AN EXPERIMENT ON THE DIVERGENCE IN

CONSUMER AND VOTING BEHAVIOR WITH

APPLICATION TO CAGE VS. CAGE-FREE EGGS

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Abstract:

A majority of voters in several states have voted in favor of eliminating certain poultry and livestock products from being available in the market place. At the same time, the majority of consumers in these states regularly purchase products that employ such production practices. This research examines why individuals sometimes choose to vote in favor of ballot initiatives which result in banning products they regularly purchase, a phenomenon called the vote-buy gap. In order to detect and determine the vote-buy gap, a real-food, real-money experiment was conducted. Respondents first made a shopping choice between snack options, some of which included eggs from caged hens as an ingredient. After the snack selection was made, participants then voted on a proposition to ban snack options that included shelled eggs from caged hens. Results support the *Vote-Buy Gap Hypothesis* and indicate that the vote-buy gap was present in the experiment: in the control treatment approximately 80% of the individuals who chose snacks with caged eggs in their shopping decision also voted in favor of banning snacks with cage eggs. This experiment is the first to replicate the vote-buy gap in an experimental lab setting. A number of alternative treatments were employed to test several other hypotheses related to the underlying causes of the vote-buy gap, but the data failed to provide strong support for any of the hypotheses.

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CHAPTER I

INTRODUCTION

California implemented the *Prevention of Farm Animal Cruelty Act*, also known as Proposition 2

along with an additional state law on January 1, 2015, prohibiting the production and sale of

shelled eggs from hens housed in battery cages. Although 63.5% of votes were in support of ban,

90% of eggs purchased in California did not comply with the standards prior to the ban (Chang,

Lusk and Norwood 2010; Bovay and Sumner 2013; Smithson et al., 2014). Why did Californians

vote in a manner that did not reflect their purchasing behavior?

After passage of Proposition 2, numerous producers have had to adopt more costly

production practices. Specifically, Proposition 2 has forced many producers to convert from cage

egg production (eggs produced from hens housed in battery cages) to more costly production

practices utilizing larger or no cages at all. Sumner et al. (2008) estimated implementation of

alternative production systems have at least 20% higher production costs; subsequently,

increasing retail egg prices at least 25% (Sumner et al. 2008). If individuals were willing to pay

the increased retail price of eggs, accrued as a result of producers using more costly production

practices, this would not be as great a concern to egg producers. However, although the majority

of California voters supported Proposition 2, most consumers have expressed that they are not willing to pay for the now higher priced eggs. Therefore, resulting in a loss of consumers in the egg market and creating a costly, unfunded mandate to producers (Allendar and Richards 2010).

Passing legislation of this nature could be financially costly for many consumers, who prior to the passing of Proposition 2 could afford to purchase eggs. As a result of the increase in egg prices, some consumers may no longer be willing or able to purchase such products. Identifying distinct influences that cause individuals to vote in a different manner than their purchases is important for both consumers and producers of controversial agricultural production practices. Voting in favor of legislation regarding controversial agricultural production practices, which is inconsistent with consumer purchasing behavior, has resulted in higher costs to producers and an increase in retail prices for the consumers (Allendar and Richards 2010; Malone and Lusk 2016; Mullaly and Lusk 2016). Therefore, the primary purpose of this research is to determine why the majority of individuals vote in favor of banning controversial agricultural production practices, when the majority of consumers regularly purchase products in the marketplace procured from these controversial agricultural production practices.

In order to accomplish the primary objective, an experiment was conducted using foods made with cage and cage free eggs to test several hypotheses about the drivers of the gap between voting and buying behavior. Six specific objectives of the study are to: (1) determine if a vote-buy gap can be replicated in an experimental lab setting, (2) determine how voting decisions to ban cage produced eggs fluctuate with varying group sizes, (3) determine market-based preferences for products made with cage and cage-free produced eggs, (4) determine how voting and purchasing decisions differ with knowledge of other individuals' decisions, (5) determine how "non-buyers" vote on a ballot initiative to ban cage produced eggs, and (6) identify individual characteristics (e.g. socioeconomic status, demographics, political affiliation) which correlate with the gap between vote and purchase decisions.

