Households' Willingness to Pay for "Green" Goods: Evidence from Patagonia's Introduction of Organic Cotton Sportswear

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To shed light on individuals' willingness to pay for "green" goods (i.e., goods that are supposed to have lower adverse environmental impacts either in

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production or in use), we study data from the introduction by Patagonia, Inc., of organic cotton sportswear in the mid-1990s. Patagonia, a maker of high-end outdoor wear, substituted organic cotton for conventionally grown cotton in all of its sportswear (i.e., casual clothing for travel and leisure) in 1996. We find that customers were willing to pay significant premiums for organic cotton garments although the organic cotton provided no demonstrable private incremental benefits to the customer.

1. Introduction

We would like to improve our understanding of the circumstances under which private individuals will voluntarily pay firms to provide "green" goods, here defined as goods whose adverse environmental impacts, in production, use, or both, are lower than those of competing products.[1] The question is important to business strategists in firms, because, if firms can induce households to pay for green goods, they may be able to profitably differentiate products along environmental or social lines. The question has implications for public policy too. If the ability of firms to induce households to make payments for green goods is widespread, this weakens the normative rationale for government provision of public goods and for government regulation to force public good provision by firms. If, on the other hand, this ability turns out to be rare or nonexistent, the traditional normative rationale for government intervention in markets applies.

Many private organizations explicitly solicit contributions from individuals for the provision of public goods or for unilateral transfers to disadvantaged people. The Natural Resources Defense Council and Doctors Without Borders are examples of such groups; both are constituted as nonprofit organizations, as contribution-based private providers of public goods or income transfers often are. In addition, however, many for-profit firms that sell to households have tried to encourage their customers to pay price premiums for goods or services that bundle traditional private goods with public goods. Cause-related

1. We distinguish between green goods and public goods as follows. We define public goods as those whose consumption is nonrival (consumption by A does not reduce the amount available for consumption by B) and nonexcludable (once the good is produced, neither A nor B can practically be prevented from enjoying it). Public goods include national defense, street lighting, and, importantly for this paper, environmental quality. A "green" good can be seen as a bundle of a private good and one or more public goods. (A "green" good is thus an example of an "impure public good." See Cornes and Sandler, 1986, and Kotchen, 2005.) For example, the organic cotton shirts on which this article concentrates are green goods. They provide both private services to the wearer—for example, protection from the elements, or enhanced appearance—and also ecological benefits that are public goods.

marketing (for example, offers that "we will contribute x cents to charity y for every unit of product z sold") is a common mechanism for this sort of bundling; here there is no necessary technological connection between the product and the cause, although experience suggests that when customers see intrinsic connections among the product, the cause, and the company's core values the bundle is likely to be more positively received. A second common mechanism for bundling of public and private goods is for a firm to use production processes that create public goods (or diminish public disamenities relative to the processes used to make competing products). A third way is to make products that create public goods or lower disamenities, relative to competing products, while the consumer is using them. "Sustainably harvested" timber or "dolphin-safe" tuna are examples of this second mechanism; hybrid vehicles an example of the third.

Bundles of this sort are often more complicated than they appear on first inspection. There are many reasons to buy a Prius besides the satisfaction of producing fewer emissions per vehicle-mile than are produced by traditional cars. The fuel saving that accrues to the car's owner is a private good. Further, cars are fashion items, and consumers may use them to communicate with others about their own attributes: the ability to send such messages is a private good. In fact, one of the attributes about which one might want to communicate is exactly that one cares about green goods.[2]

Studies of willingness to pay for provision of public goods or of green goods often make use of surveys and other instruments to elicit information, or directly examine behavior in markets to make inferences about people's preferences.[3] In the first category, researchers survey consumers to learn what these individuals assert about their preferences. Problems can arise from the fact that individuals may misrepresent their true willingness to pay when asked. For example, the H.J. Heinz Company, prior to its 1990 switch from conventional to "dolphin-safe" tuna, commissioned telephone surveys in which customers declared themselves willing to pay significant premiums to consume tuna caught in ways that did not harm marine mammals; but

2. Firms that sell goods or services to other firms may also engage in bundling of private and public good attributes in their offerings. The firms that are their customers might be willing to pay for public good provision because it is a form of risk management or because they think that their own customers will pay a premium for the attributes; if shareholdings in the customer firms are widely dispersed, managers in those firms might also buy these bundles to satisfy their own tastes independent of the preferences of the firms' owners. In this paper, we focus on willingness to pay by households.

3. For overviews of these extensive literatures see Freeman (2003) and Kolstad (2000).

when the company made the switch, it found actual willingness to pay such premiums to be near zero.[4]

To avoid the problems of misrepresentation that can arise in surveys, researchers can instead (or additionally) observe behavior directly. Studies of behavior commonly use hedonic approaches to examine the way in which the prices of traded goods vary as the quantity of some public good varies; for example, they can study the relationship between housing prices and air quality in order to obtain a measure of the value of higher-quality air, exploiting the fact that air quality can vary across subareas within a region. Alternatively, researchers can study the behavior of individuals in markets for goods that are substitutes or complements for environmental goods (e.g., bottled water or fishing equipment).

This paper on Patagonia's introduction of organic cotton sportswear complements these approaches by studying directly the behavior of consumers offered the opportunity to buy a bundle of private and public goods, using quantity rather than price as the dependent variable. In particular, it contributes to a stream of literature on eco-labeling and willingness to pay premia for products that are putatively preferable from an environmental standpoint. For example, Nimon and Beghin (1999) analyzed the offers of American garment makers to estimate the price premium that they charged for organic cotton garments; they estimated that this premium was over 30%, well above the cost increase that they estimated the manufacturers would incur when using organic.

More recent studies of willingness to pay for environmental goods have focused on food. Teisl et al. (2002) found that canned tuna lost share to close substitutes (e.g., luncheon meats) prior to the American canners' change in fishing practices and incorporation of "dolphin-safe" labels, and then gained share after the labels were introduced. Using hedonic techniques, Galarraga and Markandya (2004) found a significant premium in the UK for organic and "fair-trade" coffee.[5] And Maguire et al. (2004) analyzed data on offers in Raleigh and San Jose to infer a price premium of 16–27% for organic as opposed to conventional babyfood.[6]

4. Reinhardt and Vietor (1994).

5. Galarraga and Markandya (2004) include a table of recent studies of price premia for goods labeled or certified as "sustainable," most of which used surveys rather than observations of behavior.

6. It seems likely (to this study's authors, and to us) that willingness to pay for organic baby food is likely driven by perceived health benefits to the consumer (the baby) rather than by environmental or health benefits in the upstream production; by contrast, as discussed in the text of this paper, organic cotton and dolphin-safe tuna appear to offer primarily upstream public goods.

The question of individuals' willingness to pay firms to deliver green goods is both inherently intriguing and potentially important. One can find examples of firms that have tried to obtain price premiums by bundling private and public goods in almost every industry that sells to individuals: groceries, investment management services, autos, tourism, building materials, appliances, apparel. Nevertheless, the papers cited above represent only a promising start on the systematic exploration of this willingness to pay. In this paper, we use internal company data on the introduction of organic cotton sportswear by Patagonia, Inc., in the mid-1990s in order to shed some further light on individuals' willingness to pay for green goods.

