

“Tax” and “Fee” Message Frames as Inhibitors of Plastic Bag Usage Among Shoppers: A Social Marketing Application of the Theory of Planned Behavior

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Abstract

In response to the plastic bag pandemic, many studies have indicated that penalties can lower consumption of plastic bags but are only effective in the short term. For long-term impact, shoppers' intrinsic motivations need to be explored. Using framing and the theory of planned behavior, the current study looked at how advertising messages framed as “avoiding a fee” (gain) and “paying a tax” (loss) can impact shoppers' behavior to bring reusable bags. Findings from a hierarchical and multiple regression analysis showed differences in how both frames were interpreted. For the fee frame, attitude toward compliance and perceived control were important to intentions, while attitudes toward bringing reusable bags, control, and subjective norms impacted intentions for the tax frame. Behavioral intention was the main predictor of behavior for both frames. The findings suggest that a penalty framed as a tax maybe more effective in motivating shoppers to bring reusable bags. Theoretical and practical implications are discussed.

Keywords

plastic bags, environment, theory of planned behavior, framing, green advertising

Introduction

Paper or plastic? For decades, Americans were given this choice at the grocery store cash register. Starting in 2014, though, consumers in some municipalities stopped hearing that question as bag bans began to take effect. Municipalities enacted bans on plastic bags since they became “emblematic of a perceived ‘throwaway consumer culture’” (Ritch, Brennan, & MacLeod, 2009, p. 168) and because of the range of social and environmental problems they represent. Producing plastic bags is resource intensive and adds to demands for oil—the energy used to produce 12 plastic bags could drive one car

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for 1 mile (Larsen, 2014). Most plastic bags are not recyclable, and 90% of plastic bags are only used once before they end up in landfills (Cemansky, n.d.). Chemicals from these plastic bags can seep into the soil (Larsen, 2014) with the potential of damaging soil fertility (IRIN Asia, n.d.). Plastic bags disposed in the water can soak up additional water-based pollutants like pesticides, creating problems for people and marine animals if ingested (Larsen, 2014). In most municipalities, plastic bags are banned, but paper bags are available at a charge (ranging from 5¢–25¢). In most cases, this charge is divided between the retailer who furnishes the bag and the municipality that uses the income for funding sustainability programs.

Past research has delved into how shopping bags act as walking billboards (Prendergast, Ng, & Leung, 2001) and governments' use of advertising as a tool to promote recycling and energy-saving behaviors by reminding citizens of their commitment to the welfare of others (Stern, 1999). However, no research thus far, to the best of our knowledge, has looked at how framing of charges (gain vs. loss) for plastic bags in green advertisements can motivate American shoppers' to comply with ordinances and bring a reusable bag to grocery stores. Cheng, Woon, and Lynes (2011) have cited the dearth in academic studies on the role of message framing as a strategy in social marketing to influence environmentally sustainable behaviors. In addition, the researchers use the theory of planned behavior (TPB) to examine whether attitudinal and social factors along with perceived control can influence interpretations of different frames. Past studies that used TPB primarily used survey methods to collect self-reports which can impact the reliability and validity of the model (e.g., Armitage & Conner, 2001); however, this study is the first whereby using an experiment, the researchers look at how green message frames function from immediate advertisement exposure to actual behavior in a controlled environment.

Literature Review

Plastic Bags and Shopping Behavior

A significant amount of research has been conducted over the past several decades to identify how to encourage more proenvironmental behaviors among consumers. Ritch, Brennan, and MacLeod (2009) argued that there are differences between regular consumer behaviors and those considered proenvironmental: A general purchase behavior includes an assessment of the various benefits and costs that are relevant only to the individual consumer performing the behavior. The proenvironmental or environmentally conscious behavior, in contrast, is unlikely to deliver an immediate personal gain or gratification, but rather the consumer assesses the behavior in light of a future-oriented outcome that benefits society as a whole.

Creating proenvironmental behaviors has been shown to be somewhat challenging, and a range of solutions and ideas have been proposed as ways to stimulate different types of behaviors. Cherrier (2006) indicated that carrying a reusable bag is a public and visible way of showing support for the environment. The author suggested that the availability of reusable cloth bags has been seen as a symbol of collective action and way of life and, to the world at large, suggests that the person carrying the bag is a thoughtful person. However, consumers must first be aware that a reusable bag option exists and then be motivated to bring the bag regularly on their shopping trips. Consumers, though, seem most apt to adopt behaviors that are relatively undemanding (Tilikidou & Delistavrou, 2008). The challenge, therefore, can be changing the habit of receiving a plastic bag at the store to bringing a reusable bag.

The Wall Street Journal reported on a discussion of adopting reusable bags at a green marketing seminar at Stanford Graduate School of Business in 2008 and quoted Professor Baba Shiv as saying it can take "years and decades for consumers to change their shopping habits and only where there's a personal reward or obvious taboo associated with the change" (Gameran, 2008). What stands in the

way of consumers bringing their own bags? Toting a bag is a hard consumer habit to adopt: One has to remember to take the bag from the house to the store or to always carry a bag. The bag charge can disrupt consumers' habits, making consumers consciously think about their need for a bag. At the same time, the bag charge can remind consumers about their proenvironmental orientations (Jakovcevic et al., 2014). Since many stores offer a paper bag for a charge ranging from 5¢ to 25¢, many consumers simply choose to pay for the bag. A lack of enforcement, particularly when bag bans have been in place for a while, may also cause consumers to pick up old habits even if they started bringing reusable bags at one point. The lack of cost-effective alternatives may also limit adoption, particularly in areas with a preponderance of low-income households. Finally, communication campaigns and the resultant framing of the initiative may have an influence on consumer adoption of the behavior. Numerous scholars advocate for persistent information campaigns to remind people of their own environmental concerns (He, 2012) and as a way to make sure bringing one's own bag becomes the "default" option for shoppers (Chan et al., 2007).