CHAPTER II

LITERATURE REVIEW

Influence of Advocacy Groups

In recent years, advocacy groups' influential capabilities have successfully brought about ballot

initiatives promoting animal welfare onto various states' ballot sheets. Various advocacy groups

and organizations, such as the Humane Society of the United States (HSUS), are key players in

gaining public attention on issues concerning animal welfare.

These various advocacy groups and organizations gain public attention on animal welfare

issues by taking advantage of public sentiment towards the treatment of animals in agricultural

production practices. The efforts have led to public support for ballot initiatives to improve

animal welfare. Support for such ballot initiatives is accomplished through various media outlets

such as the use of negative campaign advertisements, as seen on television and various websites,

which depict the mistreatment of animals in today's current agricultural production practices.

Several states, such as Florida, Arizona, and California, have held ballot initiatives banning

certain housing practices thought to be detrimental to farm animal welfare. These three states

have all enacted laws which ban battery cages and/or gestations crates in the egg and pork

production industries (Tonsor, Wolf and Olynk 2009; Smithson et al. 2014). Similar initiatives concerning animal welfare, such as the use of battery cages for housing hens, and the confinement of hogs and veal using gestation crates, have been introduced in various states such as Colorado, Ohio, Oregon, and Michigan. As a result, animal welfare initiatives have caused many producers to alter their production practices (Tonsor, Wolf and Olynk 2009; The Wall Street Journal 2013; Malone and Lusk 2016). Although residents of these states voted in support of various animal welfare initiatives, implementation of initiatives led to the removal of items many consumers regularly purchase in the marketplace (Bovay and Sumner 2013).

Among the previously listed states, where initiatives concerning animal welfare were enacted, California's Proposition 2 received substantial public attention. According to Norwood and Lusk (2011), Proposition 2 was influential for four main reasons. First, Proposition 2 gathered substantially more public attention than the typical agricultural issue. Second, California has the largest agricultural output – in terms of dollar value – than any other state and is the fifth largest producer of eggs in the United States. Third, California is a "trend-setting" state. Once certain regulations are implemented in California, those regulations have the tendency to be adopted by other states as well. Finally, the percentage of support of Proposition 2 was much larger than that of opposition. Approximately two-thirds of the voters in California voted in support of the ballot initiative (Norwood and Lusk 2011).

Although the majority of consumers in the United States continue to regularly purchase eggs from cage production practices, an increase has been observed in the demand for specialty eggs from alternative production practices. These alternative production practices comply with rules and regulations of the various animal welfare ballot initiatives. Consumer demand for specialty eggs produced using alternative practices have increased by reason of animal welfare concerns, food safety issues, and environmental concerns - even if the particular state doesn't enforce such laws (Von Borell and Sorensen 2004).

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Specifically, observing alternative egg production, these diversified specialty eggs span from Omega-3 enriched, cage-free, organic, and free-range eggs. Chang, Lusk, and Norwood (2010) conducted an analysis using retail scanner data from two regional markets in the United States in order to determine which egg attributes are most desirable to consumers. The two regional markets observed were that of San Francisco/Oakland, California and Dallas/Fort Worth, Texas areas. Based on their estimates 42% and 36% of the cage-free premium and organic premium price respectively, can be attributed to the color of the egg being brown rather than the type of production practice used. Eggs that were higher in Omega-3 and advertised to have health benefits were shown to have a 63.7% price premium. When combined with organic production practice, shown to have approximately an 85% premium over conventional eggs, the price premium was shown to be about 103% price premium (Chang, Lusk and Norwood 2010).

