

# Are Consumers Willing to Pay More for Fair Trade Certified<sup>TM</sup> Coffee?

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## Abstract

This study estimates the American consumers' willingness to pay for Fair Trade Certified coffee using a Hedonic Price Model and Retail Scanner Data. Consistent with prior work, a cross-sectional model finds that Certification has a large positive effect on the price of coffee. However, these models may be subject to an omitted variables bias in that coffees that eventually become Fair Trade Certified are substantially more expensive than other brands. To eliminate this potential bias, I utilize a fixed-effects difference-in-difference specification. Because the certification process takes many months, I observe retail coffee prices for 21 brands before and after a brand becomes Fair Trade Certified. Since the only thing changing over time is certification, I can hold constant the fact that more expensive coffees from the start are more likely to become certified. Comparing this time series change in prices with the changes that occur over time for other coffees, this model finds Certification to cause a minor increase in the price of coffee of about \$0.12, a change of 1.1 percent, -- a substantially smaller estimate than has been found in the past. These results suggest that consumers are willing to pay only a small premium for Fair Trade coffee.

## **I. Introduction**

Traditional models in economics assume that the price of a good is determined by the desirability of the physical characteristics of that good. However, a greater focus from consumers on the conditions under which a good is produced has led to an increasing popularity of products that display desirable non-physical characteristics. Consumers are now choosing goods based on political, social, and philosophical beliefs about how a product should be produced. The market has responded and consumers are encouraged to look for a union label, to support migrant farm workers, to think green, to buy organic, not to support child labor or sweat shops, to avoid CFC's, to support local businesses, to buy American made, etc.

A fast growing area of consumer concern is ensuring that agricultural products, especially coffee, are produced under Fair Trade conditions. This means that agricultural producers, primarily poor farmers located in developing countries, are paid a fair price for their product and have decent working conditions. Some of these characteristics of a product are intrinsic (child labor, Fair Trade, etc) and do not directly imply anything about the quality of the product. However, in many cases, these earth and human friendly certifications lead to higher production costs with no discernable improvement in quality. As a result, in standard models of monopolistic competition, these higher production costs should lead to higher retail prices.

On the demand side of the equation, if consumers care not only about how the product generates utility for them, but also how it is produced or who produces the product, then this should manifest itself in a greater willingness to pay for the product, which also leads to a greater retail price. The unambiguous prediction is that efforts to brand the method of production should increase price. However, separating whether a price change is from the changes in demand or

production cost is potentially important. It is assumed that since Fair Trade Certified coffee costs more than non-certified coffee, a higher consumer demand for the products would mean that the buyers absorb more of those additional costs. The implication of this is that a higher demand could mean that “moral” consumers would be a solution to negative externalities and there would be no need for Pigovian taxes.

In the United States, Fair Trade Coffee has been gaining publicity since it first became mainstream certified by the third-party organization TransFair USA (TransFair USA). Fair Trade Certification is a growing industry with over 600 U.S. companies participating in Fair Trade across the country as consumers become more discerning in their product choices. According to TransFair USA, in 2008 the United States imported more than 128 million pounds of Fair Trade Goods, including coffee (Singerman and Olson, 2009). Starbucks, a major coffee retailer helped gain publicity for Fair Trade by announcing their efforts to purchase more certified products (Ethical Sourcing, 2009). Clearly, Fair Trade Coffee has been gaining popularity in the United States, but do Americans care enough about Fair Trade to pay more?

This paper attempts to estimate the effects of Fair Trade Certification on the price of coffee in the United States generated by a demand shift. The data for this study was obtained from Information Resources Incorporated and consisted of the transactions for coffee products over a six year period from 2001-2006. It consists of over 34 million observations of 6,929 individual products from 2,093 retail outlets across the United States. The data includes descriptions of individual products such as brand and flavor. This dataset represents an innovative approach to the problem in that no other study in the United States has attempted to assess the impact of Fair Trade Certification using Retail Scanner Data. Through using actual purchasing data, this study is able to elicit what consumers are actually willing to pay for

certified coffee as opposed to what the consumers say they will pay. The only other known studies using similar data were attempted in Italy and the United Kingdom (Maietta, 2004; Galarraga and Markandya, 2004). This dataset, therefore, makes this study the first attempt at estimating consumer's actual willingness to pay for Fair Trade Certified coffee within the United States.

Consistent with previous literature, I initially estimate a cross-sectional Ordinary Least Squares (OLS) analysis of the price of coffee using a Hedonic Pricing Model. This model predicts the price of coffee based upon the observable characteristics of the product, including whether or not it is Fair Trade Certified. In these cross-sectional models, I find that Fair Trade Certified coffee is about \$2.42 more per pound than non certified coffee – results similar to those found in Italy (Maietta, 2004) and the United Kingdom (Galarraga and Markandya, 2004). However, I argue that these cross-sectional estimates confound the supply and demand effects discussed above because Fair Trade coffee is substantially more expensive to produce. To isolate the change in price solely driven by a greater willingness to pay for Fair Trade Certified coffee, I exploit the characteristics of the certification process and estimate a fixed-effects difference-in-difference model. The certification process is time consuming and I observe sales data before and after 21 brands become certified. Because these coffees are fundamentally the same before and after certification, the only difference in price over time, after controlling for secular trends in coffee prices, should be the consumer's willingness to pay for Fair Trade Coffee.

