka 1996; Golan et al., 2001).

Also, framing information as gains and nonlosses primarily affects the reference point people use to make judgments and decisions (Heath, Larrick, & Wu, 1999). Soman (2004) explained values are coded as gains and losses relative to a reference point, meaning a decision is reference dependent. Presenting messages in a qualitative manner might cause people to automatically adjust their reference point because neither numerical values nor words describing a move from one point to another (i.e., increase/decrease, worsen/improve) are available to encode the message as a gain or

a nonloss. Qualitatively created frames, like "no negative environmental impacts" vs. "good for the environment," may not communicate the intended reference point strongly enough; therefore, they are equally persuasive on attitudes. Bateman, Day, Jones, and Jude (2009) suggested an individual is able to interpret that one numeric value is larger than another without necessarily understanding its meaning, thereby leading to the reliance on heuristics and biases to form judgment.

This study attempted to frame nonlosses and gains equivalently, but qualitatively. The results suggest that in the absence of numbers or quantifiable information, the biases of loss aversion and framing effects are minimized. The message may need to include terms more strongly suggesting a reference point, such as "reduce environmental impact" or "improve environmental impact," to induce the biases.

Limitations

While the present study offers several useful theoretical and practical insights, there were some limitations. The convenience sample of college students is one key limitation, primarily for the practical implications and recommendations, for two reasons. First, randomized samples as opposed to convenience can offer greater external validity (Tashakkori & Teddlie, 2003). Second, college students are still developing their consumer habits, which may change with further maturity, experience, and when starting a family. For example, consumers with children are more likely to learn about and purchase organic foods (Hughner et al., 2007). Readers should carefully consider the demographic information before applying conclusions to other populations.

Recommendations for Future Research

From a theoretical perspective, more research needs to be done examining the effects of gains versus nonlosses. This study attempted to further some of the previous research in that area (Idson et al., 2004; Liberman et al., 2005), but perhaps due to the qualitative nature of the frames and the nature of the application (food product), did not find asymmetry in the attitudinal reactions to gains versus nonlosses. Researchers in these theoretical areas should consider future studies that attempt to manipulate gains and nonlosses qualitatively to determine if biases are minimized as a result.

The manipulations of nonloss and gain messages in future studies should include terms like "reduce" and "improve" to more strongly suggest a reference point that is moved toward or away from to determine if the biases of loss aversion and regulatory focus fit effect are subsequently induced.

The present study held several variables consistent to determine the effect of the differently framed production labeling claims on attitudes. Additional manipulations of variables such as product type, price, brand, and other packaging characteristics would be beneficial to marketers and may produce different attitudinal effects.

Recommendations for Practitioners

Gain-framed claims produced slightly (but not statistically significant) more positive attitudes toward the product with claims, but slightly less negative attitudes toward the product without claims. Marketers of credence attribute food products could potentially encourage purchase by placing products with gain-framed claims in their own section of the grocery store (away from the conventional products without the claims) and those with nonloss-framed claims next to the conventional items. However, additional research adding price variation as an additional independent variable would need to be considered.

Marketers and communicators attempting to leverage the persuasive power of the loss aversion

cognitive bias should consider doing so with the use of numbers or quantifiable information when possible. Raw data, however, would likely be difficult to interpret, so providing some system of interpretation or relatable comparisons (e.g., equivalent of taking 500 cars off the road) would be more beneficial. When providing such exact information may be difficult for communication about certain farming practices, terminology that strongly suggests a nonloss reference point (e.g., reduce, decrease, less/fewer) may, theoretically, capitalize on the loss aversion bias.

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