Consumer Demand for the Fair Trade Label: Evidence from a Field Experiment

Jens Hainmueller – Massachusetts Institute of Technology
Michael J. Hiscox – Harvard University
Sandra Sequeira – London School of Economics

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A majority of surveyed consumers claim to prefer ethically certified products over non-certified alternatives, and to be willing to pay a price premium for such products. There is no clear evidence, however, that people actually seek out such ethically certified goods and pay a premium for them when shopping. We provide new evidence on consumer behavior from experiments conducted in a major U.S. grocery store chain. We find that the Fair Trade label has a substantial positive effect on sales. Sales of the two most popular bulk coffees sold in the stores rose by almost 10% when the coffees were labeled as Fair Trade. Demand for the higher priced coffee was inelastic: sales of the labeled coffee remained steady when its price was raised by 8%. Demand for the lower priced coffee was more elastic: a 9% increase in its price led to a 30% decline in sales, as buyers switched to low-priced unlabeled alternatives. Overall the findings suggest that there is substantial consumer support for Fair Trade, although a segment of price-sensitive shoppers will not pay a large premium for the Fair Trade label.

Jens Hainmueller, Department of Political Science, 77 Massachusetts Avenue, Cambridge, MA 02139. E-mail: jhainm@mit.edu. Michael J. Hiscox, Department of Government, 1737 Cambridge Street, Cambridge, MA 02138. E-mail: hiscox@fas.harvard.edu. Sandra Sequeira, Houghton Street London WC2A 2AE, United Kingdom. E-mail: S.Sequeira@lse.ac.uk.

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I. Introduction

Ethical product labels and marketing messages are an increasingly common sight in retail settings, calling attention to particular aspects of the way goods have been made (e.g. labor practices, environmental standards, the treatment of animals), and to particular causes that stand to benefit when the goods are purchased (e.g. research on HIV/AIDs, provision of clean drinking water in developing countries). The Fair Trade label, which aims to guarantee a "better deal" for poor farmers in developing countries, is perhaps the most well-known ethical label. Fair Trade coffee, tea, and chocolate are now marketed not just on college campuses and in fashionable cafes, but also in most major supermarket chains across the United States and in Europe (including Walmart, Target, Safeway, Giant, Tesco, and Sainsbury's), and global sales of Fair Trade products have risen by around 30 percent annually over the past decade (Transfair, 2009a).

Consumer boycotts aimed at punishing businesses for bad behavior of one form or another have been an intermittent feature of politics for more than two centuries, organized by groups advancing a range of political and social causes (including anti-slavery, civil rights, anti-Apartheid, and anti-sweatshop campaigns). But now a more stable form of politicized consumption appears to be emerging as a mainstream political phenomenon: an everyday mechanism by which citizen-consumers vote with their shopping dollar to influence the behavior of firms and bring about political and social change, bypassing traditional political channels through which they might address the same issues.

The potential long-term impact of this new form of politicized consumption, in terms of the size of the market and the associated effects on firm behavior, is difficult to assess. Skeptics dismiss Fair Trade and other ethically labeled products as a fad and a niche market, or as cheap public relations ploys by retail brands, and highlight the fact that such products currently account for a tiny share of retail sales (e.g., Vogel 2005; 2008). Supporters argue that, if it continues to spread at the current rate, politicized consumption could have a large impact on firm behavior, and point to the evidence showing that a majority of surveyed consumers say they would prefer, and would be willing to pay extra for, any products they could identify as being made in ethical ways (e.g., Elliott and Freeman 2003). As yet, however, there is no clear evidence that consumers will actually behave this way when it

comes to spending their own money and thereby give firms strong incentives to change their behavior and invest in ethical labeling programs.

We report new evidence on consumer demand for Fair Trade labeled products from a field experiment conducted among actual consumers in 26 stores of a major U.S. grocery store chain. The tests reveal that the Fair Trade label has a substantial positive effect on sales. Sales of the two most popular bulk coffees sold in the stores rose by almost 10% when the coffees were labeled as Fair Trade. Consumers appear to sort into types based upon their sensitivity to price relative to other product attributes. Demand for the higher priced coffee was inelastic: sales of the labeled coffee remained steady when its price was raised by 8%. Demand for the lower priced coffee was more elastic: a 9% increase in its price led to a 30% decline in sales, as buyers switched to low-priced unlabeled alternatives. Overall the findings suggest that there is substantial consumer support for Fair Trade, although a segment of price-sensitive shoppers will not pay a large premium for the Fair Trade label.

Our study contributes to several literatures. First, our results have implications for an extensive literature in industrial organization and applied microeconomics that attempts to understand consumer behavior, how firms respond to consumer preferences, and how this interaction affects firm profits, market structure, and consumer welfare (Spence 1976; Carlton 1978; Hausman, Leonard, and Zona 1994; Berry, Levinsohn, and Pakes 1995; Nevo 2010). The proliferation of ethical branding is based on the largely untested assumption that this is an effective means of product differentiation given altruistic consumers. Our results provide evidence of consumer heterogeneity in the valuation of the Fair Trade label, suggesting that firm-level marketing strategies can be designed to optimally account for market segmentation based upon the complex interaction between price, ethical labels, and other product attributes. Second, to the best of our knowledge, this is the first paper to report results from a field experiment in which the researchers manipulate important product attributes like prices and labels to estimate demand effects across multiple retail stores. Previous related empirical research in the industrial organization literature has relied almost exclusively upon estimating models of demand using observational data with a variety of techniques (and restrictions) applied to account for the endogeneity of pricing and marketing. Our tests highlight the advantages from the field experimental approach

applied to this area of research. Third, our findings add new empirical evidence to complement a growing theoretical literature on the extent and implications of altruism in markets (Fehr and Schmidt 1999; Andreoni 2006; Benabou and Tirole 2006). Finally, this study provides original field evidence for behaviors that are foundational to an emerging political economy literature discussing the welfare implications of corporate social responsibility and the private provision of public goods (Shavell 2002; Baron and Diermeier 2007; Besley and Ghatak 2007; Kitzmueller 2008).

II. Fair Trade and Consumer Demand for Ethically Certified Products

The Fair Trade certification and labeling program was developed by a group of humanitarian organizations aiming to alleviate poverty and promote sustainable development in developing countries by establishing more direct relationships between producers in those countries and sympathetic consumers in developed economies. Fair Trade certified farmers receive a guaranteed minimum price for their crops and a price premium above the minimum or the current market price for the commodity, whichever is higher.[1] In addition, Fair Trade certified importers must agree to long-term (minimum of one year) contracts with farmers and make available pre-harvest credit (up to 60% of the contract value). Fair Trade certification prohibits forced and child labor on farms along with ethnic and other forms of discrimination, and restricts the use of potentially hazardous chemicals. Certification is generally restricted to small, family-owned farms and requires that farmers organize into cooperatives that decide democratically how to distribute or invest the fair trade premium paid on each contract.[2]

Supporters argue that Fair Trade provides poor farmers with financial security and

[1] For example, the minimum price for coffee (Arabica, unwashed) is currently $1.25 per pound and the premium over the current market price is 10 cents per pound.

[2] The program is administered by a collection of non-profit Fairtrade Labelling Organizations (FLO) that oversees certification and licenses the use of the Fair Trade trademark in each national market (in the United States, certification and licensing is organized by TransfairUSA). FLO has developed standards for production and trade for a range of agricultural products, including coffee, tea, cocoa, bananas, sugar, rice, and cotton (see `http://www.fairtrade.net/generic_standards.html`). FLO conducts inspections of producers in developing countries, examines contracts, and monitors the chain of custody by which the certified goods are supplied to traders and retailers who are licensed to use the Fair Trade label and logo only when all the standards have been met. In 2009 the program included over 1.2 million farmers in 58 nations in Africa, Asia, and Latin America, with annual global sales of certified products exceeding $4 billion. FLO estimates that approximately $65 million in premium payments was distributed to communities in 2008 for use in community development (FLO 2010a).

access to credit, relieves them from exploitation by monopsonistic middle-men in local markets, and provides them with premiums that raise living standards and are often used to fund local public goods and services, including schools and health clinics (e.g., Hayes 2006). Many highlight the fact that Fair Trade is a voluntary, market-based program: farmers and retailers can opt in or out of the program depending on whether they think it will benefit them, and consumers can choose whether or not they wish to support the program by buying the labeled products.[3]

Critics worry that retailers may take a disproportionally large part of the additional margin that consumers pay for Fair Trade items, making labeling an inefficient method for channeling aid from consumers to farmers (e.g., Stecklow and White 2004; Harford 2006, 33). Some also question whether annual FLO inspections can ensure compliance with the Fair Trade standards and worry that the system may encourage overproduction of particular commodities, disadvantage non-certified farmers, and hinder the reallocation of resources to alternative and more productive activities (e.g., Lindsey 2003; Sidwell 2008).[4]

At present there is a great deal of uncertainty about whether the Fair Trade market can become large enough to have a substantial impact across a range of producers in the developing world. Total sales of Fair Trade goods in the United States in 2008 amounted to roughly $1.1 billion. This represents only about one fortieth of the U.S. market for certified organic products and less than $4 per person annually (Transfair, 2009a). For skeptics, this evidence is consistent with the view that Fair Trade, and ethical labeling and marketing more generally, represents little more than a market niche or a fad that is limited to a small segment of consumers and is likely to be vulnerable to an economic downturn or to

[3] As with other types of third-party certification and labeling, the Fair Trade program can be seen as a way to remove a market inefficiency that exists due to incomplete information on the part of consumers about the manner in which goods are produced, facilitating a form of product differentiation (Elliott and Freeman 2003, 47-48). In the simplest type of models, lack of information about the ethical quality of goods available to consumers leads to welfare losses, as consumers who prefer goods with high ethical quality cannot identify (and thus adequately reward) high-quality producers, and the latter are driven from the market by low-quality producers who face lower costs (see Bonroy and Constantatos 2003; 2008). Fair Trade certification and labeling has also been modeled as product differentiation that increases consumer welfare by introducing additional product variety (e.g., Becchetti and Solferino 2005).