An organic cotton garment is indistinguishable to the sight and touch from a garment made of conventionally grown cotton. Hence, one might think that any willingness on the customer's part to pay a premium for organically produced cotton would have to arise from concern about the upstream effects of the cotton production (specifically, lower levels of pesticides and fertilizers that may affect ecosystems in and near the fields where the cotton is grown). Organic fruits and vegetables, by contrast, are thought to offer not only public goods of this sort but also private benefits in the form of reduced exposure to pesticides on the part of the purchaser or the purchaser's children. Organic cotton more closely resembles "dolphin-safe" tuna than organic carrots in that the demonstrable benefits of the change in production methods are purely public goods. It may be that some customers buy products made of organic cotton because they perceive they are obtaining health benefits, although we are unaware of any empirical study that such a perception exists.

Patagonia customers may be more likely to exhibit willingness to pay a price premium for green goods than the average American consumer. As discussed below, the average income of Patagonia catalog customers exceeds the American average, and because the products are often used in outdoor recreation, their purchasers may be more interested in environmental issues. One must be careful in drawing general conclusions about American customers' willingness to pay for green goods from the data and analysis presented here.

The paper is organized as follows. Section 2 provides information about the firm itself in order to present the strategic context in which the firms' leaders made the decision to convert from conventionally grown to organic cotton supplies for their sportswear. Next, we describe the data on customers' response to this change in product attributes that we use to study households' willingness to pay for green good provision by firms. Section 4 presents our empirical strategy. In Section 5, we discuss the regression results. Section 6 concludes.

2. Patagonia: The Firm

Patagonia is a designer, marketer, and distributor of high-performance outdoor wear and sportswear.[7] Founded by a legendary mountaineer named Yvon Chouinard, and headquartered in Ventura, California (a location chosen partly for the local surfing opportunities), it explicitly positions itself as an example of a firm attempting simultaneously to be profitable in business and to contribute to the solution of social (especially environmental) problems.

Patagonia enjoys a reputation for selling beautifully designed garments of very high quality, suitable for climbers, skiers, and other outdoorspeople. The firm sells clothing for alpinism (mountaineering and climbing on rock, snow, and ice), skiing, snowboarding, fishing, surfing, kayaking, endurance running, and mountain biking. It also sells high-quality sportswear, that is, garments like polo shirts and canvas trousers, suitable for casual wear and travel.

The firm has enjoyed considerable financial success. Its products command prices roughly 20% higher than those of other specialist makers of outdoor wear. Its revenues are about $250 million per year; returns on sales, both now and during the period of the introduction of organic cotton sportswear in the mid-1990s, range from 10% to 12%. Asset turns (i.e., revenues divided by total assets) have consistently exceeded 1.5.

In keeping with the environmentalism of its founder, Patagonia donates 1% of its revenues to grassroots environmental organizations and tries to reduce the environmental impacts of its own products and processes. Patagonia explicitly aspires to be a catalyst for social change and an example for other firms.[8]

Patagonia's competitors in the high end of the outdoor apparel industry include such firms as The North Face, Inc., Marmot Mountain Ltd., Mountain Hardware, and ARC'TERYX Equipment. In sportswear (i.e., casual and travel clothing), which accounts for about a third of revenues, Patagonia's competitors include Columbia Sportswear, Royal Robbins, and The North Face. While Patagonia produces two seasonal lines of sportswear per year, many larger competitors can produce five.

2.1 Design and Product Development

Patagonia managers emphasize the consideration of three criteria during the design and development of a product: its quality, its impact

7. See Reinhardt et al. (2003).
8. Fred Alvarez, 2002, "Patagonia Again Tops for Workers," *Los Angeles Times*, February 4, 2002.

on the environment, and its aesthetics. "The most important thing is to make the best quality product. Each single product has to be the best that there is. Period," says founder Chouinard.[9] Patagonia managers assert that their price premium is due to the reputation they enjoy for product quality. Quality can come from better raw materials, from better product design, or from closer attention to detail in the manufacturing process. We informally estimate that half of the quality advantage might be attributable to technical innovations and half to superior design. Innovations developed for the "technical" product lines (e.g., for alpinism or ocean sports) can "trickle down" into sportswear.

Patagonia is also committed to minimizing the environmental impact of its products and processes. According to Former VP of Environmental Initiatives Jil Zilligen, Patagonia wants to "dispel the myth that in order to have a high quality product you have to have something damaging to the environment, and that a product of high environmental quality has to be ugly...We try to help customers broaden their definition of quality to include a product that takes the environment into account....There is also a population of environmental activists and consumers who think about corporate values and want to align their purchases with their values, and we have something to offer to them."[10] At the same time, according to Zilligen, "There is some tension between the environment and product quality...the reality is that they don't always go hand in hand."[11]

Regarding the aesthetics of its products, Patagonia aims to create "classic" products, emphasizing graceful functionality and "authenticity" over fashion.[12]

2.2 Procurement and Production

Like many American apparel firms, Patagonia contracts production of garments to specialist providers of production services, focusing itself on design and marketing. Patagonia managers assert that compared to its competitors the firm tends to use a smaller number of suppliers, to maintain longer-term relationships with them, and to base its selection on considerations other than price.

Most of Patagonia's costs of goods sold are attributable to the garments' raw materials. According to former VP of Production (and

9. Yvon Chouinard, Interview with Casadesus-Masanell, Reinhardt, and Freier, December 2, 2002.

10. Jil Zilligen, Interview with Casadesus-Masanell, Reinhardt, and Freier, Ventura, CA, October 29, 2002.

11. *Ibid*.

12. Patagonia, Inc. (1998a) at 8.

now VP of Product) Julie Ringler, "We are never going to be the lowest-cost provider. It has little to do with the sewing or manufacturing. It has to do with the bill of materials, which makes up about two-thirds of the cost [i.e., cost of goods sold, or COGS] of a garment. . .for example, the raw materials that go into the garments, such as the fabric and the buttons."[13] Fabric accounts for about 80% of the total costs of raw materials, and Patagonia estimates that in some instances its fabric costs are 20% to 30% higher than those of its competitors.

2.3 Marketing and Sales

Patagonia sells its merchandise through its own stores and through independently owned retailers. The retail segment of the industry is consolidating as large specialty chain stores like Recreational Equipment, Inc., and Dick's Sporting Goods expand at the expense of specialty dealers. Patagonia also sells directly to households, using catalogs mailed to residences and an Internet site. An increasing fraction of sales occurs through its web site, although in the mid-1990s, the time of the decisions on which we focus in this paper, this last channel was not yet significant.