The fixed-effects difference-in-difference model in this study yielded a reasonable result of 1.1% or about a \$0.12 increase from becoming Fair Trade Certified. This result is more

consistent with consumer surveys in the United States which estimate that American's are willing to pay closer to \$0.22 more for Fair Trade coffee (Loureiro and Lotade, 2005).

Fair Trade certified products are becoming more popular worldwide as awareness for the well being of the producers of products is growing as well. Fair Trade coffee has the ability of having a far reaching impact to improve the well being of producing countries within the global South. As intrinsic or credence characteristics of products are considered in purchasing decisions, traditional economic models may have to be revised to take into account the "moral" compass of the consumer. To my knowledge, this study is the first of its kind in the United States, and the first in world to use a difference-in-difference fixed-effects model to assess the impact of Fair Trade Certification. Therefore, as an original study, this research will provide a basis upon which additional studies may be compared.

## **II. Previous Research**

The other studies that have examined the price effects of Fair Trade Certified coffee are Maietta (2004) in Italy and Galarraga and Markandya (2004) in the United Kingdom. Both studies use a cross-sectional OLS regression model while controlling for product attributes. Maietta examined data across Italy from 1998-2002 and found an average increase of 2.36 Euro/Kg which varies by geographical region and is greater in wealthier regions. Galarraga and Markandya used a more restricted model of certain retail outlets across the U.K. The smaller sample size, however, allows them to better control for brand and find that the Fair Trade label increased the price of coffee by 11.26%, or about .003 Euro/gram.

In the United States, the only other study done on consumer's willingness to pay for Fair Trade coffee was a survey where respondents vocalized their answer. Loureiro and Lotade

(2005) performed a face-to-face survey to find that consumers are willing to pay about \$0.22 per pound over the original price. Studies of this nature, however, could be overstated as they are subjected to social desirability bias (King and Bruner, 2000; Morris, 1997). The bias is due to the perception that the topics are socially sensitive in which the “correct” response would be to promote Fair Trade Certification, so respondents try to “favorably” answer the question and as a result overstate what they would actually pay for Fair Trade Certified products.

Other studies involving organic labeling within the United States find that produce certified as organic has a statistically significant and positive price premium over the original price (Kiesel and Villas-Boas, 2007; Smith, Lin, and Huang, 2008). Larson (2003) investigates the impact of shade-grown labels on coffee products in the United States. Shade-grown does not directly impact the quality of the coffee produced but is environmentally friendly as it discourages deforestation. Larson uses estimates of supply, potential demand, and price elasticities of demand and supply to predict eco-label premiums in the post-label equilibrium for shade-grown coffee to cause a price increase between 3% and 27%. The general consensus of the literature is that consumers would be willing to pay more for Fair Trade Certified coffees and other positive labels, but they diverge on what that price premium might be.

### *Fair Trade Certification*

Fair Trade Certification is a process where products imported to the United States are labeled in such a way that the consumer knows the producer of the good received fair treatment and was not exploited. In the late 1990’s consumers became more discerning with their purchases and concerned with the poor living and working conditions in developing countries. As a response, TransFair USA, a branch of Fairtrade Labeling Organizations International

(FLO), was created. A third-party organization, TransFair USA reviews retailers, manufactures, and distributors within the United States to determine that the working conditions are adequate and allows companies to use the Fair Trade Certified Label on their products. I assume, then, that products which are Fair Trade Certified will bear this label on the retail package so that consumers are easily able to tell if the product is Fair Trade Certified through TransFair USA.

The certification of producers is globally unified and is all done by a single body. FLO-CERT GmbH is the Certification Body of Fairtrade Labeling which ensures producers are following Fair Trade practices. The process of becoming Fair Trade Certified is a complex series of steps that can take anywhere from 4 to over 12 months to complete dependent on many different factors such as internet access and accessibility (Figure 1). FLO-CERT physically inspects producers to ensure they are complying with Fairtrade Standards before they will certify the producer. These Fairtrade Standards include (FLO; TransFair USA):<sup>1</sup>

- Fair Price – Democratically organized farmers receive a guaranteed minimum floor price and an additional premium for certified organic products.
- Fair Labor Conditions – Workers on Fair Trade farms enjoy freedom of association, safe working conditions, and living wages. Forced child labor is strictly prohibited.
- Community Development – Fair Trade farmers and farm workers invest Fair Trade premiums in social and business development projects like scholarship programs, quality improvement trainings, and organic certification.
- Environmental Sustainability – Harmful agrochemicals and GMOs are strictly prohibited in favor of environmentally sustainable farming methods that protect farmers' health and preserve valuable ecosystems for future generations.