[4] Research to date has provided only crude assessments of the impact of Fair Trade certification among developing-country producers in the form of case studies of certified farmers that do not provide general measures of impact (e.g., Ronchi 2002; Murray et al. 2005), and surveys of certified and non-certified producers that do not account for the non-random selection of farmers into certification (e.g., Arnould, Plastina, and Ball 2006; Becchetti and Constantino 2006; Bacon et al. 2008).

changing tastes and fashions. It has also been dismissed as a cheap way for retail brands to burnish their public image by making a small show of support for Fair Trade - a type of "greenwashing" or "fairwashing." Distilling these views, Vogel (2008, 16) has argued that "there is little evidence that consumer behavior has become more politicized: most consumers continue to make their purchasing decisions primarily, if not exclusively, on the basis of price, quality, and convenience."

To a large degree, the success of the Fair Trade model hinges on the depth and strength of support for ethically labeled goods among consumers. In the United States, as of 2009, there were over 800 licensees selling Fair Trade certified products in over 50,000 retail locations. The average annual rate of growth in U.S. sales of Fair Trade certified goods was close to 40% between 1999 and 2008. By way of comparison, U.S. sales of certified organic products grew by around 20% annually between 1990, when certification began, and 2002 (Dimitri and Green 2002). Fair Trade coffee, the largest selling certified product, accounts for over 3 percent of the total retail market for coffee and for close to 20 percent of the market for specialty coffees, the fastest growing segment of the US coffee market (TransFair USA 2009a; 2009b).[5]

Survey data, widely referenced by those who see Fair Trade as the thin edge of the citizen-consumer wedge, indicate that a majority of consumers say they prefer, and are willing to pay substantially more for, products they can identify as being made in an ethical way.[6] Several of these studies have focused specifically on Fair Trade coffee and report that consumers are willing to pay a sizeable premium for Fair Trade certification (e.g., Loureiro and Lotade 2005; De Pelsmacker et al. 2005). In a recent study Hertel et al. (2009) found that over 75% of surveyed coffee buyers in the U.S. in 2006 said they would be willing to

[5]Fair Trade coffee is available in major coffee and food retailers, such as Starbucks Coffee, Peet's Coffee and Tea, Seattle's Best Coffee, Einstein Bros Bagels, Dunkin' Donuts, and McDonald's, as well as in many large supermarket chains, including Walmart, Target, Safeway, Giant, Costco, Trader Joe's and Whole Foods Market.

[6]For example, a survey administered in 1999 by the Program on International Policy Attitudes found that 76% of respondents indicated they were willing to pay $25 for a $20 garment that was certified as not being made in a sweatshop (PIPA 2000). A poll conducted in the same year by the National Bureau of Economic Research found that roughly 80% of surveyed individuals said they were willing to pay more for an item if assured it was made under good working conditions (see Elliott and Freeman 2003, 29-35). A growing number of survey studies have provided additional evidence of consumers' willingness to pay for ethical qualities of products and for the ethical behavior of firms (e.g., Auger et al. 2003; 2008; Dickson 2001; Mohr and Webb 2005).

pay at least 50 cents more per pound for Fair Trade coffee versus non-certified coffee (a premium of roughly 16% over the average price of coffee at the time) and more than half said they would pay a premium of a dollar or more. But survey findings most likely reflect some degree of social desirability bias: most survey respondents are unlikely to say they do not care about ethical standards when asked by an interviewer as they incur no cost at all for doing so, and this is the more socially appropriate response. What is required is direct evidence on how consumers actually behave when they encounter Fair Trade labels while shopping and deciding how to spend their own money.

A small set of empirical studies have examined relationships between observed sales and/or prices of goods and their ethical characteristics. For instance, Teisl, Roe, and Hicks (2002) examined scanner data on U.S. retail sales of canned tuna and found that market share (relative to other canned seafood and meat) rose substantially after the introduction of the "dolphin-safe" label in April 1990. Casadesus-Masanell et al. (2009) studied sales and prices for shirts made by the apparel company Patagonia and found that sales rose with the introduction of organic cotton for a particular shirt and customers were willing to pay a premium of over 10%. Elfenbein and McManus (2010) found a price premium for items sold in eBay's "Giving Works" program (in which sellers direct a portion of the sale price to charity) compared with prices for similar items sold on eBay, and the premium was increasing in the amount donated to charity. On the Fair Trade label and coffee, specifically, Galarraga and Markandya (2004) gathered data on retail prices of coffee sold in major supermarkets in Britain and estimated that an average premium of around 11% was charged for coffee with a "green" label (they combined Fair Trade, organic, and shade-grown labels in this category). While such studies are suggestive of consumer support for ethically labeled products, because the observed outcomes reflect pricing and distribution decisions by sellers as well as consumer behavior, it is difficult for this type of approach to provide clear inferences about consumer responses to the ethical labels.

To date very limited evidence is available from field experiments indicating whether and how consumers might alter their spending behavior when given the opportunity to distinguish Fair Trade or other ethically labeled products from alternatives. Kimeldorf et al. (2004) placed two identical groups of athletic socks in a department store, labeled

one group as being made under "Good Working Conditions", and altered the price of the labeled socks over several months. The findings were mixed: when the two types of socks were sold at the same price, only 43% of customers bought the labeled socks; when the labeled socks were sold at prices higher than the non-labeled socks, about 25 percent of consumers bought the labeled type. In another experiment conducted in a retail store in New York City in 2005, researchers employed a "Fair and Square" label describing ethical labor standards in facilities that manufactured a brand of towels and a brand of candles (see Hiscox and Smyth 2006). Compared with similar brands of towels and candles sold in the store, sales of the labeled brands rose when the labels were put in place, and sales rose further with price increases of 10-20% above pre-test levels. Arnot, Boxall, and Cash (2006) conducted tests with a university campus coffee vendor, adjusting the prices of two fresh-brewed coffees, a Fair Trade certified coffee from Nicaragua and a similar quality Colombian coffee, over the course of several days. Examining sales on different days, the researchers concluded that demand for Fair Trade coffee was less sensitive to price than was demand for the other alternative coffee.

In each of these field experiments, weaknesses in design made it impossible for the researchers to isolate the effects of the ethical labels from potential time-varying or product specific confounding factors, or to compare the effects of ethical product labels with the effects of alternative types of marketing labels.[7] The experiments we report below were designed specifically to overcome these problems and to gather new, direct evidence on how shoppers behave when encountering Fair Trade labels and making real spending decisions in a retail setting.

III. Research Design

A. Model of Consumer Behavior

We employ a standard model of consumer behavior in which individuals may derive utility from a variety of characteristics of goods (see Lancaster 1971; Gorman 1980). We assume consumers maximize their utility when choosing from of a set of alternative products (e.g.,

[7] Comparing sales for products with and without the Fair trade label cannot rule out the possibility of a pure label effect, irrespective of the informational content of the label. The ideal design would compare the product with the Fair Trade label versus a placebo label.

types of coffee) available in a particular market. Each consumer's utility from buying a particular good depends on the observed product characteristics, which may include Fair Trade certification as well as price. In the notation we employ below, consumer i's utility from buying the j-th good in market t is given by

$$U_{ijt} = U(x_{jt}, \xi_{jt}, \nu_{it}; \theta) \tag{1}$$

where x_{jt} is a vector of observed product characteristics, ξ_{jt} indicates product characteristics that are unobserved by the researchers, ν_{it} are unobserved differences in consumer tastes, and θ is a vector of model parameters (to be estimated) that includes how sensitive consumers are to each of the observed product characteristics.

Consumers may differ in how they evaluate the different product characteristics. Our tests are designed to measure average responses among consumers when certain key product characteristics - Fair Trade certification and price - are manipulated experimentally for specific products. We allow consumers to place different values on Fair Trade certification, and to be more, or less, sensitive to prices charged for Fair Trade goods than they are to prices of unlabeled goods. We do not make specific assumptions about the motives of these consumers. The simplest type of assumption is that these consumers derive a "warm glow" satisfaction from supporting a program that is helping poor coffee farmers - this type of assumption is adopted in existing models of markets for ethically labeled goods (e.g., Richardson and Stahler 2007; Baron 2009a). There are other motives that could generate a preference for purchasing ethically labeled products, some of them much less altruistic than others, however, our tests are not designed to assess the relative importance of alternative motivations among consumers favoring ethically labeled goods.