Despite the fact that the market for specialty eggs is increasing, and the estimated price premiums were less costly in areas that recently banned battery cage egg production, specialty eggs make up a very small proportion of the market share. Only 10% and 5% of consumers in California and the United States respectively, display a willingness-to-pay (WTP) for the higher price premiums of alternative, or specialty eggs (Allender and Richards 2010; Chang, Lusk and Norwood 2010).

Bans Implemented in States

In November of 2008, California passed *Prevention of Farm Animal Cruelty Act,* more commonly recognized as Proposition 2. The ballot initiative passed with approximately 63.5% of Californians voting in support of Proposition 2. As a result, by January 1, 2015, producers in the poultry, veal, and hog industries had to adjust their previous production practices to adhere to the standards of the *Prevention of Farm Animal Cruelty Act*. Thus, allowing producers roughly seven years to convert to different production practice systems that abide by the new rules and

regulations. The standards for the *Prevention of Farm Animal Cruelty Act* California producers must now adhere to is stated as follows:

> Standards for Confining Farm Animals Initiative Statue – Requires that calves raised for veal, egg-laying hens and pregnant pigs be confined only in ways that allow these animals to lie down, stand up, fully extend their limbs and turn around freely. Exceptions made for transportation, rodeos, fairs, 4-H programs, lawful slaughter, research and veterinary purposes. Provides misdemeanor penalties, including a fine not to exceed $1,000 and/or imprisonment in jail for up to 180 days (Secretary of State, California, 2008).

As a result of passing Proposition 2, hens that were once kept confined in battery cages are now housed in larger cages – which adhere to such standards, and in some instances producers have converted to cage-free barns (Association of California Egg Farmers 2011). Despite the fact that the new regulations and standards implemented have increased housing space, and importantly to the voters an overall increase in hens' animal welfare, the new standards for the egg production systems have been shown to be more costly to producers. Due to rising cost in egg production, consumers will subsequently observe a rise in egg prices. Concerns of consumers not willing to pay for the rise in egg prices is a major concern in the egg industry.

By means of this concern, prior the *Prevention of Farm Animal Cruelty Act* mandates, Allendar and Richards (2010) conducted an *ex-ante* study examining consumers' WTP for cage-free eggs and compare the implied premium production cost increase when observing possible change in consumer surplus. Using household purchase data over a span of 2 years, a logistic model was created in order to predict consumers' WTP for the increase in egg prices. As a result, the estimated average WTP was $0.524 per dozen above the conventional egg price. From this study it was estimated by a large majority of about 79.37% of households would not be willing to

pay higher priced premiums for eggs and consequentially observe an implied welfare loss of $106 million, assuming a 20% increase in the retail price of eggs (Allendar and Richards 2010).

The compensating variation of $106 million from the Allendar and Richards (2010) study was similar to the findings of Mullaly and Lusk's (2016) *ex-post* analysis, which concluded consumer's equivalent variation by the households in California to be $105 million. Mullaly and Lusk (2016) examined Nielsen retail scanner data, which contains 90% of market data, from three California and three non-California cities. The three California cities used were Los Angeles, San Francisco, and San Diego; the three non-California cities used were Chicago, Phoenix, and Salt Lake City/Boise. Using these various cities, regression models comparing the cost increase of eggs due to animal welfare laws (using California cities) vs. the costs of non-animal welfare cities (using non-California cities) were created. Results from this analysis indicated California cities were shown to have a 22% cost increase per dozen eggs, as a result of animal welfare laws implemented. Subsequently, over a sixteen week period, resulting in a 7.9% loss of consumption of eggs and a 12% increase to the value of sales (Mullaly and Lusk 2016).

Similarly, another *ex-post* analysis conducted by Malone and Lusk (2016) comparing California to several states without animal welfare laws, indicated for every 1% increase in price, a decrease of sales by approximately 2.7 to 8% shown. Thus, implementation of Proposition 2 creates a decrease of quantity demanded ranging from 2.71 to18.78%. Overall, subject to the method and model specification used, Malone and Lusk (2015) have estimated a cost increase to California consumers ranging anywhere from $0.48 to $1.08 per dozen eggs (Malone and Lusk 2016; Mullaly and Lusk 2016).