About 70% of Patagonia's sales are in North America, 20% are in Asia (mostly in Japan), and most of the rest are in Europe. The relative importance of the various channels differs by region. Most European business is wholesale (i.e., Patagonia sells to dealers who sell to individuals). In Japan about half is wholesale and the rest is from the company's own stores. In North America, about half of Patagonia sales are wholesale, 30% from the firm's own stores, and the rest direct (through catalog and Internet).

Patagonia's most important marketing materials are its catalogs. Larger than most magazines and catalogs, they are full of striking photographs of men and women ("Patagoniacs") using the products in spectacular settings and of exhortatory essays about environmentalism and cultural values written by founder Chouinard and others. Patagonia uses the catalogs and web site to convey an image of its users (and its employees and owners) as countercultural, environmentally sensitive individuals in superb physical and psychological condition. Patagonia distributes five million catalogs per year in the United States: one each for fall, winter, and spring, and one for each of several product lines (e.g., Kids, Fishing, and Insulation). About 50% of the space in a Patagonia catalog is "nonselling space," devoted to photographs of

13. Julie Ringler, Interview with Casadesus-Masanell, Reinhardt, and Freier, Ventura, CA, October 28, 2002.

outdoorspeople, essays, and other information rather than to product-specific images and text. By contrast, in most other firms' outdoor catalogs, less than 10% of the space is nonselling space. It costs Patagonia about $1.20 to produce and deliver one of its seasonal catalogs.

Overall, the company spends about 5% of sales on marketing, of which over half is for catalogs; a small number of print ads, primarily in outdoor magazines, accounts for much of the rest. The catalogs obviously give rise to direct sales but also build traffic in the company's own stores and encourage sales in nonowned retail establishments.

Patagonia is able to sell its products for significantly more than other specialty outdoor wear manufacturers. Its Alpine outerwear and performance Capilene® underwear can sell for 15% to 20% over those of other specialty makers, and more than 50% over mass market brands. These price differences extend to sportswear: Patagonia's shorts and polo shirts command price differentials similar to those of its outerwear.

2.4 Governance

Patagonia is owned by founder Chouinard and his wife. Managers are unanimous that this governance structure affects the firm's behavior. Former Executive Vice President Perry Klebahn said, "There is not as much pressure for growth as if we were publicly traded. We open 2 to 4 retail stores per year when we could open 20. We would probably sell to more mainstream accounts. The North Face sells to Macy's, for example. We would probably have a lot more debt. Patagonia has no debt now domestically, but it would probably go to $60 million in debt."[14] CFO Martha Groszewski said, "It would be very difficult for us to be who we are [if the company were publicly owned]. The programs we support would be seen as unnecessary."[15]

2.5 Environmental Policies

Consistent with its founder's environmental philosophy, Patagonia tries to support the environment both in its operations and through other philanthropic activities. Each year Patagonia donates either 1% of sales or 10% of pretax profits (whichever is greater) to outside grassroots environmental groups. It also makes noncash donations, giving about $200,000 worth of its products each year to environmental groups and

14. Perry Klebahn, Interview with Casadesus-Masanell, Reinhardt, and Freier, Ventura, CA, October 28, 2002.

15. Martha Groszewski, Interview with Casadesus-Masanell, Reinhardt, and Freier, Ventura, CA, October 29, 2002.

directing its creative services department to help environmental groups create advocacy ads and other marketing materials.[16] Patagonia offers its employees the opportunity to work for up to 2 months full time for an environmental group while receiving their full compensation from Patagonia, and it hosts periodic conferences at which activists can learn business and marketing skills.

Patagonia also explicitly attempts to minimize the environmental harm of its products. In 1993 it introduced postconsumer recycled (PCR®) Synchilla® fleece, made from recycled plastic soda bottles,[17] and in 1996, it shifted to 100% organic cotton because an internally conducted life-cycle analysis had shown that the conventional methods of growing cotton involved intensive amounts of harmful pesticides. It is this shift that gave rise to the data used in this paper.

In its operations, Patagonia also tries to reduce its environmental impact. For example, Patagonia's new and remodeled retail stores rely heavily on recycled materials and energy-efficient lighting.[18] Some environmental initiatives clearly increase costs, but others (like a reduction in the amount of packaging used for Capilene® underwear) save money. The direct effect of its internal process changes on customers' willingness to pay for Patagonia garments is thought by Patagonia executives to be zero, even among the roughly 50% of the Patagonia customers who were thought to be aware of the environmental positioning.

2.6 Patagonia's Switch to Organic Cotton

In summer 1994, Patagonia decided to make all of its cotton sportswear from fabric made from organically produced cotton starting in the spring of 1996.[19] At the time, a limited amount of organic cotton was available. Patagonia had to pay two to three times more for its organic cotton fabric in spring 1996 than it paid for conventional cotton in spring 1995. Moreover, fewer quality levels of cotton fabric were available; in spring 1995 Patagonia had 31 cotton fabrics; in spring 1996, only 14. Patagonia reduced its line from 91 cotton styles in spring 1995 to 66 in spring 1996.[20]

Cost of goods sold for the flannel shirt, a staple of Patagonia's sportswear line and the focus of our regression analyses below, jumped from $18.16 in 1995 to $23.89 in 1996 as a result of the switch to organic

16. Patagonia, Inc. (2002).
17. Patagonia, Inc. (1998b), at 10–11.
18. *Ibid*. at 9, 14–15.
19. Chouinard and Brown (1997).
20. Patagonia, Inc. (1995).

cotton. In 1997 and 1998, COGS for the flannel shirt was $24.50 and $23.93, respectively; by fall of 2001, it had fallen to $21.16.

When it switched to organic cotton in 1996, Patagonia decided to use "transitional" as well as certified organic cotton. Transitional cotton is grown using organic cotton practices, but on farms where the practices have been in place for an insufficient time for the farm to be certified organic. Patagonia also decided that it would sell clothing made with organically grown cotton rather than organic clothing. This meant that Patagonia could continue to use synthetic dyeing technologies rather than switching to natural dyes that might not meet Patagonia quality standards; it also could use conventional cotton or polycotton thread to sew the garments.[21]

Patagonia reduced its margins on most cotton sportswear products so that a retail price on a particular product would not rise more than 20% over the price of the product with conventionally grown cotton. It limited those products that could not meet this goal to Patagonia's retail and mail order channels.[22] On average, organic cotton garments sold for 8% more than comparable garments made from conventional cotton.

3. The Data

We study the most significant cotton sportswear product in Patagonia's fall line, the flannel shirt, in the 4-year window spanning from 1994 to 1997. The flannel shirt appeared in the fall but not in the spring catalogs. The period is centered around the time of the switch to organic cotton, the 1996 spring season. Table I presents summary statistics.

We analyze buying behavior during a small time window after the switch to organic cotton because we do not have access to data on competitors' reactions. Our analysis assumes that competitors' short-term reactions to Patagonia's move to organic cotton did not materially affect demand for Patagonia's flannel shirts.

