



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

What's a Cup Worth?: A Hedonic Analysis of U.S. Retail Coffees Prices

John P. Hoehn

Email: hoehn@msu.edu
Department of Agricultural, Resource and Food Economics
Justin S. Morrill Agricultural Hall, Room 301A
446 West Circle Drive
Michigan State University

Selected Poster prepared for presentation at the Agricultural & Applied Economics Association's 2015
AAEA Annual Meeting, San Francisco, July 26- 28, 2015.

Copyright 2015 by John P. Hoehn
All rights reserved.

Readers may make verbatim copies of this document for non-commercial purposes by any means,
provided this copyright notice appears on all such copies.



What's a Cup Worth?: A Hedonic Analysis of U.S. Retail Coffees Prices

John P. Hoehn, Michigan State University
Selected Poster Session
AAEA Meeting, San Francisco, July 26-28, 2015



Problem

What are coffee attributes worth to coffee consumers? What opportunities exist for new, value-enhancing attribute combinations? Previous hedonic research is data-limited to farm-level prices from Cup of Excellence (CoE) auctions in select Central and South American countries. Previous valuations are derived from the winning bids of a small number of specialty buyers and roasters. As such, they represent a tiny market segment. Such values are not representative of the broad US market, nor are linearly related to consumer demand. Such estimates may also be confounded by the distinct imprimatur of CoE qualifying coffees.

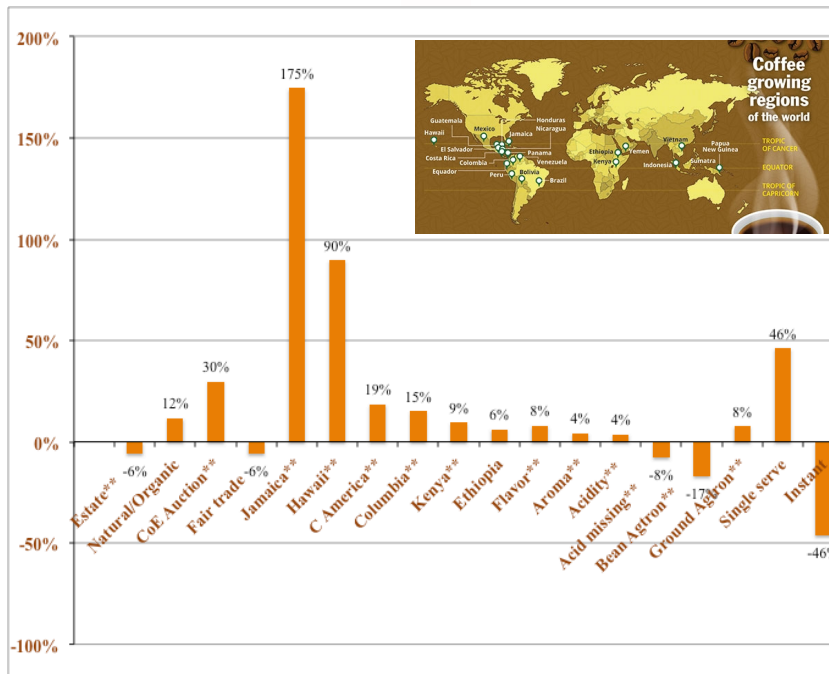
Contribution

The marginal retail value of coffee attributes are estimated for the U.S. market using a fixed-effects, hedonic analysis. The retail price and quality data are for 1,350 distinct coffees sold in US markets from 1997 through 2014. Attributes include label indications of production practices, market channel, origin country and origin region; cupping (taste) attributes include flavor, aroma, body and acidity; bean and ground coffee color; and U.S. market region.

Costly supply chain practices do not lead major retail price increases. Organic certification is costly, but it's not worth than an uncertified claim of natural production. Origin labeling may open shelf-space to a new producing region, but it increases prices only for countries with *long-standing reputations* for high quality coffee. Origin values are large only for Jamaica and Hawaii, two very small, highly recognized and high cost growing areas. Origin labels are much less valuable to larger growing regions in Central America, South America and Africa.

Roaster and retailer choices have larger impacts on retail prices. A *one-unit increase* in roasted bean darkness decreases coffee price by 17%, but an increase in ground coffee darkness increase price by 8%. Single serve coffee prices are higher by 46%. Prices within the U.S. are statistically uniform once accounting for other attributes. There is no regional price advantage to retailers on the East and West coasts of the United States relative to other U.S. locations.

Marginal Value Estimates: Retail Price per Pound Increase (%) for Attribute Label Characteristic



Data

Nominal retail price and quality data are derived from 1,350 cupping evaluations posted online by Coffee Review (CR). CR is the most widely read buying guide for coffees sold by local, national and international retailers. CR's data include full attribute information and expert cupping evaluations for almost 4,000 coffees sold across the globe.

The present analysis is based on price, attribute and cupping evaluations for coffees offered by U.S. retailers from 1997 to 2014. Mean and median coffee prices were, respectively, \$20 and \$22 when adjusted to the 2014 price level using the U.S. Consumer Price Index.

Estimation

The dependent variable, p , is the natural logarithm of retail coffee price per pound as the independent variable p . The dependent variable is a linear function of a vector of N independent variables, x :

$$p_{ij} = \alpha + \sum_{i=1}^N \beta_i x_{ij} + \eta_j + \varepsilon_i$$

where α is the intercept and the β_i ($i=1, \dots, N$) are marginal value coefficients to be estimated, η_j is a fixed or random panel effect and ε_i is a independent normal stochastic term. A Hausman test rejected a random panel error at the 1% level. Reported estimates are for a fixed effects stochastic error.

Variables and Results

The Figure reports coefficient estimates in terms of the percentage change in US retail prices (2014 price level) for a one unit change in a labeled coffee attribute. Production process dummy variables include Estate grown, Natural and Organic Certification. Natural and Organic Certification have identical marginal values and are therefore listed together in the Figure.

Market dummy attributes included two label designations: purchase in a Cup of Excellence (CoE) Auction and Fair Trade Certification. As suspected, the CoE itself lends value to a coffee-- apart from flavor and other measured attributes.

Flavor attributes include Aroma and Acidity cupping ratings, measured on a zero to 1 scale, each with means of 0.8 and standard deviations of .09 and .08, respectively.

Roast attributes are measured on an Agtron scale and converted to ratings from 1 to 10 for both beans and ground coffee. Mean ratings are 4.75 and 6.33, respectively, with standard deviations each of about 1.45. An increase in the rating indicates a darker roast.

All coffee origins were included in the hedonic regression, but the Figure lists the origin dummies are statistically different from zero at the 90% level. Jamaica and Hawaii stand out with very large values. Other origins with long-standing, high quality reputations have values that are smaller, but statistically different from zero.

Conclusions

Hedonic implicit prices identify the marginal market values of alternative products and market strategies. Results indicate that:

- Estate and Fair Trade designations detract, rather than add, value to coffees sold in U.S. retail markets.
- Organic certification offers no net value-added relative to natural production.
- Market premiums for origin labeling are limited to coffee exporting areas with long-standing reputations for high quality coffee.
- There are positive and economically significant rewards to flavor characteristics, roast type and recent innovations in single-serve packaging.

Overall, the greatest value opportunity for coffee supplier is in the cup, not in ancillary, non-flavor characteristics.