In general, the standards under which a good is made can be classified as "credence" attributes and are distinct from other types of product characteristics in that they cannot be directly assessed by the consumer examining or using the item. Other product characteristics, such as price, size, and color, can be evaluated by consumers before they purchase the good - these are sometimes called "search" attributes. Still other characteristics, including quality, durability, and taste, can be assessed by consumers after they have purchased the

good and begun to use it - and are known as "experience" attributes.[8] Although these experience attributes are not known to consumers at the point of purchase, since they will be revealed to them by use of the product, firms can use a variety of methods to send credible signals about them, including guarantees, warranties, advertising and brand reputations. The information asymmetry problem is also partly alleviated given that consumers can punish firms for poor quality by making no further purchases of their products (see Akerlof 1970; Shapiro 1983; Palfrey and Romer 1983). In the case of credence attributes, however, which are never directly observed by consumers before or after purchasing the product, firms find it much more difficult to make credible assurances. Firms that have incurred higher costs to produce goods with these characteristics can make claims about them to consumers, but competing firms can incur no additional costs and make similar claims. Certification and labeling of specific credence attributes of goods (e.g., Fair Trade standards) by an independent third party (e.g., FLO), can mitigate this problem, effectively transforming the credence attributes into search attributes (Caswell and Mojduszka 1996).[9]

B. The Setting

We investigated consumer demand for the Fair Trade label by conducting two experiments in 26 stores of a major US grocery store chain, located in the states of Connecticut, Massachusetts, Maine, and Rhode Island. The first test, which we refer to as the Label experiment, examined the impact of the Fair Trade label on sales of goods at existing prices. The second test, the Price experiment, investigated the price elasticity of demand for Fair Trade labeled goods. The experiments focused on the two highest selling types of coffee sold in the stores, the French Roast (FR) and a Coffee Blend (CB). Both were Fair Trade certified and available in self-service bulk bins and packaged bags. Both types of coffee

[8] For discussions of these different types of attributes, see Nelson (1970; 1974), Darby and Karni (1973), and Roe and Sheldon (2007). Besides Fair Trade standards for farmers, other familiar examples of credence attributes include organic standards for production of food and fiber, exclusion of genetically modified organisms from foods, dolphin safe methods for catching tuna, humane treatment of animals on farms, and various forms of environmental management standards adopted by firms to help to sustain forests and fisheries.

[9] The value of the Fair Trade label to firms and consumers will depend in part on the degree to which consumers regard the particular third party certifier as trustworthy. Our tests were not designed to assess the importance of third-party certification per se, however, or the trustworthiness of FLO, specifically, in the eyes of consumers.

were supplied by the same company that supplied most of the other coffees available in the stores.

C. The Label Experiment

In the Label experiment the intervention consisted of attaching a 2x2 inch Fair Trade label to the bulk coffee bins containing the FR and CB coffees in all stores assigned to the treatment condition. In stores assigned to the control condition, we attached a 2x2 inch generic coffee label to the bins containing these same coffees. The generic label was identical to the Fair Trade label in size and color. We used the generic label for the control condition to allow for a generic label effect, unrelated to the specific informational content related to Fair Trade, as past research has suggested that even seemingly meaningless forms of differentiation in marketing messages can affect consumer choices (Carpenter, Glazer, and Nakamoto 1994).[10] Figure 1 shows the treatment and control labels that were displayed on the coffee bins.[11] Each coffee bin displayed the experimental label (treatment or control), a standard label with the price and the description of the coffee, and a sticker that indicated the time of the last roasting. For the duration of the Label experiment, we removed all other references to Fair Trade from the product descriptions of all Fair Trade bulk coffees so that the 2x2 bin label we created was the only reference to Fair Trade in the bulk coffee sections of the stores.

D. The Price Experiment

In the Price experiment the intervention involved raising the prices for the Fair Trade labeled FR and CB coffees. In the treatment condition, prices were raised by $1 for the two types of coffee. Given the base price of $11.99 per pound for FR, and $10.99 for CB, this represents a price increase of about 8% and 9% respectively.[12] In the control condition, prices remained at their usual levels. Notice that changing the prices changed the price

[10] Mullainathan, Schwartzstein, and Shleifer (2008) suggest that such effects may in part be due to advertisers encouraging consumers to transfer positive assessments of seemingly irrelevant attributes by analogy or association.

[11] In the placebo label, we replaced the word Coffee by the brand of the store's main coffee supplier. The store sourced almost exclusively from this supplier.

[12] Prices of the packaged versions (ground and whole bean) of the FR and CB coffees were raised by the same amount, so that savvy customers could not avoid paying the higher price by switching to the pre-packaged versions.

ranking of the test coffees among the set of bulk coffees available at the stores. Almost all the other bulk coffees were sold at $11.99 per pound, so in the treatment condition FR moved from being an average-priced coffee to being among one of the most expensive coffees, at $12.99. Only two other specialty bulk coffees were sold at this price at a much lower volume than FR (see the summary statistics in Section IV for details). The CB coffee was one of only two bulk coffees usually sold at $10.99 (the other was Columbia Supremo). So during the treatment period, this coffee moved from being the cheapest bulk coffee on offer to being an average-priced coffee, at $11.99. As we discuss below, this had potentially important implications in terms of substitution effects.

In addition to the price increase, the stores in the treatment condition displayed a prominent 3x3 inch Fair Trade label on the bulk bins containing the FR and CB coffees that carried a message aimed at inducing consumers to connect the higher price specifically with Fair Trade certification. The label read: "A Fair Price to Support Fair Trade." Stores in the control condition, where prices were not altered, displayed a Fair Trade label with the message: "Support Fair Trade." The two different labels are shown in Figure 3. By explicitly directing consumers to associate the price premium with Fair Trade certification in the treatment condition, the test provides a more accurate assessment of their willingness to pay extra for this specific ethical product attribute. In the absence of such a message, it is possible that some customers would associate higher prices with some other type of unobserved product characteristic - an experience attribute, such as quality or flavor - thus making it more difficult to interpret the results (see Bagwell and Riordan 1991).[13] To provide a benchmark for examining consumer responses to price increases in the absence of any message prompting them to attribute the price premium to Fair Trade, we examined historical data on sales of all the bulk coffees at different prices during a two-year period prior to the tests, and we estimated price elasticities of demand for the same types of coffee in the absence of the test messages. This helps us interpret the findings from the Price experiment.

[13]There is evidence that price serves as a signal for unobserved quality even when consumers are actually able to assess quality directly via consumption of the good (Plassman et al. 2008).

E. Crossover Design

In both experiments we relied on a two-group, two-phase crossover design (Jones and Kenward 2003) whereby stores were randomly assigned to a sequence of treatment-control or control-treatment. In each store, the treatment or control condition was in place for an initial phase of four weeks, after which stores switched to the opposite condition for another four weeks. Thus, both experiments lasted eight weeks in total.[14] The Label test was implemented in October-December 2008. The Price experiment was conducted in June-August 2009.

The crossover design gives higher efficiency than a simple parallel group design, because we can exploit within-store variation for each store (assuming no carry-over).[15] For the randomization, all 26 stores in our sample were initially matched into pairs on important covariates such as their history of average coffee sales, total sales, sales growth, and location characteristics. Within each pair, one store was then randomly assigned to the treatment-control and the other to the control-treatment condition, leading to a fully balanced design.

F. Data and Monitoring

We obtained store-level information to assist in the initial matching of stores, as well as weekly register data on coffee sales in each store to analyze the results of the experiments.[16] All stores received detailed instructions on how to attach the labels and change prices during the experiments. To ensure compliance with the experimental protocol for each experiment, we sent our own monitors to visit each of the participating stores during the first two days

[14] Notice that in the Price experiment, we extended the second phase to six weeks to accommodate the fact that in a small number of stores, the label switch was delayed for a few days. Extending the second phase gives us the opportunity to discard the two "hybrid" weeks immediately following the label switch.

[15] The no carry-over assumption may be violated if perceptive (repeat) customers remember that the test coffees are Fair Trade certified and therefore disregard the label changes during the experimental period (in particular in the stores in which the treatment labels are assigned in the first phase and replaced by the control labels in the second phase). Presumably this should result in an attenuation bias for the label effect, because customers who value Fair Trade certification would simply continue to purchase the test coffees even under the control condition. In order to check the robustness of the results we have recomputed our tests while restricting the sample to sales during the last two weeks of each treatment phase when possible carryover effects are less likely to occur because of a two week "washout" period. The results from these additional checks are very similar to the ones for the full period presented below for both the label and the price experiment. In fact, the positive label effect if anything is slightly larger in magnitude. Results from these robustness tests are available upon request.

[16] For the matching, we also extracted socioeconomic data for the 5-digit zip code areas for each store from the 2000 U.S. Census.

following the beginning of each treatment and control phase, and once a week after that. Observers checked the label displays, prices, and whether there were any product stock-outs that might affect sales. At no time during the experiments were the FR and CB coffees included in any promotional events or sales at the stores. Store managers and coffee department personnel at the stores were briefed about the experiments. Overall, compliance was high: in only a few cases, the labels were switched a few days behind schedule.

