Environmental and Economic Dimensions of Sustainability and Price Effects on Consumer Responses

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Abstract The lack of attention to sustainability, as a concept with multiple dimensions, has presented a developmental gap in green marketing literature, sustainability, and marketing literature for decades. Based on the established premise of customer–corporate (C–C) identification, in which consumers respond favorably to companies with corporate social responsibility initiatives that they identify with, we propose that consumers would respond similarly to companies with sustainability initiatives. We postulate that consumers care about protecting and preserving favorable economic environments (an economic dimension of sustainability) as much as they care about natural environments. Thus, we investigate how two sustainability dimensions (i.e., environmental and economic) and price can influence consumer responses. Using an experimental method, we demonstrate that consumers favor sustainability in both dimensions by giving positive evaluations of the company and purchase intent. In addition, consumers respond more negatively to poor company sustainability than to high company sustainability. In comparison, consumers respond more negatively to the company's poor commitment to caring for the environment than to the company's poor commitment to economic sustainability. We also find that consumers do not respond favorably to low prices when they have information about the firm's poor environmental sustainability. Finally, we find support for an interaction effect between consumer support for sustainability and corporate sustainability; that is, consumers evaluate a company more favorably if the company shares the consumers' social causes. Overall, we conclude, from our empirical study, support for the idea that consumers do respond to multiple dimensions of sustainability.

Keywords Sustainability · Environment · Economical · Experiment · Consumer responses

Introduction

The term, sustainable development, meaning "to meet the present needs without compromising the ability of future generations to meet their own needs" (United Nations 1987), has greatly influenced popular framings of sustainability today. In encompassing all aspects of our world, sustainability has been framed by considering multiple dimensions (e.g., environmental, economic, and social domains, which are so called the triple bottom line). The multiple dimensions of sustainability are echoed in the field of business strategy (Dyllick and Hockerts 2002) which expounds the sustainability concept at the business level. Accordingly, a holistic corporate responsibility model, which integrates multiple values of sustainability, has been recently proposed (Ketola 2008). As well, a mathematical model for a composite sustainable development index is proposed and made comparable in an economics case of Krajnc and Glavic (2005).

Despite the recent attention to multiple dimensions of sustainability, the need to address sustainability has historically focused on each dimension separately. For example, environmental sustainability has become increasingly important to the consumer as environmental issues have become larger since the 1980s, from local to global

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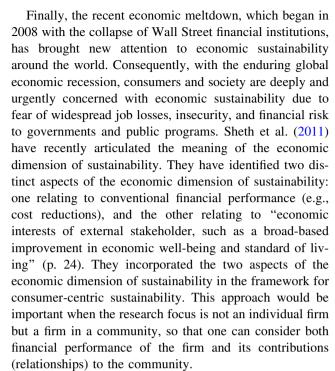e-mail: schoi@unbc.ca

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concerns, such as from acid rain in Eastern Europe to global climate change. Moreover, the number of environmental issues has proliferated too; global climate change diverges into related, high profile issues such as increased drought, habitat destruction, and rising sea levels. Accordingly, the green marketing literature examines environmental concerns within the discipline of marketing. The green marketing concept is expressed as "green" applications of a range of traditional marketing topics, which include advertising and promotion, purchase intention, consumer behavior, and market strategy. Hence, the past and present literature in green marketing remains focused on environmental concerns and products as well as consumer behavior.

While businesses, marketers and academics see "green" as a product option, as part of the solution of sustainability, it is also part of the problem since it still fosters consumption. This marketing focus misses the broader problem of modern endless consumption, and other core values of modernity that Kassiola (2003) argues, "are inconsistent with ecological limits and are producing an unsustainable, unsatisfying and undesirable society." Thus, treating environmental concerns as a business opportunity, a green opportunity, can have both the positive outcome of contributing to sustainability, and the negative outcome of harming sustainability (by promoting consumption). Moreover, this orientation is limited when compared to more recent developments in the concern for the environment, and to a broader orientation of sustainability having not only environmental dimensions, but also economic and social concerns—concerns that are beyond the scope of green marketing.

The social dimension of sustainability is concerned with the well being of people and communities as a noneconomic form of wealth. The sustainability problem is one of finding a balance between personal and societal "needs" and nature's capacity to support human life and activity, as well as ecosystems. This social dimension of sustainability has become more apparent, shown by increased public distrust toward business practices, exemplified in scandals, such as those surrounding Enron and Exxon Oil, as well as more public expectations of companies to do more for social well being (Mohr and Webb 2005). While this dimension reveals tension between the interests of business and society, there is also a meeting of interests when firms respond to sustainability. That is, from a micro view, when firms respond to sustainability, they are also responding to a macro-level societal concern for habitat and quality of life. In 1999, a worldwide study found that two-thirds of consumers surveyed wanted companies to contribute to broader social goals (Isa 2003). In response, considerable efforts have been made to study the social dimension of sustainability in the corporate social responsibility (CSR) context.

Finally, the recent economic meltdown, which began in 2008 with the collapse of Wall Street financial institutions, has brought new attention to economic sustainability around the world. Consequently, with the enduring global economic recession, consumers and society are deeply and urgently concerned with economic sustainability due to fear of widespread job losses, insecurity, and financial risk to governments and public programs. Sheth et al. (2011) have recently articulated the meaning of the economic dimension of sustainability. They have identified two distinct aspects of the economic dimension of sustainability: one relating to conventional financial performance (e.g., cost reductions), and the other relating to "economic interests of external stakeholder, such as a broad-based improvement in economic well-being and standard of living" (p. 24). They incorporated the two aspects of the economic dimension of sustainability in the framework for consumer-centric sustainability. This approach would be important when the research focus is not an individual firm but a firm in a community, so that one can consider both financial performance of the firm and its contributions (relationships) to the community.