The dataset is a comprehensive list of all Patagonia customers in the *house file* that received fall and spring catalogs in each of the years 1994, 1995, 1996, and 1997. The house file in any given year contains households that have purchased from Patagonia in the recent past. Every year Patagonia experiments with tens of thousands of new potential customers by sending catalogs to a new set of households. Our data contain households who had purchased from Patagonia in seasons before fall 1994 and who kept receiving catalogs throughout the sample

21. Chouinard and Brown (1997) at 123.
22. *Ibid*.

Table I.
Summary Statistics

		1994	1995	1996	1997
Number of flannel shirts purchased by household j in year t ($q_{jt}^{flannel}$)	*Mean*	0.358	0.219	0.172	0.168
	SD	0.607	0.505	0.446	0.448
Number of snap-Ts purchased by household j in year t (q_{jt}^{snap})	*Mean*	0.195	0.166	0.135	0.103
	SD	0.448	0.415	0.377	0.342
Price in dollars of flannel shirts purchased by household j in year t ($flannelprice_{jt}$)	*Mean*	51.578	55.975	61.895	64.841
	SD	3.214	0.760	1.423	1.424
Price in dollars of snap-Ts purchased by household j in year t ($snapprice_{jt}$)	*Mean*	81.701	81.952	84.822	84.940
	SD	3.406	1.250	2.363	1.453
Square inches of catalog space devoted to advertising the flannel shirt in year t ($flannelinches_t$)	*Total*	324	180	156	160
Square inches of catalog space devoted to advertising the Snap T in year t ($snapinches_t$)	*Total*	90	60	120	60
Fabric ($post1996_t$ = "0" if conventional cotton year and "1" if organic cotton year)	*Dummy*	0	0	1	1
Demoqraphic controls:					
$population_{jt}$ (million)	*Mean*	0.020	0.021	0.021	0.021
	SD	0.015	0.015	0.015	0.015
$urban_{jt}$ (%)	*Mean*	0.727	0.733	0.738	0.743
	SD	0.352	0.348	0.344	0.343
$asian_{jt}$ (%)	*Mean*	0.027	0.028	0.029	0.029
	SD	0.048	0.049	0.050	0.050
$male_{jt}$ (%)	*Mean*	0.488	0.489	0.489	0.489
	SD	0.026	0.026	0.026	0.026
$income_{jt}$ (million)	*Mean*	0.043	0.045	0.046	0.048
	SD	0.018	0.018	0.019	0.020
$bachelor_{jt}$ (%)	*Mean*	0.186	0.189	0.191	0.195
	SD	0.087	0.088	0.089	0.089

period. It may also contain some households whose names Patagonia acquired in 1994 and who subsequently joined the house file because they became customers. In all, the dataset contains 108,191 households and 865,528 observations (eight observations per household, two for each year).

We use the following product data (the variable names and indexes are in italics):

- Number of units of flannel shirts purchased by household j in year t (q_{jt}^{flannel}). In our dataset q_{jt}^{flannel} takes values between 0 and 8 only. That is, no household bought more than eight flannel shirts in any

given year. (In fact only one household purchased as many as eight Patagonia flannel shirts directly through the catalog in any of the periods 1994 to 1997.)

- Price in dollars of the flannel shirts purchased by household j in year t ($flannelprice_{jt}$).
- Square inches of catalog space devoted to advertising the flannel shirt in year t ($flannelinches_t$).
- Fabric ($post1996_t$ takes value "0" in years 1994 and 1995 when all sportswear garments where produced with conventional cotton, and "1" in years 1996 and 1997 when all sportswear garments where produced with organic cotton).

In addition to flannel shirt data we also use Snap T sales data as a control. The Snap T pullover is one of Patagonia's most famous products. It is a sweater made of a high-performance polyester fabric called Synchilla®; the material was designed by Patagonia in collaboration with fabricmaker Malden Mills.[23] The design, which has become an outdoor classic, has four snaps at the neck that, when closed, form something resembling a turtleneck. In 1993 (i.e., before the period that we study in this paper), Patagonia started making the Snap T exclusively with recycled fiber from soda bottles.[24] This innovation, like the 1996 introduction of organic cotton sportswear, did not provide any direct consumer benefits; that is, the garment was indistinguishable in appearance and use from a similar garment made from virgin polyester.

One problem with a model that did not use data on garments not made of cotton is that the effect of the $post1996_t$ dummy might pick up something different from the fact that the shirts were made of organic cotton beginning in 1996. That is, there may have been some other event in 1996 (possibly extending to 1997), unobservable to us, that can account for the variation in quantity sold. For example, if there was a change in marketing practices or a decrease in the number of Patagonia wholesalers or the hiring of a new manager that we cannot observe, these changes might potentially account for the increase in quantity sold that we are attributing to the switch to organic cotton. To deal with this problem, we implement a difference-in-differences estimation approach (D-in-D) using purchases of Snap Ts as the control group.

We use the following Snap T data (the variable names and indexes are in italics):

- Number of units of Snap Ts purchased by household j in year t (q_{jt}^{snap}). In our dataset q_{jt}^{snap} takes values between 0 and 5 only.

23. Chouinard (2005, p. 50–53).
24. *Ibid*. at 212.

- Price in dollars of the Snap Ts purchased by household j in year t ($snapprice_{jt}$).
- Square inches of catalog space devoted to advertising the Snap T in year t ($snapinches_t$).

The dependent variable in our regressions is $q_{jt} = [q_{jt}^{\text{flannel}}, q_{jt}^{\text{snap}}]$. We let $inches_t = [\, flannelinches_t, snapinches_t]$.

A D-in-D regression helps us identify the effect of the switch to organic cotton on the demand for the flannel shirt. Ideally, we would have wanted the control group to be flannel shirts made of conventional cotton. As we mentioned above, however, when Patagonia switched to organic, the new fabric was used in *all* products that contained cotton and thus the ideal data are not available.[25] Purchases of Snap Ts constitute a reasonable control for a D-in-D regression that aims to isolate the effect of the move to organic cotton as it was a stable product throughout the period considered and was *not* made of cotton. The number of colors remained constant and catalog price was essentially flat (it increased by 3.6% in 1996—the flannel shirt increased 10.7% that year). In addition, there were no changes to the fabric or the design.

Square inches of catalog space devoted to advertising was invariant across households. As prices increased and the catalog space devoted to advertising the products shrank, the quantity sold of both products decreased.

Our dataset includes the ZIP codes where the households were located each year in the sample. We do not have access to demographic data at the household level. Instead, we use Census Bureau demographic data at the ZIP code level as controls. Specifically, we use data from the Decennial Censuses carried out in 1990 and 2000 to infer (by linear interpolation) the average demographics in each ZIP code for each year between 1994 and 1997. We use the following demographic information: population ($population_{jt}$), percent urban ($urban_{jt}$), per cent Asian ($asian_{jt}$), per cent male ($male_{jt}$), average income ($income_{jt}$), and per cent population over 24 years in age with a bachelors degree ($bachelor_{jt}$).

