

# Green marketing: Are environmental and social objectives compatible with profit maximization?

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## Abstract

Along with others, we recognize the impact of human action on environmental quality. At the same time, we note that businesses have entered the ‘green market’. The goal of this paper is to open a discussion about green marketing. We raise questions regarding how firm governance impacts the ability of firms to incorporate environmental objectives into profit maximization. Additionally, we discuss the green marketing strategies that firms have chosen to use, as well as public and private options available for eco-label monitoring and enforcement to avoid additional consumer confusion.

## Introduction

*Surely, then, it should not be wondered at that lovers of their country, bewailing its baldness, are now crying aloud, ‘Save what is left of the forests!’ Clearing has surely now gone far enough; soon timber will be scarce, and not a grove will be left to rest in or pray in. The remnant protected will yield plenty of timber, a perennial harvest for every right use, without further diminution of its area, and will continue to cover the springs of the rivers that rise in the mountains and give irrigating waters to the dry valleys at their feet, prevent wasting floods and be a blessing to everybody forever.*

John Muir, ‘American Forests’, *Atlantic Monthly* No. 80, August 1897.

Since the time John Muir penned the words above, numerous others have expressed concern about the interaction between human action and environmental quality. Two of the most prominent voices, Rachel Carson and Al Gore, have spoken about other aspects of environmental degradation: pesticide contamination and global warming. Other scholars have addressed similar issues: Lubchenco discusses the wide reach of the impacts of human activity on the Earth: the land and sea (via deforestation, grazing and other activities), biogeochemical cycles, such as the water or carbon cycles, and species (via harvesting, hunting, habitat change or invasive species)<sup>1</sup>. Kirshchenmann further states that the optimal future path diverges from our current path, largely because mining activity of the past two centuries has depleted the Earth’s stores of natural energy. He further argues that the solution will not

be replacing current forms of energy with alternative ones, such as replacing oil with wind power<sup>2</sup>. A recent study commissioned by the Department of Energy concurs: replacing 20–30% of current electrical needs in the eastern USA with wind power would be feasible and costly, but would have only minor effects on carbon emissions<sup>3</sup>. Thus, while the focus of the discussion has shifted over the years from forests to other areas, it is clear that since at least the days of John Muir, many have pointed to the potential for severe long-term environmental consequences of human activity. Global problems resulting from humanity’s impact on the environment will likely grow in importance over the next several generations.

While debates about how to cope with the impact of human activity on the environment continue in full force, such as the global warming talks that dominate political circles, businesses have entered the ‘green’ market. Firms typically provide consumer eco-products or adopt green practices, and some firms simultaneously offer eco- or green products while committing to eco-production and/or eco-philanthropy. Green business strategies have appeared in a wide range of industries and address a wide range of eco-issues. A few examples of green products are: hybrid automobiles, eco-friendly paint, organic food, recycled copy paper and environmentally friendly cleaning products. Businesses also promote their recycling efforts, use of wind power, or other practices intended to minimize the environmental impact of their actions.

An important aspect to consider is that while green products and businesses typically address environmental

externalities, popular use of the term 'green' extends beyond the environment and encapsulates social issues, which may include paying fair wages, fair treatment of labor and animal welfare. In practice, according to market researchers, green products are marketed to the market segment that was recently minted as the 'LOHAS' (lifestyles of health and sustainability). This market segment of consumers may not separate 'green' from 'healthy' when making purchasing decisions. These consumers, who comprised 17% of US consumers in 2006, are estimated to have purchased approximately US\$300 billion worth of green merchandise<sup>4,5</sup>. Thus, in this paper, we consider this broader category when we refer to green products and green firms.

Public commentators have questioned firm motives behind this eco-focus, and their questions are rooted in a larger debate surrounding the role of private enterprise in achieving environmental objectives<sup>6-12</sup>. The questions include: can businesses be relied upon to achieve environmental objectives? Will companies permanently incorporate longer-term environmental objectives into their mission or is the eco-focus a marketing strategy that encompasses a short-term response to consumer demand? How should consumer confusion arising from green marketing be addressed?

An obvious, but not simple to answer, follow-up question is how to best be a steward of the environment in today's world, particularly in economies where consumption comprises a large percentage of GDP. That externalities result from consumption is widely understood<sup>13</sup>. Because of these externalities, production costs do not represent society's true costs, leading to inefficient production and consumption levels. This leads us to question whether the best long-run strategy is to follow the adage 'reduce, reuse and recycle', consequently consuming less, or focus on consuming eco-friendly products, whose production and distribution have a smaller impact on the environment, or some combination of the two?

