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Discrete Choice Analysis of Factors that Affect Sugar Sweetened Beverage Consumption of Young Adults in California's Central Valley.

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UNIVERSITY OF CALIFORNIA, MERCED

Discrete Choice Analysis of Factors that Affect Sugar Sweetened Beverage Consumption of  
Young Adults in California's Central Valley.

A Thesis submitted in partial satisfaction of the requirements for the degree of Master of  
Science

in

Public Health

by

Theresa M. Spezzano

Committee in charge:

Professor Paul Brown, Chair  
Professor Linda Cameron  
Assistant Professor Denise Payán

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The Thesis of Theresa Spezzano is approved, and it is acceptable  
in quality and form for publication on microfilm and electronically:

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University of California, Merced

2020

## Abstract

**Background and Objective:** Sugar-sweetened beverage (SSB) taxes have been increasing in popularity across the United States and have been implemented in some California cities. Studies have shown SSB taxes reduce the consumption of SSB but also increase the consumption of juice, milk and sugary sweets. Support for an SSB tax is influenced by various factors, including the proposed amount of the tax, how the tax is used and the demographics of the population. The purpose of this study is to examine attitudes towards SSB taxes among a predominantly young, Latino population in California.

**Method:** Discrete Choice Experiment (DCE). Attributes and levels were defined according to the findings of a literature review and focus groups. The DCE included five attributes and within each attribute were separate related choices. Data was analyzed using a conditional logistic regression model. Separate analyses were performed for low and high SSB consumers to determine if participants took into consideration different attributes when making decisions about what to drink.

**Results:** A total of n= 315 participated in the DCE survey. Overall, participants expressed a preference for water and juice compared to regular soda. The time it takes to get the beverage and price were important attributes which influence their beverage consumption decisions; they want convenience when getting their drinks and to pay less for them.

**Conclusion:** These data show that for those who are not yet replacing soda with water or juice they would convert easily. The high value these participants place on water may result in a higher reduction in caloric intake if the price to SSB is increased.

**Keywords:** sugar-sweetened beverage, SSB tax, discrete choice experiment, drink preferences

## Introduction

Recently, there has been an increased interest in taxing sugar-sweetened beverages (SSBs) to reduce . The primary objectives of a 'health tax' on SSB are to (1) reduce excessive consumption of SSB (Brownell & Farley, 2009); (2) increase awareness of the health hazards of SSB and (3) increase revenue for health-related interventions and reforms (Wright, Smith, & Hellowell, 2017). Sugar sweetened beverages include all beverages with added caloric sweeteners. SSB taxes are usually not applied to 100% juice, milk products, or artificially-sweetened beverages (DeChristopher, Uribarri, & Tucker, 2016; Hu, 2013; Jin et al., 2012; Malik et al., 2010; Powell & Han, 2013)

Wang et al. (2012) estimated that a health tax of 1¢/oz of SSBs could result in a reduction of new cases of type 2 diabetes by 2.6 percent and the prevalence of obesity by 1.5 percent. The outcome of these reductions being a health care savings of \$6.7 billion (Wang, Coxson, Shen, Goldman, & Bibbins-Domingo, 2012). A reduction in consumption of SSB has been shown to facilitate the decrease dental caries (Briggs et al., 2017). Several countries and local jurisdictions have already implemented SSB taxes and there is evidence of the early benefits of SSB taxes. In 2014, Mexico implemented a nationwide 1 peso per ounce excise tax on SSB, resulting in a 10% price increase for SSBs and 10.6% decrease in the quantity of SSB consumed (Colchero et al., 2015). The increase in price in soft drinks was associated with lower rates of soda consumption and a higher intake of water and milk, in addition to, sugary snacks. In a study of the Berkeley SSB tax, Silver et al. (2017) compared sales pre-taxation (before 1 January 2015) and first-year post- taxation (1 March 2015–29 February 2016); they found a 10.6% reduction in SSB consumption.

The amount of which the tax is passed on to the consumer plays a key role in the percent reduction of SSB consumption (Capacci, Allais, Bonnet, & Mazzocchi, 2016). In France, Berardi, Sevestre, Tépaut, & Vigneron (2016, Table 1) found price differences often exceeding 30% for the same product across retail markets even among stores that are owned by the same group. The pass-through amounts for soda ranged from 0.1 – 7.8 cents

per liter with an average of 3.63 cents per liter over the 9 months from August 2011–June 2012.