In response to a growing interest among managers, stakeholders and academics regarding the potential impact of multiple dimensions of sustainability (e.g., Cronin et al. 2011), fortunately, recent marketing literature on sustainability offers important theoretical discourse from consumption and corporate marketing perspectives. These discussions are featured in the special issues of Business Strategy and the Environment (2006), Journal of Macromarketing (2010), and Journal of the Academy of Marketing Science (2011). Essentially, the literature has evolved from green marketing topics such as green advertising and green consumer profiles, toward sustainable marketing, in which marketers genuinely try to remedy human and environmental problems instead of perpetuating them (Belz and Peattie 2009).

While this literature, and other CSR literature, covers important ground regarding sustainability, it does not offer an examination of the notion that different dimensions of sustainability can exist in the minds of consumers. Although prior CSR studies examine the role of CSR in consumer purchase behavior (Brown and Dacin 1997; Sen and Bhattacharya 2001; Lichtenstein et al. 2004; Baghi et al. 2009; Berens et al. 2005), there is a tendency for the focus to be on mostly social concerns, which are related to ethical and moral issues of corporate decision making.

More recently, few studies have examined multiple dimensions of CSR. However, most studies conflate the role of each dimension of CSR in consumer evaluations. For example, Pirsch et al. (2007) consider multiple issues related to CSR when they examine the difference between an Institutional CSR program and a promotional CSR

program in consumer responses. However, determining the impact of each issue of CSR on consumer responses is difficult because each CSR program in the study was described by a combination of multiple dimensions of CSR. In addition, Singh et al. (2008) examine the role of multiple dimensions (commercial, ethical, and social responsibility dimensions) of CSR in consumer perception. However, their social dimension includes environmental concerns as well, so that the relative importance of environmental and social dimensions of sustainability is unknown.

Indeed, Mitchell et al.'s (2010) conceptual model of sustainable market orientation strategy, corroborates with this notion in prescribing three objectives: social, economic, and ecological. This model remains to be empirically tested. Furthermore, Chabowski et al. (2011) have recently reviewed 36 marketing-related journals to evaluate the intellectual structure of sustainability research. They emphasize the importance of research that explores the relative importance of multiple dimensions of sustainability in shaping consumers' attitudes and behavior.

The purpose of this study is to advance knowledge of sustainability and marketing, with particular regard to consumer behavior. Hence, the major research question of this study is: "are there other dimensions to sustainability?" This article addresses the need to examine dimensions of sustainability, environmental and economic, and consumer purchasing. Toward this gap in the literature on the existence of dimensions of sustainability, perhaps Mohr and Webb (2005) offer validation of a corporate social responsibility (CSR): the social dimension and the environmental. They do not examine the economic dimension of sustainability, and to date there are no studies on this issue. We submit that the economic dimension of sustainability may be equally as important. We propose that economic sustainability, rather than a company's profits, is desirable in the minds of many consumers. Such consumers may be motivated to make choices in their purchasing to support the firms which offer employment, opportunity, and economic development of local communities they care about. It would seem they would value it, and it would influence buying behavior. Hence, our research questions further include: (1) do consumers respond to the economic dimension of sustainability for a community? (2) does sustainability influence evaluation of a company? (3) how do two dimensions of sustainability, environmental and economic, work in influencing company evaluation and purchase intent? and (4) does economic sustainability found here support the sustainable market orientation of Mitchell et al. (2010)?

Our article contributes to the broader literature on marketing and CSR in two ways. We are first to demonstrate that sustainability, and not only CSR initiatives, offers a powerful means of customer–corporate (C–C) identification to influence consumer behavior. Second, the CSR and consumer behavior literature has not offered economic sustainability dimension as a stimulus before. We demonstrate that consumers respond positively to sustainability initiatives that contribute to local communities.

Our article also contributes to the literature on marketing and sustainability in four ways. First, it proves the existence of the two dimensions of sustainability: ecological and, in particular, the economic. Thus, it validates our proposition that consumers care about economic sustainability practices by making purchases and company evaluations supportive of the economic sustainability of a community. Second, we develop an understanding of the relative importance of two dimensions: economic versus environmental. Third, in empirically showing that consumers respond to these two dimensions of sustainability, we have advanced the sustainable marketing orientation (SMO) of Mitchell et al. (2010). Finally, we find additional insights about consumer values and behavior on sustainability. These dimensions of sustainability are important in order for marketers to understand consumer response to products that promise sustainability. Indeed, our study contributes to the sustainability and marketing literature by being the first experiment to examine economic and ecological dimensions of sustainability and price in influencing consumer purchase intent.

This article is organized as follows: a review of the literature, hypotheses development, methodology, results and discussion, finishing with implications and conclusion.

Corporate Social Responsibility and Sustainability

The relatively new literature on consumer response to CSR provides the conceptual underpinnings for sustainability's influence on consumers. Namely, this literature affirms the theory of how CSR can positively influence consumer response to a product or service. This benefit of CSR is, in theory, thought to increase consumers' identification with the corporation, or what is known as the C–C identification. C–C identification is described as the degree of mutual sharing of a consumer's self-concept and his or her perception of the corporation (Duton et al. 1994). Sen and Bhattacharya (2001) first examine the question of consumer purchase reactions to CSR. They identify both company specific factors, such as the CSR issues the company deals with and the quality of its products, as well as buyer factors: personal support for CSR issues and general beliefs about CSR. They find that C–C identification, the congruence of buyer, and company response to CSR to mediate buyer behavior. Lichtenstein et al. (2004) further prove that CSR affects customer donations, again

mediated by C–C identification, to corporate-supported non-profits. Baghi et al. (2009) examine cause-related marketing (CRM), a communications strategy for CSR, and its effect on consumer behavior. They find that consumers prefer vivid CRM messages because they increase positive affective emotions and higher trust in the company's CSR initiatives.