These questions are complex and we offer no definitive answers. Instead, the goal of our paper is to open a discussion of green marketing and bring forward key questions for empirical research and policy considerations. We start by asking how firm governance may impact the ability of firms to incorporate environmental objectives into a profit maximization paradigm. We then discuss how firms that have entered the green industry market their commitment to the environment to consumers. We end by bringing forward issues surrounding the enforcement of green labels and potential consumer confusion.

## Different types of firms operate in the green market

Firms in market economies make their production and marketing decisions based on many factors, including government regulations and consumers, which are the primary forces shaping the consumer products industry.

Thus, consumer preferences regarding eco-friendly products and government regulation provide incentives for incorporating environmental and other green objectives in the firm profit maximization decision. The intent behind firm action may vary, given that some firms actively consider the externalities of their actions when making production and marketing decisions. In other cases, however, eco-friendly practices are the by-product of a cost minimization strategy, such as using compact fluorescent bulbs to reduce energy usage, which ultimately reduces both social and direct costs.

Over the past few decades, numerous corporations have entered the market as green firms. Table 1 presents a subset of these firms that are deemed successful in the short term, given their sustained revenues. Most of the firms included in this list began with an overt goal of stewardship to the land or consideration of some other social aspect.

### *Does corporate governance matter?*

Various organizational structures are represented by firms engaged in green marketing, such as private companies, publicly traded companies and cooperatives. The empirical question we raise here is whether governance structure impacts the ability of firms to incorporate environmental objectives into long-term operations.

As a general rule in economics, the objective of a firm in a market economy is profit maximization where profit is the total revenue minus the total cost. Firm 'owners' or shareholders share both the right to control the firm and the right to appropriate the firm's profits<sup>14</sup>.

As the theory of the firm suggests, many factors impact a firm's choice of organization structure. The majority of firms in the USA are either privately held or publicly traded. In most cases, a privately held firm is owned by the company's founders, management or private investors. In contrast, a publicly traded firm is owned by shareholders where transfer of ownership is more liquid than in privately held firms.

How would we expect the firm's organization as a privately held or publicly traded company to impact the firm's ability to achieve environmental objectives if the firm's primary fiduciary responsibility is to the owners? Within the corporate social responsibility (CSR) literature, where CSR is defined as '...actions that appear to further some social good, beyond the interests of the firm and that which is required by law', there is much debate regarding publicly held companies incorporating environmental objectives or applying assets for social purposes<sup>9,10</sup>. The argument is that corporations and their executives are employees of shareholders and thus are to act on behalf of their owners, who may or may not have environmental objectives<sup>6,7</sup>.

The theoretical insight lies in the firm's ability to align owners' or shareholders' objectives<sup>14</sup>. If all shareholders share 'green' objectives or there is a clear market opportunity for an eco-product or service, then incorporating

**Table 1.** Select green firms, their mission statements, ownership status and sales.

Company	Mission statement	Ownership	Annual sales
Patagonia	Build the best product, cause no unnecessary harm, use business to inspire and implement solutions to the environmental crisis.	Private	US\$270 million (estimated)
Starbucks	Starbucks is committed to a role of environmental leadership in all facets of our business.	Publicly traded	US\$10.4 billion
Green Mountain Coffee Roasters	We create the ultimate coffee experience in every life we touch from tree to cup – transforming the way the world understands business.	Publicly traded	US\$500 million
Chipotle	The hallmarks of Food With Integrity include things like unprocessed, seasonal, family-farmed, sustainable, nutritious, naturally raised, added hormone free, organic, and artisanal. And, since embracing this philosophy, it's had tremendous impact on how we run our restaurants and our business. It's led us to serve more naturally raised meat than any other restaurant in the country, to push for more sustainable practices in produce farming, and to work with dairy suppliers to eliminate the use of added hormones from their operations.	Publicly traded	US\$1 billion
White Wave Food Company	Our mission is to become the earth's favorite food company. We are pioneers in creating healthy, responsibly produced foods that people love. Our roots in this important global movement inspire our future. This path we've chosen will change the way the world eats. And the values that guide our actions will help us fulfill our mission. Becoming the earth's favorite food company will not be an easy goal to reach, but we believe it is worth it.	Owned by Dean Foods (US)	US\$1.3 billion
Stonyfield Yogurt	We're committed to healthy food, healthy people, a healthy planet, and healthy business.	Owned by Group Danone (France)	US\$300 million
Seventh Generation	To inspire a more conscious and sustainable world by being an authentic force for positive change	Private	US\$300 million (estimated)
Newman's Own	Shameless exploitation in pursuit of the common good	Private	US\$50–100 million (estimated)
Ben and Jerry's	Product mission: To make, distribute and sell the finest quality all natural ice cream and euphoric concoctions with a continued commitment to incorporating wholesome, natural ingredients and promoting business practices that respect the Earth and the Environment.	Owned by Unilever (UK)	US\$300 million