Support for an SSB tax is determined by population demographics and how the tax is used (Bitker, 2017; Bottemiller Evich, 2017; Curry et al., 2018; Dewey, 2017). Polls and survey research suggests SSB taxes are generally supported by the majority of the population. The strongest support being from those aged 18 – 24 and residents making less than the median income (Bottemiller Evich, 2017; Curry et al., 2018). In a study that surveyed 2,203 adults in Kansas state regarding support for healthy eating policies, a significant proportion of Kansas adults (40%) reported supporting an SSB tax (Curry et al., 2018). The city of Berkeley has a popular SSB tax that passed with 76.17% of the vote (Ballotpedia, 2014). This success has spurred the passage of SSB taxes into surrounding cities.

California has been working on policies to reduce SSB consumption incrementally since 1982 when the first sugar and SSB tax was introduced into the state legislator. A ban of soda sales in schools was implemented in California starting in July 2007 (Woodward-Lopez et al., 2010). Due to this ban, California students now entering their Freshman year of college have spent the majority of their school years under this policy which could result in the population of Californians aged 18 – 24 to have differing attitudes on SSB policies and consumption than youth in other states.

Researchers evaluating the first SSB tax in California, found Berkeley has 2 of the most important components for a successful SSB tax: (1) A large student population aged 18 – 24 and (2) a well-planned and allocated tax structure which benefits health programs funding nonprofits and community organizations according to Bitker (2017).

A factor that may influence popularity for a SSB tax consists of how the tax revenue is used. In Cook County, Illinois, the SSB tax was designed to cover a \$1.8 billion budget gap, and secondary justification was to improve public health by discouraging the consumption of beverages linked to obesity and other conditions. Within 2 months the tax was repealed due

to unpopularity, legal challenges, implementation glitches and a multimillion-dollar media battle between the soda industry and public health groups (Dewey, 2017).

Inconsistent experiences in implementing SSB taxes raises the question of under what conditions an SSB tax that was high enough to reduce consumption would be acceptable to the public. Previous research suggests that the factors that contribute to support include the size of the tax, the use of the funds, and the accessibility of non-taxed alternatives (Bitker, 2017; Silver et al., 2017). The elasticity of demand for SSBs is also likely to differ between those who are regular consumers of SSBs and those who are not. While these questions can be difficult to answer using field data, then can be examined using a discrete choice methodology.

Discrete choice experiments (DCE) are an essential tool in modeling individual behavior and understand people's preferences given a set of choices. These experiments have been used extensively in consumer research (Brazell et al., 2006) and in health contexts (Ryan & Gerard, 2003) to identify the relative strength of factors that influence decision making. DCE is based in random utility theory (RUT) and is consistent with Lancaster's economic theory of value (Lancaster, 1966). Using the RUT of choices, the decision maker is faced with a situation or set of alternatives and reveals something about their underlying preferences by the choice that he or she makes. The individual will make the choice that provides them the greatest utility (Greene, 2000). When price or some proxy of price is included as an attribute willingness to pay (WTP) can be indirectly estimated for both changes in individual attributes, as well as changes in any combination of attributes (Ryan & Gerard, 2003).

For the current context, a DCE would provide information on the importance to individuals of the factors associated with SSBs, including the amount of the tax, how successful the tax would be in reducing sugar consumption, and the use of the money. Previous studies have used data from the field. In this setting it is difficult to determine modifying factors individuals may consider when making their decisions to purchase a drink. Within the DCE framework factors that influence an individual's decision making can be identified and systematically varied through a set of options. Allowing us to deduce the weight or



importance individuals place on each factor at the time of purchase. This gives an indication of the factors that are important in reducing the consumption of SSB. Willingness to pay (WTP) estimates can be used to determine changes in individual attitudes towards different attributes given within the DCE and their overall attitudes about the consumption of SSB.

