



THE CONSUMER COSTS OF FOOD CERTIFICATION

A study of grocery store rice in Salt Lake City, Utah

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Introduction

Certification labels have become a common feature on food products found across grocery store shelves. Such labels represent a variety of claims regarding how a product was made and the ingredients in it. For example, foods marketed as “natural” or grown with minimal chemical substances often feature the USDA organic seal; foods produced according to socially-conscious standards may display some type of fair trade certification logo, and; foods processed in facilities free from allergen contamination frequently carry a Gluten-Free (or similar) label.



Figure 1. Examples of certification labels: USDA organic seal, Fairtrade International certification logo, Gluten Intolerance Group certification label.

The purposes of food certification

Certification labels indicate that the environmental, social, or ingredient claims touted on a product have been verified by an external entity—usually an expert authority on the certification type in question.¹ For consumers, certification labels serve two primary purposes: they provide information regarding how a product is made or what is in it, and they strengthen the credibility of that information.

For producers and processors, certification is a way to distinguish a product and appeal to specific consumer markets. By lending credibility to product claims, certification encourages consumer confidence. Furthermore, certification is increasingly used to associate products or brands with specific environmental or social values.²

The consumer costs of food certification

It is generally acknowledged that certified products often garner a higher price when compared to their non-certified competition.³ Among academics and researchers that study the subject, however, there is considerable debate as to how big of a price difference there is, for which types

of products, and under which economic and social conditions. There is further uncertainty in what the primary drivers are for any price difference that exists between certified and non-certified food. Among the likely contributors to the higher prices are:

- The higher operation costs of adhering to the environmental, social, or other production practices required by the certification in question.
- The fees that are required for a producer, processor, and/or product to obtain certification.
- The additional price premium that consumers are willing to pay, or that retailers believe consumers will pay, for the product characteristics or values represented by a certification.⁴

The equity implications of certification costs

The extent to which certification translates into higher food prices has consequences for individuals’ and communities’ ability to access certified products. High cost certification labels can create a barrier, leaving certain types of food inaccessible to individuals who cannot afford them.⁵ If certification labels continue to proliferate, we will likely see a growing divide between those who can afford to purchase food with the qualities they desire, as well as express their environmental or social values through purchasing decisions, and those who cannot.

Study objectives

This study examines the cost to consumers of food product certification through an investigation of loose grain rice sold in Salt Lake City grocery stores. The examination looks at two consumer “costs” associated with rice certification:

Product price. The study first documents the extent to which certification labels are associated with higher product prices, as well as if multiple certifications contribute to marginal increases in product prices.

Equity costs. The study further examines if the higher financial costs of certified products correspond with unequal access to certified products according to the socioeconomic characteristics of the communities in which grocery stores are located.

Study methods and data

Data were collected by University of Utah student researchers through in-person visits to ten Salt Lake City grocery stores on a single day in March, 2017. Grocery stores were preselected to achieve variation in store geographic location, size, and brand. A list of grocery stores at which data collection took place is provided in Appendix 1, at the end of this report.

Data collection was limited to uncooked loose grain rice products, resulting in a total of 161 products from across the ten stores. Data were recorded in-store via a digital spreadsheet. Photographs were also taken of each product pack-

age (front and back), and each photograph was linked via unique identifier to corresponding spreadsheet data, for the purposes of capturing any relevant but unrecorded information. The photographs were also used to confirm the validity and reliability of collected information prior to data analysis.

The following data were recorded for each product included in the research:

- The name of each certification label displayed on the product
- Product price and weight
- Product brand and name
- Rice type and color

Key findings

This study examined the relationship between rice certifications and product prices, and the relative equity in certified rice availability for Salt Lake City residents. The study's findings are summarized here. A detailed account of study findings follows, including a discussion of findings implications.

Grocery store rice certifications

Only 34% of 161 packets of rice exhibited no certification labels, while over half (53%) displayed one or two certifications. The remainder had up to five certifications. Seven different certification types were found, listed here according to frequency, with the most frequently identified certification listed first:

1. Non-GMO Project
2. "OK" Kosher
3. USDA Organic
4. 100% Whole Grain
5. "Fair for Life" Fair Trade
6. Gluten-Free
7. Demeter Biodynamic

Certifications and product price

With a few exceptions, study findings indicate that **certification labels are generally associated with higher product prices**, and that each additional certification a product displays typically corresponds with a marginal increase in price .