While this study does not delve into the impact of Fair Trade Certification on producers, it is important to note that much research has shown Fair Trade Certification to be beneficial to coffee growers and helpful in promoting stability within the community (Bacon, 2008; Jaffee, 2007). Therefore, this study assumes that consumers who purchase products with the Fair Trade

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<sup>1</sup> Note: This list is not comprehensive. For a complete list see "Fairtrade Standards for Coffee", by FLO.

logo know that they are purchasing products which genuinely promote and protect the well being of producers.

### **III. Data**

The data for this study was obtained from Information Resources Incorporated (IRI) through a new dataset available to academic researchers. The dataset contains detailed information acquired from retail scanners. This data was collected and stored by detailing every purchase made at select grocery stores between 2001 and 2006. To obtain the data, grocery products are stored using their Universal Product Code (UPC) into a computer database within the store and are categorized by product type, brand, name, size, etc. Retailers voluntarily participate with IRI on a contractual basis. The names of the retailers and private labels are “masked” by IRI to protect the integrity of the dataset per IRI contracts with individual retailers (Bronnenberg et al. 2008). Thus, the private labels were dropped from the dataset since there was no descriptive information on the name or characteristics of the product.

The sample covered a time period from 2001 to 2006 during which 23 products moved from non-Fair Trade to being Fair Trade Certified. These products and their dates of certification are outlined in more detail in Table 1. There are 11 products across three different brands identified in the table, with some products available in different sizes which create a total of 23 unique UPC numbers. The Fair Trade Certification process detailed in Figure 1 shows the length of the application and that it takes 4 to 12+ months. This is important for my study because I can assume that Fair Trade standards are in place at least four months before the producer is able to sell Fair Trade coffee. I assert that there is no change in quality of coffee after certification occurs. Therefore, a change in price around the time of Fair Trade



Certification could not be attributed to a change in quality. I use this information in developing the graph seen in Figure 2. This graph represents of the average price per week of 11 of the 23 products which moved into Fair Trade Certification within the sample with the lines representing the average price before and after certification. As can be seen, there seems to be a substantial increase in price after a product becomes Fair Trade Certified. This figure suggests that the data would show that consumers are willing to pay about a 3.62% higher premium for Fair Trade Certified coffee.

Table 2 provides descriptive characteristics for the data. This six year dataset described over \$258 million worth of coffee sales in the United States at 2,093 different retailers. The average price of all coffees was \$7.44 with the average of Fair Trade Certified products being considerably higher at \$10.98. Using this data, I attempt to elicit consumer's willingness to pay for Fair Trade Certified coffee using the cross-sectional models employed in the past. The total observations for the dataset was over 34 million and due to the large size of the data, the models were executed using the average price per week of each product which reduced the size of the dataset to approximately 630,000 observations.

This data has two primary shortcomings which could influence the results of this study. First, there are a small number of products which moved to Fair Trade Certification within the sample. Of these products, some became certified toward the beginning or end of the sample meaning that there would be limited observations before and after the products became certified. The second difficulty with the dataset is the diverse and value-stating nature of modern coffee labels. Many coffee products and brand names in today's grocery stores carry positive value judgments without necessarily exemplifying those values. For example, many products and brands will say that they are "Fairly Traded" without actually being Fair Trade Certified. Also,

the makers some products have developed their own criteria for saying they are “Fair Trade” even though they are not officially certified by TransFair USA. This study, therefore, is limited to only observing products as Fair Trade which are certified by TransFair USA and have permission to use their label. This shortcoming could create some bias in the results since brands and products which claim to be Fairly Traded without being certified as Fair Trade could affect the sample.

#### **IV. Models and Results**

##### *Hedonic Price Model*

In examining the price premium consumers are willing to pay for Fair Trade coffee, I use a Hedonic Price Model. This is a model in which the observed product price represents the bundle of attributes which the consumer desires (Rosen, 1974). The good itself can be determined by its characteristics and the consumer’s willingness to pay for those characteristics. When applied to coffee, the Hedonic Pricing Model can be used to determine what characteristics of coffee consumers are willing to pay for. Therefore, I am able to break down the price of coffee in an econometric model to account for its desirable characteristics.

##### *Cross-Sectional Model*

Using the Hedonic Approach and Retail Scanner Data from IRI, I estimate a cross-sectional OLS model where I regress the characteristics of coffee on the natural log of price while controlling for week effects.

The model is of the form

$$(1) \quad Y_{iw} = \beta_{FT}X_{FT} + \beta_iX_i + \lambda_w + \varepsilon_{iw}$$

Where  $Y_{iw}$  is the natural log of price for product  $i$  in week  $w$ . The dummy variable  $X_{FT}$  describes the coffee's Fair Trade status, and  $X_i$  denotes a vector of variables describing other observable characteristics of the coffee. The vector  $\lambda_w$  represents a series of dummy variables for each of the 312 weeks in the sample and these variables control for any cyclical effects that impact all coffee prices, such as aggregate supply shocks. Finally the variable,  $\varepsilon$  is a random error term.