Sources: [www.benandjerry.com](http://www.benandjerry.com); [www.newmansown.com](http://www.newmansown.com); [www.seventhgeneration.com](http://www.seventhgeneration.com); [www.whitewave.com](http://www.whitewave.com); [www.myorganicmarket.com](http://www.myorganicmarket.com); [www.chipotle.com](http://www.chipotle.com); [www.greenmountaincoffee.com](http://www.greenmountaincoffee.com); [www.starbucks.com](http://www.starbucks.com); [www.patagonia.com](http://www.patagonia.com); [www.monster.com](http://www.monster.com); [www.newsweek.com](http://www.newsweek.com); [www.manta.com](http://www.manta.com); [www.allbusiness.com](http://www.allbusiness.com).

environmental objectives would be expected to be consistent with maximizing shareholder utility. However, as shareholders' objectives diverge, the ability to maximize shareholder utility by objectifying something other than profit likely decreases. For example, do all the shareholders of Unilever share Ben and Jerry's value of '...promotion business practices that respect the Earth and the Environment' more than growth in the stock price?

Empirically, it has been found that the largest incentive for a privately held firm to stay private is the private benefit of control<sup>15</sup>. Does more control translate into more ability to incorporate environmental or social objectives into the firm's profit maximization function? We suggest that the question of ownership is paramount because of the

intersection of environmental objectives and firm-type matters in the face of long-term social objectives. A publicly held company with a typical set of shareholders will likely have a more difficult time consistently investing in environmental objectives if they reduce profit or market value. A private company may have less difficulty in maintaining a consistent 'green' mission if ownership retains control.

While Table 1 is neither a representative nor exhaustive list of socially responsible firms, it does prompt a few interesting questions regarding sustainability of environmental objectives within firms as organizational structure changes. Each firm listed in Table 1 began as a private company. Over time, many of these companies went public

or became subsidiaries of larger corporations. Will this shift in governance, and possibly shareholder objectives, impact the firm's ability to continue to prioritize and incorporate environmental objectives?

The difficulties with maintaining an environmental or ethical objective as a public firm are highlighted by the following two examples. In the first case, Seventh Generation, which began as a private venture, was a public firm for several years. The firm later opted to repurchase all their shares so the founder could maintain control of the company<sup>16</sup>. Seventh Generation's CEO discussed how the stock market's focus on short-term profitability and focus on share price made it difficult to both increase stock price and maintain an environmental focus.

In contrast is the experience of Horizon Organic (not included in the list). Horizon began in 1991 as an independent organic milk processor, and was one of the first organic dairy processors to experience success on a national scale. While still independent, the firm received the 2000 Socially Responsible Business Award for 'demonstrating excellence in integrating social responsibility in multiple aspects of their business'<sup>17</sup>. Horizon became a subsidiary of Dean Foods in 2004, and in 2009, introduced the first-ever non-organic products into their product line<sup>18</sup> which may not necessarily signal a lack of continued commitment to social responsibility, but is inconsistent with Horizon's initial mission of delivering only organic products. Larger questions exist regarding whether firms should be engaged in environmental actions or CSR and why firms do engage. According to 'enlightened' stakeholder theory, firms maximize long-term firm market value so to account for all interests of stakeholders in a firm where stakeholders are potentially a much larger group than shareholders, and may include employees, customers, communities, government officials and the environment<sup>19</sup>. From a legal perspective, corporate laws have been slowly evolving, with laws in at least 28 states allowing for firms to engage in socially responsible action. Further, some court rulings have indicated that it is legal for companies to consider stakeholder groups other than shareholders, although there must be some benefit accruing to the shareholders<sup>20</sup>.