G. Randomization Checks

To verify whether the randomization successfully orthogonalized the treatment with respect to confounding factors, Tables 1 and 2 display the covariate balance for a range of pre–treatment characteristics. We report the mean covariate values in the treatment and in the control group as well as p-values from a two sample t-test (with unequal variances) and a bootstrapped two sample Kolmogorov-Smirnov test (Abadie 2002). The pre-treatment characteristics include total store sales and total sales growth, as well as average dollar sales not only for each of the test coffees, but also for all bulk, and all packaged coffee. The averages are provided both for a four week and a for a 52 week period prior to the tests. The balance tables also include a range of socioeconomic characteristics for the 5 digit zip code areas in which the stores are located. For both experiments, we obtain very good balance on observed characteristics as variable means are close and none of the p-values indicate significant differences at conventional levels.

IV. Analysis

A. Statistical Model

For the estimation we follow the standard framework in the discrete-choice literature (see Ackerberg et al. 2007; Nevo 2010). Let there be $i = 1, \ldots, \infty$ consumers who maximize their utility by choosing one of $j = 0, 1, \ldots, J$ goods (i.e. various bulk coffees and an outside good) in $t = 1, \ldots, T$ markets. Markets are defined as store-weeks and for both experiments $n = 1, ..., 26$ stores are observed over $w = 1, \ldots, 8$ weeks; each store is observed for four weeks under the treatment and the control condition respectively. Each consumer's utility from buying the j-th good is given by $U_{ijt} = U(x_{jt}, \xi_{jt}, \nu_{it}; \theta)$, where x_{jt} indicates a

vector of observed product characteristics (which may include the price p_{jt}), ξ_{jt} indicates product characteristics that are unobserved to the researchers (these can also be thought of as demand shocks), ν_{it} are unobserved differences in consumer tastes, and θ is a vector of model parameters.[17] For identification we normalize the utility of the outside good, $j = 0$, to zero and proceed with a simple logit specification where

$$U_{ijt} = \delta_{jt} + \varepsilon_{ijt} \text{ with mean utility levels } \delta_{jt} = x_{jt}\beta + \xi_{jt} \tag{2}$$

and the error term for idiosyncratic tastes is assumed to be $\varepsilon_{ijt} \overset{\text{iid}}{\sim}$ extreme value type II. Aggregate market shares are thus given by $s_{jt}(x, \beta, \xi) = \frac{\exp(x_{jt}\beta+\xi_{jt})}{\sum_{j=1}^{J}\exp(x_{jt}\beta+\xi_{jt})}$ and following Berry (1994) we can solve for the mean utility as a function of observed market shares using $\delta_{jt} = log(s_{jt}) - log(s_{0t})$ and estimate the model by regression.

Our quantities of interest are the effects of the experimentally manipulated product characteristics (i.e. the FT label and the test price) on sales of the test coffees and on sales of the main alternative coffees that may be affected by substitution. We estimate the following model:

$$\log(s_{jt}) - \log(s_{0t}) = \alpha + \mathbf{M}\beta + \xi_{jn} + \xi_w + \Delta\xi_{jt} \tag{3}$$

where $\mathbf{M}$ is a $(J \cdot T \times J)$ matrix that contains one indicator variable for each of the inside goods $\mathbf{M} = \{m_{j=1}, ..., m_{j=J}\}$. For each inside good, the indicator variable is coded as one for store-weeks in which the treatment condition was assigned to the test coffees (i.e. the FT label or the test price) and zero for store-weeks in which the control condition was assigned to the test coffees (i.e. the control label or the regular price). Accordingly, $\beta = \{\beta_1, ..., \beta_J\}$ is a $(J \times 1)$ vector of coefficients that measures the effect of the various product characteristics on product sales. The sales effect of the experimentally manipulated product characteristics are allowed to vary across the J coffees. The ξ_{jn} provide a full set of product/store fixed effects so that the identifying variation for the treatments effects is across time based on deviations from product/store specific means. We also include a set of week fixed effects, ξ_w, to account for weekly demand shocks that are common to all

[17] The set of consumers choosing good j depends on the unobservable ν and is given by $S_j(\theta) = \{\nu | U_{ij} > U_{ik} \vee k\}$. Market shares can be recovered by specifying a distribution $f(\nu)$ and integrating over the values that meet the conditions in a given market $s_j(x|\theta) = \int_{\nu \in S_j(\theta)} f(\nu)\, d\nu$.

stores.[18]

The key identification assumption, $E[\Delta\xi_{jt}|\mathbf{M}] = 0$, is supported given that the randomization orthogonalizes our treatments (i.e. the FT label and the price) with respect to all other observed or unobserved product characteristics of the test coffees, and of all the competitor coffees. Unlike in almost all other studies involving demand estimation, endogeneity of product characteristics or pricing is not a concern here. For the label experiment we include the product prices p_{jt} in the estimation, although excluding the prices has no effect on the estimates as expected given the randomization. For the price experiment we omit prices because our treatment indicators measure the contrast between the test price and the control price. We use the coefficient estimates to compute own and cross-price elasticities. We cluster standard errors at the store level in order to allow for potential within-store correlation across time. For each experiment, we restrict the estimation window to the weeks when the experiment was underway.[19]

We include among the inside products the two test coffees, the FR and CB coffees, as well as the five main alternative bulk coffees that are usually available across all stores: French Roast Extra Dark, Breakfast Blend, Regional Blend, Columbian Supremo, and Mexican.[20] We compute market shares by converting volume sales to pounds and dividing by the total potential number of pounds of coffee in a given market. The potential coffee market is assumed to be equal to one cup of coffee per customer per day in a given store-week.[21]

[18] Notice that common shocks are also directly accounted for via the balanced experimental design (i.e. at each point in time $2/N$ stores are assigned to treatment or control); the treatment effect coefficients are therefore unaffected by the inclusion of the week fixed effects.

[19] As indicated above, for the price experiment we discard two hybrid weeks following the switch of the two conditions so that we also have 8 weeks for each store; 4 weeks under each condition.

[20] Notice that that we discard about 6% of the cases (ie. product-store-weeks) where sales are unavailable because of occasional stock outs and or bulk bin rotations. The missing observations mostly involve the less popular coffees such as the Mexican and the Columbian. There are almost no missing observations for the two test coffees.

[21] The International Coffee Organization estimates that in 2007 the average coffee consumption in the United States was .40 ounces per person per day, or roughly one cup (International Coffee Organization, 2008). The total number of customers per store week is based on total stores sales divided by the average basket size. Our approach here follows previous studies that similarly approximate market potential based on population and average consumption in the relevant markets (see for example Berry et al. (1995) or Nevo (2001)).

B. Summary Statistics

Table 3 reports summary statistics for the test coffees and the alternative bulk coffees for the 2009 fiscal year. The bulk coffees are all regularly priced at $11.99 per pound with the exception of the CB and the Columbian Supremo, which are cheaper at $10.99 per pound. The FR coffee is the best selling bulk coffee with an average sales share of about 11% among the bulk coffees and average weekly sales of about 17.2 pounds (or $200) per store. The CB coffee has a sales share among the bulk coffees of about 6% and average weekly sales of about 8.9 pounds (or $97) per store. The alternative bulk coffees, none of which are Fair Trade certified, all have weekly sales of about 11 pounds (or $120 to $130 dollars) per store, except for the Mexican coffee, for which sales are somewhat lower. It is worth noting that the store does not appear to impose a price premium for Fair Trade certified coffee: the certified FR and CB coffees are priced the same as similar non-certified coffees. This appears to be common practice among US coffee retailers.[22]

C. Results

C.1. The Label Experiment

The first two columns in Table 4 present the results for the Label experiment. We find that the Fair Trade label has a positive and significant effect on sales of both the FR and CB coffees. The first column examines average sales for both labeled coffees: sales increased by about 10% with the Fair Trade label and this effect is significant at conventional levels ($p< .03$). The second column considers the effect of the Fair Trade label treatment on sales across all inside bulk coffees. We find that the application of the label to the FR and CB coffees increased sales of FR by about 8% ($p< .09$) and increased sales of CB by about 13% ($p< .03$). Meanwhile, sales for four out of five alternative (unlabeled) bulk coffees decreased, although individually the effect is only significant at conventional levels for the French Roast Extra Dark, which is presumably the closest substitute to the labeled

[22] Reinstein and Song (2008, 26) report that Fair Trade coffee is typically priced the same as comparable coffees in most of the largest US retailers such as Starbucks, Peet's Coffee and Tea, and Tully's. Presumably the companies are absorbing the additional costs themselves rather than passing it on directly to consumers, or relying on cross-subsidization. FLO (2010b) points out that the additional costs of Fair Trade certification for the final product can be so small (a small percentage of the farm gate price of the raw commodity, that is itself often only a small percentage of the total cost of the retail item after shipping, processing, packaging, and marketing) that it is possible for firms to absorb them entirely and they often do so.

French Roast coffee in terms of flavor. Sales for the less popular French Roast Extra Dark coffee decreased by about 9% ($p< .05$) as a result of placing the Fair Trade label on the FR counterpart. Notice that total sales of all bulk coffees increased by about 1.6% under the Fair Trade label, although this increase is not statistically significant at conventional levels.[23]

Taken together the results provide strong evidence that consumers reacted positively to the Fair Trade label by increasing demand for labeled coffees. Some shoppers responded to the Fair Trade label by adjusting their purchasing decisions and switching from non-Fair Trade to Fair Trade coffees.