We study catalog sales only. In the mid-1990s, Patagonia employed three sales channels in the United States: wholesale, retail, and catalog. In fiscal year 1996 (May 1995 to April 1996), 53% of Patagonia's sales in the United States came from its wholesale channel, 32% from

25. For the D-in-D method to be applicable, the trends followed by the treatment and control groups must be the same absent the switch to organic. The fact that the sales trend of flannel shirts in the period 1994–1995 (before the switch to organic) was the same as that of Snap Ts (see Table I) suggests that the implicit assumption that the demand of Snap Ts was not (significantly) affected by factors different from those affecting the demand of flannel shirts is correct. The same argument applies to the period 1996–1997 (*after* the switch to organic).

retail, and 14% from catalog. About 30% of Patagonia's customers buy both in company-owned stores and directly through the catalog. In total, as many as 80% of Patagonia customers may be "cross-channel shoppers" who purchase the company's products through two or all three channels.[26]

We should emphasize that Patagonia customers are not representative of American consumers. They are, on average, better educated and have higher incomes. Patagonia market research supports the notion that Patagonia customers are almost all members of what Ray and Anderson (2000) call "cultural creatives."

The opening story in the spring 1996 catalog was a one-page essay by founder Yvon Chouinard titled "Choosing Organic" (reproduced in Appendix A) in which he explained the reasons for the switch to organic and what this means to the company. In Appendix B, we reproduce Patagonia's catalog descriptions of the flannel shirt for each year in the sample. The product descriptions point out repeatedly that the flannel shirts were made of organic cotton beginning in fall 96. The fall 1996 catalog included the following remark on the pages where the flannel shirt was displayed:

> When we told our Portuguese mill partners that we wanted to make flannel shirts from organic cotton, they understood the environmental value. They also wondered if we'd been doing sit-ups under tractors. Otherwise why would we try to improve a shirt already without peer? Considering the harmful impacts of pesticides used in conventional cotton-growing, we would have been crazy *not* to.
>
> Patagonia flannel shirts offer consummate comfort in quiet glories of color and patterns. Made from 100% combed organic cotton, they're as softly napped as their predecessors. Yarn-dyeing extends their life and keeps colors true. The workmanship is superb.
>
> Although we've made a classic flannel shirt for years, even classics evolve. We expanded our measure of quality to include environmental responsibility.

26. Because our data are a balanced panel, shifts between catalog and other sales channels over the sample period only matter if there are differences in these shifts between flannel shirts and the Snap T. We have no reason to believe that these shifts were different for the flannel shirt and the Snap T. Both products are similar in dimension and any reason that might lead a given household to switch channels (from stores to catalog or from catalog to stores) is likely to affect both products similarly.

For a large number of observations, the number of flannel shirts *and* Snap Ts purchased takes value zero: 98,842 households (790,736 observations or 91.3% of the database over the 4-year period). Because households that never bought the products under consideration over the sample period are uninformative, we dropped them. With this, we are left with 9,349 households and 74,792 observations (eight per household). Each one of these 9,349 households bought at least one flannel shirt or a Snap T in the period 1994–1997. Of course, many households did not buy a flannel shirt and a Snap T every year. Therefore, we still have zeroes in the dependent variable. In particular, the number of observations that take value zero in the dataset that we use for the regressions is 62,437 (or 83.5% of the total).

4. Estimation

We estimate a difference-in-differences model using purchases of Snap Ts as the control group. Because the Snap T does not contain any cotton, the switch to organic cotton should not have affected the willingness to pay for Snap Ts. Essentially, the method takes into account the evolution of sales of Snap Ts and it "discounts it" from that of flannel shirts so that the effect of the move to organic cotton on the demand for flannel shirts is cleanly identified.

The proper application of D-in-D estimation requires that in the absence of the treatment, the average outcomes for treated and controls would have followed parallel paths over time.[27] Although we do not know what the paths would have been in the absence of the treatment, the realized paths (3,338, 2,047, 1,606, and 1,569 flannel shirts and 1,821, 1,542, 1,265, and 965 Snap Ts sold in 1994, 1995, 1996, and 1997, respectively) suggest that both would have likely been decreasing. In addition, if used over a long time series, D-in-D is problematic because errors are likely to be serially correlated. Our time series, however, is 4 years long only and, thus, unlikely to be affected by the issues identified in Bertrand et al. (2004).

To implement a D-in-D regression, in addition to the "$post1996_t$" dummy variable, we introduce a dummy variable (which we call "$flannel_{jt}$") that equals unity for those observations in the treatment group (flannel shirt) and is zero otherwise. The D-in-D method also requires the interaction of "$post1996_t$" and "$flannel_{jt}$." We are interested in the coefficient associated with the interaction term (ϕ):

$$q_{jt} = \beta \mathbf{x}_{jt} + \phi \cdot post1996_t \cdot flannel_{jt} + \varepsilon_{jt} \tag{1}$$

27. Abadie (2005).

where $\mathbf{x}_{jt}$ is a vector with the following variables: $price_{jt}$, $price_{jt} * flannel_{jt}$, $flannel_{jt}$, $inches_t$, $post1996_t$, $demographics_{jt}$, and 1 (constant). The demographic controls are: $population_{jt}$, $urban_{jt}$, $asian_{jt}$, $male_{jt}$, $income_{jt}$, and $bachelor_{jt}$. The dependent variable q_{jt} is the quantity purchased of flannel shirts and Snap Ts stacked in one single column.

To allow for possibly different effects of price on quantity purchased of flannel shirts and Snap Ts, we added the interaction term $price_{jt} * flannel_{jt}$. With this, the coefficient on $price_{jt}$ corresponds to the slope of demand for Snap Ts and the sum of the coefficients of $price_{jt}$ and $price_{jt} * flannel_{jt}$ is the slope of demand for flannel shirts.

The estimator $\hat{\phi}$ has the following interpretation. Let $\bar{q}^{snap}_{94-95}$ denote the sample average of q^{snap}_{jt} for years 94 and 95. Let $\bar{q}^{snap}_{96-97}$ denote the sample average of q^{snap}_{jt} for years 96 and 97. Define $\bar{q}^{flannel}_{94-95}$ and $\bar{q}^{flannel}_{96-97}$ similarly. Then,

$$\hat{\phi} = \left(\bar{q}^{flannel}_{96-97} - \bar{q}^{flannel}_{94-95}\right) - \left(\bar{q}^{snap}_{96-97} - \bar{q}^{snap}_{94-95}\right). \tag{2}$$

Therefore, $\hat{\phi}$ is an estimate of how much the average quantity sold of flannel shirts increased when Patagonia switched from conventional to organic controlling for other aspects affecting products as stable as the Snap T. We interpret $\phi > 0$ as additional willingness to pay for flannel shirts made of organic cotton compared to those made of conventional cotton.

Given the panel structure of our data and the fact that the dependent variable q_{jt} is discrete and takes a small number of positive values, we estimate a fixed-effects negative binomial regression model. That is, we work under the assumption that q_{jt} are drawn from a negative binomial distribution related to the regressors.[28] To account for the unobserved heterogeneity across households, we include household fixed effects.