One-way municipalities have attempted to encourage this new habit is to allow retailers to charge for a paper bag in the event that a customer does not bring his or her own bag. Paper bags have their own sets of environmental concerns: deforestation in the production of the bag and, if the bag is recycled, the chemical efforts to repulpify the bag (Dunn, 2008). Over 14 million trees are cut down each year to supply paper bags for the United States alone (Waste Management, n.d.). At the same time, consumers are more likely to retain a paper bag over a plastic bag, increasing reuse, and are also more likely to recycle a paper bag (Prendergast et al., 2001). Many retailers want to offer a paper bag instead of requiring customers to bring bags, believing their consumers should have choices in how they choose to transport the products they purchase (Tesco, 2007). However, increasing consumer use of reusable bags will generate environmental benefits for everyone.

A recent national study in the United States showed that only about 25% of Americans primarily use reusable shopping bags to carry their groceries. Among those who already carry reusable bags, 50% favor a ban on plastic bags, while 48% oppose. Nearly two thirds of Americans (62%) say they primarily use plastic bags when grocery shopping, and 66% of these consumers oppose a plastic bag ban (Ekins, 2013). In Dallas, TX, where a charge was implemented early in 2015, about half of the consumers believed that the charge would encourage people to bring reusable bags and half indicated that it would not (Loftis, 2015). As a note, the Dallas ordinance was repealed on June 3, 2015. In other parts of the world, bans have been enforced to reduce litter caused by plastic bags. A nationwide regulation was enforced in China in 2008; now, retailers can charge shoppers for plastic bags (He, 2012). Since the regulation was enforced, findings showed that there was a 49% decrease in plastic bag usage, and this encouraged reuse of plastic bags and reusable bags. The author suggests that a higher price can mitigate consumption of plastic bags even further. In Botswana, a plastic bag legislation was passed in 2007, and this resulted in a significant decline in plastic bag usage (Dikgang & Visser, 2012). The main reason for the decline was the high prices that retailers charged. Ireland's 15 Euro cent tax on plastic bags brought down usage by 90%, thereby reducing litter and negative landscaping (Convery, McDonnell, & Ferreira, 2007). The Irish government also advertised the environmental benefits of the tax months before the legislation was enforced. Based on the plastic bag legislation in South Africa in 2003, Hasson, Leiman, and Visser (2007) suggest that utilizing prices alone can lead to short-term success but may decline over time. Reasons include that the price was dropped from 46¢ to 17¢, and shoppers got used to paying for plastic bags. In the latter case, paying the price of a plastic bag constituted a small share of household expenditure. As a further analysis to the previous study, Dikgang, Leiman, and Visser (2012) concluded that at this rate, it would be even more difficult to change shoppers' behavior. After plastic bags were charged in Buenos Aires, Argentina, Jakovcevic et al. (2014) found that more than extrinsic motivations (financial incentives), it was intrinsic motivations (environmental concern) that contributed to behavioral change. Overall, the studies suggest that charging shoppers for plastic bags can induce a short-term commitment

which highlights the need for further studies to understand attitudinal and social factors that impact shoppers' behavior.

As mentioned earlier, in some cases, this charge is framed as a tax and in some cases as a fee. What is the difference between the two terms? According to Joseph Henchman, Tax Foundation's Vice President of Legal and State Projects, the primary purpose of a tax is to raise revenue, and the primary purpose of a fee is to recoup the cost of providing a service from a beneficiary. At the same time, many consumers believe that taxes are "mandatory" charges, while fees are "voluntary" charges (Borean, 2013). In most municipalities, the charge for a paper bag is both a fee and a tax, with some proceeds reimbursing the retailer and the rest contributing to sustainability programs.

A frame is the way something is presented to an audience, and framing theory suggests that the frame influences the choices people make about processing the information (Goffman, 1974). Frames, then, organize or structure message meaning. Framing theory has been suggested as a type of second-level agenda setting: In that, these messages tell the audience not only what to think about (agenda-setting theory) but also how to think about that issue (second-level agenda setting).

In this study, we seek to examine the appropriateness of each of these labels by placing them in a specific gain or loss frame to assess consumer reactions and potential for behavior change (i.e., complying with a carry bag ordinance and bringing a reusable bag). How these terms are used is important: In one study, Homonoff (2013) found that a 5¢ tax on disposable bags substantially decreased disposable bag use, while a 5¢ bonus for using a reusable bag did not. This is related to the idea of loss aversion theory, an economics theory that relates to people's tendency to prefer avoiding losses to acquiring gains. The word tax could be seen as a loss and the bonus as a gain. Loss aversion studies have focused on bargaining behaviors (Gill & Prowse, 2012) as well as merit pay for teachers who obtain specific classroom goals (Fryer, Levitt, List, & Sadoff, 2012). Most studies suggest that losses are twice as powerful, psychologically, as gains (Kahneman & Tversky, 1992). In addition, we seek to identify whether different attitudes, feelings of competence, and belief in the degree of the socially acceptable behavior might influence whether a "tax" or "fee" frame is more motivating for consumers.

