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# CONSUMER PREFERENCES FOR SWEETENERS ACROSS CULTURES

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## Motivation

- During the last decade the US government has signed various bilateral trade agreements with governments from sugar cane producer countries.
- Since the US is able to produce yellow corn at competitive prices in international markets, with Free Trade Agreements (FTA), the US will be exporting yellow corn to the other countries and importing sugar cane.



vs.



## Motivation

- Given the growing Trade Agreements in the last decades, it is always important to know if consumers are willing to accept different products.
- In order to determine if consumers from sugar-cane producing countries are willing to pay more for processed foods containing sugar cane instead of corn syrup, we conducted an experimental auction and tasting.



VS.



## Objective

- To analyze Latin consumer preferences for sweeteners by comparing processed food containing sugar cane vs corn syrup.
- To establish the price premium that consumer will be willing to pay for their preferences and how it differs across groups.



BEFORE AFTER

## Contributions of the study



- This is the first study related to the consumers' willingness to pay for sugar cane as a sweetener with a reference to Latin American culture.
- It will provide information to the food industry in Latin America about consumers' attitudes towards corn syrup as a substitute for sugar cane.

## Experimental Design

- We conducted an experimental auction in order to examine the Willingness To Pay to avoid corn syrup as sweetener in soft drinks.
- We had a blind panel test and experiment in Pullman, Washington with a population of 169 WSU students.
- We duplicated the blind panel test and experiment in Cali-Colombia, with a population of 213 UAO students.

## Experimental Design

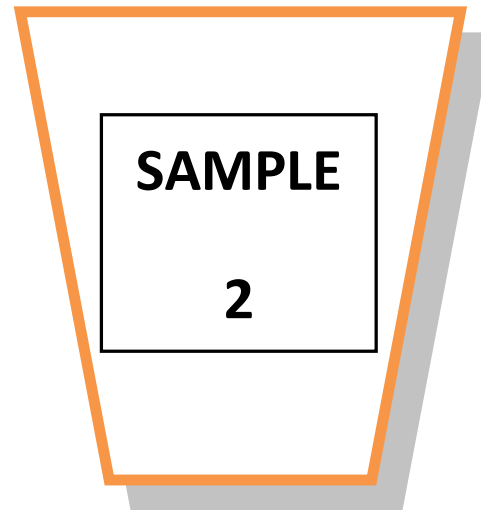
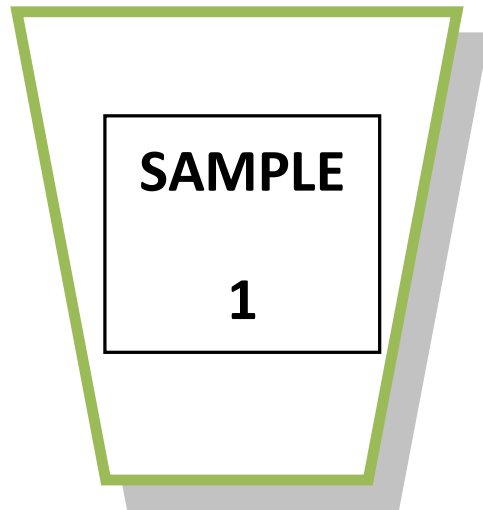
- In both locations, participants were given some instructions of the blind taste and experiment.
- They were informed that some of them could win the auction and would receive the product in exchange for the price.
- Participants completed a paper survey about themselves and their consumption habits after bids were submitted .



## Experimental Design

- We conducted a blind panel taste with a commercial soda (Coca-Cola) but one group sweetened with sugar cane and the other with corn syrup.
- To avoid brand association, we served the sodas in Dixie cups.

# Experimental Design



## Experimental Design

- In order to estimate WTP we chose to conduct an experimental auction given that we can use the real good and subjects get real money to get a closer approximation to the consumer behavior.
- We decided to conduct a BDM experimental auction in order to test the hypothesis that the consumption of sweetener is influenced by the individual's culture.

## Data

- Experiment: BDM auction mechanism

- Location                      Population

Pullman-WA	169
Cali-Colombia	213

## BDM auction

- Explained the BDM auction mechanism.
- Practice round with a practice item that was not binding.
- Tasted soda and answered questions.
- Participants placed bids for each 12oz containers of soda.

## BDM auction



## BDM auction

- A participant randomly chose a market price from a bag of chips for each soda.
- Another participant randomly chose a participant ID number from another bag of chips.
- If the randomly chosen market price was lower or equal than the bid of the randomly chosen participant, then the soda was sold to the participant at the market price.

if market price  $\leq$  bid, then buy

# BDM auction





# BDM auction



# Summary of Consumer Demographics

	Colombia	US	Total
Participants	213	169	382
Male	60%	43%	53%
Female	40%	57%	47%
Age	19	25	22

## Summary of Bids in Dollars

Mean	Colombia	US	Total
Sugar Cane	0.9365	0.8621	0.8904
Corn Syrup	0.8493	0.8479	0.8598
<b>Total</b>	0.8929	0.8550	0.8761

# Methodology

- OLS

$$B_i = \alpha + \beta X_i + \delta Z_{ico} + \gamma W_{ics} + \rho Z_{ico} W_{ics} + \varepsilon_i$$

$B_i$

Bid of participant i

$X_i$

Vector of explanatory variables

$Z_{ico}$

Country indicator variable

$W_{ics}$

Soda indicator variable

# Variables Correlation Matrix

	latino	male	age	colombia	sc	like	colsc
latino	1.00						
male	0.12	1.00					
age	-0.37	-0.03	1.00				
colombia	0.86	0.18	-0.46	1.00			
sc	0.05	0.02	-0.04	0.06	1.00		
like	0.06	0.09	-0.12	0.06	0.09	1.00	
colsc	0.52	0.12	-0.28	0.60	0.63	0.14	1.00

# Preliminary Results

Variables	Total	Sugar Cane	Corn Syrup
male	-0.1192** (0.0355)	-0.1354** (0.0473)	-0.1003*** (0.0540)
age	-0.0007 (0.0029)	-0.0012 (0.0039)	-0.0002 (0.0043)
latino	0.1649* (0.0392)	0.1529** (0.0533)	0.1748** (0.0587)
like	0.3558* (0.0359)	0.3692* (0.0476)	0.3408* (0.0559)
cons	0.7561* (0.0807)	0.7785* (0.1099)	0.7347* (0.1200)
Number obs.	760	406	354
R2	0.15	0.17	0.12

Note: Standard deviation is provided in parentheses. \*,\*\* and \*\*\* denote the significance level of 1%, 5% and 10% respectively.

## Conclusions

- In average bids for sugar cane sweetened soda are higher.
- Gender, ethnicity and likeness are statistically significant variables in our model.

# Thank you!

- Questions?



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