Some studies address the related topic of CSR effects on consumer attitudes. Brown and Dacin (1997) establish the link between corporate associations of corporate ability and CSR on consumer attitudes. Berens et al. (2005) further find that brand dominance determines corporate associations of corporate ability and CSR influence on consumer attitudes.

The sustainability concept has recently become addressed in the marketing literature. The current state of the literature offers theoretical dialog about the links between sustainability, consumption, and market strategy. Schaefer and Crane (2005) first examine issues of sustainability in relation to consumption. They propose the idea of sustainable consumption and discuss the link between individual consumer behavior and the macroconcerns of understanding and affecting aggregate consumption. They explore this notion of sustainable consumption through the lens of two prevailing conceptualizations of consumption itself.

Researchers have been developing more interest in sustainability, and Prothero et al. (2010) recently examine the global sustainability movement through the lens of a "green commodity discourse." This discourse is proposed to be shifting the sustainability discourse away from the limits of the dominant social paradigm (DSM) and toward a more holistic and global perspective. To better characterize the values and behaviors of the green consumer, the authors propose a new typology that describes consumption from citizenry.

The promotion of sustainability through marketing as a means and ends is proposed by Varey (2010). He first gives a radical new logic for marketing as a social process. He then offers a prescriptive welfare agenda to transform traditional marketing principles and practices toward supporting sustainable society.

The core marketing strategy of market orientation is reconceptualized as "sustainable market orientation" (SMO) by Mitchell et al. (2010). They explain this broader concept of market orientation, and contribute a new corporate marketing model. In the SMO model, they propose three sustainable development objectives: social, economic, and environmental sustainability. Finally, they present corporate benefits and a model for empirical testing.

Overall, an overview of this recent marketing literature on sustainability provides novel theories from consumption and marketing perspectives. For one, Schaefer and Crane (2005) propose how the notion of sustainable consumption can help achieve sustainability. A typology delineating consumption from citizenry offers to better summarize the values and behaviors of green consumers (Prothero et al. 2010). From a corporate marketing perspective, important normative corporate marketing strategy, principles, and practices are developed by Varey (2010) and Mitchell et al. (2010). Both the consumer and marketing perspectives now inform our understanding of achieving sustainability. However, this literature has yet to offer an examination of the meaning of sustainability, namely the notion that different dimensions of sustainability can matter to consumers.

The concept of sustainability has evolved to include multiple dimensions. From two decades of green marketing literature and more recently, the sustainability and marketing literature, there is still a gap in recognizing these dimensions. In particular, there is a lack of attention to the economic dimension of sustainability, which to date has not been studied. We propose that consumers are responsive to sustainability in different dimensions. They are likely to care about protecting and preserving favorable economic environments, an economic dimension of sustainability, as much as they care about natural environments. Therefore, this study is motivated by the need to address the gap in dimensions of sustainability, especially the economic one.

Theoretical Background

The literature on CSR and marketing offers a theory as to why there are benefits for companies who practice CSR. CSR has been defined as "a company's commitment to minimizing or eliminating any harmful effects and maximizing its long-run beneficial impact on society" (Mohr et al. 2001). For example, socially responsible behavior can include behaving ethically, supporting the work of non-profit organizations, or treating employees fairly. It also includes minimizing harm to the environment.

At the heart of the CSR debate in the academic community is whether companies should be managed using stakeholder theory or shareholder theory. Under stakeholder theory, the principle is that a company must consider the impacts of its actions on other stakeholders beyond the owners of the firm which can include: customers, employees, suppliers, the environment, and the community. Thus, in this view, CSR is seen as an imperative in managing firms. On the other hand, shareholder theory views that a company's sole obligation is to its owners or shareholders, and thus CSR is not seen as relevant.

CSR initiatives come at a cost to the company at the expense of shareholders, and thus managers are hesitant to support them. Mohr and Webb (2005) explain these as up-front costs and the risk is that such costs could increase costs to consumers and thus lead to lower sales. Thus, there is contention over the benefit of CSR for the company when it can impact price and sales.

How does CSR add value to a company given its costs? Clearly, it is documented in the CSR literature that consumers favor a company's products when it makes CSR initiatives (Mohr and Webb 2005; Lichtenstein et al. 2004; Sen and Bhattacharya 2001; Baghi et al. 2009). CSR is also shown to strengthen brand equity (Berens et al. 2005). Theoretically, C–C identification is the mechanism by which CSR influences consumer behavior. As Bhattacharya and Sen (2003) suggest, a way to improve C–C identification is to offer a positive and meaningful social identity.

While it is now known that CSR influences buyer behavior, we contemplate whether sustainability would also influence buyer behavior. We reason that sustainability offers a positive and meaningful social identity to consumers, as has been demonstrated with CSR initiatives. Thus, extending Bhattacharya and Sen's (2003) and Mohr and Webb's (2005) arguments, we suggest that sustainability, and its dimensions, may add value to a product. Value can mean everything a consumer receives relative to everything that a consumer sacrifices to obtain and consume a product; therefore, sustainability should be valuable. For consumers who care about sustainability, like CSR as argued by Mohr and Webb (2005), the sustainability level of the company that makes a product elevates or diminishes the value of the product. If two products are compared and they are equal, yet differ in sustainability, it would not take much added value for a consumer to choose a product made by a highly sustainable company over one made by a less sustainable one. Like CSR as Mohr and Webb (2005) reasoned, sustainability would need to deliver more value in order for a customer to pay more for the product made by the more sustainable company. Thus, the price differences context matters, and that is why we examine the impact of sustainability on consumer behavior.

Based on the above theoretical premise, we postulate that consumers will respond favorably to sustainable companies due to their C–C identification with sustainability. Thus, our hypotheses address consumer responsiveness to sustainability.