At the same time, some have argued that stakeholder theory does not properly account for factors that might lead firms to adopt responsible behavior<sup>21</sup>. Conceptually based research offers a wide range of rationales for why firms undertake socially responsible actions, including implicit social contracts between firms and society, public responsibility, corporate citizenship, stakeholder management and economic institutions<sup>21,22</sup>. However, empirical research is needed in order to make inferences about why firms engage in socially responsible behavior.

## Economics of green marketing strategies

Economic thinking can provide useful insights into how green marketing strategies function in the market. The 'green' economics literature is still small and growing, yet

two existing bodies of work bring direct light to our discussion. One stream of literature considers CSR. The economics literature directly addresses CSR by considering such actions as private provision of a public good, where, for example, the public good is environmental quality. In addition to contributions from economists, there is a large body of literature emanating from business schools on the topic of CSR. The second relevant work is the labeling literature, which has focused primarily on food safety and social objectives<sup>23</sup>. The concepts in this literature explain how firms use 'green' product labels to inform consumers that a product was produced according to specified standards, which covers a wide span of possible attributes, including environmental friendliness, fair wages, or energy efficiency.

One clear difference between the two marketing strategies (CSR and product labeling) is that a firm's statement of socially responsible behavior is a firm-level claim, while labeling is a product-level claim. The firm-level claims carry few implications for the product. An extreme (and fictitious) example is a green firm that uses 100% wind power and recycles all of its waste, yet sells a brown product, such as chemical pesticides. On the other hand, the use of product labels suggests the product itself is green, but has no implications for the firm selling the product. Thus a brown firm can easily sell green products. And to further complicate the matter, consumer products and firms can possess different hues of green, so to speak, depending on the degree of environmentally friendliness. These examples reveal how complicated the green market can be, and suggest that consumers may easily become confused when shopping.

Despite these differences, the economics of CSR and labeling share common elements, and so address similar questions, such as is it optimal for social goods or standards to be publically or privately provided? Will the firm's ability to incorporate environmental objectives shift along with the consumer's willingness to pay a premium for 'green' products? Are there enforcement mechanisms for firm or product claims, or are there opportunities for firm cheating? Are industry regulations necessary to meet long-term environmental objectives?

### *Signaling the 'greenness' of a firm*

One essential aspect of a socially responsible firm's marketing strategy is conveying information about the firm and its products to consumers, who incorporate this information into their utility maximization problem. If the firm is successful in transmitting this information, the 'green consumer' will choose to buy their products and other consumers will not if a green price premium exists. The key element is how firms signal their greenness to consumers. One possibility is advertising, which many green firms do, although intuition suggests that relying on advertising alone may lead consumers to wonder if the firm is greenwashing.

A stronger approach, which may accompany advertising, is the use of a mission statement that explicitly outlines the ways in which the firm is green. According to the business literature, firms use mission statements to establish their corporate identities<sup>12</sup>. Mission statements are readily observable, and in practice, many green businesses have used their statements to inform consumers about their commitment to the environment. Table 1 also lists mission statements for a select handful of firms that have adopted business practices that support environmental health. In many cases the mission statements reflect the firms' efforts to incorporate their values along the supply chain. The mission statements may also guide firms in the development of strategic marketing plans that support their socially responsible goals.

Given that most firms operate from the vantage of maximizing profits over prices and output, in order for a company to be successful, a conscious decision to incorporate social goals must be maintained throughout the planning process<sup>24</sup>. Not all firms are successful with their efforts to blend environmental goals and profits, possibly because some managers are unable to develop a strategic plan<sup>25</sup>. Some suggest that if firms made their CSR business decisions with the foresight core business decisions receive, firms would face greater opportunities, innovation and gain a competitive advantage in the marketplace, and that doing so would become important to firm success in the future<sup>26</sup>. To the best of our knowledge, to date, empirical studies assessing the effectiveness of mission statements in conveying information to consumers have not yet been conducted.