The increase in cost, due to animal welfare laws, have been projected to have a major impact on individuals with low income and/or households containing 5 or more members (Allendar and Richards 2010). Allendar and Richards (2010) observed as income level decreases

and/or number of individuals per household increases, consumers' WTP decreases as well. Using an ANOVA model to test the sample means, individuals with less than $30,000 in annual income were not willing to pay more than about $1.02 for a dozen eggs. Thus, due to household size and/or income less than $30,000 the results indicate that approximately 79% of California households would choose not to purchase cage-free eggs (Allendar and Richards 2010).

Due to the increase in egg prices, it was suggested that consumers in lower socioeconomic classes would have to spend a greater percentage of their income to purchase eggs produced in California. As a result, it was presumed many producers would lose business to the out-of-state egg producers importing less costly shelled eggs from caged hens into California.

With concerns of less costly shelled eggs imported from out of state, where cage production practices are still allowed, California egg producers joined with several animal welfare advocate groups to implement the accessory bill AB-1437. Essentially, AB-1437 prevents cheaper imported shelled eggs from other states from taking over the market (Malone and Lusk 2016); requiring all shelled eggs imported into California must abide by the standards of California laws in respects to the poultry and hog industry (Assembly Committee on Agriculture 2014). Jared Huffman, California Assemblyman at the time, constructed bill AB-1437 and in July of 2010, previous California Governor Arnold Schwarzenegger signed bill AB-1437 into law (Los Angeles Times 2010; Official California Legislative Information 2010). The law has been challenged by other states as inconsistent with the interstate commerce clause, but attempts to nullify the law have been unsuccessful.

Although bill AB-1437 was enacted into law, eliminating the possibility of out-of-state egg producers having the market advantage over California egg producers, there are chances some California egg producers will relocate to other states or even seize production (Official California Legislative Information 2010). Realization of this possibility, Republican state Senator

Tim Corder of Idaho, has pressed to introduce legislation in order to make Idaho a sought after, egg production friendly, location for California egg producers wishing to relocate. Idaho is not the only state looking to attract California egg producers. Other states' poultry industries, such as Georgia and Nevada, have also attempted to attract California egg producers in hopes of increasing economic development in their poultry industries. In the instance California egg producers decide to move their business out-of-state or even close, the once fifth ranking state in egg production will experience a drastic decrease in production, tax revenue, and a large loss of jobs for California residents involved in egg production (Tonsor, Wolf, and Olynk. 2009; Wall Street Journal 2010).

In November of 2002, residents of Florida voted to ban the use of gestation crates in the hog industry. Results of the vote outcome indicated that 55% of the residents in Florida believed that gestation crates were detrimental to hogs animal welfare. After the vote was shown to pass, producers in the pork industry were given until November 2008, approximately six years to phase out the use of gestation crates in the hog industry. Following Florida's lead in 2006, Arizona implemented Proposition 204, also known as *Humane Treatment of Farm Animals Act.* Similarly, this initiative also banned the use of the use of gestation crates in the Arizona hog industry. This measure passed with approximately 62% of voters voting in favor of the initiative. The *Treatment of Farm Animals Act* implemented as of January 1, 2013, gave producers in the pork industry approximately seven years to convert to production practices that adhere to such laws. Due to these laws being implemented, consumers and producers in Florida and Arizona have observed a cost increase in pork production.