Hypotheses Development

We propose that consumer responsiveness to sustainability (environmental and economic) is positively affected by the level of sustainability. Prior research on green marketing has well documented a positive impact of environmental information. For example, Rios et al. (2006) examine the relative importance of the ecological attribute compared to functional attributes and show that environmental attributes such as ecological performance have a positive effect on brand attitude. Moreover, Bhattacharya and Sen (2003) similarly argue that nonproduct aspects of a company, such as environmental benefit, can enhance customer loyalty and post purchase outcomes. Similarly, the extant CSR research has shown the positive role of socially responsible actions in the consumer's purchase behavior. For example, Brown and Dacin (1997) examined the impact of the level of corporate giving and community involvement on product evaluations, and Sen and Bhattacharya (2001) studied the influence of diversity issues on company evaluations. Those studies show that socially responsible activities enhance firm reputation and increase purchase behavior. In a related study, Mohr and Webb (2005) find that high CSR has a positive impact on evaluation of the company and purchase intent. These findings can be explained by self-expression and self-enhancement motives (e.g., Belk 1988). Social identity theory suggests that people tend toward identification with an organization (e.g., company) with which they share desirable common values. Thus, they incorporate common values from the company's identity into their self-expression and self-enhancement (e.g., Pratt 1998). When a firm is perceived to implement socially responsible actions, people tend to infer that it has desirable traits that resonate with their sense of self (Lichtenstein et al. 2004). Consequently, they are more likely to evaluate the company positively. We, therefore, hypothesize:

H1 A high level of sustainability (environmental and economic) will lead to a more positive evaluation of the company and a higher level of purchase intent than a low level of sustainability.

Our second issue concerns negative information about sustainability. Prior research has examined whether negative information about a company's social record has a stronger effect than positive information to determine if consumers are biased in that regard (e.g., Folkes and Kamins 1999; Mohr and Webb 2005). For example, Mohr and Webb (2005) examine whether poor social responsibility would have a stronger impact on evaluation of the company and purchase intent than provision of information about high social responsibility. To test this, these researchers manipulated CSR using hypothetical descriptions of a company in which it is rated as having the best or worst environmental or corporate giving rating in the industry. The rating was described as given "by a highly respected, impartial organization that evaluates

companies every year" to persuade respondents that these ratings are credible. The researchers find that low social responsibility has a stronger impact on evaluation of the company and purchase intent than high social responsibility. Poor industry ratings for CSR significantly reduced evaluation and purchase intent for both the environmental and philanthropic domains compared to control groups. Meanwhile, high CSR did not significantly increase evaluation and purchase intent compared to control groups. Therefore, they conclude their results support a negativity bias.

Similarly, Folkes and Kamins (1999) examine whether negative information about ethics has a stronger impact on consumers' attitudes toward firms. They create scenarios in which a friend provides information about product attributes and ethical actions of a telephone manufacturer. They find that unethical behavior is sufficient to elicit a negative attitude toward the firm despite superior or inferior product attributes, which suggests a negativity bias. In a relevant study, Brown and Dacin (1997) also find that "negative CSR associations ultimately can have a detrimental effect on overall product evaluations, whereas positive CSR associations can enhance the product evaluations" (p. 80). Based on the above research, we expect the detrimental effect of negative information about sustainability on consumer evaluations as follows:

H2 A low level of sustainability (environmental and economic) will have a stronger negative impact on evaluation and purchase intent than a high level of sustainability.

Past research suggests there are interaction effects between product attributes and social dimensions. For example, Folkes and Kamins (1999) find that, when a company behaves unethically, an important product attribute of a telephone (i.e., sound quality) has no effect on attitudes toward the firm. However, when a company behaves ethically, sound quality has a significantly positive effect on attitude. Handelman and Arnold (1999) also find that, when a retail store does not act in accordance with accepted social norms, store image attributes have no effect on a consumer's support for the store. However, when a retail store acts in accordance with accepted social norms, they have a significant positive effect on a consumer's support for the store. However, more recently, research shows contradicting results when price is considered to be a product attribute. For example, when Mohr and Webb (2005) examine an interaction between price (as a traditional shoe attribute) and CSR; they find that if a company has a low CSR rating; (i.e. its factories pollute more than others in the industry), then price appears to be negatively related to purchase intent. This effect of price is slightly stronger when CSR is low than it is high. We extend this research by using sustainability and two of its dimensions

(environmental and economic) in lieu of CSR. Thus, we arrive at the following hypothesis:

H3 There will be an interaction between sustainability (environmental and economic) and price such that when sustainability is low, price will have a stronger positive effect on purchase intent than when sustainability is high.

Next, we consider the moderating effect of the level of consumers' support for the sustainability domain on consumer responses. Congruence theory suggests a positive relationship between the environmental component and organizational components (Milliman et al. 1991). This theory is applied in marketing to explain the role of brand association in brand evaluations. For example, Venkatesh and Mahajan (1997) find that a higher degree of fit between a product's component brands has a positive impact on consumers' preference for that product. Furthermore, Sen and Bhattacharya (2001) suggest that consumers are more likely to positively evaluate a company when the company's identity matches perceived identity of themselves. In other words, the relationship is positive between consumers' perception of a company identity and their own sense of who they are. Hence, when consumers personally share the same social causes as the company, they are likely to see more similarity between themselves and the company, which is also consistent with social identity theory (e.g., Pratt 1998).

Indeed, Mohr and Webb (2005) lend further support to Sen and Bhattacharya (2001). They find that having high support for companies' responsibilities to the environment affects consumer evaluation and purchase intent greater than having low support does. They agree with Sen and Bhattacharya (2001) that identification with a company is improved when consumers believe in that company's social agenda and identification strengthens favorable evaluations of the company. Based on this research, we hypothesize the following:

H4 Sustainability in a specific domain will have a stronger influence on evaluation and purchase intent for consumers who believe that companies have many responsibilities in that domain than for those who believe that companies have few responsibilities in that domain.