For firms such as those whose mission statements are listed in Table 1, profit maximization explicitly incorporates environmental or other social constraints. Despite the common belief that incorporating social and environmental goals must lead to lower profits<sup>27</sup>, these firms are a testimony to the fact that businesses can be successful even while considering non-economic goals. We conjecture that these firms are led by innovators, who may have better information than other firms, such as knowledge that consumers are willing to pay for products with special green characteristics or the ability to competitively incorporate green goals into production. These types of innovators are similar to the Schumpeterian innovator, who is driven by enthusiasm and other non-monetary forces to create a new good or process, open a new market, or discover a new resource. Firms involved in socially responsible practices are more successful if the practices are the result of the founder's ideals, where the entrepreneur set out to do business in a different way. Additionally, the market proves more reliable when consumers of these firms were similarly committed to the social ideals<sup>28</sup>.

Socially responsible actions are consistent with competitive equilibrium, suggesting that green firm behavior can be part of the normal market process in terms of providing an additional product attribute. If a socially responsible firm is considered as one providing a public

good, i.e., improved environmental quality, then competitive equilibrium consists of the provision of a green good for 'caring' consumers and a non-green good for neutral consumers<sup>29</sup>. That this separating equilibrium is possible illuminates that CSR is consistent with profit maximization, and that under certain circumstances, firms may indeed be better off by adopting socially responsible actions.

### *Signaling the 'greenness' of products*

Firms that produce and market green goods face a problem when conveying that information to consumers, particularly if they seek a price premium for their green products. If 'greenness' is considered a product attribute, then these attributes are unobservable, even after consumption, thus classifying these products 'credence goods'<sup>30</sup>. This is the classic case of asymmetric information, where the producer knows the quality of the product but the consumer is unable to assess the quality, and thus information about quality is 'hidden' from the consumer. Because of the asymmetric information, in the absence of a mechanism to convey such information, producers will be unable to capture higher prices for their products. One way to overcome hidden information is through labeling, where the label effectively signals quality information to consumers. The label allows consumers to evaluate the quality of the product, and choose the level of quality consistent with their preferences.

Eco-labels are appearing in growing numbers (a 2009 search on greenerchoice.org yielded 78 green labels for food products alone). Table 2 presents a select sample of the green labels currently available on products sold in the marketplace. These labels speak to various aspects of the product, including procurement, production and actual product characteristics. Similar to the 'firm versus product-level' green firm marketing, product labels also span beyond the actual product attributes to include broader social or environmental aspects.

A debate about the relative benefits of publically versus privately provided standards has been longstanding in the economics profession (see, for example, Roe and Sheldon<sup>31</sup>, for public versus private, and Henson and Reardon<sup>32</sup>, for the role of private food safety and quality standards). We do not enter the ongoing debate about private and public standards beyond noting that private firms promulgate most eco-labels in the marketplace, and only two on the list are administered by government agencies (the organic label and the Swedish carbon emission food labels). The organic labels follow regulations covering the production and marketing of organic products; for example, Canada, the USA and the EU all have organic regulations. With the exception of the Swedish carbon emission labels, all of the labels listed in the table are voluntary; while using the label is voluntary, the standards set forth by the label must be adhered to. Currently, empirical research does not indicate whether mandatory or voluntary labeling is more effective at transmitting information to consumers<sup>33</sup>.

**Table 2.** Select eco-friendly product labels, by type<sup>1</sup>.

Product/materials procurement	Product production	Product characteristics
<ul style="list-style-type: none"> <li>● Fair Trade Certified*</li> <li>● Dolphin-safe*</li> <li>● Rainforest Alliance Certified*</li> <li>● WalMart Sustainability Index</li> </ul>	<ul style="list-style-type: none"> <li>● Certified Organic*</li> <li>● Free Range</li> <li>● Locally Grown</li> <li>● Grass Fed</li> <li>● Farm Raised</li> <li>● Certified Humane Raised and Handled*</li> <li>● Naturally Raised*</li> <li>● Bird Friendly*</li> <li>● Carbon Dioxide Emission Labels*</li> </ul>	<ul style="list-style-type: none"> <li>● Non-GMO</li> <li>● Natural (meat)*</li> <li>● No Trans Fat</li> <li>● Made with Whole Grains</li> <li>● Low Fat*</li> <li>● Contains Antioxidants</li>   <li>● Green</li> <li>● Antibiotic Free</li> <li>● 100% Vegan</li> </ul>

<sup>1</sup> Label type determined by authors. \*The label is either administered or defined by an independent certifying or government agency.