The purpose of this study is to examine attitudes and decision making behavior related to SSBs and SSB taxes among a predominantly young, Latino population in the San Joaquin Valley of California. In order to make the study relevant to the participants, students and staff at a residential university were chosen as the population of interest. Thinking about instituting an SSB in a residential university setting has a number of challenges, such as many students using meal plans, but it has the advantage of being somewhat controlled environment in which there are not easily available options for beverages nearby (the closest store being 5 miles away) and there are options for the use of the funds that might reasonably be seen to benefit them. Thus, the study seeks to identify how individuals make decisions about SSB purchases, including the amount of an SSB tax and the use of the funds from any such tax.

## **Methods**

### ***Setting and Participants***

Participants were students and staff at a large public university in the San Joaquin Valley in California.

Data was collected between X and X through a convenience sampling strategy. University staff and students were recruited to participate in either the focus groups or the discrete choice experiment (DCE). Focus group participants were recruited via on-campus notices and during an end of semester campus outreach event. DCE participants were recruited via fliers, from a booth on campus, and through the university's SONA system aimed at recruiting participants for behavioral studies. Participants either received a \$15.00 gift card or course credit for taking a survey through the SONA system.

### *Selection of DCE attributes*

A list of the attributes can be found in table 3. Attributes for the DCE were identified through a systematic literature review and focus groups. The literature review consisted of a predetermined structure of content themes. The main themes related to SSB taxes included:

- Health effects related to SSB intake
- Effects of SSB and health taxes on health outcomes
- Economic impacts of health taxes
- Public opinion of SSB and health taxes
- Current and historic health tax legislation and policies

Often each of the themes consisted of different data bases and terms. The general keywords used for the searches were; sugary beverage tax, sugar sweetened beverage tax, soda tax, drink tax, health tax and sugary drink tax. The data bases used for all of the themes were Melvyl and Google Scholar. Literature reviews and bibliographies from relevant studies were used to expand literature searches.

Additional data bases were used for the 2 themes related to the health effects linked to SSBs included, PubMed, Medline and Embase. The time period of the literature review focused between 2000 – 2018. This was determined through meta analyses articles (Forshee, Anderson, & Storey, 2008; Wang, Bleich, & Gortmaker, 2008a). From these articles it was determined that these dates would capture all of the latest research linking SSB intake to weight gain and include current metabolic research. Additional keywords include; health, obesity, type 2 diabetes, and metabolic disorders.

Economic themes included the databases of EconLit (ProQuest) and JSTOR. The majority of the studies used in the review were from 2006 – 2018. The SSB taxes are relatively new and studies of the economic impact are still limited. Key studies for economic theory date back to 1966 and are included in the review. Additional keywords included; economic impacts, economics, cost(s), and economic analysis.

The primary data sources for public opinion, legislation and policy analysis were California legislative bills, Lexus Nexus, newspaper articles and social media platforms in addition to PubMed. The data collection period encompassed 1982 – 2018. The primary focus time period for the sugary drink tax legislation was 2002 – 2018. This is the time period where most of state level bills were introduced. In addition, searches of local legislative bills, newspaper and media websites were followed for any updated legislation that may have taken place since publication. Additional keywords included; opinion, how soda taxes funds are used, soda tax funds, support of soda tax, and passaged of soda tax. Tax was left in as a filter for all searches and often a filter was added for California if searches pulled more than 20 articles from other states.

### ***Data Collection***

Data was collected using a focus group guide and a DCE questionnaire. A focus group guide was developed by the investigators. The guide was reviewed and revised by experts in health economics, psychology and nutrition. After being reviewed, the guide was pilot tested with students and staff prior to the final version. The interview guide can be found in the appendix.

A total of three focus groups that lasted approximately 60 minutes each were convened on-campus with students. Groups were audio recorded and notes were taken that recorded questions and reactions of the participants and any written materials that were used developed during the sessions.

For the DCE participants were given a 3-part survey:

- Part 1. The DCE
- Part 2. Consumption Questions based on the food behavior check list questions.
- Part 3. Demographics data.