Method

Experimental Design

We examine two levels of sustainability (low vs. high) and price (low vs. high) across two sustainability domains (environmental and economic). A randomized full factorial

design with eight experimental groups and two control groups (no sustainability information with price low vs. high) are employed. Ten scenarios are made to correspond to the conditions of interest. Participants are asked to imagine a scenario in which they are shopping for floor tiles for their home renovation at a store with a number of brands and finding that he or she liked those made by "Company A." Company A is described as a company that has a reputation for making high-quality floor tiles. The home renovation scenarios including the product, floor tiles, are selected on the basis of preliminary interviews using a convenience sample. The scenarios are timely because the home renovation tax credit is offered in North America in 2009. To manipulate the level of sustainability, we use similar descriptions as used by Mohr and Webb (2005) for the environmental dimension in their experimental study. Company A is described as having the best or worst rating in the industry on the environmental record. To ensure credibility of the rating information, the rating is described by "a highly respected, impartial organization that evaluates companies every year." In each scenario, three reasons for the *high* (or *low*) rating are provided: Company A uses factories that pollute *less* (or *more*) than others in the industry, it *uses a high percentage of* (or *does not use any*) recycled materials in manufacturing its floor tiles, and its factories have (or *never had any*) *good* programs to conserve water and energy. However, for the economic sustainability dimension, we find no comparable study to follow. We adapt our views from Dyllick and Hockerts (2002) who explain the concept of eco-efficiency and socio-efficiency as means to economic sustainability. The definitions drawn from their expansion about three types of sustainability are consistent with familiar concerns about community economic development that go over and beyond core business concerns such as being profitable or having quality products. They state that the most broadly accepted criterion for corporate sustainability constitutes a firm's efficient use of natural capital. Eco-efficiency is usually calculated as the economic value added by a firm in relation to its aggregated ecological impact (Schaltegger and Sturm, 1990, 1992, 1998):

> Eco-efficiency is achieved by the delivery of competitively-priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life-cycle to a level at least in line with the earth's carrying capacity (DeSimone and Popoff 1997, p. 47).

Thus, we apply the above definition to create descriptions of economically sustainable firms which are understandable, relatable to consumers, and consistent with impacting local communities. For example, we describe economically sustainable firms as using programs to reduce operating costs which rely on community sources of renewable energy (*reducing ecological impacts and resource intensity*). As well, its factories have community partnership programs to innovate products demanded by consumers (*delivery of competitively priced goods and services that satisfy human needs and bring quality of life*), for the economic sustainability domain.

Additionally, we provide this full definition of socio-efficiency, a component of the economic dimension of sustainability as per Dyllick and Hockerts' (2002) statement that "Both eco-efficiency and socio-efficiency are concerned primarily with increasing economic sustainability":

> Socio-efficiency (Hockerts, 1996, 1999; Figge and Hahn, 2001) describes the relation between a firm's value added and its social impact. While it can be assumed that most business impacts on the environment are negative, this is not true for social impacts.

Moreover, Dyllick and Hockerts (2002, p. 134) stress that the socio-efficient companies maximize social impacts on local communities:

> Socially sustainable companies add value to the communities within which they operate by increasing the human capital of individual partners as well as furthering the societal capital of these communities. They manage social capital in such a way that stakeholders can understand its motivations and can broadly agree with the company's value system.

Both eco-efficiency and socio-efficiency are concerned primarily with increasing economic sustainability (Dyllick and Hockerts 2002), which is consistent with Sheth et al. (2011)'s articulation of the meaning of the economic dimension of sustainability. Thus, we apply the following descriptions about economically sustainable firms; they sustain and create employment and support local community in industry dependent communities:

> They can be both positive (e.g. *corporate giving, creation of employment*) and negative (e.g. work accidents, mobbing of employees, human rights abuses).

In addition to being consistent with the notion of socio-efficiency, we treat "employment" and "support of the local community" as an economic sustainability concern because it is distinct from previous researchers' identification of CSR initiatives. The CSR and consumer behavior literature has identified social causes as follows: philanthropy (Mohr and Webb 2005), support for nonprofit causes (Lichtenstein et al. 2004), diversity (Sen and Bhattacharya 2001), and charitable causes (Baghi et al. 2009).

In each scenario for the economic sustainability domain, three reasons for the *high* (or *low*) rating are provided as follows: Company A's factories make *more* (or *less*) effort than others to sustain employment in their industry dependent communities, do (or *do not*) use programs to reduce operating costs, which rely on community sources of renewable energy, and they (*never*) have community partnership programs to innovate products demanded by consumers. To manipulate the level of price, the tiles are described as costing either more or less than the other tiles the participant has been looking at.

Measures

Evaluation of the Company

Three seven-point semantic differential items are used to measure evaluation of the company anchored by unfavorable/favorable, bad/good, and harmful/beneficial (Mohr and Webb 2005). The coefficient alpha is 0.97.

Purchase Intent

Three seven-point semantic differential items are used to gauge purchase intent (Mohr and Webb 2005). These items are: "How likely you would be to buy the floor tiles made by Company A"… (very unlikely–very likely); "How possible you would be to buy the floor tiles made by Company A"… (impossible–very possible); "How certain you would be to buy the floor tiles made by Company A"… (no chance–certain). The coefficient alpha is 0.95.

Support for the Domain

Three seven-point scales with endpoints of strongly disagree—strongly agree are used to measure support for the sustainability domains. In the environmental domain of sustainability, for example, these items are "Companies should make every effort to reduce the pollution from their factories," "Companies should use recycled materials in manufacturing their products if any," and "Companies should have factory programs to conserve water and energy," according to the three reasons of high (or low) sustainability given in the scenario. The coefficient alpha is 0.86. For the economic domain of sustainability, these items are "Companies should make every effort to sustain employment in their industry dependent communities," "Companies should use programs to reduce operating costs which rely on community sources of renewable energy," and "Companies should have community partnership programs to innovate products demanded by consumers." The coefficient alpha is 0.80.