Theoretical Framework

The TPB has been consistently used to understand the psychological and social predictors of human behavior (Nosek et al., 2010) and posits that attitudes, norms, and perceived control have the ability to shape an individual's behavioral intentions and subsequent behaviors (Ajzen, 1985). The key component to the TPB is that of behavioral intent, which is the motivational factor that influences a specific behavior: The stronger the intention to perform the behavior, the more likely the individual will perform the behavior. In turn, behavioral intentions are influenced by the attitude about the likelihood that the behavior will be an outcome expected by the individual. The individual also undertakes a subjective evaluation of the risks and benefits of that outcome. Attitudes are the degree to which a person has a positive or negative evaluation of a specific behavior and has shown to impact behavioral intentions (Ajzen & Fishbein, 1980). Hines, Hungerford, and Tomera (1987) reviewed 51 studies and found that attitudes toward specific environmental behaviors (such as complying with a carry bag ordinance and bringing reusable bags) better predicted behaviors than general attitudes. Attitudes are formed based on the behavioral beliefs and evaluation of those beliefs and thus can be operationalized as beliefs about the rewards and consequences of performing the action (Ajzen & Fishbein, 1970). Attitudes are influenced in turn by the outcomes of performing the behavior.

In TPB, normative beliefs and subjective norms are examined. Normative beliefs are beliefs about the social acceptability of the behavior or whether others (in particular, friends and family one sees as important) will approve or disapprove of the behavior. Thus, if one's peers or family members tend to comply with environmental ordinances, then one would subjectively determine that the behavior is

valuable. Existing proenvironmental behaviors may signal a type of social norm or customary rules of behavior that guide our interactions with others. Subjective norms are represented by normative beliefs and the motivation to comply with these norms and emphasize the beliefs of those an individual is most likely to conform to (Ajzen & Fishbein, 1970). Norms bring about behavioral intentions when one desires to act as others do or as one ought to do.

Another aspect important to the TPB is perceived behavioral control, which distinguished the TPB from the theory of reasoned action (Ajzen, 1985). Perceived behavioral control is a person's perception of the difficulty of performing the behavior of interest that predicts behavioral intentions and actual behavior. Furthermore, an individual must believe that he or she has the resources and opportunities to perform the behavior. Obviously, this varies across situations and actions, particularly in proenvironmental behaviors: It is easier to recycle if one has curbside recycling than if one has to take one's recyclables to a collection center. People perceive the presence of factors that facilitate or impede the performance of a behavior. This is known as perceived power, and it contributes to a person's perceived behavioral control. In a meta-analysis, Armitage and Conner (2001) found that perceived control accounted for a significant amount of variation in intentions and behavior, while subjective norms were the weakest antecedent of behavioral intention. The authors suggest that it could be due to reasons including poor measurement and the need for development of the normative construct.

Environmental concern has been termed a "problem awareness" variable and is an important variable to include in the TPB model. Axelrod and Lehman (1993, p. 149) argued that environmental concern helps to better understand the range of factors that influence an individual's choice regarding different environmentally responsible behaviors. Particular to the TPB, several studies have found that TPB variables have the potential to mediate the relationship between environment concern and resultant behaviors or behavioral intentions in studies examining public transportation (De Groot & Steg, 2007) and reduced energy use in the home (Clement, Henning, & Osbaldiston, 2014). In general, consumers who have a high level of environmental concern tend to be more involved in environmental issues (Lee, 2008), and this involvement plays a significant role in influencing the effectiveness of message framing (Maheswaran & Meyers-Levy, 1990). Specifically, people with higher levels of environmental concern will exhibit a much stronger reaction regardless of both types of frames than people with lower levels of environmental concern (Chang, Zhang, & Xie, 2015).

TPB and Sustainable Behaviors

TPB has been used to examine decisions related to green services. Antecedent variables of intention in the TPB contributed to forming the intention to select a green hotel. Han, Hsu, and Sheu (2010) showed that attitudes, subjective norms, and perceived behavioral control positively affected intentions to stay at a green hotel. They also found that the paths between predictors and intentions did not differ between those people who generally practiced sustainable behaviors and those who did not. Kim and Han (2010) showed that people were happy to have minor inconveniences such as reusing towels and were willing to pay equivalent tariffs even with those inconveniences. A clear awareness of the benefits provided by green services was also shown to be important in consumer decision-making.

TPB has also been used in numerous studies of green purchasing behavior of products. To illustrate, Kalafatis et al. (1999) examined the factors that influence intentions to buy environmentally friendly products and found that TPB was robust in explaining intentions in two distinct markets—the United Kingdom and Greece. They also found that the theory seems to be more appropriate in a well-established market, as the United Kingdom has more clearly formulated behavioral patterns. In terms of bringing bags or buying plastic bags from hypermarkets in Taiwan, findings showed that self-efficacy was the main predictor of bringing bags, while situational factors (whether goods were easy to

carry, whether amount of goods were more than expected, and whether certain goods caused embarrassment: underwear or condoms) predicted buying plastic bags (Lam & Chen, 2006).