Although individuals have been shown to be more likely to vote in favor of ballot initiatives perceived to improve animal welfare, many consumers in the United States have been indicated they are not willing to pay higher prices for pork products as a result from enacting the new laws. Using a contingent valuation approach, Tonsor, Wolf, and Olynk (2009) surveyed

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United States citizens in order to gauge consumer perceptions, preferences, and voting behavior. Results of this study concluded participants to have a WTP of approximately $230 per year in higher taxes in order to ban the use of gestation crates. Thus, suggesting the overall United States population would have a WTP of approximately $25,246 million per year in aggregate taxes to support such a ban. Initially a large majority of participants voted in favor of banning gestation crates, with roughly 69% of individuals voting in favor of the ban. However, when individuals were informed of the tax increase, the support fell from 69% to 31%. Therefore, indicating that although the majority of individuals would like to improve animal welfare conditions, the cost increase to consumers is much more than their WTP (Tonsor, Wolf, and Olynk 2009).

Influence of Bans to Other States

As previously mentioned by Norwood and Lusk (2011), California is a "trend setting" state. Many laws California implements tend to find their way to being implemented in other states. This could be one of the main reason why advocacy groups, such as the HSUS, tend to heavily push animal welfare ballot initiatives in these "trend setting" states. (Norwood and Lusk 2011). Using various demographic variables (e.g. wealth, gender, political affiliation, religion, and ethnicity) obtained from the Proposition 2 voting records, Smithson et al. (2014) constructed a regression model to predict which states would be most likely to vote in support of an initiative similar to Proposition 2 if placed on a voting ballot. According to Smithson et al. (2014), the top five states most likely to vote in support of an initiative were: (1) Maryland, (2) Louisiana, (3) New York, (4) New Jersey and (5) Massachusetts (Smithson et al. 2014).

Interestingly, the state of Massachusetts will hold a vote similar to California's Proposition 2 in November of 2016. This ban will include regulations for hen, hog, and calve confinement. Unlike California, Massachusetts is not a large producer of eggs in the United States; therefore, the ban – if passed –is presumed to have very little effect to consumers outside

of the state. However, similar to California, all eggs imported to Massachusetts must adhere to the rules and regulations of the ballot initiative. As a result, if the ban is approved, Massachusetts is very likely to observe an increase in egg prices (Malone and Lusk 2016; Mullaly and Lusk 2016). As indicated by Malone and Lusk (2016), states which implement bans on battery cages will observe an increase in eggs prices ranging anywhere from 30% to 70%.

Demographic Factors

Various demographic attributes have been indicated to influence a voter's decision to support or oppose a ballot initiative. Three separate studies have been conducted using regression models in order to examine various demographics that may influence animal welfare voting decisions. Bovay and Sumner (2013) and Smithson et al. (2014) studied the voting result of California and Videras (2006) studied the voting results of Florida; all using county level vote outcome data.

Findings suggest voters from urban areas have a much higher probability of voting in favor of ballot initiatives increasing regulations on animal production practices, relative to voters in rural areas (Videras 2006; Bovay and Sumner 2013). Bovay and Sumner (2013) suggest voters living in urban areas have a higher probability of voting in support, unlike rural areas, because residence of urban communities tend to be much more disconnected with agricultural production practices (Bovay and Sumner 2013). On the other hand, individuals living in agriculturally dependent rural areas are more likely to vote in a manner that favors producers.

Although voters from rural areas have a higher probability of opposing animal welfare ballot initiatives, this is not always the case. Videras (2006) suggests voters in rural areas, who are more concerned about property value, could have voted in favor of the animal welfare initiative in order to achieve an increase in their property value. The reasoning for this is: property values in rural areas are shown to decrease when in close proximity of a hog farm. The decrease in property value can be attributed to pollution of pesticides and manure of large hog

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farms (Videras 2006). Another possible reason rural voters might vote in favor is due to the fact that less than 2% of individuals in the United States are involved in agricultural. Many individuals, even some of those whom live in rural agriculturally dependent communities, do not typically understand the costly effects of passing such initiatives (Lusk 2016). This was shown, as a surprise in various agriculturally dependent counties of California. For example Kern County, which is heavily involved in agriculture, voted with over 50% in favor of passing Proposition 2.