Manipulation Check Items

Participants are asked to evaluate the perceived sustainability level of Company A described in the scenarios. One seven-point item is used for each domain of sustainability: "Company A has an excellent environmental (or economic) record" (strongly disagree–strong agree). To test the perceived price level of Company A's floor tiles, one seven-point item is used: "Company A's floor tiles cost more than floor tiles made by most other companies" (strongly disagree–strong agree). In addition, to examine the credibility of the scenarios, one seven-point item is used: "How believable do you find the description of Company A" (very unbelievable–very believable).

Sampling Frame and Data Collection

Data for the study came from an online survey of those who have completed home renovation project in the past 2 years or are responsible for choosing building materials. A commercial research firm recruited subjects randomly using probability sampling from electronic telephone-based lists in west coast cities in North America. Participants are contacted by telephone and asked to participate in the online survey. Of the 228 questionnaires collected, 9 questionnaires had to be removed from the sample due to incompletion. Thus, a total of 219 completed questionnaires are obtained. Ages range from 21 to 77, with a mean of 47.34. Male participants account for 58% of the sample. Approximately 15% of the participants have high school or lower education; 45% finished post-secondary technical school or some college or university; 40% had at least a 4-year university degree. In addition, the modal annual household income category is $80,000–$89,999, and 29.2% had annual incomes of $100,000 or more. Compared to the U.S. census data (U.S. Censure Bureau 2000), the sample had somewhat higher education and income levels. This deviation from the census data could be caused by the selection bias inherent in using flooring tiles as the product stimulus: respondents are more likely to be home owners or builders with income available for renovations.

Results

Manipulation Checks

We run ANOVAs to verify the effectiveness of the sustainability information manipulation. We conduct separate analyses for each sustainability domain because sustainability is described differently for each domain. Participants significantly perceived sustainability in the expected direction for both the environmental ($F = 127.06$; $P < 0.01$) and

economic ($F = 45.12$; $P < 0.01$) domains. We also use an ANOVA to verify the manipulation effectiveness of price and find that price, as we expect, significantly influences perceived price ($F = 245.60$; $P < 0.01$). These significant results suggest clean manipulations. In addition, we examine perceived credibility of scenarios and find that the mean is 4.87, which is consistent with prior literature (e.g., Mohr and Webb 2005). We further run a three-way AVOVA to test whether any of the treatments affect credibility and find that none of the main or interaction effects are significant, suggesting similar perceived credibility of scenarios across all treatments.

Test of Hypotheses

Hypothesis 1 postulates a positive impact of sustainability on the evaluation of the company and purchase intent. We perform a MANOVA followed by univariate ANOVAs to examine the hypothesis. The results of the tests of H1 are reported in Table 1.

As shown in Table 1, the MANOVA results show a significant main effect for sustainability (Wilks' lambda = 0.361; $F = 151.91$; $P < 0.01$). In addition, the interaction between sustainability and domain is significant (Wilks' lamda = 0.967; $F = 2.90$; $P < 0.05$). Follow-up univariate results indicate that this overall multivariate interaction effect is attributable to the effects on evaluation and intent.

As a result, the discussion relating to H1 addresses both dependent variables and all remaining analyses are run separately for each domain. Table 1 shows that the high level of sustainability results in significantly higher evaluation of the company and purchase intent for both the environmental and economic domains than the low level of sustainability. These results support H1.

Table 1 also shows when sustainability is high, there are no differences in evaluation and purchase intent between participants in the environmental and economic domains. When sustainability is low; however, participants evaluate the company described in the environmental domain lower (means = 2.23 vs. 3.02; $t = -2.99$; $P < 0.01$) and show lower purchase intent (means = 2.99 vs. 3.80; $t = -2.26$; $P < 0.05$) than for the company described in the economic domain, which implies the relative importance of the environmental sustainability domain. To further examine Hypothesis 2, concerning effects of sustainability levels on evaluation and purchase intent, we perform four MANOVAs followed by univariate ANOVAs. In particular, the low and high sustainability groups are compared to the control groups, respectively, who are given no information about the company's sustainability. As shown in Table 2, information on the company's low level of sustainability significantly reduces evaluation and purchase intent for both the environmental and economic domains. However, information on the company's high level of sustainability increases only

Table 1 Effects of SUSTAIN and DOMAIN on evaluation and purchase intent (H1)

Independent variables	MANOVA results		Univariate results					
			Evaluation			Purchase intent		
	Wilks' λ	F	Mean	n	F	Mean	n	F
SUSTAIN	0.361	151.91**			303.39**			119.50**
Low (2)			2.56	89		3.33	89	
High (1)			5.77	88		5.70	88	
DOMAIN	0.974	2.26			3.94*			3.73*
Environment (1)			3.87	97		4.25	97	
Economic (2)			4.46	80		4.83	80	
SUSTAIN × DOMAIN	0.967	2.90*			5.67*			3.70*
SUSTAIN low, environment			2.23	52		2.99	52	
SUSTAIN high, environment			5.80	45		5.70	45	
SUSTAIN low, economic			3.02	37		3.80	37	
SUSTAIN high, economic			5.73	43		5.71	43	
SUSTAIN (environmental domain)	0.280	121.15**			239.77**			92.00**
Low			2.23	52		2.99	52	
High			5.80	45		5.70	45	
SUSTAIN (economic domain)	0.457	45.65**			92.38**			36.73**
Low			3.02	37		3.80	37	
High			5.73	43		5.71	43	

* Significant at the 0.05 level, ** significant at the 0.01 level

Table 2 Effects of low, high, and no SUSTAIN information on evaluation and purchase intent (H2)

Independent variables	MANOVA results		Univariate results					
			Evaluation			Purchase intent		
	Wilks' λ	F	Mean	n	F	Mean	n	F
Environmental domain								
SUSTAIN	0.36	79.79**			159.01**			72.92**
Low (2)			2.23	52		2.99	52	
Control (3)			5.27	40		5.57	40	
SUSTAIN	0.94	2.61			4.96*			0.30
High (1)			5.80	45		5.70	45	
Control (3)			5.27	40		5.57	40	
Economic domain								
SUSTAIN	0.53	33.25**			66.79**			28.51**
Low (2)			3.02	37		3.80	37	
Control (3)			5.27	40		5.57	40	
SUSTAIN	0.96	1.60			3.22			0.30
High (1)			5.73	43		5.71	43	
Control (3)			5.27	40		5.57	40	

* Significant at the 0.05 level, ** significant at the 0.01 level

evaluation of the company for the environmental domain ($F = 4.96$; $P < 0.05$). Therefore, H2 is supported.