As shown in Table 3, the cross-sectional model yields a coefficient on Fair Trade Certification of .221 with a standard error of .004 and I can reject the null hypothesis that  $H_0: \beta_{FT} = 0$  with 95% confidence. This would predict that Fair Trade Certification has an impact of raising the price of coffee 22% compared to non-Fair Trade coffees. This increase is about 22% above the average price of \$10.98 which would suggest a price that is \$2.43 higher. The coefficients on other descriptive characteristics typically have the expected sign. For example "Regular" coffee and coffee packaged in cans are typically cheaper products and therefore, it is no surprise that the coefficient on this variable is negative when these products are compared to non-regular coffees or goods that are packaged in other forms. Also, gift packaging has a large positive coefficient meaning that coffee packaged for gifts is more expensive than coffees packaged in other forms.

The results from this model are roughly similar to the studies done in Italy and the United Kingdom. Although my results found a larger coefficient on Fair Trade, this could be upwardly biased compared to the European studies since I did not have as many variables accounting for descriptive characteristics as they did. This model yielded an  $R^2$  of .369 showing that it does not provide a good fit to the data.

The primary drawback to the cross-sectional model is that it does not differentiate between the supply and demand effects. As I document above, most Fair Trade coffee belongs to brands that are on average more expensive than other brands, and therefore, the price premium from model (1) is mixing the higher production costs for these brands with any change in consumer's willingness to pay for Fair Trade coffee. This problem is further supported in the descriptive characteristics of the data as the average price of the sample is only \$7.44 while the average price of Fair Trade Certified coffee is \$10.98. Therefore, since I believe  $Cov(X_{FTC}, \varepsilon_{iw}) \neq 0$ , the cross-sectional model was revised to create a model that would provide a more accurate estimate of consumer's willingness to pay for Fair Trade Certified coffee and would isolate the demand effect.

#### *Fixed-Effects Model*

A model was needed, therefore, that would factor out the fixed-effects of the products such that only factors which changed over time would be considered in this difference-in-difference specification. This model was created to exploit the fact that 23 products moved into Fair Trade status within the sample. A fixed-effects model is a linear regression such that factors which do not vary over time are subtracted out of the model and only variables which change over time will be included in the result. Since characteristics like brand, flavor, scent, and packaging are identical for each individual product over time, they do not vary by week and are thus consistent throughout the model. Fair Trade Certification, however, changed for 23 products and as proved earlier does not imply anything about a change in the quality of coffee being purchased. Using this information, a fixed-effects model was estimated to elicit what consumers are actually willing to pay for Fair Trade Certified coffee.

The model is of the form.

$$(2) Y_{iw} = \sum_{j=1}^5 \beta_j D(j)_{iw} + \lambda_w + \theta_i + \varepsilon_i$$

$Y_{iw}$  is the natural log of price for product  $i$  in week  $w$ .  $D(j)$  is a dummy variable for five five-week periods after Fair Trade Certification with the variable. For this variable,  $W(1)$  represents the week the certification was extended (week 0) plus weeks 1-4,  $W2$  is weeks 5-9,  $W3$  is weeks 10-14,  $W4$  is weeks 15-20 and  $W5$  represents 20+ weeks after Certification. Again, the vector  $\lambda_w$  represents a series of dummy variables for each of the 312 weeks in the sample and  $\varepsilon$  is a random error term. The dummy variables for weeks after certification were included because as can be seen in Figure 2, an immediate increase in price does not occur after Certification. Rather, it seems to be a more gradual process over approximately 20 weeks until the true price premium is reached. Most importantly, the variable  $\theta_i$  represents a fixed brand-specific dummy variable that equals 1 for brand  $i$  and 0 otherwise. The factor captures all the price effects that are common for a brand across all periods such as the fact that certain coffees may have higher production costs than others.

The results from this fixed-effects model are shown in column (i) of Table 4. As can be seen, the coefficient on the dummy variable representing 0-4 weeks after Fair Trade Certification is negative. This is probably due to reduced prices within the retail outlets as they attempt to get the old product off the shelves in order to make room for the new, Fair Trade Certified coffee. The other variables up to  $W5$  returned coefficients that were positive and had high standard errors. The coefficient on  $W5$ , which was a dummy for 20+ weeks after certification, returned a value of .011 with a standard error of .006. This would indicate that Fair Trade Certification increases the premium consumers are willing to pay for coffee by 1.1%, or about \$0.12 for an

average price of \$10.98. While this estimation has the predicted sign, it is smaller than expected and I cannot reject the null hypothesis  $H_0: \beta_{W5} = 0$  with 95% confidence. Figure 2 would suggest that a greater increase in price would be seen from Fair Trade Certification. The  $R^2$  from the model estimated in column (i) is .944, meaning that the model provides a much better fit than what was estimated in the cross-sectional model.