D. The Price Experiment

Columns 3 and 4 in Table 4 present the results for the Price experiment. The third column examines average sales for the FR and CB bulk coffees: sales decreased by around 17% overall as a result of the higher prices applied to these two coffees, but this aggregate result masks important differences in effects. For the FR coffee, the 8% increase in price did not reduce sales: sales were actually 2% higher at the test price than at the lower regular price. As shown in the right panel of the table, this corresponds to an own-price elasticity of .28 with a .90 confidence interval of (-1.54; 2.12) suggesting an inelastic demand for this coffee when the price increase is explicitly linked to Fair Trade certification via the message on the test label. In contrast, the 9% increase in the price of the CB bulk coffee resulted in sales falling by more than 30%, suggesting that demand for this less expensive bulk coffee is quite elastic despite the Fair Trade label with the message associating the higher price with the ethical certification. As shown in the right panel, the decline in sales of the bulk CB coffee corresponds to an estimated own-price elasticity of -3.32 (-4.26; -2.38).

Column 4 in Table 4 also displays the effects that the higher prices for FR and CB bulk coffees have on sales of the alternative bulk coffees in the stores. Most notably, the decline in sales for CB is matched by a strong substitution effect with a marked rise in sales of Columbian Supremo, the only other bulk coffee that is offered at the lower price of $10.99 per pound. Sales for the Columbian Supremo coffee increased by almost 16%,

[23] These results do not support the hypothesis of a "reputation stealing externality" imposed by the Fair Trade label on unlabeled products (Benabou and Tirole 2006)

corresponding to a substantial cross-price elasticity of 1.74 (-1.04; 4.54). There seem to be no strong substitution effects for the other competitor coffees. In particular, there was no substitution towards French Roast Extra Dark, the coffee that is closest in type to the FR coffee.

The results indicate that different customers react to the price increases for the Fair Trade labeled coffees in different ways. For customers buying the more expensive and more popular FR coffee, demand for the labeled coffee was quite inelastic; this segment was willing to pay a sizeable premium for Fair Trade labeled coffee - the premium was 8% in the experiment. Customers buying the cheaper CB coffee, on the other hand, readily switched to the less expensive alternative coffee in response to a price rise, indicating that they were not willing to pay a premium for Fair Trade.[24] Recall from the summary statistics that the FR coffee accounts for about 11% of total bulk coffee sales, while the CB coffee accounts for only 5.7% of all bulk coffee sales suggesting that the group of customers for which demand was inelastic, was larger. Notice that total sales of all bulk coffees increased by about 1.8% under the test prices, although this increase is not statistically significant at conventional levels.

E. Benchmark Elasticities of Demand for Unlabeled Coffee

How do shoppers respond to price alterations for bulk coffees in the absence of labeling that associates pricing with Fair Trade certification? Here we present several benchmark estimates. We computed the own-price elasticities for all inside bulk coffees based on historical sales data. The identifying variation in prices is based on price changes that result from sales promotions, routinely administered in all stores based on a schedule created by the company's national sales team. These sales promotions typically involve lowering the retail price of a single bulk coffee by $1 per pound for one week, and are, as a matter

[24] As a quick test of the relationship between price elasticities and income levels among customers, we broke down our store sample into higher and lower income areas based on median household income data for each zip code area obtained from the Census. The results were inconclusive. In higher income areas, we observe a marginally lower price elasticity for the FR coffee but a higher price elasticity for the CB coffee, and confidence intervals were overlapping between higher and lower income areas. The question of whether we should expect stronger demand for ethically-labeled goods among consumers with higher incomes than among lower-income counterparts is discussed in more detail in Section V below in connection with external validity.

of policy, administered in all stores simultaneously nationwide. During the promotions, prices of all the other bulk coffees are typically held at their regular levels. Which bulk coffee is chosen for a promotion at any given time depends on a rotational schedule that is drawn up by the national sales team well in advance of implementation (there is usually 3-4 month lead time at least). Given the way these sales promotions are scheduled and managed at the national level, we believe that pricing endogeneity is not a significant concern when estimating the elasticity of demand for each coffee type during sales periods (and particularly not beyond the product-store mean level).[25]

While these non-experimental estimates are less ideal than a separate set of experimental results that would match the results presented above, they should still provide reliable benchmarks of point price elasticities for the same bulk coffees in the absence of messages linking prices with Fair Trade. In order to estimate these benchmark elasticities, we utilize weekly sales and price data for all stores from 2007-2009, discarding the weeks during which our experiments took place. We estimate elasticities using a logit specification where the normal utility level δ_{jt} is regressed on the product prices p_{jt}, a full set of store/product fixed effects and a quadratic time trend. Standard errors are again clustered by store. Elasticities can then be estimated from the price coefficient and product shares.[26] Coefficient estimates are reported in Appendix A. Since this simple logit model may be slightly restrictive, we also re-estimate the elasticities using a non-linear Almost Ideal Demand System (Deaton and Muellbauer 1980), which allows for more flexible substitution patterns. The results, reported in Appendix B, are very similar to those from the logit model.

Figure 4 shows the estimated own-price elasticities with their (block-bootstrapped) .90 confidence intervals based on the historical sales data, alongside the own-price elasticities for the labeled test coffees previously estimated from the Price experiment. Not surprisingly, these elasticities from the historical sales data are more precisely estimated than those from the Price experiment given the longer time span. We find that the own-price elasticities of

[25]Store managers do not have authority to implement sales promotions autonomously based on local conditions. As a result there is almost no between-store variation that can be exploited. This renders the use of "Hausman" instruments of average prices in other markets infeasible. Notice also that wholesale prices, which are sometimes used as instruments in this context, are not available. Wholesale prices do not vary between stores, or over time during the period under study.

[26]In a given market, the elasticity of demand for product j w.r.t to a price change in product l is given by $\eta_j^l = \frac{\partial s_j / s_j}{\partial p_l / p_l} = \left(\frac{p_l}{s_j}\right) \frac{\partial}{\partial p_l} \left(\frac{\exp(\delta_j)}{1+\sum_J \exp(\delta_j)}\right) = \frac{p_l}{s_j} \alpha \left(-s_j s_l + 1\{l = j\} s_l\right)$.

the unlabeled bulk coffees (including the two test coffees, FR and CB, outside the weeks of the experiment), all tend to cluster around -4, indicating highly elastic demand. The high elasticities for each type of coffee suggest that customers typically substitute between the various types in response to changes in price. This is consistent with previous findings. While aggregate demand for coffee as a commodity is widely regarded as being inelastic (e.g., Larson 2003), several studies have indicated that demand for specific types or brands of coffee is highly elastic with average elasticities of -7 (Krishnamurthi and Raj 1991; Bell et al. 1999).

Most importantly, and what stands out in Figure 4, is that the estimates of price elasticities for unlabeled coffees are markedly higher (in absolute terms) than the estimated price elasticity of demand for the FR coffee when we attached the label linking the price premium to Fair Trade certification in our experiment. For the CB coffee, the price elasticity measured when the coffee was sold with the Fair Trade label was actually very similar to the estimated price elasticity at other times when it was sold without the label. Customers who buy the lower-priced CB coffee are sensitive to price and this sensitivity is not affected by information linking price to Fair Trade certification. But for the higher-priced FR coffee, customers are far less sensitive to price when the price premium is associated with Fair Trade certification than when the same coffee is sold without the Fair Trade label. The price elasticity of demand for FR when sold without the Fair Trade label is roughly the same as the elasticities for the other unlabeled coffees; demand for this coffee is only insensitive to price when the price increase is associated directly with Fair Trade certification. This suggests that customers buying the FR coffee responded directly to the Fair Trade label applied in the Price experiment. We cannot definitively rule out the possibility that some shoppers simply interpreted the higher price for FR coffee as a signal for higher quality (unrelated to Fair Trade certification) during the experiment, but it seems highly implausible that this type of effect could account for the observed inelasticity of demand for the labeled FR coffee given the way sales of this coffee typically responded to price changes, when sold without the Fair Trade label.[27]

[27] A potential concern is that benchmark consumer elasticities are estimated based on price decreases (promotions), while in the price experiment, elasticities are calculated based on a price increase. For one, it is possible that the higher benchmark elasticities derived from promotions are driven by a stocking up effect, whereby consumers stock up on the product during promotion periods. However, the high frequency

V. Discussion

Increasingly, it seems, consumers are being offered new ways to advance ethical and political causes when they are shopping. They can make purchases that support research on particular diseases, improve labor conditions, or supply clean water for poor communities in developing countries. By buying Fair Trade certified products, many consumers hope to improve livelihoods for poor producers in the developing world. This type of politicized consumption effectively bypasses traditional political mechanisms for addressing the same issues via government regulation. Indeed, they are usefully regarded as part of a larger phenomenon that Baron (2003) has defined as "private politics" - that is, individual and collective action aimed at resolving conflicts arising from the behavior of businesses without reliance upon law or government. A growing theoretical literature in political economy has sought to explain why more firms are adopting socially responsible practices, including ethical and environmental standards and certifications, and how this might be explained by the interactions between firms, activist groups, and consumers (see Baron 2003; 2009b; Baron and Diermeier 2007; Besley and Ghatak 2007).