H3 suggests an interaction between sustainability and price such that when sustainability is low, price will have stronger effects on evaluation and purchase intent compared to when it is high. To test the hypothesis, we perform a separate two-way ANOVA for each domain. Table 3 shows that (a) sustainability has a significant positive effect on evaluation and purchase intent for both the environmental and economic domains, (b) there are significant interactions between sustainability and price on evaluation ($F = 6.42$; $P < 0.05$) and purchase intent ($F = 4.41$; $P < 0.05$) for the economic domain, and (c) price has a significant inverse effect on purchase intent ($F = 14.06$; $P < 0.01$) for the economic domain. These results indicate that price would have a stronger impact on evaluation and purchase intent when economic sustainability is low, which partially supports H3.

Hypothesis 4 predicts that consumers' support for the sustainability domain would moderate the effect of sustainability on evaluation and purchase intent. Since "support for the domain" is measured as a continuous scale variable, dichotomization of continuous predictor variables might lead to serious negative consequences (Irwin and McClelland 2003). Thus, to test the moderating effect, we use regression analysis in which the main effects and the interaction effects are estimated simultaneously. We estimate the following regression equation:

$$Y_{ij} = \alpha + \beta_1 D\text{Sustain}_i + \beta_2 \text{Support}_i + \beta_3 D\text{Sustain}_i * \text{Support}_i + e_{ij}$$

where Y_{ij} denotes consumer j's evaluation (i.e., evaluation and purchase intent) of Company A described in scenario i,

$$D\text{Sustain}_i = \begin{cases} 0, & \text{if scenario i indicates low sustainability,} \\ 1, & \text{otherwise} \end{cases}.$$

for which Support_i denotes the level of support for the domain described in scenario i.

The regression results are shown in Table 4. The sustainability × support for the sustainability domain interactions on evaluation and purchase intent are indeed significant for both environmental (Evaluation: $\beta = 1.06$, $t = 4.56$, $P < 0.01$; Intent: $\beta = 1.36$, $t = 4.88$, $P < 0.01$) and economic domains (Evaluation: $\beta = 1.45$, $t = 4.47$, $P < 0.01$; Intent: $\beta = 1.11$, $t = 2.94$, $P < 0.01$). As anticipated, increased sustainability leads consumers with higher levels of support for the sustainability domain to greater evaluation and purchase intent compared to consumers with lower levels of support for the domain. Hence, hypothesis 4 is supported.

Discussion

This study explores the roles of environmental and economic sustainability information in consumer evaluation of the company and purchase intent for the company's products. Since previous work has essentially focused on the role of environmental sustainability in consumer evaluation, this study adds to our understanding of the relationship

Table 3 Effects of SUSTAIN and price on evaluation and purchase intent (H3)

Independent variables	Environmental domain			Economic domain		
	Mean	n	F	Mean	n	F
Evaluation						
SUSTAIN			89.82**			52.40**
Low (2)	2.99	52		3.80	37	
High (1)	5.70	45		5.71	43	
Price			2.01			14.06**
Low (2)	4.56	48		5.17	44	
High (1)	3.95	49		4.41	36	
SUSTAIN × price						
SUSTAIN low, price low	3.26	24	0.13	4.45	23	4.41*
SUSTAIN low, price high	2.75	28		2.74	14	
SUSTAIN high, price low	5.85	24		5.95	21	
SUSTAIN high, price high	5.54	21		5.47	22	
Purchase Intent						
SUSTAIN			234.79**			102.68**
Low (2)	2.23	52		3.02	37	
High (1)	5.80	45		5.73	43	
Price			0.003			0.76
Low (2)	4.03	48		4.39	44	
High (1)	3.75	49		4.58	36	
SUSTAIN × price						
SUSTAIN low, price low	2.33	24	0.59	3.38	23	6.42*
SUSTAIN low, price high	2.14	28		2.43	14	
SUSTAIN high, price low	5.72	24		5.49	21	
SUSTAIN high, price high	5.89	21		5.95	22	

* Significant at the 0.05 level, ** significant at the 0.01 level

Table 4 The moderating effects of SUSTAIN and support for the domain on evaluation and purchase intent (H4): regression estimates

	Environmental domain			Economic domain		
	Coefficients	Std. Error	Standardized coefficients	Coefficients	Std. Error	Standardized coefficients
Evaluation						
(Constant)	6.09**	1.07		6.11**	1.25	
SUSTAIN	−3.05*	1.47	−0.72	−6.19**	2.00	−1.68
SUPPORT for the domain	−0.62**	0.17	−0.27	−0.52*	0.21	−0.23
SUSTAIN × SUPPORT	1.06**	0.23	1.62	1.45**	0.32	2.49
Adjusted R^2	0.76			0.62		
F statistic	102.87**			44.73**		
Purchase Intent						
(Constant)	9.07**	1.28		8.52**	1.45	
SUSTAIN	−5.75**	1.76	−1.49	−4.81*	2.33	−1.43
SUPPORT for the domain	−0.98**	0.20	−0.46	−0.79**	0.24	−0.38
SUSTAIN × SUPPORT	1.36**	0.28	2.26	1.11**	0.38	2.09
Adjusted R^2	0.59			0.39		
F statistic	47.77**			17.81**		

* Significant at the 0.05 level, ** significant at the 0.01 level

between the two domains of corporate sustainability and consumer evaluation. Here, we have three key findings.