The fixed-effects model was then refined in order to see if a larger effect of Fair Trade Certification could be captured by combining several of the dummy variables for Fair Trade Certification.

Another fixed-effects model was estimated of the form.

$$(3) Y_{iw} = \beta_{FT}X_{FT} + \beta_2W1 + \lambda_w + \theta_i + \varepsilon_{iw}$$

$Y_{iw}$  is again the natural log of price for product  $i$  in week  $w$ .  $X_{FT}$  is a dummy variable for coffee which is Fair Trade Certified and is 1 for certified coffee which moved within the sample 5 weeks after it moved and 0 for all other observations.  $W1$  is a dummy variable which is 1 for Fair Trade Certified products that moved within the sample for 0-4 weeks after being certified and 0 for all other observations.  $\lambda_w$  is a vector of dummy variables to control for week effects, and  $\varepsilon$  is a random error term.

The results from this model can be seen in column (ii) of Table 4. This again returned a coefficient on Fair Trade Certified of .011 with a standard error of .006 which was minimally higher than what was returned in model (2). Again, there was a negative coefficient on  $W1$  which represents stores getting rid of the old stock of non-Fair Trade coffee to make room for the updated product. The  $R^2$  for this model is .944 which proves that this estimation provides a better fit to the data than the cross-sectional model. Once again, however, this estimate

represented a smaller increase than what I had expected to see from simply examining the descriptive characteristics of the data in Figure 2. To determine why the model returned a smaller estimate, I examined the prices of non-Fair Trade coffee.

As can be seen in Figure 3, the price of non-Fair Trade coffee increased substantially over the sample. This is what causes the difference-in-difference fixed-effects model to return a smaller estimate than the 3.6% predicted from Figure 2. Since the sample products which underwent a change in Fair Trade status are being compared against is also increasing, the effect is smaller than what was hypothesized. This study, using a fixed-effects difference-in-difference model found that Fair Trade Certification causes an increase in price of about \$0.12 in the United States, but I can only reject the null hypothesis  $H_0: \beta_{FT} = 0$  with 90% confidence which would subject the study to increased chances of a Type I error. Therefore, this study finds that Americans are willing to pay slightly more for Fair Trade Certified coffee.