The potential impact of this new form of politicized consumption depends critically upon the strength of consumer demand for ethically certified and other cause-related products. To investigate consumer demand for Fair Trade products, specifically, we examined new evidence on consumer behavior from experiments conducted in a major US grocery store chain. The first key finding from the experiments is that the Fair Trade label by itself has a positive effect on sales. Sales of the two most popular bulk coffees, the FR and CB coffees, rose by almost 10% when the coffees were labeled as Fair Trade. This is consistent with the view that a substantial number of coffee buyers place a positive value on the Fair Trade label. Second, we find that coffee buyers sort into different types with heterogeneous preferences over different product attributes. Consumers buying the lower-priced CB coffee were price sensitive and were unwilling to pay a premium of 9% to support Fair Trade. Consumers buying the higher-priced FR coffee were much less price sensitive when the coffee was labeled Fair Trade. They were willing to pay a sizeable premium (8% in the

of coffee promotions in our stores, the relatively high unit cost of coffee and the loss of coffee flavor during storage mitigate this concern (Gupta, 1988; Krishnamurthi and Raj 1991).

experiment) as long as the price premium was directly associated with support for Fair Trade certification.

Overall the findings suggest that there is substantial consumer support for Fair Trade, although some price-sensitive shoppers will not pay a large premium for the Fair Trade label. Brands and retailers may thus be able to win market share and boost sales by offering more Fair Trade certified goods, either targeted to particular segments and priced at a premium, or marketed more generally at regular prices. The tests suggest that there are plenty of citizen consumers ready to vote with their shopping dollars to support Fair Trade when it is offered as an option.

This study has some clear limitations. We conducted the experiments in only one retailer that is associated with, among other things, relatively high prices and support for organic farming and environmental causes. Shoppers in our stores may thus tend to have higher incomes and more interest in social and environmental causes than the average American consumer.[28] It is difficult to generalize from our results to other settings and other sets of consumers, and we do not claim that our shoppers are representative of the universe of shoppers in terms of their preferences and sensitivity to prices. The overall direction of the potential bias is, however, not obvious. Individuals with higher incomes may be more likely than others to donate money to help people in need, since they have additional resources, less anxiety about their own economic circumstances, and may feel some sense of "noblesse oblige." But a wealth of evidence indicates that lower income individuals give proportionally more of their incomes to charity than do higher income counterparts (see Frank 1996; Andreoni 2001).[29] Piff et al. (2010) provide experimental evidence that individuals from lower socioeconomic classes are more generous, charitable, trusting, and helpful towards others compared with upper class counterparts, and trace the effects to a greater commitment to egalitarian values and feelings of compassion among lower class individuals. When it comes to politicized consumption, specifically, existing survey studies

[28] Data from the 2000 U.S. Census indicate that the median household income for zip codes in which our stores were located in the Northeast region was $60,111, compared with a median income of $54,140 for the Northeast Census region as a whole.

[29] Studies indicate that lower income individuals are more cognizant of problems faced by others in dire economic circumstances, they are more dependent on others for assistance in their own lives, and they are more socially engaged and connected with others in general, all of which may lead them to be more charitable (e.g., Batson and Moran 1999; Goetz et al. 2010).

either find no clear connection with income levels or indicate that individuals with higher incomes are less likely to report being supportive and participating than others (e.g., Stolle et al. 2005; Goul Andersen and Tobiasen 2003; Dickson 2001; De Pelsmacker et al. 2005). It is not readily apparent, then, whether findings from a study of a relatively high-income sample of consumers would tend to overestimate or underestimate the strength of demand for ethically-labeled goods among the broader population.

Two other issues are worth briefly noting here in the discussion about generalizing the results from the experiments. First, the retail setting into which we introduced the Fair Trade labels for coffee is atypical in that so many of the products in these stores were already labeled or signed in various ways emphasizing ethical and environmental causes. In this setting, the marginal impact of introducing one new Fair Trade label may be especially low compared with the impact it might have in other retail settings that have no similar types of cause-related marketing. On the other hand, our set of consumers is also more likely to be better informed about what the Fair Trade label represents than is the case in other retail environments.[30] Note that, from this perspective, our findings are more likely to reflect the true preferences for ethical labels among (fully informed) consumers. Second, we conducted the experiments during one of the worst recessions in post-war history, raising prices of goods when retailers everywhere were cutting prices.[31] It seems likely that consumer sensitivity to price increases in this period may have been particularly high. Ultimately, of course, questions about generalizing the results would be best addressed by replicating the tests with different retailers in different phases of the business cycle.

Understanding the motivation of consumers who purchase Fair Trade labeled products is beyond the scope of this study. Our results do however suggest some promising avenues for future research. Intrinsic forms of motivation to purchase Fair Trade products may stem from "pure" altruism when consumers derive private satisfaction from contributing

[30] We conducted a short survey of about 450 shoppers in stores that participated in the experiment to assess the extent to which consumers were familiar with the Fair Trade label. When shown the Fair Trade label, 90% of respondents were able to identify what it represented. Results were similar both for regular and casual shoppers. Other studies have documented the level of awareness of the Fair Trade logo among a broader, more representative, set of consumers. A 2007 study by PSL Marketing found that 23% of respondents recognized the FT logo and a 2006 LOHAS study by the Natural Marketing Institute reported that 39% of US adults recognized the Fair Trade logo (and 13% say they "totally" understood it).

[31] For evidence, see `www.bls.gov/cpi/cpid0901.pdf` and `www.bls.gov/cpi/cpid0912.pdf`.

to the well-being of others or from reducing global inequality (Fehr and Schmidt 1999; Becchetti and Rosati 2005); or "impure" forms of altruism when consumers derive "warm glow" type satisfaction simply from feeling better for giving to a cause (Andreoni 1989; 1990; Richardson and Stahler 2007; Baron 2009a).[32] Alternatively, consumers may be extrinsically motivated by the anticipated impact that purchasing Fair Trade may have on their social status (Hollaender 1990; Freeman 1997; Cialdini 2003; Goldstein et al. 2008; Willer 2009), on their self-image (Batson 1998; Benabou and Tirole 2006) or on their reputation (Glazer and Konrad 1996; Harbaugh 1998; Fehr and Fischbacher 2003; Benabou and Tirole 2006). Finally, an additional extrinsic motivation for purchasing Fair Trade products could be the perception of higher product quality. Consumers could interpret ethical production standards, along with support for ethical causes and corporate social responsibility initiatives more generally, as a signal that the producing firm is an honest and reliable type that will not skimp on quality (see Fisman et al. 2006; Siegal and Vitaliano 2007; Elfenbein et al. 2010).

Our study does not examine individual-level variation in support for Fair Trade. Existing research on this issue is based on survey data and the findings are mixed or inconclusive as to whether support for ethically labeled products is associated with key socio-demographic characteristics, including age, education, social status, and - as noted above - income (e.g., Stolle et al. 2005; Goul Andersen and Tobiasen 2003; De Pelsmacker et al. 2005; Loureiro and Lotade 2005). The most robust finding to date seems to be that women are more likely to report supporting and participating in politicized consumption than men (see Stolle and Micheletti 2005; Michelletti 2003; Goul Andersen and Tobiasen 2003).[33] Defining the market for Fair Trade products more clearly in terms of socio-demographic segments is something that could be pursued in future tests designed to capture individual-level data on purchasing behavior and consumer characteristics.

Lastly, we have not attempted to evaluate the benefits provided to coffee farmers through

[32]Empirical research on these specific types of motivations is limited. However, one set of findings consistent with pure altruism is from a survey experiment examining consumers' stated willingness to pay for Fair Trade (Hicks, 2007) which showed that the amount individuals were prepared to pay rose when they were provided with information about the positive impact of the program (specifically, information about the percentage of farmers participating, and their revenues from Fair Trade sales).

[33]More recently, Cesarini et al (2009) suggested that genetic differences can explain a significant portion of individual-level variation in preferences for giving.

the sales of Fair Trade certified coffee in our stores stores, and to compare these benefits to the strength of consumer demand for Fair Trade.[34] A full cost-benefit evaluation of the Fair Trade model would involve a long-term evaluation of the effects of the program on farmers, and comparisons with alternative support mechanisms (e.g. trade policy reform, aid or charity programs) by which concerned citizen-consumers in developed countries might attempt to provide assistance to farmers in developing countries.

[34]It is possible that consumer demand for Fair Trade product is affected by the level of information consumers hold on the concrete benefits Fair Trade can bring to farmers in the developing world.