Socioeconomic attributes affect the way in which an individual chooses to cast their vote as well. It is a concern that consumers in lower socioeconomic classes may now not be able to purchase the products that they once were able to afford (Lusk and Norwood 2011). With the rise in prices by reason of production cost increases, many of these products may now not be feasible to purchase due to the consumers' budget constraints. If the consumer is aware that there will be a cost increase to products due to the ban on production practice, consumers are more likely to oppose the animal welfare initiative. Bovay and Sumner (2013) and Smithson et al. (2014) observed in the California voting outcome data, that income level has a significant impact on the way in which an individual votes in regards to animal welfare initiative. It was indicated as per capita income decreases, support for Proposition 2 simultaneously decreases amongst voters.

Political party affiliation and loyalty has been shown to play a vital role in the decision making of a referendum on ballot initiatives. Observed by Bovay and Sumner (2013), Videras (2006) and Smithson et al. (2014), all studies concluded individuals who identify themselves as a member of the Democratic Party show a higher probability of voting in support of a ban, as opposed to those who did not. Using the 2008 Obama/McCain presidential election results from California, the regression from Bovay and Sumner (2013) indicated that as the share support for McCain observed an increase of 10 percentage points, the share support for Proposition 2 decreased by 3.82 percentage points (Bovay and Sumner 2013). Similar to Bovay and Sumner

(2013), Smithson et al. (2014) found that counties who primarily voted in favor of Obama in California were shown to be more likely to vote in support of a ban.

Videras (2006) ran a regression model using the 1996 presidential election outcomes in Florida, which indicated a county's percentage vote for Clinton/Gore (Democratic Party Candidates). The regression indicated a positive correlation amongst voting in support of Clinton/Gore and in support of the animal welfare initiative with an estimation that for every 10% increase in support for Clinton/Gore raises the odds ratio to support animal welfare initiatives by 5.7%. Videras (2006) suggests that this could be due to liberals supporting a larger government role in regulations.

In 2008, the California Democratic Party (CDP) endorsed the Proposition 2 ballot initiative. Due to the CDP endorsement of the ballot initiative, it is suggested that some voters voted in alignment with their political party rather than their view on the actual ballot initiative (Bovay and Sumner 2013).

Smithson et al. (2014) and Videras (2006) both found religion to play an important role in the way individuals vote. In the Smithson et al. (2014) study, Protestants were shown to have a significant impact on the way in predicting which states would implement a ban. Louisiana and Mississippi were shown to rank second and seventeenth amongst all states predicted to implement a ban, respectively. However, when comparing Louisiana and Mississippi, residents of both states observe similar demographic make-up. The only difference is that Louisiana contains mostly Catholic and Mississippi was shown to be primary Protestant. When the Protestant variable was exchanged for Catholic in Mississippi, Mississippi rose from 55% to 74% support. Therefore, causing Mississippi to move up in the rankings from seventeenth to first in the United States to be the next state to implement a ban. Thus, concluding religion plays a significant factor in the way individuals tend to vote (Smithson et al. 2014). Similarly Videras (2006) found in Florida that

Catholics were much more likely to vote in support of a ban. On the other hand, individuals considered Evangelical were shown to vote in opposition of a ballot initiative imposing a ban with almost double the effect. Videras (2006) suggests Evangelicals vote in opposition is because individuals who are considered Evangelical are more likely to take a more literal interpretation of the bible, unlike Catholics who take a less literal approach to bible messages.

Citizen vs. Consumer

The citizen vs. consumer hypothesis claims, individuals who participate in surveys concerning political issues tend to answer them as a "citizen" rather than as a "shopper", or "consumer". Many individuals tend to embrace the "citizen", or homo politicus, approach when participating in surveys and vote how as a "model citizen" of a community to improve the community as a whole –commonly known as expressing altruistic preferences. In contrast, the demeanor in which an individual makes private decisions as a "consumer", known as homo economicus, solely benefits their personal utility. Blamey, Common, and Quiggin (1995) observed that when individuals are prompted with contingent valuation questionnaires using hypothetical situations concerning environment preservation, participants are typically using their "citizen" judgment – as opposed to how they would make their decision privately as a "consumer" (Blamey, Common and Quiggin 1995; Nyborg 2000).