Equity in certified rice availability

Study findings indicate that the availability of certified rice by grocery store is not related to the socioeconomic characteristics of the immediately surrounding community—**the availability of certified rice products appears equitable**. As discussed later in this report, however, availability does not equate to access, and the findings do not rule out all equity concerns regarding food certification price premiums.



Analysis and findings details

Description of study analyses and findings are presented here. A findings discussion, including research limitations, follows.

Overview of grocery store rice certifications

Seven different certification types were identified across 161 rice packages, as seen in Table 1. Descriptions of the certification programs are provided in Appendix 2. The most common label was for Non-GMO Project certification, found on 52% of the packages. The least common label was Demeter Biodynamic, identified on only one rice package.

Table 1. Frequency of certification types

Certification	Frequency (percent)
Non-GMO	83 (52%)
Kosher	51 (31%)
Organic	34 (21%)
Whole grain	28 (17%)
Gluten-free	3 (2%)
Fair trade	2 (1%)
Biodynamic	1 (<1%)

A minority (34%) of the rice packages featured no certification labels, as indicated in Figure 2. One quarter featured a single label, and another 28% carried two labels. The remainder had up to five certifications.

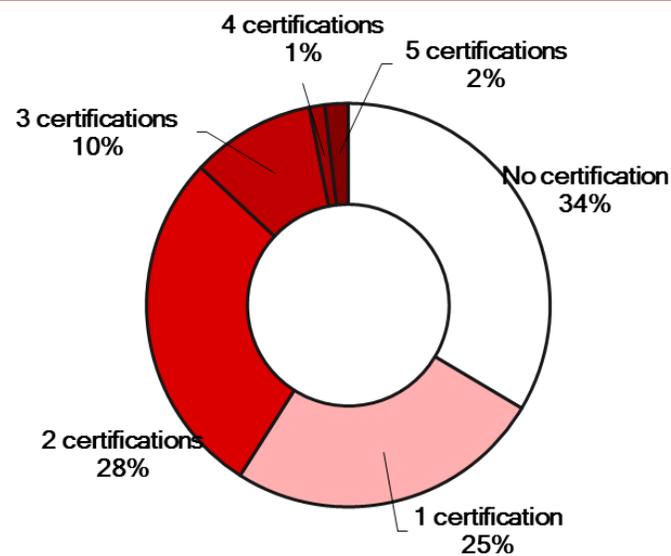


Figure 2. Rice products by percentage reflecting the number of certifications displayed

Certifications and product price

If product certification corresponds with higher food costs, one would expect product price to increase alongside the number of certifications displayed. This was found to be roughly the case for the grocery store rice included in this study. As shown in Table 2, looking at the average standardized cost of rice according to the number of certifications displayed shows that product price is generally higher as the number of certification labels increases, with some minor variations.⁶

Table 2. The mean standardized rice price according to the number of certifications displayed

Number of certifications	Frequency (percent)	Mean price (per 100g rice)
0	54 (34%)	\$0.33
1	41 (25%)	\$0.53
2	45 (28%)	\$0.52
3	16 (10%)	\$0.71
4	2 (1%)	\$0.69
5	3 (2%)	\$1.06
Total	161 (100%)	\$0.49

A regression analysis was conducted to examine whether each certification type is associated with a higher food cost when the presence of other certification labels is taken into account. For example: if the Non-GMO labeled foods are still associated with higher prices when the products also carry the USDA organic label. Multilevel analysis was used to further account for differences in grocery store pricing; for example, because rice from Walmart generally exhibits a lower price than rice sold at Whole Foods or Liberty Heights Fresh. Finally, the influence of two additional rice characteristics were controlled for in the analysis: whether the product packaging indicated that the rice was heirloom or enriched.

Analysis results are presented in Table 3 on the following page. The results indicate that, controlling for grocery store origin and whether the rice is labeled heirloom or enriched, each certification label is associated with an increased product price. Because the fair trade certification label only appeared on products that were also certified gluten-free, the price associated with these certifications is combined. Together, fair trade

Table 3. Regression analysis of the relationship between rice certifications and product price

	Coefficient
<u>Certification labels</u>	
Fair trade & gluten-free ⁷	<i>0.45</i> (0.16)
Biodynamic	0.38 (0.21)
Non-GMO	<i>0.15</i> (0.04)
Organic	<i>0.14</i> (0.05)
Whole grain	<i>0.11</i> (0.05)
<u>Rice characteristics</u>	
Heirloom	<i>-0.19</i> (0.08)
Enriched	<i>-0.11</i> (0.05)
Constant	<i>0.42</i> (0.10)
Log likelihood	12.6
<i>n</i>	161

Note: Coefficients in *italicized* text are statistically significant at $p < 0.05$; standard errors in parentheses; observations grouped by grocery store ($n=10$)

and gluten-free are associated with the greatest price increases. The price increase of biodynamic certification follows as second-highest, however, it should be recognized that only one product carried the biodynamic label. The price increases associated with non-GMO and organic certifications are similar, with the price of non-GMO coming in slightly higher. Whole grain certification was associated with the smallest price increase out of the seven identified certifications.

