Willingness to Pay for Organic versus Conventional Orange Juice

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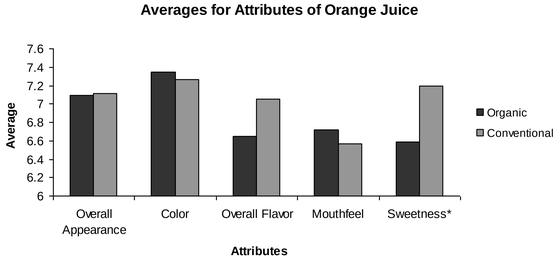
OBJECTIVES

•To determine if consumers can identify a taste difference between conventionally and organically produced orange juice .
•To estimate willingness to pay for conventionally and organically produced orange juice.
•To determine if sensory characteristics influence willingness to pay for organic orange juice.

DATA

•100 consumers in a food sensory lab
•Sampled organic and conventional orange juice (unlabeled, with random identifiers)
•Rated sensory characteristics of both juices
•Completed set of choice-based conjoint questions based on juice (identified by random identifier), production method, and price
•In conjoint, both juices were identified as organic and conventional.
•Order of product sampling and conjoint questions were varied to reduce potential bias.



SENSORY RESULTS:

Participants rated both products on a 9 point scale (with 1 being the worst and 9 being the best).
There were no significant differences in the ratings for Overall Appearance, Color, Overall Flavor, and Mouthfeel (texture).
The conventionally produced orange juice was rated significantly higher for sweetness at the 95% confidence level.

MODEL

$U(A)=\beta_1 price+ \beta_2 organic\ production\ method\ (OPM)+ \beta_3 organic\ sensory\ rating*OPM+ \beta_4 organic\ sensory\ rating*price+ \beta_5 conventional\ sensory\ rating*OPM+ \beta_6 conventional\ sensory\ rating*price+\beta_7 gender*OPM+ \beta_8 age*OPM+ B_9 race*OPM+ \beta_{10} ethnicity*OPM+ \beta_{11} income*OPM+ \beta_{12} gender*price+ \beta_{13} age*price+ \beta_{14} race*price+ \beta_{15} ethincity*price+ \beta_{16} income*price+ \beta_{17} expenditure*OPM+ \beta_{18} expenditure*price$

Results from logit estimation with selection of organic product as dependent variable.

Variable	Coefficient	Std. Error
Price	-0.757*	0.161
Organic Production Method (OPM)	2.410*	0.803
Sensory rating of organic product*OPM	-0.034**	0.020
Sensory rating of organic product *Price	0.013*	0.004
Sensory rating of conventional product*OPM	-0.018	0.017
Sensory rating of conventional product*Price	0.004	0.003
Gender *OPM	0.135	0.195
Age*OPM	-0.188	0.317
Race (Caucasian)*OPM	-0.816*	0.238
Ethnicity (Hispanic)*OPM	-0.630*	0.221
Income*OPM	0.690*	0.302
Gender*Price	-0.066	0.040
Age*Price	0.151*	0.066
Race (Caucasian) *Price	0.122*	0.471
Ethnicity (Hispanic) *Price	0.036	0.442
Income*Price	-0.238*	0.060
Percent spent on organic food*OPM	0.430	0.268
Percent spent on organic food*Price	0.083	0.051

Price premium for organic orange juice product based on different demographics. X indicates a characteristic was used to determine premium.

Age = over 30	Male	Caucasian	Hispanic	Income over $30,000	Spends 10% or more of food budget on organics	Price Premium
						$0.94
	x					$1.15
x	x					$0.86
x	x	x				-$0.39
x	x	x	x			-$1.36
x	x	x	x		x	-$0.70
x	x	x	x	x	x	$0.36
	x	x				-$0.10
x		x				-$0.60
		x	x	x		$1.03
x	x	x	x	x		-$0.30
x		x	x			-$1.56
		x	x			-$1.28
		x				-$0.31
x	x		x			$0.47
			x			-$0.02

RESULTS

•Price is significant and negative – as price increases, likelihood to pick the product decreases
•Production method is significant and positive, indicating that if the product is labeled as organic, the consumer is more willing to purchase the product.
• Interaction variables on the sensory characteristics of the organic products were significant, indicating that holding price or production method constant, consumers were more likely to choose the product if they rated the taste , texture, appearance and/or smell higher.
•Caucasians and Hispanics were less likely to select the organic product.
•Those with lower incomes and those below the age of 30 were less likely to choose the organic product

CONCLUSIONS:

•Price premiums were calculated using the following formula:
$WTP= -(\beta_2 +\beta_3 orate +\beta_5 crate +\beta_7 gender +\beta_8 age +\beta_9 white +\beta_{10} hisp +\beta_{11} inc +\beta_{12} genderprice +\beta_{13} ageprice+\beta_{17} expend) / (\beta_1 +\beta_4 +\beta_6 +\beta_{12} +\beta_{13} +\beta_{14} +\beta_{15} +\beta_{16} +\beta_{18})$, (the items in denominator will becomes zero with the corresponding demographic dummy being zero)
•The highest calculated premium was $1.15 for males, under the age of 30, who were neither Caucasian nor Hispanic, had income of less than $30,000 and did not currently spend 10% of their food budget on organics.
•The lowest calculated discount was $1.56, which would be needed to convince a female over the age of 30, who was Caucasian and Hispanic, had income less than $30,000 and did not spend 10% of their food budget on organics.