Many times, preferences revealed in the ballot box do not seem to reflect voters' consumer behavior in the marketplace (Brennan and Lomasky 1993). Brennan and Lomasky (1993) observed that individuals derive utility from two components. The first component, known as expressive preferences, indicates individuals derive utility from voting or purchases in a particular manner. The second component, known as instrumental preferences, derives utility from the price at which they purchase an item. In the voting booth, individuals will use their expressive preferences in vesting their vote in order to obtain a "feel good" sensation per se –

regardless of the outcome of the ballot initiative. In this instance, expressive preferences primarily dictates the individual's vote and purchase decision. On the hand, instrumental preferences – as observed in the marketplace – are shown to have little importance in the individual's vote and purchase decision (Brennan and Lomasky 1993). This is an example of a "citizen" voting in a manner believed to increase the overall utility of society. On the other hand, privately as a "consumer" individuals purchase in a manner that increases their consumer utility; in many instances not reflecting their vote decision (Ovaskainen and Kniivilä 2005). By this standard, this could be a potential reason behind the large "gap" among voting decisions and purchasing choices.

In these various instances, individuals behave and act in a manner believed to improve the overall wellbeing of the community. However, this altruistic demeanor can vary amongst different individuals. The altruistic value for some individuals may be that all individuals should have the right to decide what they choose to purchase; therefore, voting in opposition of initiatives limiting the variety of products an individual can purchase. However, on the other hand, altruistic values of an individual may be that individuals must have the "best quality" products; therefore, voting in favor of the initiative – due to the fact many individuals perceive specialty eggs are as healthier for consumer consumption and improving animal welfare (Blamey, Common and Quiggin 1995; Ovaskainen and Kniivilä 2005; Brooks and Lusk 2012).

In the case of purchasing eggs and voting on egg production practice initiatives, Brooks and Lusk (2012) claim, "individuals may support public policies more than private shopping choices suggest because of differences in social and personal preferences." (Brooks and Lusk 2012) Certain issues may be that of public safety. If an individual believes that passing a law with improve the safety of other consumers, then individuals act as a citizen and support the initiative in order to improve the wellbeing of others. This could be due to animal treatment, ethical, or religious values (Carlsson, Frykblom and Lagerkvist 2007). However, Carlsson, Frykblom and

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Lagerkvist (2007) designed a choice experiment, using participants from the European Union (EU), in order to assess whether or not consumers preferred genetically modified (GM) foods to be banned for all individuals or if consumers would rather avoid purchasing foods with a GM label. From this research, results indicated no difference amongst consumers' disinclination to GM foods and WTP to ban GM foods from the marketplace. Thus, Carlsson, Frykblom, and Lagerkvist (2007) concluded that individuals reluctance towards GM foods is not an issue of public welfare or and a perceived externality, as opposed to acting as a "citizen" when voting and a "consumer" when shopping.

CHAPTER III

CONCEPTUAL FRAMEWORK AND HYPOTHESIS

There are several non-mutually exclusive hypotheses that have been put forth (or are developed

here) to explain why people may vote in ways that appear contradictory with the way they shop.

This chapter outlines a few of these hypotheses.

Using California as an example, Proposition 2 gathered 63.5% of votes in support of

banning the use of battery cages in egg production. Although the majority of individuals

supported Proposition 2, approximately 90% of eggs consumed in California were from cage egg

production systems. With the majority of individuals voting in favor of Proposition 2 and

consuming eggs from hens in cage production systems, it is plausible that some individuals voted

in a manner that eliminated eggs they regularly purchase in the marketplace; therefore, creating a

vote-buy gap between their purchase choice and vote decision. In conducting this non-

hypothetical experiment involving real food, real shopping choices, real votes, and real money –

which mimics "real world" choices and decisions – it is believed that a vote-buy gap will be

observed. From this arises the first hypothesis, known as the *Vote-Buy Gap Replication*

Hypothesis.