The coefficients in the negative binomial model can be interpreted as follows. Due to the exponential transformation, each regressor's marginal effect is

$$\frac{\partial E(q_{jt} \mid \mathbf{z_{jt}})/\partial z_{jti}}{E(q_{jt} \mid \mathbf{z_{jt}})} = \beta_i. \tag{3}$$

That is, a unit change in the ith regressor leads to a multiplicative change in $E(q_{jt} \mid \mathbf{z_{jt}})$ of β_i. Therefore, if $\beta_i = -.12$, a unit change in z_i will decrease the mean by 12%.

28. See, for example, Cameron and Trivedi (1998).

5. Results

Table II shows the results of the household fixed-effects negative binomial estimation of equation (1). The coefficient we are most interested in is that of $post1996_t * flannel_{jt}$. The regression delivers a positive and highly significant estimate. This suggests that Patagonia's customers valued the switch and had additional willingness to pay for flannel shirts made of organic cotton over and above that for flannel shirts made of conventional cotton. The estimates allow us to quantify the additional willingness to pay. The ratio of the coefficient of $post1996_t *$

Table II.
Fixed-Effects Negative Binomial Regression. Dependent Variable: Number of Flannel Shirts and Snap Ts Purchased by Household j in Year t. 9,349 Households, 8 Observations per Household (74,792 Observations)

price	−0.0939***
	(0.0041)
price ∗ flannel	−0.0022
	(0.0054)
flannel	−2.2351***
	(0.3922)
post1996	−0.1392***
	(0.0327)
flannel ∗ post1996	0.6314***
	(0.0527)
population	−3.4233
	(3.4212)
urban	−0.1444
	(0.2013)
asian	−1.0999
	(1.0925)
male	−1.7433
	(1.9820)
income	1.2096
	(2.8910)
bachelor	−0.4572
	(0.7607)
inches catalog advertising	0.0007***
	(0.0002)
constant	8.4996
	(1.0738)

***: Significant at 1%.

$flannel_{jt}$ to the sum of the coefficients of $price_{jt}$ and $price_{jt} * flannel_{jt}$ (in absolute value) tells us how much the price would increase when the fabric moves from conventional to organic if quantity sold were to be left unchanged. In other words, had the price of the flannel shirt increased by the value of this ratio, average quantity sold would have remained constant. Because the coefficient of $post1996_t * flannel_{jt}$ is positive and the sum of those of $price_{jt}$ and $price_{jt} * flannel_{jt}$ is negative, we interpret this ratio as the increase in willingness to pay for the flannel shirt due to the switch from conventional to organic fabric.

This ratio has a value of $6.58. Thus, on average, customers were willing to pay $6.58 more for organic cotton shirts (compared to conventional cotton shirts). We should point out that the $6.58 figure is a back-of-the-envelope computation that does not capture the fact that there is a distribution of willingness to pay for the "green" flannel shirt. In particular, our regression results are not inconsistent with many households willing to pay much more than $6.58 for an organic cotton shirt.

As noted above, the cost to Patagonia of a flannel shirt in 1995 was $18.15. This figure jumped to $23.89 in 1996 ($5.74 or 31.6%), and then moved to $24.50 in 1997 and to $23.93 in 1998. The additional average willingness to pay for the flannel shirt ($6.58) was 14.6% higher than the increase in production cost ($5.74). In addition to improved value capture, there are other reasons that it might make sense, from a strategic perspective, for Patagonia to make the switch from conventional to organic cotton. It is possible that Patagonia's switch to organic cotton had positive effects on willingness to pay in other product markets; certainly Patagonia's switch received considerable press attention. It may also be that the switch reduced medium-term costs both for cotton sportswear and for other products, for example, by improving employee retention or by creating differentiation in upstream markets like those for contract manufacturing.

As expected, $price_{jt}$ has a negative and highly significant effect on quantity sold. Also, the interaction $price_{jt} * flannel_{jt}$ has a small and negative coefficient. Thus, the demand flannel shirt was slightly less elastic than that for the Snap T. The coefficient associated to $inches_t$ is positive and significant, suggesting that more square inches of catalog advertising resulted in larger sales.

Notice that none of the demographic controls is significantly different from zero. The reason is that the fixed effects capture most of the heterogeneity across households. Although not significant, the regression shows that the ZIP codes with higher average income bought more garments. Likewise, $urban_{jt}$ is negative. This suggests that households in ZIP codes located in rural areas were more prone to buying Patagonia's flannel shirts directly from the firm than those

located in urban areas. This might be due to their higher travel costs to reach an alternative distribution channel (i.e., a retail store).

5.1 Robustness

We performed several robustness checks. First, we investigated how sensitive is the high significance of our estimates to sample size. In Table III we show the results of a regression on a random sample of 10% of households (935 households and 7,480 observations). We once again find a positive and significant coefficient for the variable $post1996_t * flannel_{jt}$. Significance declines somewhat but it is still well above the 1% threshold. Moreover, the estimates are similar in magnitude to those in the regression with the 9,349 households.

Second, we ran a fixed-effects OLS regression of the benchmark specification. Given the nature of our dependent variable (discrete and positive), OLS is not the most appropriate model. Still, OLS allows for a robust implementation of fixed effects that corrects for possible heteroskedasticity. Table IV shows that the main result that customers were willing to pay significant premiums for the green good persists. The most noteworthy differences between table II and IV are: (1) the $post1996_t$ coefficient is now positive and significant; (2) $inches_t$ is negative (obviously not reasonable); and (3) the additional average willingness to pay implied by the new regression falls to \$4.91, still positive and significant but \$1.67 lower than that generated by the more appropriate negative binomial regression.

Some households received discounts off the catalog price. Some professional athletes, designated Patagonia "ambassadors," are featured in the company's catalogs and test its new products in the field; they may receive Patagonia merchandise (including sportswear) at prices approximating the company's costs. Other professionals, for example, people who serve on ski patrols at certain resorts, may receive discounts of 5% to 10%. Our data show the actual price paid by each household. Our third robustness check runs the fixed-effects negative binomial D-in-D model only on those households that paid the catalog price. Table V shows that the main result remains unchanged. In this regression, however, the variable $flannel_{jt}$ is dropped because of collinearity. In particular, $flannel_{jt}$ can be expressed as

$$flannel_{jt} \equiv 1 - \frac{1}{82} price_{jt} + \frac{1}{82} price_{jt} \cdot flannel_{jt} + \frac{85-82}{82} post1996_t - \frac{85-82}{82} post1996_t \cdot flannel_{jt}. \quad (6)$$

Table III.
Fixed-Effects Negative Binomial Regression on a Random Sample of 10 Percent of Households. Dependent Variable: Number of Flannel Shirts and Snap Ts Purchased by Household j in Year t. 935 Households, 8 Observations per Household (7,480 Observations)

price	−0.0933***
	(0.0106)
price ∗ flannel	−0.0044
	(0.0137)
flannel	−2.1769**
	(0.9701)
post1996	−0.0829
	0.0974
flannel ∗ post1996	0.6570***
	(0.1590)
population	5.5128
	(9.6758)
urban	−1.4560**
	(0.7368)
asian	−1.5685
	(3.9757)
male	−4.2106
	(3.6421)
income	0.9436
	(7.9535)
bachelor	−1.2503
	(2.3164)
inches catalog advertising	0.0006
	(0.0007)
constant	10.6188
	(2.2051)

***: Significant at 1%.
**: Significant at 5%.

The estimated average price premium that customers were willing to pay for the green good is now $7.20.