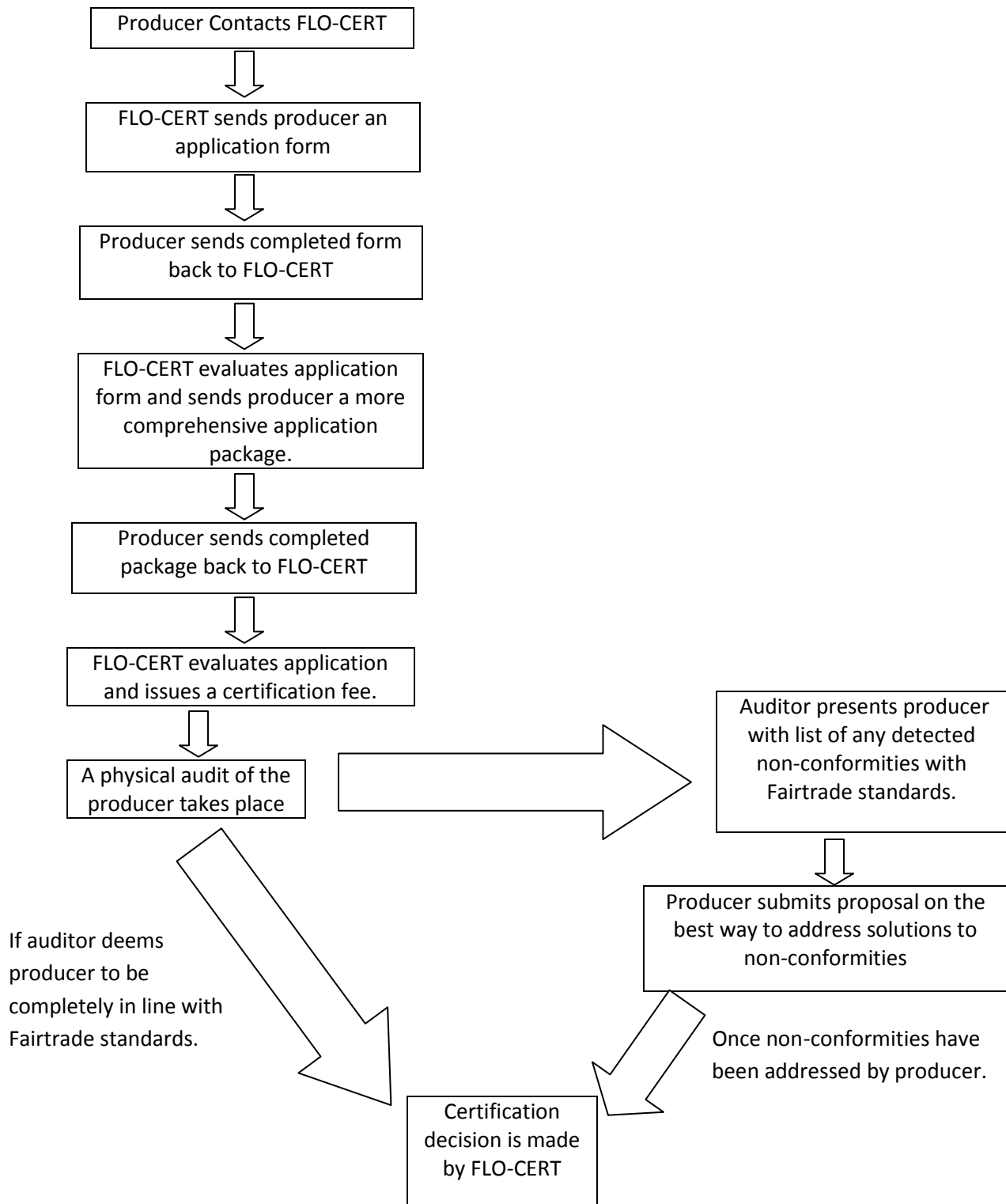
## **V. Conclusion**

In this study, I estimate consumer's willingness to pay for Fair Trade Certified coffee using a Hedonic Price model and Retail Scanner data. This paper is innovative in that it is the first to use retail scanner data to estimate a price premium for Fair Trade coffee in the United States, and the first in the world to estimate the premium using a fixed-effects difference-in-difference model to look at prices before and after certification. I was able to roughly replicate the Italian and English studies with my cross-sectional model which returned a result of Fair Trade Certification causing a 22% increase in the price of coffee. I determined these results to be biased since Fair Trade Certified products are typically found in more expensive brands.

I exploited the fact that several coffees changed certification status within my sample to estimate a difference-in-difference fixed-effects model. This model returned an estimation that Fair Trade Certification led to a price increase of 1.1%, or about \$0.12. This was smaller than the predicted result since the prices of all coffees increased within the sample and was only significant with a 90% confidence interval. Since the sample prices also increase over time, this study was unable to truly elicit an estimate on the price premium consumer's are willing to pay for Fair Trade Certified coffee. It will, however, serve as a starting point for future studies which may be able to get a more precise result with an increased sample size. The growing popularity of Fair Trade Certified products will make it easier for future studies to find more accurate estimates of the price premium consumers are willing to pay for Fair Trade Certified coffee.



Figure 1 – Process of Fair Trade Certification for producers.



Note: Fair Trade Certification Process takes 4-12+ months.

Source: Third party labeling organization, FLO-CERT < <http://www.flo-cert.net/flo-cert/main.php?lg=en> >