Harland, Staats, and Wilke (1999) examined four different environmentally relevant behaviors: using unbleached paper, using transportation other than a personal car, using energy-saving light bulbs, and turning off the faucet while brushing teeth. They found the four behaviors were only weakly related, that is, performing a specific environmentally friendly behavior did not necessarily predict performing other ones. Personal norms (one's perception of their own beliefs regarding effort, how guilty they would be if they did not do the behavior, and one's personal obligation to the environment) increased the proportion of explained variance in the self-reported measures of performed environmentally relevant behaviors. Beyond that, variance was explained by three of the TPB constructs (i.e., attitude, subjective norm, and perceived behavioral control).

Cheung, Chan, and Wong's (1999) study used TPB to examine paper-recycling behavior among college students in Hong Kong. TPB significantly predicted both behavioral intention and actual behavior that was self-reported a month later. Perceived difficulty predicted behavioral intention and moderated the intention-behavior link, whereas perceived control had no significant effect. In addition, general environmental knowledge significantly predicted behavior. The authors also found that past recycling behaviors had a notable effect on predicting subsequent behavior; as a result, the authors argue that TPB plus knowledge are not sufficient to predict behavior. In another study of green behaviors, De Groot and Steg (2007) examined whether TPB could explain intentions to use a park-and-ride facility. Environmental concerns were directly related to people's attitudes toward using the facility, and positive attitudes and subjective norms, and high perceived behavioral control toward the use of the facility was related to stronger intentions to use the facility.

Research that studies TPB as well as framing of green advertising messages to motivate shoppers to comply with carry bag ordinances and bring reusable bags has received little attention, and based on the theoretical framework, the following hypotheses were postulated:

Hypothesis 1: Behavioral beliefs, evaluation of beliefs, and environmental concern will predict attitude toward compliance for tax and fee frames.

Hypothesis 2: Normative beliefs, motivation to comply, and environmental concern will predict subjective norms for tax and fee frames.

Hypothesis 3: Environmental concern will predict perceived control and attitude toward bringing reusable bags for tax and fee frames.

Hypothesis 4: Attitude toward compliance, subjective norms, perceived control, and attitude toward bringing reusable bags will predict behavioral intention for tax and fee frames.

Hypothesis 5: Behavioral intention and perceived control will predict actual behavior for tax and fee frames.

Method

Stimuli

Two ads were created to introduce the upcoming U.S. carry bag ordinance that supposedly was to begin on August 1, 2015 (see Figures 1 and 2). The fee and tax ads were identical in visual, layout, and spacing, while slight differences were made with respect to the headline and ad copy. Both ads encouraged shoppers to bring reusable bags to grocery stores, but failure to do so would result in either avoiding a fee (gain frame) or paying a tax (loss frame) of 10¢ for each single-use plastic bag they would receive from retailers.

Reduce litter: Everyone **could** bring reusable bags



The new U.S. carry bag ordinance will help reduce waste and keep our country beautiful. Beginning August 1st 2015, shoppers nationwide will be charged a 10¢ environmental **fee** for each single-use plastic bag they receive from retailers.

Bring reusable bags and **avoid the fee.**

Figure 1. Gain frame using “fee.”

Reduce litter: Everyone **must** bring reusable bags



The new U.S. carry bag ordinance will help reduce waste and keep our country beautiful. Beginning August 1st 2015, shoppers nationwide will be charged a 10¢ environmental **tax** for each single-use plastic bag they receive from retailers.

Bring reusable bags or **pay the tax.**

Figure 2. Loss frame using “tax.”

Procedure

An online survey was created using Qualtrics (Provo, Utah), and survey invitations were created and distributed through Amazon's Mechanical Turk (M-Turk) in the beginning of July 2015. Selection criteria were based on whether M-Turk participants were U.S. citizens and above 18 years of age. M-Turk workers tend to be demographically diverse with majority of workers from the United States (Paolacci & Chandler, 2014) and that the data obtained are of high quality and reliable (Buhrmester, Kwang, & Gosling, 2011), thus justifying its use.

The two surveys (i.e., fee and tax conditions) were randomized using Qualtrics so participants responded to one or the other. Participants were first provided with an informed consent form followed by a brief description of the study. Participants in each condition were first exposed to either ads and then answered questions measuring their attitudes and behavioral intentions. Toward the end of the survey, participants were asked to provide their demographic information, along with their M-Turk ID for payment purposes. Those who completed the survey were monetarily compensated, while those who submitted incomplete surveys or perfunctory responses were removed. Due to the fictitious nature of the ordinance, participants were also provided with a debriefing statement on the last page of the survey that briefly explained the true objective of the survey and the stimuli.

Measures

The scales for beliefs, attitudes, subjective norms, and perceived control measured compliance with the U.S. carry bag ordinance, while environmental concern, attitude toward bringing reusable bags, behavioral intention, and actual behavior measured bringing reusable bags to the grocery store. The rationale being that if a shopper has high environmental concern, favorable attitudes toward compliance and bringing reusable bags, subjectively determines from family and friends that the behavior of compliance is valuable and has perceived control to enact it then the intention and behavior to bring reusable carry bags will manifest.