Equity in certified rice availability

The equity consequences of rice certification were examined by comparing socioeconomic characteristics of the community surrounding each grocery store with the availability of certified rice at the store. Community socioeconomic conditions were captured through household income and racial demographic (percent nonwhite residents) data for the census tract in which each study grocery store was located.⁸ This information is displayed in Table 4, where the grocery stores are listed according to the median household income of each store's census tract (starting with the highest).

If higher certified food costs resulted in clearly inequitable availability of certified products, one would find fewer certified products in lower income communities and communities with a higher percentage of nonwhite residents. As can be seen in the table, there is no apparent relationship between the availability of certified rice and these socioeconomic indicators. While some stores exhibit a greater number and range of certified rice than others (e.g. comparing Whole Foods to the first listed Walmart), these tendencies are not tied to the household income or racial breakdown of the surrounding communities. It is noticeable, for example, that the grocery store located in the highest earning community, with the highest proportion of white residents (Dan's), had a median number of certifications

Table 4. The minimum, maximum, mean, and median number of rice package certification labels by grocery store, with associated census tract household income and racial characteristics

Store ID	Store Name	Census tract	Median income	Percent nonwhite	Min	Max	Mean (median)
1	Dan's	1105	\$77,287	9.3%	0	3	0.9 (1)
2	A-Fresh Market	1039	\$71,917	13.1%	0	4	1.3 (1)
3	Whole Foods	1141	\$71,625	12.6%	1	5	2.1 (1)
4	Liberty Heights Fresh	1035	\$69,536	12.1%	0	3	1.2 (1)
5	Walmart	1043	\$59,357	15.2%	0	2	0.7 (0)
6	Smith's	1026	\$41,101	66.1%	0	3	1.5 (2)
7	Rancho Market	1026	\$41,101	66.1%	0	3	0.8 (0)
8	Chinatown Supermarket	1116	\$31,199	42.9%	1	2	1.7 (2)
9	Ream's Food Store	1114	\$29,238	43.3%	0	3	0.9 (0.5)
10	Walmart	1029	\$20,914	46.2%	0	4	1.2 (1)

per product equal to that of the grocery store in the lowest household income community, which is 46% nonwhite (Walmart).

Study limitations and findings discussion

The findings of this study suggest, when it comes to rice sold in Salt Lake City grocery stores, certified products cost more than their non-certified counterparts. Furthermore, the more certifications a product displays, the more it is likely to cost. Based on the analysis reported here, however, this does not seem to deter retailers from offering certified products in grocery stores located in less socioeconomically “privileged” communities.

While this study provides a useful snapshot of the consumer costs of food certification, it should be considered with an appreciation of the limits of the data and methods employed.

First, there are many factors that contribute to the cost of food products that are not accounted for in the study—from production methods, to location of origin, and beyond. Certification is only one part of that complex equation. Most notably, some brands are more likely than others to feature certified products, meaning that an unknown portion of the price increases associated with certification are probably due to differences in brand pricing.

Second, the study provides a simple analysis of equity implications through grocery store census tract data. The approach is limited, for example, by not taking into account whether a store is in close proximity to other census tracts, and therefore draws consumers reflecting different community characteristics. Similarly, the study did not capture whether a store is located along a major commuter thoroughfare, in which case the immediately surrounding community characteris-

tics likely matter less.

Perhaps more important, documenting the availability of certified food is not enough to conclude that communities and individuals have equal access to certified products—indeed, the price premiums that this report finds are associated with food product certifications may be enough to create a barrier impeding some Salt Lake City residents from accessing the food qualities they desire.

This study is limited in scope to food found at grocery stores within Salt Lake City boundaries. Research that extends the analysis beyond Salt

Lake City will provide a fuller picture of the consumer costs of food certification throughout the Salt Lake valley, and the state of Utah as a whole. Furthermore, the

study was limited by its focus on loose grain rice products. Rice is a useful food through which to understand certification costs: it is found in just about any grocery store, consumed across most cultures, and is amenable to a number of different certification programs. Future research can examine how the financial and equity implications of other certified food products compare with the findings reported here.