As a fourth robustness check, we ran a zero-inflated negative binomial model. The zero-inflated model is appropriate when the dataset has a large number of zeroes in the dependent variable. Unfortunately, there is no implementation in Stata of the zero-inflated negative binomial

Table IV.
Fixed Effects OLS Regression. Dependent Variable: Number of Flannel Shirts and Snap Ts Purchased by Household j in Year t. 9,349 Households, 8 Observations per Household (74,792 Observations)

price	−0.0428***
	(0.0015)
price ∗ flannel	−0.0032
	(0.0021)
flannel	−0.0032***
	(0.1497)
post1996	0.0661***
	(0.0071)
flannel ∗ post1996	0.2260***
	(0.0138)
population	−0.3373
	(1.3438)
urban	0.0249
	(0.0690)
asian	−0.3780
	(0.5745)
male	0.0096
	(0.5371)
income	1.8158
	(1.0038)
bachelor	0.2239
	(0.2693)
inches catalog advertising	−0.0002***
	(0.0001)
constant	3.5549

***: Significant at 1%.

model with fixed (or random) effects. Thus, in this robustness check we did not account for household heterogeneity (other than the differences embodied by the ZIP-level demographics that we include as controls). Our regressions assume that $income_{jt}$ explains the large mass of zeroes observed in the data. Table VI shows the results. Again, the qualitative results do not change: the effect of organic cotton on sales of flannel shirts was positive and significant. The price premium that customers were willing to pay implied by the zero-inflated model is $7.62. The coefficient on $income_{jt}$ is again positive but now significantly different from zero.

Table V.
Fixed-Effects Negative Binomial Regression, only for those Households that Paid the full Catalog price. Dependent Variable: Number of Flannel Shirts and Snap Ts Purchased by Household j in Year t. 8,568 Households, 8 Observations per Household (68,544 Observations)

price	−0.0476***
	(0.0088)
price ∗ flannel	−0.0233***
	(0.0036)
flannel	dropped
	dropped
post1996	−0.3217***
	(0.0446)
flannel ∗ post1996	0.5105***
	(0.0744)
population	−3.7863
	(3.7563)
urban	−0.1703
	(0.2263)
asian	−1.7422
	(1.2283)
male	−3.3683
	(2.0671)
income	0.2328
	(3.1271)
bachelor	−0.7680
	(0.8588)
inches catalog advertising	0.0016***
	(0.0004)
constant	5.7396
	(1.3051)

***: Significant at 1%.

Our data include each year's total expenditure in Patagonia products by every household. Our final robustness check exploits the fact that, to a large extent, this expenditure was for noncotton products. As pointed out above, most of Patagonia's products are *not* manufactured out of cotton. We study whether there is a positive trend in the proportion of cotton products purchased over time by the households in our sample. If we find such a trend, it will be

Table VI.
Zero-Inflated Negative Binomial Regression. Dependent Variable: Number of Flannel Shirts and Snap Ts Purchased by Household j in Year t. 74,792 Observations, 12,355 Nonzero Observations, 62,437 Zero Observations

price	−0.0617***
	(0.0021)
price ∗ flannel	−0.0100***
	(0.0031)
flannel	−0.9674***
	(0.2197)
post1996	−0.2318***
	(0.0289)
flannel ∗ post1996	0.5467***
	(0.0465)
population	0.6560
	(0.6042)
urban	−0.0556
	(0.0351)
asian	−0.2132
	(0.1918)
male	−0.1341
	(0.3874)
income	1.0086**
	(0.5096)
bachelor	−0.2833
	(0.1333)
inches catalog advertising	0.0012***
	(0.0002)
constant	3.3299
	(0.2617)

***: Significant at 1%.
**: Significant at 5%.

evidence that there was additional willingness to pay for organic cotton products.

Toward this end, we create a new *dependent* variable by dividing total household expenditures in flannel shirts, heavy flannel shirts, and canvas shirts by total household expenditures in Patagonia catalog products. We then regress this variable against year dummy variables. We estimate a household fixed-effects OLS model. (See Table VII.) The number of observations falls to 19,620 because the ratio is not

Table VII.
Dependent Variable: Ratio for Household j in Year t of Expenditures on Cotton Collared Shirts to Total Expenditures of Patagonia Merchandise. 19,620 Observations

Year1995 (dummy)	−0.0037
	(0.0043)
Year1996 (dummy)	0.0045
	(0.0046)
Year1997 (dummy)	0.0120**
	(0.0049)
constant	0.1150**
	(0.0025)

**: Significant at 5%.

well-defined when a household did not purchase any Patagonia garments through the catalog in a given year (as the denominator is zero).

The results suggest that there was a trend toward organic cotton garments away from noncotton products among households in the Patagonia house file. The large significant increase occurred in 1997. The regression does not imply that there were no additional purchases of cotton products in 1996; it only says that if there were additional purchases those did not come at the expense of other Patagonia products. We conclude that although there might have been other significant events going on at Patagonia at the time of the switch to organic cotton that may potentially explain the variation in sales, there was a trend toward purchasing more cotton products at the expense of noncotton garments after the company switched to organic.

6. Concluding Remarks

We have shown that Patagonia's end customers (i.e., final purchasers of its clothing) were willing to pay substantial price premiums for green goods, and we have provided quantitative estimates of the magnitude of the additional willingness to pay. We trust that it is useful to provide some empirical evidence in the longstanding controversy

about whether "it pays to be green," a debate that has been so far largely rhetorical.

We should point out that we have not attempted to assess how the value of the public goods provided through Patagonia's switch to organic cotton compares with the costs of the resources used to provide those public goods: that is, we have not attempted to conduct a conventional social cost-benefit analysis of Patagonia's switch. One could argue that the incremental willingness to pay shows that the switch created value regardless of the outcome of a traditional cost-benefit analysis, but it still might be interesting to see what the cost-benefit analysis would say.

We cannot say whether our findings generalize to other firms. One might argue that Patagonia's customers are especially likely to be willing to pay for green good provision and that Patagonia, by virtue of its overall reputation, is especially well-positioned to provide such goods credibly. Additional work on the behavior of other firms and consumers would therefore be valuable.

Appendix A: An Excerpt from the Spring 1996 Catalog

A.1 Choosing Organic

Twenty years ago, I changed my eating habits after I read how much harm cattle grazing inflicts on the earth. That was an easy choice for me—especially when I realized I did not need a steady diet of red meat to sustain my health.