The survey began with general information about SSB policies and consumption. Subjects then had the methodology explained and were presented with an example of a DCE survey. The DCE involved asking participants to choose between two hypothetical testing alternatives described by a set of five attributes; drink, sugar / calorie content, the amount of the tax / fee, how the funds would be used and the time it would take to get the drink (Table 4). Within the attributes for water and diet soda the attribute for sugar was held at 0. The attribute for tax/fee was allowed to vary across all drinks in order to run an analysis of WTP for these variables. The DCE consisted of 20 versions; 10 using tax to describe cost increases and 10 using fee to describe cost increases; all other wording was the same. The levels of the attributes were varied systematically using Sawtooth Software Version 8 to design a balanced and efficient set of 16 choice tasks (with 1 dominant task). In each of the 16 choice sets, respondents were given the option of choosing Option 1 or Option 2 (Tables 3 and 4).

The DCE and consumption surveys were created using Qualtrics Survey Software (2018). The survey was administered online. The data was managed through the Qualtrics software system. All participant information was hidden.

#### *Informed Consent*

This study was approved by the Institutional Review Board. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Written informed consent was obtained from all participants before being included in the study.

### ***Data Analysis***

All analyses were performed using Stata version 13. Descriptive statistics, including means and proportions, were computed for all demographic measures, including age, gender, ethnicity, education, and household income. The discrete-choice data were first analyzed using a conditional logistic regression model which produces utility coefficients for each level of each attribute. The first analysis modeled all attributes as categorical variables. The second analysis was identical to the first, with the exception that it modeled sugar, tax / fee and time as linearized continuous variables. Separate analyses were performed for low and high SSB consumers to determine if participants took into consideration different attributes when making decisions about what to drink and if these different attitudes would result in different WTP estimates. Participants were separated into high and low categories by their response to a survey question 'How many sugary drinks do you drink in 1 day?' if they answered 3 or more, they were determined to be high SSB consumers. Those who consume 3 or more SSB / day was determined to be high SSB due to the calorie intake increased from 250 kcal for 1 soda to 750 kcal for 3 which equates to 38% of the total recommended calories in a 2000 calorie a day diet. Most research recommends 0 – 1 SSB per day (Wang, Bleich, & Gortmaker, 2008b) Regression coefficients (utility coefficients) from the second analysis were transformed into WTP estimates using a linearized cost coefficient for the full sample and separately for high SSB drinkers and low SSB drinkers.

### **Results**

A total of 315 students participated (N=315) in the DCE survey, 231 females, 83 males and 1 other. The majority of participants were female (73.33%), Hispanic (59.69%) and age 19 (33.02%). Two-hundred nineteen or 70% of the participants were identified as high SSB consumers. Of those 157 were female and 61 were males. 41.59% of the entire population were high SSB consumers between the ages of 18 – 19. Rates of SSB consumption seems to decrease with age. Refer to Table 2 for participant socio-demographics presented by SSB consumption (high and low).

### ***DCE Results***

When linearized, the data shows participants preferred water and juice compared to regular soda ( $p < 0.05$ , Table 5). They also expressed a preference for less sugar ( $p < 0.05$ ) in their drinks. Overall, participants expressed a preference to not pay a tax. They would prefer the funds go into increased healthy foods on campus, a farmers' market on campus, health center improvements or subsidized gym memberships ( $p < 0.05$ , Table 5). The time it takes to get the drink and price are important to them, they want to take less time getting their drinks and pay less for them ( $p < 0.05$ , Table 5).

Among low SSB consumers, water and juice were preferred to soda ( $p < 0.05$ , Table 5). The choice of diet soda was not significant. Added sugar was not a favored preference ( $p < 0.05$ ) when compared to options without sugar for this group. Given the choice of the funds from a SSB tax or fee going to the general fund, healthy food, a farmers' market on campus, health center improvements or gym memberships, they chose the funds not to go to healthy foods on campus or gym memberships ( $p < 0.05$ ). The other choices of how the funds will be used were also negative but they were not significant. They want it to take less time to get their drinks ( $p < 0.05$ ) and they do not want to pay more for their drinks ( $p < 0.05$ ).

Among high SSB consumers, we similarly found a preference for water and juice to soda ( $p < 0.05$ , Table 5). In contrast to the low SSB consumers, their attitude toward diet soda is significantly negative ( $p < 0.05$ ) when compared to soda. As with low SSB consumers added sugar is not favored ( $p < 0.05$ ). These participants significantly chose the funds go to the general fund over going to a farmers' market, health center improvements or gym memberships ( $p < 0.05$ , Table 5). The least amount of time to get the drink and the less the cost the better ( $p < 0.05$ ).