We invite readers to compare the findings of this study against their own experiences, and to consider the ideas raised in this report during their next visit to the grocery store. As food systems become evermore complex and globally connected, and product labels—including and beyond certification labels—proliferate, there will be an ongoing need to understand the implications of such changes on consumer food costs, and access to the food products consumers want and need.

“...indeed, the price premiums that this report finds are associated with food product certifications may be enough to create a barrier impeding some Salt Lake City residents from accessing the food qualities they desire.”

Appendix 1: Grocery store selection

The grocery store selection procedure was designed with the goal of achieving maximum variation on the following store characteristics: (i) geographic location (within the boundary of Salt Lake City), (ii) store size, and (iii) store brand. Particular effort was made to include grocery stores frequented by cultural and ethnic minority communities. The ten grocery stores are listed immediately below, and are plotted on the map that follows.

Grocery stores selected for data collection

- 1) **Dan's Market**, 2330 3300 S, South Salt Lake, UT 84109 (Census tract 1105)
- 2) **A-Fresh Market**, 2040 S 2300 E, Salt Lake City, UT 84108 (Census tract 1039)
- 3) **Whole Foods**, 1131 E Wilmington Ave, Salt Lake City, UT 84106 (Census tract 1141)
- 4) **Liberty Heights Fresh**, 1290 1100 E, South Salt Lake, UT 84105 (Census tract 1035)
- 5) **Walmart Supercenter**, 350 Hope Ave, Salt Lake City, UT 84115 (Census tract 1043)
- 6) **Smith's**, 828 S 900 W, South Salt Lake, UT 84104 (Census tract 1026)
- 7) **Rancho Market**, 140 N 900 W, South Salt Lake, UT 84116 (Census tract 1026)
- 8) **Chinatown Supermarket**, 3390 State St #11, South Salt Lake, UT 84115 (Census tract 1116)
- 9) **Ream's Food Store**, 2783 State St, Salt Lake City, UT 84115 (Census tract 1114)
- 10) **Walmart Supercenter**, 2705 E Parleys Way, Salt Lake City, UT 84109 (Census tract 1029)