As a company, we face a similar choice. In the course of our ongoing environmental assessment, we discovered that the most damaging fiber used to make our clothing may actually be conventionally grown, 100% "pure" cotton. That's because the process of growing conventional cotton involves the heavy use of chemicals that toxify the soil, air and ground water. And because many of these chemicals were originally formulated as nerve gases for warfare, it is no surprise that where spraying occurs, health problems follow, including higher rates of cancer and birth defects in humans and wildlife. These are outrageous costs to pay for the battle against bugs. And it's a battle we'll never win: while the bugs adapt to the chemicals, the rest of us sustain the long-term damage.

Meanwhile, in our own backyard, a handful of farmers have been growing cotton without chemicals for years. Their yields are

just as high, or nearly as high, as those of their "conventional" counterparts and the quality of their fibers is equal or sometimes better. The environmental difference? Of all the potential fibers for clothing, organically grown cotton may be the least damaging and the most sustainable.

Knowing how destructive conventionally grown cotton is, and that there's a viable alternative, Patagonia has to choose organic. Now that we know, it would be unconscionable for us to do anything less. That is why, as of this spring, we no longer use conventional cotton in any part of the line.

To change to organic cotton has its price. Organic farming is labor-intensive, and so it is more costly. And after the cotton leaves the field, nearly every step in production—ginning, spinning, and knitting or weaving—incurs added costs for our relatively small runs.

These higher costs also create new risks for our business. We've had to drop some products that no longer make economic sense to produce. And we have to be prepared for a loss in revenue should higher prices translate to fewer sales. We undertake another risk too: we can't go back. To do so would violate our basic principles: to make a quality product and to reduce our environmental harms. Making clothes out of conventional cotton is something our company can no longer afford to do.

Cotton sportswear makes up a small part of our product line. As we look ahead, we see immense challenges in making our products in ways less harmful to the landscape. Those challenges prove that our organic cotton project is a single step in a very long process—but an important step nonetheless.

We are betting that we have enough loyal customers who will make the same choice we have made here at Patagonia: to pay more now for organics rather than the hidden environmental costs later. It's a simple, personal choice, of course, to act on what we learn. We've all made such choices: to give up or cut down on read meat, to pay more for an energy-efficient appliance, or forego a purchase entirely because it's not needed.

If these choices are simple and individual, their ripple effects are profound. The market is laserlike in its response to changes in what people want. Together we can create a significant business base for the organic cotton movement. We should. Organic farmers are returning to the only model we have for sustainable commerce, one that gives back to the planet as much as it takes out. Their success will be a quiet revolution in modern life. Let's follow their lead.

Yvon Chouinard

Appendix B: Flannel Shirt Product Descriptions form Catalogs

Fall/Winter 1994

"Patagonia Flannel Shirts"

The flannel shirt is a clothing classic: versatile, comfortable and attractive. Its texture comes from brushing the yarns' surface to a fine fuzz, softening otherwise rough fibers without weakening them. Each season we vary the patterns and colors of our Flannel Shirts, but never their essential natures: top quality combed cotton flannel from Portugal, where the world's finest flannel is made; meticulous construction; functional details, and long, useful lives. No other flannel shirt offers Patagonia's quality and originality, season after season.

Men's Flannel Shirts

Our Flannel Shirts are made from a tightly constructed combed cotton, brushed to a baby soft nap. From yarn to shirt, we monitor the process: topstitching, flat-felled seams that leave no edges to age in chaotic frays, extra deep sleeve plackets so they roll up easily, and the cut and construction of a custom-made shirt. Each shirt has modified Y-Joint™ sleeves, lock-stitched buttons and is made to dress shirt specs. The plaid on the pockets matches up perfectly with the plaid of the shirts. Each pattern is original to Patagonia. For more shirt patterns, please see next page. Machine washable, shrinkage is 3%. Imported.

Men's Flannel Shirts

Most flannel shirts pill and droop in the wearing; ours maintain their luster. They're made of Portuguese flannel in Portugal, where they've been making flannels since the late 19th century. Our palette and patterns are inspired by the early 1900's, a golden era of fine shirt making. For more patterns and shirt construction details, please see previous spread. Machine washable, shrinkage is 3%. Imported.

Fall/Winter 1995

"Patagonia Men's Flannel Shirt"

This season's colors belong to three families: classic, tartanlike plaids (like Traditional, Square Stitch), bolder combinations (like Tri Ombre, Dusty Roads, Ziggy) and some quiet, complex tones (like Check Heaven, or Bella, whose black-and-cream neutrals recall a well-poured

Guinness). The three groups share some unifying design traits: first, each plaid satisfies the eye as a composition of pattern and color. Each is balanced; that is, bolder patterns generally are matched to restrained colors and vice-versa. And each plaid offers some grain of surprise (as in the match up of burnt umber and teal in Autumn Ombre or the off-square framing of the twill checks in Ziggy). This steers our shirts clear of the sleepy, unregistered look we associate with most flannels.

Men's Flannel Shirt

Our baby soft Flannel Shirts are made from tightly constructed, lightly brushed combed cotton. The workmanship on each shirt is meticulous: Y-Joint™ sleeves, lock stitched buttons, a collar stand, double-needle topstitching and plaids that match up neatly across the pockets, front placket and yoke. From yarn to shirt, we monitor the process: topstitching, flat-felled seams that leave no edges to fray, extra deep sleeve plackets so they roll up easily, and the cut and construction of a custom-made shirt. Each pattern is a Patagonia original. Machine washable, shrinkage is 3%. Imported.

Fall 1996

"Patagonia Flannels"

When we told our Portuguese mill partners that we wanted to make flannel shirts from organic cotton, they understood the environmental value. They also wondered if we'd been doing sit-ups under tractors. Otherwise why would we try to improve a shirt already without peer? Considering the harmful impacts of pesticides used in conventional cotton-growing, we would have been crazy *not* to.

Patagonia flannel shirts offer consummate comfort in quiet glories of color and patterns. Made from 100% combed organic cotton, they're as softly napped as their predecessors. Yarn dyeing extends their life and keeps colors true. The workmanship is superb.

Although we've made a classic flannel shirt for years, even classics evolve. We expanded our measure of quality to include environmental responsibility.

Organic Cotton Men's Flannel Shirt

Our flannel shirts strike a pleasing balance between dignity and exuberance. They're never homely, never generic, and never lacking in originality—we design the patterns ourselves. We also take the time

to make these shirts well: 100% combed organic cotton, lock stitched buttons, flat-felled seams, double-needle topstitching, Y-Joint™ sleeves, plaids that match up neatly across the pockets, placket and yoke. Machine wash; shrinkage is 3%. Imported.

Fall 1997

Organic Cotton Men's Flannel Shirt

Our flannel shirts strike a pleasing balance between dignity and exuberance. They're never homely, never generic and never lacking in originality—we design the patterns ourselves. We also take the time to make these shirts well: 100% combed flat-felled seams, double-needle topstitching, Y-Joint™ sleeves, plaids that match up neatly across the pockets and placket. Machine wash; shrinkage is 3%. Imported.

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