Environmental concern about litter caused by plastic bags was measured using a modified 5-point semantic differential scale with 5 items (Mohr, Eroglu, & Ellen, 1998). The scale consisted of the following adjectives—*Unimportant/important*, *Something that does not really matter to me/ . . . really matters to me*, *Not personally relevant/personally relevant*, *Uninvolving/involving*, and *Of little concern to me/of great concern to me*. The scale was reliable ($\alpha_{\text{Fee}} = .923$, $\alpha_{\text{Tax}} = .94$).

Behavioral beliefs were measured using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) with 4 items. Evaluation of each belief on compliance with the U.S. carry bag ordinance was measured using a 5-point Likert-type scale (1 = *unimportant*, 5 = *important*) with 4 items. Both scales were adapted from Babin, Darden, and Griffin (1994). An example of an item for behavioral belief included "It will protect our waterways" and an example for evaluation of the belief included "Protecting our waterways is _____." The scales were reliable: behavioral beliefs ($\alpha_{\text{Fee}} = .912$, $\alpha_{\text{Tax}} = .923$) and evaluation of each belief ($\alpha_{\text{Fee}} = .917$, $\alpha_{\text{Tax}} = .92$).

Attitude toward complying with the carry bag ordinance and attitude toward bringing reusable bags were both measured using a 5-point semantic differential scale with 6 items (Shimp & Kavaz, 1984). The scale consisted of the following adjectives—*foolish/wise*, *useful/useless*, *waste of time/wise use of time*, *valuable/worthless*, *unfavorable/favorable*, and *good/bad*. The scales were reliable: attitudes toward compliance ($\alpha_{\text{Fee}} = .953$, $\alpha_{\text{Tax}} = .951$) and attitude toward bringing reusable bags ($\alpha_{\text{Fee}} = .96$, $\alpha_{\text{Tax}} = .951$).

Normative beliefs and motivation to comply were measured using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) with 4 and 2 items, respectively (Taylor & Todd, 1995). An example of an item for normative belief included "My family would think that I

should comply with the U.S. Carry Bag Ordinance” and an example for motivation to comply included “Generally speaking, I want to do what my family thinks I should do.” The scale was reliable: normative beliefs ($\alpha_{\text{Fee}} = .891$, $\alpha_{\text{Tax}} = .914$) and motivation to comply ($\alpha_{\text{Fee}} = .828$, $\alpha_{\text{Tax}} = .811$).

Subjective norms were measured using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) with 4 items and adapted from Taylor and Todd (1995). An example item included “Most people who are important to me would approve of my compliance with the U.S. Carry Bag Ordinance.” The scale was reliable ($\alpha_{\text{Fee}} = .929$, $\alpha_{\text{Tax}} = .937$).

Perceived control was measured using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) with 4 items and adapted from Madden, Ellen, and Ajzen (1992). An example item included “I have complete control over complying with the U.S. Carry Bag Ordinance.” The scale was moderately reliable ($\alpha_{\text{Fee}} = .613$, $\alpha_{\text{Tax}} = .706$).

Behavioral intention to bring reusable bags after being exposed to the ad was measured using a self-made 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) with 4 items. An example of an item included “It is plausible I will bring reusable bags to the grocery store.” The scale was reliable ($\alpha_{\text{Fee}} = .95$, $\alpha_{\text{Tax}} = .952$).

Behavior was based on past shopping behavior and measured using a self-made 5-point Likert-type scale (1 = *never*, 5 = *all the time*) with a single item—“When grocery shopping at your local retail store, how often do you bring reusable bags?”

Results

Demographic Profile

The sample consisted of 315 (N) participants, where 47.3% ($n = 149$) were in the fee condition and 52.7% ($n = 166$) were in the tax condition. Demographic characteristics of participants in each condition are provided in Table 1.

Manipulation Checks

Two independent samples t -tests were conducted to see whether the participants understood that the 10¢ was framed as a fee or tax. In the fee group, participants found the ad to be framed more as a fee ($M = 4.55$, $SD = .76$) than a tax ($M = 1.80$, $SD = 1.14$), $t(290.75) = 25.34$, $p < .001$. In the tax group, participants found the ad to be framed as a tax ($M = 4.64$, $SD = .77$) than a fee ($M = 1.70$, $SD = 1.10$), $t(260.98) = -27.01$, $p < .001$.

In terms of the language’s assertiveness, participants exposed to the tax ad ($M = 4.29$, $SD = .72$) perceived the ad copy to be more assertive than those exposed to the fee ad ($M = 3.76$, $SD = .89$), $t(285.27) = -5.76$, $p < .001$. In addition, participants felt like they had more freedom in choosing to pay the fee ($M = 2.32$, $SD = 1.34$) than the tax ($M = 1.92$, $SD = 1.10$), $t(284.94) = 2.83$, $p < .01$. This confirms that tax and fee are perceived differently and showed that if people brought reusable bags, then they can avoid the tax or the fee, but the usage of the term tax, especially, gave the impression that there is a restriction to their freedom of choice. This reiterates the importance of how framing an ad based on a tax and fee can affect perceptions even though the penalty is avoidable and confirms that a tax is seen as a loss frame and a fee is seen as a gain frame.