The carbon emissions label differs slightly from the other eco-labels, in that by providing concrete data on the carbon impact of different food products, consumers can shift their choices to foods with a lower carbon footprint. For example, the carbon labels indicate that a hamburger has 1.7 kg of carbon dioxide emissions, while a chicken sandwich has a mere 0.4 kg.<sup>34</sup> The success of this type of food labeling program in altering consumer behavior is not clear and presents opportunity for research. For a related non-green example, New York City has menu-labeling requirements, where mandatory calorie counts on all food products sold in certain restaurants are listed; studies have yet to find statistical evidence that displaying calorie counts caused consumers to buy lower calorie products<sup>35</sup>.

The most recent entrant to the product label arena is WalMart, which is developing a sustainability index based on a 15-question survey given to all of their suppliers. As of February 2010, the final form of the index that consumers will see is still undetermined<sup>36</sup>. Given WalMart's position as the world's largest retailer, the company's interest in sustainability and green products is likely a bellwether event<sup>37,38</sup>.

### Consumer confusion may emerge

Consumer activists have long been a force bringing change to industry practices and, in some cases, their activism has been the impetus behind new regulations<sup>39</sup>. Over the years, consumer awareness has been raised about a variety of industry issues, including food production standards and poor working conditions<sup>40,41</sup>. A myriad other stakeholders have also been influential in the green market, and have voiced their concern about a wide range of business practices<sup>42</sup>. The eco-movement of the past 20 years is no exception, with many product labels the result of increased awareness of a particular issue brought on by stakeholder groups. In one example, the organic industry was self-regulated until it requested the development of government administered organic standard<sup>43</sup>. As a result of the efforts of

the different stakeholder groups, consumers now have a plethora of 'value bundles' from which to choose and, regardless of their preferences, have the choice of buying products of varying degrees of greenness. The increased variety of products in a particular category results in lower market prices, which also contributes to increased consumer welfare<sup>31</sup>. However, there is competition among labels. For example, the following labels are found on coffee: organic, fair trade, shade grown and bird friendly.

A related question that is more philosophical than business-oriented is: which actions are considered socially responsible and which labels are truly green? Are consumer assumptions about what is green matched with reality? For example, the local food movement is partially based on reducing 'food miles,' but not all locally produced food has a lower carbon footprint<sup>44</sup>. While the food miles issue is complex and not deliberately misleading, there are cases where firms mislead consumers through food labels. One instance is the marketing of chickens as 'hormone free' which was stopped by the Federal Trade Commission (FTC), because federal regulations prohibit growers from adding hormones to chickens<sup>45</sup>. Or 'nearby eggs', which suggests that the eggs are local, but the label does not say where exactly 'nearby' is located.

These questions lead to the issue of product label verification. The degree of greenness of a product or firm is difficult to validate, particularly if the green attribute is not well-defined or observable. The consumer's continued responsibility is to be vigilant in understanding what is being purchased and whether firms are being honest about their practices and their products. That said, it is extremely difficult for consumers to find information necessary for the assessment of the validity of firm or product claims. Further, consumers are inundated with messages about how to live a green life, which creates what has been labeled 'green noise'<sup>46</sup>. Few mechanisms are available that provide information regarding product labels and firm actions. Familiar organizations, such as *Consumer Reports*, provide information on product labels on the greenerchoices.org

website. However, looking up information while shopping is typically not possible, so only a determined consumer is likely to follow through with product label verification.

### *Are voluntary labels the answer?*

The problems inherent with voluntary labeling are well known. The buyer essentially has to rely on the seller's claim that the product really is as stated, particularly when the attributes of the product are unobservable, such as 'produced humanely'. In industries where the buyers and sellers have personal relationships, reputation enforces the label. For example, the fear of being labeled a 'cheat' or a 'fraud', principally in a close knit community where the information will be shared, enforces implicit contracts<sup>47,48</sup>. However, as markets become larger and buying and selling takes place at arm's length, cheating becomes easier and consequently reputation effects fail to enforce contracts. Fraud can be common: this is the classic 'market for lemons' problem, where the sellers have an incentive to misrepresent quality, and in the end, only low quality (or non-green products) are sold in the market<sup>49</sup>. In such cases, a quality verification mechanism, such as inspection or certification, is crucial to overcome a lemons market.