Figure 2

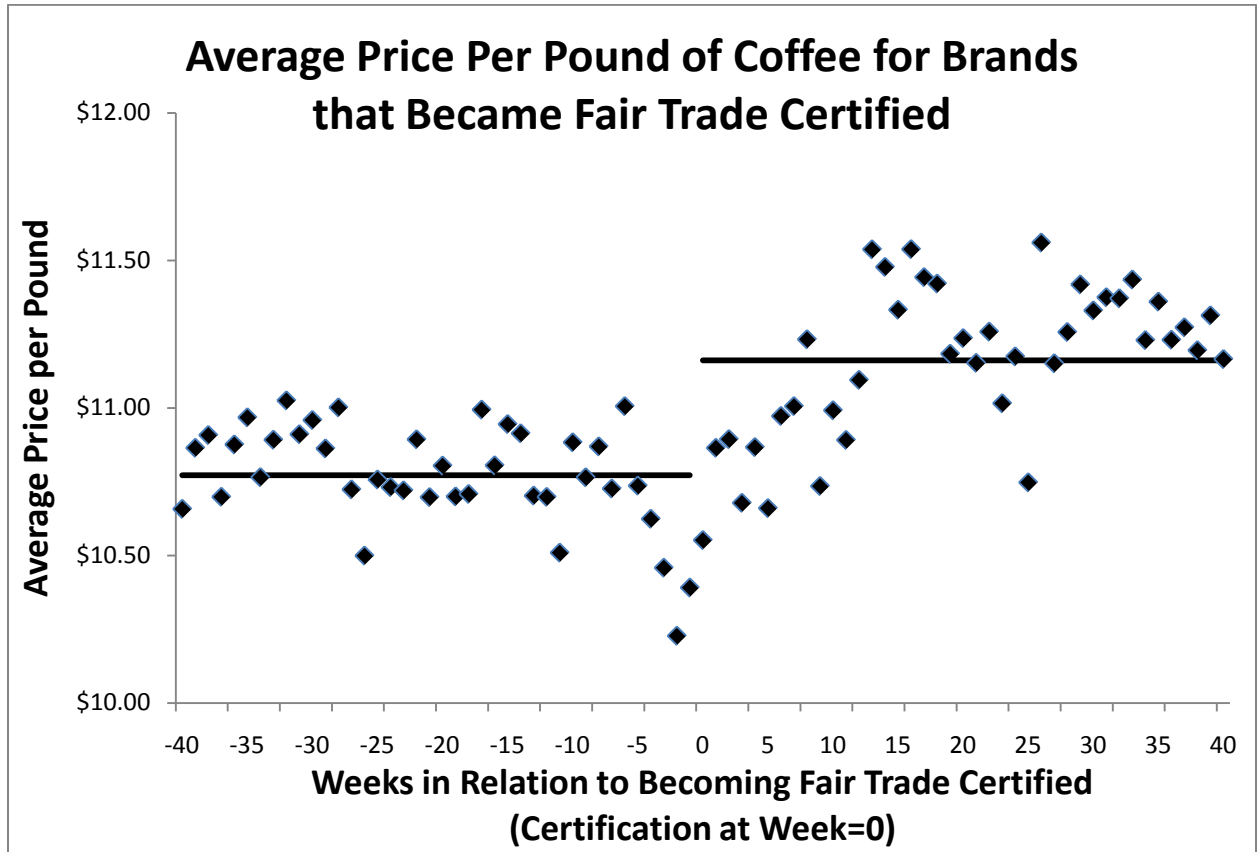


Figure 3

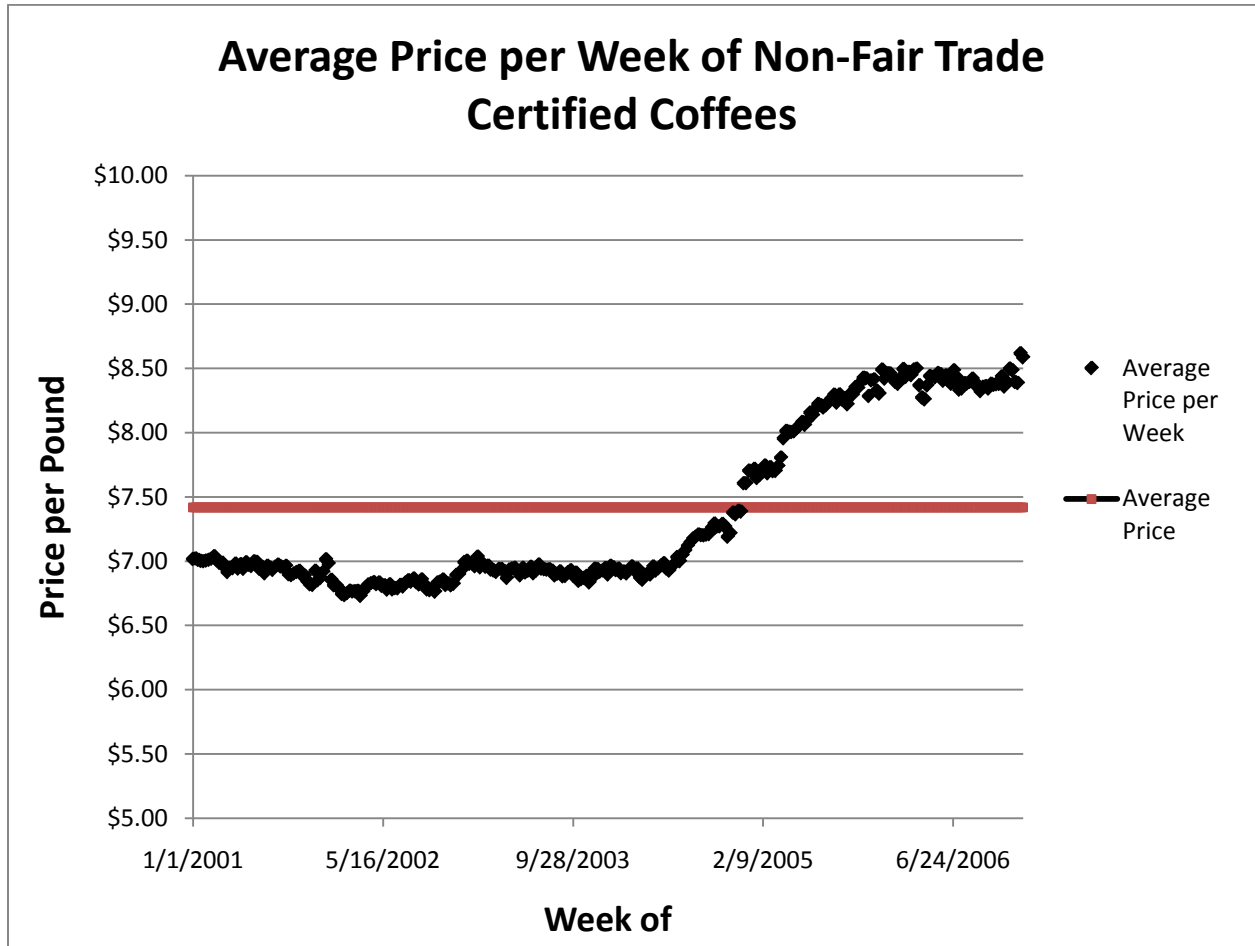


Table 1 – List of Fair Trade Products which Moved within Sample

Brand	Product	Date of Certification
First Colony	Fair Trade Organic Guatemalan Sunset Blend	December 2005
	Fair Trade Organic Peruvian Mountain Blend	December 2005
Green Mountain	Fair Trade Organic Mexican Select	October 2001
	Fair Trade Organic Rainforest Blend	January 2002
	Fair Trade Rainforest Nut	January 2002
	Colombian Fair Trade Select Blend	January 2005
Terranova (Café Altura)	Fair Trade Classic Roast	January 2003
	Fair Trade Dark Roast	January 2003
	Fair Trade French Roast	January 2003
	Fair Trade House Blend	January 2003
	Sumatran Fair Trade Regular Roast	January 2003

Note: Names of products also changed to include the Fair Trade description at the date of certification. Date of Certification indicates when the certified product was available in stores.

Table 2 – Descriptive Characteristics

All Observations		
Total Number of Transactions		34,706,852
Total Money Spent on Coffee		\$258,000,000
Weeks		312
Products		6,929
Individual Stores		2,093
Variable	Mean	Standard Deviation
Price (per pound)	\$7.44	4.646
Natural Log of Price	1.824	.604
Units	5.39	17.135
Volume (in pounds)	.906	.630
Fair Trade Certified (dummy)	.005	.069
Fair Trade Certified Products		
Total Number of Transactions		185,775
Total Money Spent on Coffee		\$2,039,959
Weeks		312
Products		129
Fair Trade Certified Products which Moved within Sample		23
Individual Stores		2,093
Variable	Mean	Standard Deviation
Price (per pound)	\$10.98	1.697
Natural Log of Price	2.384	.158
Units	2.580	3.039
Volume (in pounds)	.664	.155

Data taken from IRI.

Table 3 – Cross-Sectional Results

Model		
Variable	Description	Coefficient
Observations		631,673
R <sup>2</sup>		.369
FTC (0-1 Dummy)	Specifies Fair Trade Coffee.	.221 (.004)
Ground (0-1 Dummy)	Coffee ground or whole bean.	.238 (.002)