Exploratory Factor Analysis

Exploratory factor analysis with varimax rotation method was separately conducted for each variable in the fee and tax conditions. The factor analysis revealed one factor for each, that is, the factor did not undergo any rotation. However, for perceived control, the factor analysis in the fee condition revealed

Table 1. Demographic Profile.

	Fee		Tax	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age (years)	35	11.10	35.67	13.05
	<i>n</i>	%	<i>n</i>	%
Sex				
Male	65	43.6	84	50.6
Female	84	56.4	82	49.4
Political affiliation				
Democrat	57	38.3	69	41.6
Republican	46	30.9	40	24.1
Independent	46	30.9	57	34.3
Race				
White or Caucasian	120	80.5	138	83.1
Black or African American	11	7.4	8	4.8
Hispanic or Latino	8	5.4	6	3.6
Asian or Asian American	9	6.0	11	6.6
American Indian or Alaska Native	1	0.7	3	1.8
Education				
Did not finish high school	0	0	0	0
High school	51	34.2	34	20.5
2-Year college (associate)	25	16.8	35	21.1
4-Year college (bachelor)	64	43	78	47
Masters	7	4.7	17	10.2
Doctoral	1	0.7	1	0.6
Professional	1	0.7	1	0.6
Household income				
Less than 5,000	7	4.7	4	2.4
5,000–9,999	4	2.7	8	4.8
10,000–14,999	9	6.0	10	6.0
15,000–19,999	9	6.0	15	9.0
20,000–24,999	18	12.1	14	8.4
25,000–29,999	11	7.4	14	8.4
30,000–39,999	25	16.8	21	12.7
40,000–49,999	18	12.1	17	10.2
50,000–59,999	12	8.1	14	8.4
60,000–79,999	17	11.4	19	11.4
80,000 or higher	19	12.8	30	18.1

two factors and Factor 1 with 3 items was used to represent the variable. The item “For me to comply with the U.S. Carry Bag Ordinance would be very easy” that loaded onto Factor 2 was removed and not used in the subsequent analysis ($\alpha_{\text{Fee}} = .65$). In the tax condition, all 4 items loaded onto a single factor ($\alpha_{\text{Tax}} = .71$). The resulting variables were then used in the regression analyses to predict actual reusable bag-bringing behavior.

Regression Analysis

To test the hypotheses (Hypotheses 1–5), hierarchical and multiple linear regressions were conducted, as it is one of the preferred methods used to test the TPB (Hankins, French, & Horne, 2000).

Table 2. Regression Analysis of Variables Under "Fee."

	Standardized	Coefficients
	Step 1	Step 2
Attitude toward compliance		
Behavioral beliefs	0.494***	0.393***
Evaluation beliefs	0.412***	0.348***
Environmental concern		0.207**
R^2	.699	.718
ΔR^2		.019
F change	169.41***	10.002**
Subjective norms		
Normative beliefs	0.871***	0.795***
Motivation to comply	0.026	0.015
Environmental concern		0.144**
R^2	.781	.795
ΔR^2		.014
F change	259.908***	10.066**
Perceived control		
Environmental concern	0.467***	
R^2	.218	
F value	41.081***	
Attitude toward reusable bags		
Environmental concern	0.711***	
R^2	.506	
F value	150.508***	
Behavioral intention		
Attitude toward compliance	0.563***	0.426***
Subjective norms	0.048	0.05
Perceived control	0.201**	0.201**
Attitude toward reusable bags		0.173
R^2	.505	.516
ΔR^2		.011
F change	49.298***	3.389
Behavior		
Behavioral intention	0.456***	
Perceived control	0.101	
R^2	.262	
F value	25.878***	

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Fee. As shown in Table 2, behavioral beliefs ($\beta = .494$), evaluation of each belief ($\beta = .412$), and environmental concern ($\beta = .207$) were significant predictors of attitude toward compliance; thus, Hypothesis 1 was supported. Only normative beliefs ($\beta = .871$) and environmental concern ($\beta = .144$) significantly predicted subjective norms, while motivation to comply was nonsignificant; Hypothesis 2 was partially supported. Environmental concern was a significant predictor of perceived control ($\beta = .467$) and attitude toward bringing reusable bags ($\beta = .711$); Hypothesis 3 was supported. For behavioral intention, attitude toward compliance ($\beta = .426$) followed by perceived control ($\beta = .201$) were significant predictors, while subjective norms and attitude toward bringing reusable bags were nonsignificant; Hypothesis 4 was partially supported. Behavioral intention ($\beta = .456$) was a significant predictor of actual behavior, while perceived control was nonsignificant; Hypothesis 5 was partially supported.

Table 3. Regression Analysis of Variables Under “Tax.”