Many of the labels in Table 2 are privately administered, and have no verification system to enforce the claims. And for some voluntary third-party labels, such as the fair trade label, which is used most frequently on coffee, tea and cocoa, the production sites are rarely inspected<sup>50</sup>. As the number of fair trade certified farmers grows, the problem with insufficient inspection is likely to increase over time. The lack of inspection is likely to lower the 'greenness' of products being produced. The economics literature indicates that when firms produce a green product in a competitive market (which describes most agricultural markets), and their production methods are not monitored, the green market will not exist in equilibrium<sup>51</sup>. In equilibrium, socially responsible firms must earn a profit (that is, prices exceed costs) for their claims to be credible<sup>29</sup>.

Similarly, product claims must be enforced, and this is one place where labels promulgated by governments may have a clear advantage. While there does not appear to be empirical evidence regarding whether government certification is more effective in monitoring, governments are able to levy heavy penalties for fraud, which can take the form of fines and/or revocation of the right to use the label. Enforcement of a private label, such as the TransFair label used on fair trade products, is affected through the certifying body's credible threats to ban the cheating firm from using the label in the future. Voluntary firm compliance with the product or firm claims, however, may result if the consumer is willing to pay a high enough premium for the green product<sup>52</sup>.

The certification model has been established in the organic sector, which has a well-defined certification and enforcement system for all producers and handlers of

organic products. Violations of the national organic standards are enforced by the US Department of Agriculture. However, even given the carefully considered aspects of the National Organic Program, it has recently come under fire, resulting in a 2009 third-party audit of the program by the National Institute of Standards and Technology<sup>53</sup>. The fact that the organic standard requires such oversight has implications for other unregulated voluntary standards. Lack of inspection and enforcement of standards may lead to erosion of consumer confidence in a label, with a subsequent collapse of the market for green products.

Further complicating the use of green labels is the fact that not only is it unlikely that the average consumer fully understands the differences across labels, there are also differences across consumers' valuation of labels. Consumers were found to be willing to pay more for fair trade or shade grown coffee than for organic coffee<sup>54</sup>. Because the certification requirements are better developed and enforced for organic products, it is likely that the validity of organic claims exceed those of the other labels.

Consumer confusion exists, and is made evident through studies demonstrating that consumers do not understand the meaning of the USDA organic label<sup>55</sup>. Such confusion may arise along with the number of labels and signals in the market. As the sheer amount of information conveyed by labels and corporate social responsible-type action increases, the average consumer is likely to be overwhelmed and be unable to process information. This type of confusion over nutrition labels led the Food and Drug Administration to standardize and regulate food labels<sup>56</sup>. If consumer confusion over eco-labels becomes severe, and consumers cease buying green products, then businesses may be worse off for having marketed their firms or products as green.

Beyond questions of technical standard compliance, consumer valuation of different labels and consumer confusion, a clear-thinking consumer can rightfully ask whether product labels and standards deliver on their promises: i.e., do fair trade coffee producers actually have a higher standard of living than non-fair trade farmers? Are cows used to produce certified humane beef actually treated well? And what does it mean to treat a cow well? Do organic dairy cows have access to pasture? While these questions are the result of subjective valuation, the provision of unbiased answers to these questions would increase consumer confidence in the green labels and may inform possible metrics for validation.

### **Are businesses the answer to environmental problems?**

Businesses are in a unique position: by adopting practices that, when compared to standard practices, are better for the environment or other social aspects, firms can effect change by reducing the environmental impact of their actions, as well as setting an example for other businesses. As long as

some consumers are willing to pay higher prices to support green businesses and products, higher costs are likely to be offset. As the global environmental crisis worsens, the number of consumers willing to support *verified* green products may well increase. However, economic conditions can easily temper this movement.

Given the examples set by some businesses and industries (such as the organic industry), we would like to be cautiously optimistic about the potential for positive synergies between business and environmental quality. That said, we have no measures of the impact on the environment and other social aspects of green labels of socially responsible firms, nor do we have a sense of the validity of these claims.

In conclusion, green markets are clearly a growth area for businesses. As this discussion suggests, some firms can remain profitable and help to minimize the effects of increasing consumption by adopting socially responsible practices and/or producing eco-friendly products. Yet crucial questions regarding the impact of governance and how to handle consumer confusion remain. Perhaps the most important questions, however, are what are society's environmental goals and how committed is society to meeting concrete environmental goals? Commitment would likely require a significant change in consumption patterns.

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