### ***Willingness to pay***

When the data is transformed into WTP we find participants get \$1.76 more joy from water than soda and 74¢ more for juice than soda (Table 6). However, they value regular soda 34¢ more than diet soda (Table 6). Participants get 4.3¢ less enjoyment per teaspoon of added sugar for which is shown in the negative WTP for sugar and by the increase in their willingness

to pay estimate for water (Table 6). When comparing how the funds from the tax should be used, overall individuals do not receive more pleasure if the funds go toward increasing healthy food on campus, a farmer's market, improvements to the health center or gym memberships (Table 6). For each additional minute it takes to get a drink, participants value the drink are approximately 7¢ less (Table 6).

Low SSB consumers valued all beverages more than soda (Table 6). However, they showed a strong preference for water and received the equivalent of \$3.36 more pleasure from water than soda. They also enjoyed juice \$1.36 more than soda. They received 5.7¢ less pleasure from drinks per teaspoon of sugar (Table 6). These participants did not receive enjoyment from the funds going to increasing healthy food on campus, a farmers' market, health center improvements or gym memberships. The time it takes to get a drink is important to this group they receive 7¢ less enjoyment for every minute it takes to get a drink (Table 6).

High SSB consumers show a preference for water and juice over soda. They receive \$1.26 more joy from water and 54¢ more for juice than soda. They do not like diet soda and will have 50¢ less enjoyment from their drink if it is diet. Even though this is a high SSB consumer group they still value added sugar 3.8¢ less per teaspoon. Where the funds from a tax go does not entice them to happily pay more for their drinks (Table 6). Time important to this group, they receive 6¢ less joy for every minute it takes to get a drink (Table 6).

## Discussion

The purpose of this study was to fill a knowledge gap in examining attitudes and decision making behaviors related to SSB taxes among young individuals who have been exposed to SSB bans in schools. This study assesses the factors that influence attitudes for SSB decision making among a predominantly young, Latino population in the San Joaquin Valley of California. The factors this population finds most important are the convenience in getting a drink and lower sugar. Through the DCE we found this population would prefer to spend less for their drinks regardless of how the funds are spent. We predicted support would be similar to what has been found in other areas throughout the United States which show support at 57% nationwide, 50% in Mid-Atlantic States, 40% in Kansas (Bottemiller Evich, 2017; Curry et al., 2018; Donaldson et al., 2015). In a survey given at the end of the DCE, 52% of participants support a tax and 67% say it would reduce their consumption; which is supported in the literature (Capacci, Allais, Bonnet, & Mazzocchi, 2016; Colchero, Salgado, Unar-Munguía, Hernández-Ávila, & Rivera-Dommarco, 2015). The DCE also supports the replacement of soda with water and juice. Water is the most popular drink when given the choice between soda, diet soda or juice. Among these participants low SSB drinkers enjoy water up to \$3.36 more and \$1.26 more for high SSB drinkers. These data show that for those who are not yet replacing soda with water or juice they would convert easily. This would make a SSB tax highly successful. Wang et al. (2012) estimated 40% of the reduction in soda purchases from a SSB tax will be replaced by equivalent caloric intake from other beverages and foods. This was also found in Mexico by Colchero et al. (2015). Within this population the replacement of high caloric foods and drinks may differ because of the high value they place on water. If this population replaces soda with water at higher rates than found in other studies it could result in greater impacts on population body weight, and more diabetes risk reduction. In addition, looking at the demographic data from sample, as they get older, they seem to naturally reduce their SSB intake (table 2). The majority of this population already have a negative attitude toward soda and positive attitude toward water and juice. This attitude about soda may be due to the reduction of sodas through school and social campaigns these students have been the target of throughout their school careers. In California soda was banned from K – 12 school campuses in 2009. Students within this study



would have been exposed to the anti-soda campaigns for the majority of their school lives. This may have some effect on our findings.