	Standardized	Coefficients
	Step 1	Step 2
Attitude toward compliance		
Behavioral beliefs	0.555***	0.388***
Evaluation beliefs	0.307***	0.132*
Environmental concern		0.418***
R^2	.604	.685
ΔR^2		.081
F change	124.469***	41.734***
Subjective norms		
Normative beliefs	0.812***	0.743***
Motivation to comply	0.101*	0.096*
Environmental concern		0.113*
R^2	.716	.724
ΔR^2		.008
F change	205.818***	4.53*
Perceived control		
Environmental Concern	0.567***	
R^2	.321	
F value	77.624***	
Attitude toward reusable bags		
Environmental concern	0.733***	
R^2	.537	
F value	190.406***	
Behavioral intention		
Attitude toward compliance	0.294**	0.03
Subjective norms	0.227*	0.219**
Perceived control	0.262**	0.269**
Attitude toward reusable bags		0.408***
R^2	.487	.547
ΔR^2		.06
F change	51.249***	21.508***
Behavior		
Behavioral intention	0.394***	
Perceived control	0.116	
R^2	.225	
F value	23.673***	

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Tax. As shown in Table 3, environmental concern ($\beta = .418$), behavioral beliefs ($\beta = .388$), and evaluation of each belief ($\beta = .132$) were significant predictors of attitude toward compliance; thus, Hypothesis 1 was supported. Normative beliefs ($\beta = .743$), environmental concern ($\beta = .113$), and motivation to comply ($\beta = .096$) significantly predicted subjective norms; Hypothesis 2 was supported. Environmental concern predicted both perceived control ($\beta = .567$) and attitude toward reusable bags ($\beta = .733$); Hypothesis 3 was supported. For behavioral intention, attitude toward bringing reusable bags ($\beta = .408$) followed by perceived control ($\beta = .269$) and subjective norms ($\beta = .219$) were significant predictors; Hypothesis 4 was partially supported. Behavioral intention ($\beta = .394$) was a significant predictor of actual behavior but not perceived control; Hypothesis 5 was partially supported.

Discussion

The TPB has been shown to predict intention and behavior, and by applying the theory in an experimental format, the objective of the current study was to understand the underlying factors that would motivate an individual to bring reusable shopping bags after being exposed to either a fee (gain) or tax (loss) frame. The subsequent focus was on which message frame in the advertisement would prove to be more effective by taking into account all the relationships in the TPB.

Theoretical Implications

From the regression analysis, significant relationships existed in both groups (fee and tax) and, for the most part, conformed to the theoretical model. Environmental concern for the litter caused by plastic bags was a strong predictor of attitudes, norms, and control, thus reinforcing its importance as an important antecedent in the TPB model. On looking at the impact of factors on behavioral intention for the fee ad, attitude toward complying with the carry bag ordinance was more important, followed by one's level of perceived ease or difficulty in complying with the ordinance. Thus, positive evaluations of complying with the ordinance and intending to engage in compliance that are believed to be achievable can lead to stronger intentions to bring reusable bags. For taxes, however, attitude toward bringing reusable bags was important and was closely followed by perceived control and subjective norms. Ajzen (1991) has mentioned that the relative importance of attitude, subjective norm, and perceived control on intention varied across behaviors and situations (p. 188), or, here, message frames.

On being exposed to the fee advertisement, favorable attitudes toward compliance were formed under the assumption that a penalty framed as a fee is perceived to be less restrictive than a tax. Having less restriction wherein there is a perceived choice to avoid the fee may induce shoppers to comply with the ordinance which would further generate positive intentions to bring reusable bags. At the same time, the absence of an impact of attitude toward bringing reusable bags indicates that shoppers are still reluctant and maybe the ad reminded them of the costs associated with reusable bags—remembering to bring them, stocking, maintenance, and so on. In the other tax condition, considering that the penalty was a tax, shoppers perceive to be forced to comply with the ordinance even though they don't want to, which may explain the absence of any effect of compliance attitudes on intentions. The more restrictive nature of a tax may force shoppers to generate positive attitudes toward bringing their reusable bags, though not willingly. This shows that impact of attitude type depends on penalties framed as a fee or tax.

In terms of exceptions, there were absences of a significant impact—motivation to comply with the U.S. carry bag ordinance on subjective norms and subjective norms on behavioral intention—for the fee condition. This can again be attributed to the perception of a penalty being framed as a fee (vs. a tax). For a fee, the motivation to comply with the ordinance may have been perceived as a choice (voluntary) and can thus be avoided if the proper actions were taken, like, bringing reusable bags. However, for a tax, the motivation to comply was existent maybe due to the fact that taxes cannot be evaded (mandatory) and have to be paid to the government. It would be considered as every citizen's lawful obligation to pay his or her taxes since it fuels the country's economic growth. Here, paying taxes would help the government to reduce litter caused by plastic bags and further diminish its impact on the environment as a whole. Subjective norms refer to general social pressure in the form of the individuals, that is, family or friends who have an influence on the intentions to comply with the carry bag ordinance. Among the antecedents of behavioral intentions, subjective norms were generally found to be the weakest predictor (Armitage & Conner, 2001), and this was similarly seen in the current study. The absence of a relationship for the fee condition indicates that family or friends are not considered important to the behavioral intention of shoppers to bring reusable bags instead attitudes and perceived control sufficed. In the tax condition, however, the approval of family and friends is important because the act of not complying with the ordinance (paying the tax) maybe

frowned upon and seen as an unethical activity. If an individual perceives that his or her significant others would disapprove of their actions, then they are less likely to perform it. By applying the TPB in a controlled environment, the findings revealed a difference in how a message framed as a tax or fee is perceived by shoppers.