First, sustainability information has a significantly positive impact on the evaluation of the company and purchase intent. Furthermore, the company described as having poor commitment to sustainability shows a greater impact on evaluation and purchase intent than the high level of sustainability information (the company demonstrates sustainability), which leads to a significantly negative evaluation and purchase intent. These findings imply that consumers indeed respond strongly to information about firms' sustainability orientations and strategies; they are more sensitive to statements of a company's sustainability shortcomings than to a company's sustainability virtues, and they react negatively to low sustainability. Thus, poor sustainability orientations and policies damage the evaluation of the company, which reveals the importance of sustainability information in consumer responses.

Second, the low level of environmental sustainability leads to stronger negative impact on consumer responses than the low level of economic sustainability. Accordingly, a low price does not significantly increase consumer responses when consumers have information about firms' poor environmental sustainability; whereas a low price increases consumer responses when consumers have information about firms' poor economic sustainability. This finding suggests the relative importance of environmental sustainability in evaluating the company.

Third, support for the sustainability domain interaction effect implies that consumers will evaluate a company more favorably if that company shares the consumers' support orientations and policies for a specific sustainability domain. For example, consumers with sensitivity to environmental sustainability will evaluate a company more favorably if it also demonstrates a commitment to environmental sustainability. This result is consistent with previous work that investigates the relationship between corporate social responsibility and consumers' support for it (Mohr and Webb 2005). In light of the profound nature of the issue of human life on a finite planet, our conclusion that consumers support sustainability attributes in a product has more significance. For one, this support shows that sustainability "offers a positive and meaningful social identity" which as Bhattacharya and Sen (2003) suggest, improves C–C identification, the known moderator of consumer behavior to CSR. Indeed, there are numerous CSR causes for which we do not know if consumers identify with and respond positively to. This lack of information implies that some causes do not evoke C–C identification to influence consumer support. The CSR literature has examined several: philanthropy (Mohr and Webb 2005), support for nonprofit causes (Lichtenstein et al. 2004), diversity (Sen and Bhattacharya 2001), and

charitable causes (Baghi et al. 2009). Therefore, our finding that consumers identify with sustainability and with its dimensions is significant. A more profound implication is that consumer support of products they identify with, that sustain and contribute to social, economic, and environment benefits, can diminish the harmful effects of modern limitless consumption described as a value by Kassiola (2003). This is because when consumers accept the sustainability premise of a company and product, they accept that sustainability implies limits of harm to the environment or "ecological footprint." This agrees with Kassiola's (2003) argument that society needs to shift its values from those of endless and unrestrained consumption to limited, but sustainable, consumption.

Thus, our three key findings offer contributions by addressing the gap in understanding the meaning of sustainability in the current marketing literature. Indeed, our study provides much needed empirical work to support this marketing literature on sustainability which thus far, covers important theoretical discourse. First, our finding that consumers are influenced by multiple dimensions of sustainability supports the notion of sustainable consumption proposed by Schaeffer and Crane (2005). That is, sustainable consumption appears to exist in consumers' behavior; we have shown that it affects their evaluation and preferences for sustainable (or unsustainable) companies. Sheth et al. (2011) recently introduces the new concept of mindful consumption as the guiding principle of sustainability. Mindful consumption "reflects a conscious sense of caring toward self, community, and nature" (p. 27). Our finding that consumers care about their natural environment and local economies underscores citizenry as a value and behavior of green consumers. This finding lends support to Prothero et al.'s (2010) typology delineating consumption from citizenry. Finally, Mitchell et al. (2010) prescribe important normative corporate marketing strategy, principles and practices in their SMO. We provide empirical support for their SMO: namely, their three objectives in sustainability (environmental, economic and social) by proving that environmental and economic dimensions of sustainability are important to consumers.

Implications and Avenues for Future Research

This study offers several important implications for managers. First, managers should realize that information on environmental and economic sustainability is critical to consumer responses and develop marketing system to promote firms' sustainability orientations and strategies. Second, in particular, since a low level of environmental sustainability appears to be more harmful than a low level of economic sustainability, and a low price does not appear to compensate for the low level of environmental

sustainability, managers should first formalize environmental responsiveness of firms by establishing policies and processes (Pujari et al. 2003). Third, our study shows that consumer evaluation of firms' sustainability information depends on consumers' beliefs about the importance of the sustainability domain. Therefore, managers should recognize that targeting consumers who support firms' sustainability orientations and strategies would be an important factor for success in the market.

Our study considers two domains of sustainability: environmental and economic sustainability. Additionally, another important domain of sustainability is social sustainability. Since the three domains of sustainability are inter related (Dyllick and Hockerts 2002), future research needs to consider them simultaneously to provide a complete framework for the sustainability issue in marketing.

We examine how consumers' support for the sustainability domain moderates consumer evaluation of firms' sustainability information. However, we have not investigated characteristics (such as demographic and attitudes toward environmental and economic issues) of consumers who might have certain levels of support for the specific sustainability domain. Thus, future research might study the relationship between consumer evaluation and consumer characteristics. Ideally, consequent studies may strive to capture insightful profiles for consumers ascribing to the sustainability domains, and work toward determining the salience of sensitivity to those domains, as well as price, in the sustainability conscious market segment.

Concluding Remarks

To the best of our knowledge, there is no previous empirical work to examine the role of both the environmental and economic sustainability dimensions in consumer evaluation. To date, the sustainability/marketing literature has contributed deeply to, but has also been limited to understanding sustainability with a green/environmental dimension. Hence, we see the need to more fully address the broader meaning of sustainability by contributing knowledge on the economic dimension. We hope that this research will stimulate new research on the relative influence of multiple dimensions (e.g., environmental, economic, and social) of sustainability in marketing.

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