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VII. Tables

Table 1: Randomization Check for Label Experiment

Covariate	Mean Treated	Mean Controls	T-test p.-val	KS-test p.-val
Total Store Sales 2008 ($)	26,699,212	25,603,305	0.81	0.99
Total Store Sales Growth 2008-2009 (%)	4.02	4.01	0.81	0.99
Covariates for 4 Sales Weeks Prior to Test:				
Avg. Sales FR Regular Bulk ($)	185.34	182.05	0.96	0.99
Avg. Sales CB Regular Bulk ($)	101.23	104.08	0.92	0.54
Avg. Sales All Bulk Coffees ($)	78.23	76.86	0.94	0.99
Avg. Sales All Instant Coffees ($)	37.08	40.65	0.47	0.81
Avg. Sales All Packaged Coffees ($)	41.01	39.15	0.70	0.99
Avg. No of Offered Bulk Coffees	20.00	20.56	0.74	0.99
Avg. No of Offered Instant Coffees	9.67	9.69	0.98	0.43
Avg. No of Offered Packaged Coffees	66.29	68.56	0.74	0.51
Covariates for 52 Sales Weeks Prior to Test:				
Avg. Sales FR Regular Bulk ($)	188.00	184.75	0.96	0.99
Avg. Sales CB Regular Bulk ($)	99.21	104.94	0.83	0.99
Avg. Sales All Bulk Coffees ($)	77.83	75.74	0.91	0.99
Avg. Sales All Instant Coffees ($)	32.97	36.68	0.38	0.48
Avg. Sales All Packaged Coffees ($)	38.91	37.34	0.72	0.99
Avg. No of Offered Bulk Coffees	20.90	20.91	0.99	0.83
Avg. No of Offered Instant Coffees	9.72	9.38	0.67	0.51
Avg. No of Offered Packaged Coffees	63.93	65.91	0.76	0.83
Covariates from Store Zip Code Areas:				
Total Population	26,898	21,709	0.30	0.27
African American Pop (%)	3.91	4.35	0.81	0.53
Foreign Born Pop (%)	13.53	13.86	0.92	0.52
Median HH Income ($)	65,207	63,002	0.82	1.00
HHs with Soc. Security Income (%)	10.13	9.44	0.54	0.52
Public Assistance per capita ($)	36.59	37.26	0.95	0.85
Family HHs (%)	60.91	57.53	0.65	1.00
HH Head Aged 15-34 (%)	21.56	24.86	0.59	0.84
HH Head Aged 65+ (%)	23.76	21.20	0.35	0.84
In High School (%)	13.05	12.71	0.89	1.00
In College (%)	11.73	13.35	0.76	0.99
High School Dropouts (%)	8.55	8.18	0.88	0.85
High School Graduates (%)	18.65	16.27	0.50	0.83
BA Degree (%)	27.48	28.95	0.61	0.87
Graduate Degree (%)	26.05	28.15	0.70	0.84

Note: N=26. Mean.Tr (Mean.Co) is the mean covariate value in the treatment (control) group. T-pval is the p-value from a two-sample T-tests assuming unequal variance. KS-pval is p-value from bootstrapped Kolmogorov-Smirnov test. Census covariates refer to the zip code areas in which the stores are located (based on the 5 digit Zip code tabulations areas from the Census 2000).

Table 2: Randomization Check for Price Experiment

Covariate	Mean Treated	Mean Controls	T-test p.-val	KS-test p.-val
Total Store Sales 2008 ($)	25,308,594	26,835,771	0.77	0.99
Total Store Sales Growth 2008-2009 (%)	4.01	4.02	0.77	0.99
Covariates for 4 Sales Weeks Prior to Test:				
Avg. Sales FR Bulk ($)	221.71	232.37	0.89	0.71
Avg. Sales CB Bulk ($)	90.13	81.31	0.67	0.86
Avg. Sales FR Ground ($)	79.49	120.62	0.21	0.70
Avg. Sales CB Ground ($)	45.79	51.13	0.62	0.72
Avg. Sales All Bulk Coffees ($)	69.53	75.31	0.75	0.58
Avg. Sales All Instant Coffees ($)	40.61	38.57	0.70	0.56
Avg. Sales All Packaged Coffees ($)	42.25	45.78	0.56	0.72
Avg. No of Offered Bulk Coffees	18.85	20.73	0.24	0.57
Avg. No of Offered Instant Coffees	9.80	9.21	0.32	0.19
Avg. No of Offered Packaged Coffees	59.20	65.25	0.35	0.41
Covariates for 52 Sales Weeks Prior to Test:				
Avg. Sales FR Bulk ($)	172.35	182.05	0.88	0.73
Avg. Sales CB Bulk ($)	100.53	96.76	0.89	0.80
Avg. Sales FR Whole Bean ($)	40.67	49.56	0.36	0.35
Avg. Sales CB Whole Bean ($)	23.52	25.18	0.61	0.90
Avg. Sales All Bulk Coffees ($)	71.14	75.66	0.82	0.79
Avg. Sales All Instant Coffees ($)	42.73	39.25	0.51	0.37
Avg. Sales All Packaged Coffees ($)	39.83	41.90	0.70	0.96
Avg. No of Offered Bulk Coffees	19.69	21.21	0.35	0.77
Avg. No of Offered Instant Coffees	9.79	9.12	0.31	0.64
Avg. No of Offered Packaged Coffees	62.46	67.87	0.44	0.23
Covariates from Store Zip Code Areas:				
Total Population	25,536	23,591	0.73	0.50
African American Pop (%)	5.03	3.87	0.59	0.46
Foreign Born Pop (%)	13.81	14.71	0.81	0.37
Median HH Income ($)	54,739	68,243	0.13	0.19
HHs with Soc. Security Income (%)	9.65	9.37	0.83	0.44
Public Assistance per capita ($)	37.68	32.70	0.61	0.57
Family HHs (%)	56.18	58.60	0.78	0.80
HH Head Aged 15-34 (%)	26.36	23.34	0.67	0.82
HH Head Aged 65+ (%)	23.20	20.58	0.44	0.27
In High School (%)	11.62	13.06	0.60	0.74
In College (%)	18.01	10.44	0.24	0.43
High School Dropouts (%)	9.19	6.66	0.27	0.11
High School Graduates (%)	17.90	15.69	0.54	0.87
BA Degree (%)	28.15	29.72	0.60	0.92
Graduate Degree (%)	25.65	30.08	0.43	0.87

Note: N=26. Mean.Tr (Mean.Co) is the mean covariate value in the treatment (control) group. T-pval is the p-value from a two-sample T-tests assuming unequal variance. KS-pval is p-value from bootstrapped Kolmogorov-Smirnov test. Census covariates refer to the zip code areas in which the stores are located (based on the 5 digit Zip code tabulations areas from the Census 2000).

Table 3: Summary Statistics

	Regular Prices		Avg. Weekly Store Sales		Avg. Share of	
					Store Bulk	Potential
Test Coffees	Retail	Unit (lb)	lb	$	Coffee Sales	Coffee Market
FR Regular (Bulk)	11.99/lb	11.99	17.2	202.7	11.0%	0.5%
Coffee Blend (Bulk)	10.99/lb	10.99	8.9	97.3	5.7%	0.3%
Other Bulk Coffees						
Breakfast Blend	11.99/lb	11.99	11.5	131.6	7.4%	0.4%
Columbia Supremo	10.99/lb	10.99	11.4	121.7	7.3%	0.4%
FR Extra Dark	11.99/lb	11.99	11.0	128.9	7.0%	0.3%
Regional Blend	11.99/lb	11.99	10.8	128.0	6.9%	0.3%
Mexican	11.99/lb	11.99	7.6	86.1	4.9%	0.2%

Note: Summary statistics are based on the 2009 fiscal year.

Table 4: Main Results: Label and Price Experiment

	Label Experiment		Price Experiment				
Model	(1)	(2)	(3)	(4)	Own Price Elasticity		
Dependent Variable:	δ_{jt}	δ_{jt}	δ_{jt}	δ_{jt}	PE	LB	UB
FR Regular & Coffee Blend	0.103		-0.168				
	(0.035)		(0.059)				
FR Regular		0.077		0.024	0.28	-1.54	2.12
		(0.043)		(0.091)			
Coffee Blend		0.129		-0.360	-3.32	-4.26	-2.37
		(0.055)		(0.075)			
Breakfast Blend		-0.043		-0.061			
		(0.074)		(0.093)			
Columbian Supremo		-0.060		0.159			
		(0.064)		(0.155)			
FR Extra Dark		-0.094		-0.009			
		(0.046)		(0.097)			
Regional Blend		0.044		0.041			
		(0.099)		(0.072)			
Mexican		-0.050		-0.006			
		(0.078)		(0.192)			
Product/Store FE	Yes	Yes	Yes	Yes			
Week FE	Yes	Yes	Yes	Yes			
Observations	1,368	1,368	1,399	1,399			

Note: Columns 1-4 contain regression coefficients with clustered standard errors in parenthesis. The dependent variables in the regressions are the normalized mean utility levels $\delta_{jt} = log(s_{jt}) - log(s_{0t})$. The independent variables include treatment indicators (for the Fair Trade label and the Test Price accordingly) for each coffee. The estimation is restricted to 8 weeks in which the experiment was underway (excluding a 2 week washout period for the price experiment). All models include a full set of product/store fixed effects and week fixed effects. Model 1-2 also include product prices (coefficients not shown). The last three columns refer to the own price elasticities computed based on model 4 for the four treated coffees, where the regular unit prices are used as base prices. The experiment raised unit prices by 8.34% and 9.10% for the Coffee Blend and the FR Regular coffee. PE: Point estimate. LB and UB are the lower and upper bound of the .90 confidence interval.