Finally, intentions have been found to be better predictors of behavior (Armitage & Conner, 2001), and for both conditions, intentions to bring reusable bags significantly predicted actual behavior. Unlike in past studies (e.g., Armitage & Conner, 2001) where perceived control was a strong predictor of behavior, the current findings indicate that control may only have an indirect impact on behavior through intention.

Practical Implications

According to the National Conference of State Legislatures (2015) website, plastic bag ordinances have been enforced in different parts of the United States—California, Hawaii, Delaware, District of Columbia, Maine, New York, North Carolina, and Rhode Island. Among the handful of states, only California and Hawaii imposed a statewide ban on single-use plastic bags, and the ordinances took effect in 2015 and 2014, respectively. The majority of enacted ordinances charged 5¢–10¢ fees as a penalty for using disposable bags at retailers. The low success rate of these plastic bag bans can be attributed to the low fee amounts which shoppers can get used to paying, and it constitutes a small share of the shopping expenditure (Hasson, Leiman, & Visser, 2007), eventually making it more difficult to change shopping habits (Dikgang, Leiman, & Visser, 2012). Furthermore, there is a limit to how much a fee can be increased.

For a community considering implementing an effort to reduce plastic bag usage, it is recommended that the cost associated with obtaining a bag from the store be phrased as a tax and not a fee, as the results of this study show that when comparing the two ads and taking the relationships under the TPB into consideration, an advertisement regarding a carry bag ordinance with a cost penalty for obtaining a bag framed as a tax maybe more effective than a fee. Findings show that a tax frame, even with a minimal cost as used in this study (10¢), has the potential to force shoppers to generate positive attitudes to bring reusable bags. Most importantly, in terms of compliance toward the ordinance, shoppers will have feelings of competence and would consider the thoughts and approval of those who are important to them. While few studies in the marketing realm have indicated that messages framed as a loss tend to be more effective than gain frames to promote environmentally sustainable behaviors as negative information is perceived to be more salient and fear inducing (e.g., Davis, 1995), this study reflects what economists examining loss aversion theory have found to be true in other contexts.

A Gallup Poll revealed that overall quality of the environment (31%) ranked the lowest in the list of national concerns among Americans, while the economy, federal spending, and health care topped the list (Riffkin, 2014). Gallup Poll began measuring environmental concern since 2001, and this level of concern is the lowest yet. To push shoppers to bring reusable bags, policy makers would need to enforce ordinances that penalize shoppers with a tax rather than the much popular option of charging a fee. As a note, past research in different countries has shown that a financial penalty for plastic bags can reduce its consumption (e.g., Dikgang & Visser, 2012); however, this can only be seen as a short-term strategy (Dikgang et al., 2012; Hasson et al., 2007). To prolong its success, one option is for the government, with the help of social marketers and perhaps with the assistance of retailers, to frequently run green advertisements prior to the legislation and inform shoppers of the environmental benefits of the tax (Convery et al., 2007) and disclose how the public's tax money will be used to reduce litter and fund sustainability programs. Along with favorable attitudes toward bringing reusable bags, this may help generate favorable compliance attitudes as well. The second option, based on the current findings, is for social marketers to frequently emphasize on subjective norms in their advertisements, that is,

socially acceptable behavior—the ethics of paying taxes and complying with governmental ordinances is the duty of every individual and citizen. Failure to do so may lead to scrutiny from social groups (family and friends), and advertising appeals such as fear or shame can be utilized in the ad design to elicit affective responses. Finally, to maintain or enhance perceived control, advertising copy can highlight the environmental benefits that come from complying with the ordinance (e.g., reduce waste, keeps our country beautiful, etc.), provide simple steps to show how complying with the ordinance is an easy process contrary to popular belief of laws and ordinances, and use words such as “You can a make a difference” that may give shoppers a sense of empowerment and accomplishment regarding their environmental choices.

Despite the interesting findings, the study has limitations that need to be addressed. Apart from being somewhat small in size, the sample was skewed with the majority being Caucasian. Barriers to bringing one’s own bags to the grocery store may differ by ethnic groups, and future studies could include a more ethnically diverse sample and observe differences by ethnicity or race. There are limitations in using M-Turk, as it may not represent the entire country (Paolacci & Chandler, 2014). Even though the majority of people are online, non-Internet users are underrepresented in the data since an online panel was utilized; thus, the findings need to be interpreted with this limitation in mind. Age is another demographic variable in which diversity may prove beneficial to future researchers. According to the sixth annual “Tork Green Business Survey” (2014), 27% of Millennials (aged 18–34) were more likely to increase purchasing the number of green products/services when compared to older adults—35–44 (18%) and 45+ (15%). Differences by age-groups in terms of intentions and actual behavior in bringing reusable bags may be a possible avenue for future research. Finally, considering the nature of advertising and its immediate call to action, future research should explore the long-term effects of these advertising campaigns on shopping behavior.

Conclusion

The United States is faced with a plastic bag pandemic that has had a major impact on the country’s ecosystem, signaling a dire need for social marketing strategies to influence environmentally sustainable behaviors. Using framing and the TPB, the current study showed that penalties framed as a fee (gain) and a tax (loss) were perceived differently. Both frames motivated shoppers to bring reusable bags, but differences in relationships between behavioral intentions and its antecedents were observed. In light of the study’s findings, a green message frame with tax as a penalty would prove to be more effective in promoting reusable bags among shoppers.

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