Caff (0-1 Dummy)	Coffee caffeinated or decaffeinated	-.134 (.002)
Breakfast (0-1 Dummy)	Coffee flavor “Breakfast Blend.”	-.018 (.002)
Dark (0-1 Dummy)	Coffee flavor “Dark Roast.”	-.145 (.005)
French (0-1 Dummy)	Coffee flavor “French Roast” or “French.”	-.008 (.002)
Hazelnut (0-1 Dummy)	Coffee flavor “Hazelnut.”	.024 (.002)
House (0-1 Dummy)	Coffee flavor “House Blend.”	.087 (.004)
Kona (0-1 Dummy)	Coffee flavor “Kona Blend.”	1.154 (.059)
Premium (0-1 Dummy)	Coffee flavor “Premium.”	-.343 (.006)
Regular (0-1 Dummy)	Coffee flavor “Regular.”	-.312 (.002)
Colombian (0-1 Dummy)	Coffee being Colombian.	-.112 (.002)
Ethiopia (0-1 Dummy)	Coffee being Ethiopian.	-.166 (.051)
Sumatra (0-1 Dummy)	Coffee being Sumatran.	.149 (.006)
Bag (0-1 Dummy)	Coffee packaged in a “Bag.”	.025 (.002)
Brickpack (0-1 Dummy)	Coffee packaged in a “Brickpack.”	-.369 (.002)
Can (0-1 Dummy)	Coffee packaged in a “Can.”	-.548

		(.002)
Foil (0-1 Dummy)	Coffee packaged in "Foil Bag" or "Pouch."	.093
		(.002)
Gift (0-1 Dummy)	Coffee packaged in "Gift Pack."	.530
		(.009)
AllPurp (0-1 Dummy)	Coffee intended for "All Purpose" brewing.	-.203
		(.002)
Auto (0-1 Dummy)	Coffee intended for "Automatic" brewing.	-.238
		(.003)

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Note: Standard Errors in parentheses.

Controlling for year effects.

Data taken from IRI.

Table 4 – Fixed Effects Models

	(i)	(ii)
Observations	632,366	632,366
R <sup>2</sup>	.944	.944
<hr/>		
Variable		
FTC	-----	.011 (.006)
W1 (0-4 Weeks after Certification)	-.005 (.018)	-.005 (.018)
W2 (5-9 Weeks after Certification)	.009 (.017)	-----
W3 (10-14 Weeks after Certification)	.011 (.017)	-----
W4 (15-19 Weeks after Certification)	.011 (.017)	-----
W5 (20+ Weeks after Certification)	.011 (.006)	-----

Note: Standard Errors in parentheses  
Controlling for year and fixed effects.  
Data taken from IRI.



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