### **Limitations**

There is a discrepancy in the linear and non-linear sugar content data evaluations. We believe this may be coming from a possible confusion between drink choice and sugar content. In the community survey we will not use sugar content as an independent choice separate from the drink. Although participants were told the purpose of this study was just to determine how they were making decisions around the drinks they chose on campus and there were no right or wrong answers, some of may have selected healthier options in the DCE than they would normally. Because students were able to self-select to take the online survey, our sample skewed being majority female and of University students. This could give us results that are different than in a natural setting. The choices were also limited to soda, diet soda, juice and water. There may have been differences if we included sports drinks, coffee drinks and energy drinks. For future surveys of we will need to limit participation to be more representative of the population and increase the choice of drinks. We will also need to word the questions determining high and low SSB consumers more clearly. It is possible that participants may have included juice in their personal definition of sugary drinks.

Table 1. Implemented sugar sweetened beverage taxes by place with outcome and current status.

Place	Date Implemented	Amount of Tax	Main Outcome	Current Status
<b>United States</b>				
Berkeley, CA	January 2014	1¢ / Fl. Oz	21% Decrease in consumption	Active
San Francisco, CA	November 2016	1¢ / Fl. oz	No Data	Active
Oakland, CA	November 2016	1¢ / Fl. oz	No Data	Active
Albany CA	April 2017	1¢ / Fl. oz	No Data	Active
Boulder, CO	July 2017	2¢ / Fl. oz		
Philadelphia, PA	January 2017	1.5¢ / Fl. oz	20% Reduction	Active
Cook County, IL	November 2016	1¢ / Fl. Oz	Unpopular	Repealed October 2017
Seattle, WA	January 2018	1.75¢ / Fl. Oz	No Data	Active
<b>International</b>				
Denmark	1930s	1.64 Danish krone per liter	Unpopular	Repealed 2014
France	2012	0.0716 Euro / litre	Decrease of 9 centiliters per week per person	Active
Hungary	September 2011	4-cent tax on all foods and drinks that contain large quantities of sugar and salt.	22% Energy drink reduction 19% SSB reduction	Active
Ireland	May 2018	30 cent per litre	No data	Active
Mexico	October 2013	10%	10.6% SSB reduction	Active
Norway	1922 – all refined sugar 2017 – Increased on SSB	42%		Active
Philippines	December 2017	₱12 per liter	No Data	Active
South Africa	April 2018	2.1 cents per gram of sugar		
United Arab Emirates	October 2017	50% on SSB 100% on energy drinks	No Data	Active
United Kingdom	April 2018	18p per litre of all SSB 24p per litre if sugar is above 8g per 100 millilitres	No Data	Active

**Table 2. Participant demographics of high (n=219) and low SSB (n=96) consumers. Total n=315.**

Variables	Freq. N	% of entire N
<b>High SSB Consumers</b>		
<b>Age</b>		
18 – 19	131	41.59
20 – 21	71	22.54
22 – 23	12	3.81
24 – 25	5	1.59
<b>Gender</b>		
Male	61	19.37
Female	157	49.84
Other	1	0.32
<b>Ethnicity</b>		
Am. Indian or Alaska Native	1	.32
Asian	37	11.75
Black	15	4.76
Hispanic	140	44.44
Middle Eastern	3	.95
Native Hawaiian or Pacific Islander	3	.95
White	18	5.71
Mixed	1	.32
Other	1	.32
<b>Low SSB Consumers</b>		
<b>Age</b>		
18 – 19	43	13.65
20 – 21	38	12.06
22 – 23	54	17.14
24 – 25	4	1.27
<b>Gender</b>		
Male	22	7.00
Female	74	23.49
Other	--	--
<b>Ethnicity</b>		
Am. Indian or Alaska Native	--	--
Asian	29	9.20
Black	6	1.90
Hispanic	48	15.24
Middle Eastern	--	--
Native Hawaiian or Pacific Islander	--	--
White	12	3.81
Mixed	--	--

Table 3. Attributes for choices

Attributes	1	2	3	4	5
<b>Drink</b>	Soda	Diet Soda	Juice	Water	N/A
<b>Sugar/Calories</b>	0 tsp / 0 cal	6 tsp / 96 cal	16 tsp / 256 cal	29 tsp / 464 cal	N/A
<b>Tax/Fee</b>	\$0	15¢	50¢	\$1.00	N/A
<b>How funds will be used</b>	Reduced cost of healthy foods and water	Farmer's Market on campus	Health Center improvements	Reduced cost of gym memberships	General Funds
<b>Time</b>	0-5 min	10 min	15 min	20 min	30 min

Table 4. Example of DCE scenario

	Option 1	Option 2
<b>Drink</b>	Soda	Water
<b>Sugar</b>	6tsp / 96 cal	0 tsp / cal
<b>Tax</b>	\$1.00	50 ¢
<b>How Funds Will Be Used</b>	Reduced Cost of Gym Membership	Health Center Improvements
<b>Time</b>	10 min	15 min
<b>Which do you prefer?</b>	<input type="radio"/> Option 1	<input type="radio"/> Option 2

Table 5. Non-linear and linear conditional logistic regressions for all participants and high and low SSB consumers.