VIII. Figures

Figure 1: Treatment and Control Condition for the Label Test (2x2 inch)

Figure 2: Treatment and Control Condition for the Price Test (3x3 inch)

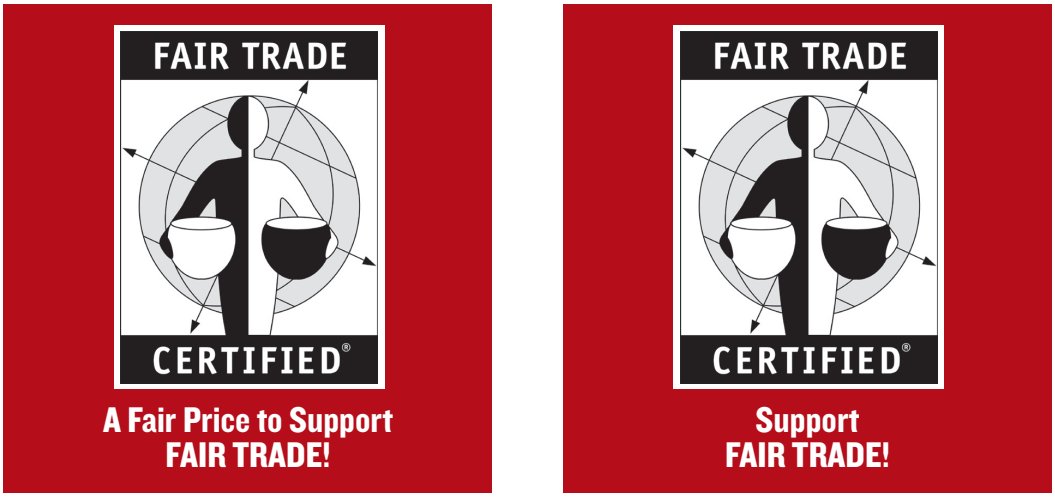
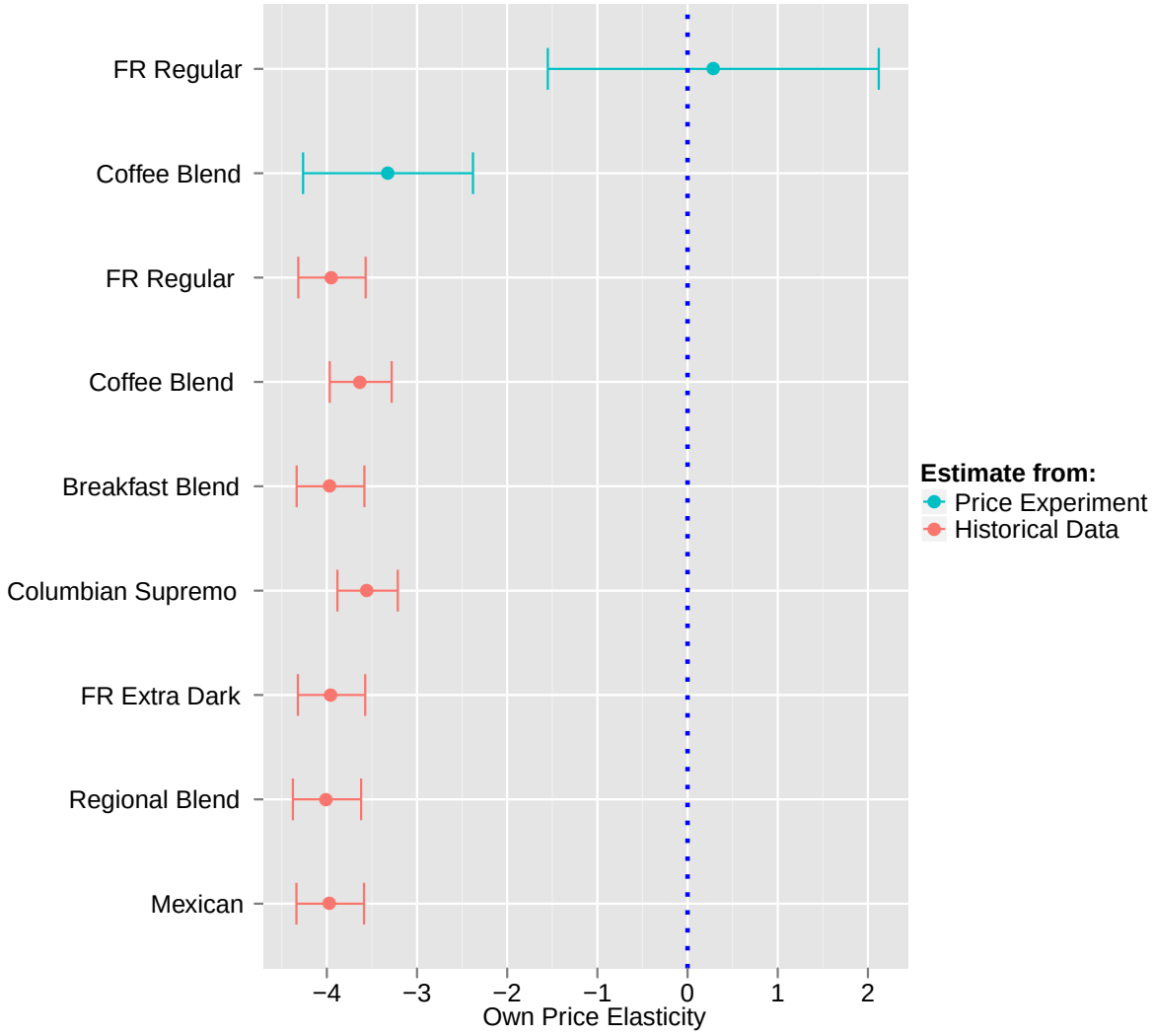


Figure 3: Estimated Own Price Elasticities for Test Coffees and Competitor Coffees



IX. Appendix A

Table A.1 contains the logit estimates for the estimated elasticities presented in Figure 4.

Table A.1: Logit Estimates for Elasticities

Dependent Variable:	δ_{jt}
p_{ij}	-0.339
	(0.020)
w	0.002
	(0.001)
w^2	-0.000
	(0.000)
Constant	-2.689
	(0.229)
Product/Store FE	Yes
Observations	20698

Note: Regression coefficients, with clustered standard errors in parenthesis. The dependent variable in the regression is the normalized mean utility level $\delta_{jt} = log(s_{jt}) - log(s_{0t})$. The independent variables include the product prices, a quadratic time trend for store week (w), and a full set of product/store fixed effects (coefficients not shown). The estimation is based on weekly sales and prices for the 2007-2009 period.

X. Appendix B

As an alternative specification to the logit model, we have also estimated the elasticities using the Almost Ideal Demand System (AIDS) of Deaton and Muellbauer (1980). AIDS is based on the household expenditure function where the log of total expenditures in a given market is given by

$$ln(e(p_t, U_t) = \alpha_0 + \sum_i \alpha_i log(p_{it}) + .5 \sum_i \sum_j \gamma_{ij} log(p_{it}) log(p_{jt}) + U_t \beta_0 \prod_i p_{it}^{\beta_i}$$

where p_{it} is the price of good i in a given market t, U is utility and α, β, and γ are a set of parameters to be estimated. Using Shephard's Lemma this results in a set of Marshallian demand functions where the observed budget share of good i in a given market is given by:

$$w_{it} = \alpha_0 + \alpha_i + \sum_j log(p_{jt}) + \beta_i (m_t / P_t) + \varepsilon_{it}$$

where ε is an error term, m indicates total expenditures, and P is a translog price index:

$$log(P_t) + \alpha_0 + \sum_i \alpha_i log(p_{it}) + .5 \sum_i \sum_j \gamma_{ij} log(p_{it}) log(p_{jt})$$

Notice that, by construction, the observed budget shares in a given market sum up to one. We also impose the usual restrictions of homogeneity ($\sum_j \gamma_{ij} = 0$ for all i) and Slutsky symmetry ($\gamma_{ij} = \gamma_{ji}$ for all i and j). In order to account for potential unobserved heterogeneity, we also include a full set of store fixed effects and a quadratic time trend in the equations as demand shifters.[35]

To linearize the system, Deaton and Muellbauer (1980), approximate the translog price index using the Stone index. However, this can introduce severe approximation error and even inconsistent parameter estimates. Instead, we estimate the full non-linear system of demand equations using iterated linear least squares where we iterate between solving the share equations given a fixed translog price index and updating the index based on the shares. Initial values for the translog price index are obtained from a linear approximation (see Browning and Meghir, 1991; Blundell and Robin, 1999). Standard errors are obtained with a non-parametric block-bootstrap where we re-sample stores with replacement.

[35] Notice that for the estimation we restrict α_0 to 0. The results are similar if α_0 is estimated without restriction.

Figure A.1 presents the estimated own price elasticities with their (block-bootstrapped) .90 confidence intervals from the AIDS model, alongside the own-price elasticities for the test coffees from the price experiment. The results are fairly similar to the elasticities obtained with the logit model. There is slightly more variation in the estimated own price elasticities among the competitor coffees. However, the elasticities for all competitor coffees are all significantly lower than the elasticity for the FR Regular during the price experiment.

Figure A.1: Own Price Elasticities from AIDS Model