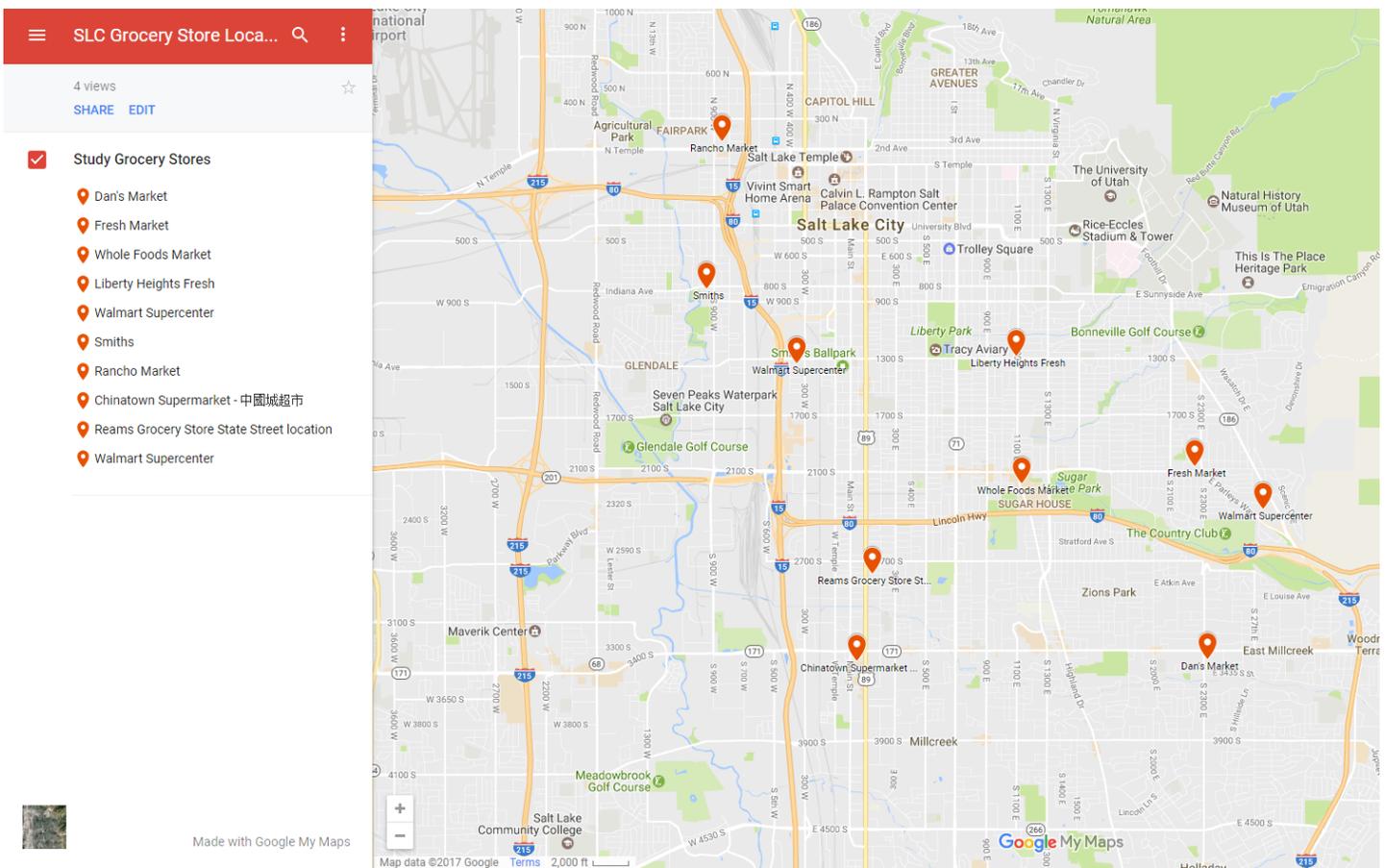


Figure A1. The locations of Salt Lake City grocery stores selected for study data collection.⁹

Appendix 2: Identified certification programs

There were seven certification label types found on the 161 rice products examined in this study. Examples of these labels are provided below, along with a short description of the certification program behind each label, and a URL linking to more information regarding each program.



USDA Organic

The United States Department of Agriculture's National Organic Program establishes regulations outlining the practices that can be used for products marketed and sold as "organic" in the U.S.A. www.usda.gov/topics/organic



Whole Grains Council

The 100% Whole Grain stamp is a certification of the consumer advocacy group Whole Grains Council, and indicates a product contains a full serving or more of verified whole grain in each labeled serving. www.wholegrainscouncil.org



Non-GMO Project

The Non-GMO Project is a nonprofit organization providing verification that certified products do not contain genetically modified ingredients, which includes evaluation of product inputs, and potential facility inspection or testing. www.nongmoproject.org



Kosher

"OK" Kosher is the largest independent certifier of standards based on Jewish kosher customs, which outline principles for specific animals, fish and fowl that may be consumed and general descriptions of how food should be prepared and eaten. www.ok.org



Fair for Life

Fair for Life is a fair trade certification organization that provides verification of adherence to social accountability standards, such as human rights recognitions and working conditions quality. www.fairforlife.org



Gluten-Free

The Gluten-Free Certification Organization is an industry program of the Gluten Intolerance Group, and provides certification services to producers of gluten-free products on the basis of quality assessment and control measures. www.gfco.org



Demeter Biodynamic

Demeter Biodynamic certification indicates that a food was produced through a comprehensive farming method that relies on the creation and management of a closed system minimally dependent on imported materials. www.demeter-usa.org

Endnotes

- 1 Hatanaka, M., C. Bain, & L. Busch. 2005. Third-party certification in the global agrifood system. *Food Policy*, 30(3), 354-369.
- 2 McLaughlin, K. February 17, 2004. Is your grocery list politically correct? *Wall Street Journal* (pp. D1-D2).
- 3 Golan, E., F. Kuchler, L. Mitchell, C. Greene, & A. Jessup. 2001. Economics of food labeling. *Journal of Consumer Policy*, 24(2), 117-184.
- 4 Hatanaka, Bain, & Busch. 2005.
- 5 Renard, M. 2005. Quality certification, regulation and power in fair trade. *Journal of Rural Studies*, 21(4), 419-431.
- 6 Spearman rank correlation test results suggests a moderate bivariate association between the number of product certifications and standardized product prices (Spearman's Rho = 0.46).
- 7 The fair trade and gluten-free certifications are reported together in page 4 regression results because the two times the fair trade label appeared it was accompanied by the gluten-free label, thus negating the possibility of separating the two certifications in the analysis.
- 8 Household income and racial demographic data by census tract came from the 2014 5-Year American Community Survey, accessed via the Kem C. Gardner Policy Institute (www.ucdp.utah.edu/geo/).
- 9 The map in Figure A1 was generated in Google Maps.



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