		All participants Non-linear (SE)	All participants Linear (SE)	Low SSB Consumers (SE)	High SSB Consumers (SE)
Drink	Soda	Omitted	Omitted	Omitted	Omitted
	Diet	0.47	-0.20*	0.07	-0.31*
		SE 0.27	0.07	0.14	0.09
	Juice	0.44*	0.45*	0.75*	0.34*
		SE 0.05	0.05	0.10	0.06
	Water	1.74*	1.06*	1.86*	0.78*
	SE 0.28	0.08	0.16	0.09	
Sugar / Calories	0 tsp / 0 cal	Omitted			
	6 tsp / 96 cal	0.56*			
		SE 0.27			
	16 tsp / 256 cal	0.25			
		SE 0.27			
	29 tsp / 464 cal	-0.06			
		SE 0.27			
Linear		-0.002*	-0.00188*	-0.0014*	
	SE		0.0002	0.00031	0.0002
How tax money will be used	General Funds Increase healthy food	Omitted	Omitted	Omitted	Omitted
		-0.17*	-0.17*	-0.29*	-0.13
		SE 0.065	0.06	0.12	0.08
	Farmers market on campus	-0.18*	-0.17*	-0.15	-0.18*
		SE 0.06	0.06	0.12	0.73
	Health center improvements	-0.35*	-0.35*	-0.24	-0.39*
		SE 0.07	0.07	0.13	0.08
Gym memberships	-0.30*	-0.27*	-0.29*	-0.27*	
	SE 0.064	0.06	0.12	0.074	

\*  $p < 0.05$

Table 5 (cont). Non-linear and linear conditional logistic regressions for all participants and high and low SSB consumers.

		All participants Non-linear (SE)	All participants Linear (SE)	Low SSB Consumers (SE)	High SSB Consumers (SE)
Time	0 – 5 min	Omitted			
	10 min	-0.33*			
		SE 0.07			
	15 min	-0.45*			
		SE 0.07			
	20 min	-0.65*			
		SE 0.06			
	30 min	-1.02*			
		SE 0.07			
		Linear		-0.04*	-0.04*
	SE		0.00	0.00	0.00
Tax / Fee	0	Omitted			
	15¢	-0.21*			
		SE 0.07			
	50¢	-0.34*			
		SE 0.07			
	\$1.00	-0.66*			
		SE 0.07			
	Linear		-0.60*	-0.56*	-0.62*
	SE		0.06	0.12	0.07

\*  $p < 0.05$

Table 6. Willingness to pay estimates for all participants, high and low SSB consumers

		All participants	Low SSB consumers	High SSB consumers
Drink	Soda			
	Diet	\$ (0.34)	\$ 0.12	\$ (0.50)
	Juice	\$ 0.74	\$ 1.36	\$ 0.54
	Water	\$ 1.76	\$ 3.36	\$ 1.26
Sugar / Calories	0 tsp / 0 cal			
	6 tsp / 96 cal			
	16 tsp / 256 cal			
	29 tsp / 464 cal			
	Linear	\$ (0.26)	\$ (0.34)	\$ (0.23)
How tax money will be used	General Funds			
	Increase healthy food	\$ (0.29)	\$ (0.52)	\$ (0.21)
	Farmers market on campus	\$ (0.28)	\$ (0.27)	\$ (0.29)
	Health center improvements	\$ (0.58)	\$ (0.44)	\$ (0.63)
	Gym memberships	\$ (0.46)	\$ (0.53)	\$ (0.44)
Time	0 – 5 min			
	10 min			
	15 min			
	20 min			
	30 min			
	Linear	\$ (0.07)	\$ (0.07)	\$ (0.06)

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