Vote-Buy Gap Replication Hypothesis: The vote-buy gap, as observed in animal welfare ballot initiative voting results, can be replicated in an experimental lab setting.

It is possible that many consumers are unaware that they are purchasing products that do not meet the production practice standards proposed by a ballot initiative. The average consumer believes that 37% of eggs sold in grocery stores are from caged production practice systems, while 90% of the market is from cage production practice systems (Norwood and Lusk 2011). If this is true, it would explain why purchasing choices do not coincide with voting decisions; namely, people believe they are being consistent when in fact they are not. Another line of evidence in support of this conjecture is provided by responses to the March 2015 Food Demand Survey (FooDS) conducted by Lusk and Murray (2015). After describing the vote-buy gap that occurred in California, over 1,000 respondents were asked why they thought the gap existed. Participants could type any response they desired, and responses were categorized according to possible explanations. The most commonly mentioned issue was a lack of information (mentioned by 27% of respondents): people did not know they were buying cage eggs in the grocery store, and they said they wouldn't have bought them if they knew more. Example responses to the question of why the vote-buy gap exists include "Because they did not realize what they were purchasing" and "shoppers didn't know that eggs were coming from small caged hens" and "Most people don't understand where their food comes from." Thus, the second hypothesis, termed the *Knowledge Hypothesis,* is:

Knowledge Hypothesis: The vote-buy gap is caused by the fact that consumers believe they are buying cage-free produced eggs when in fact they are buying cage produced eggs; better information about housing practices when shopping will reduce the vote-buy gap.

Many consumers of controversial agricultural products are voters; however, not all voters are consumers of controversial agricultural products. For example, many individuals who are vegetarian or vegan and do not buy meat or eggs; however, they may vote in favor of initiatives similar to that of Proposition 2. In this instance, a vegan can attain an outcome they desire by banning caged eggs with no cost to themselves. More generally, if "heavy eaters" of eggs and meat differ from "light eaters" in terms of their views on animal welfare and preferences for policies that restrict animal housing practices, the market share for cage-free produced eggs will diverge from the vote share in favor of banning cage produced eggs. Under this line of reasoning, the vote-buy gap is something of an illusion because, proverbially speaking, apples are being compared to oranges. That is, every shopper can buy in a manner consistent with their vote, and yet at the aggregate level a vote-buy gap can arise. This happens for three inter-related reasons: 1) when calculating a vote share each voter is weighted equally whereas a market share weights shoppers by their volume and frequency of purchase, 2) some voters may not buy (or may infrequently buy) the products affected, and 3) a selection effect that could arise if the preferences of the typical voter diverges from that of the typical shopper. This discussion leads to the third hypothesis, termed he *Non-Buyer Hypothesis*:

> Non-Buyer Hypothesis: The vote-buy gap is caused by the fact that the people who buy a product do not perfectly represent the people who vote on bans affecting the product; the vote-buy gap will fall once non-buyers are removed from the sample of voters.

Building off arguments by Norwood and Lusk (2011), Bovay and Sumner (2014) develop a conceptual model that explains the vote-buy gap as resulting from a free-rider problem. When shopping for eggs an individual's decision only affects them and has only a minuscule effect on the life of a hen. By contrast, when voting in a state-wide ballot initiative, an individuals' vote has the potential to affect every person and every hen in the state. Presuming individuals have some altruistic preferences toward other people and animals, a vote affecting many animals and

people has a different cost-benefit ratio than a single purchase decision. This leads to the fourth hypothesis called the *Public Good Hypothesis*.

> Public Good Hypothesis: The vote-buy gap is caused by the fact that more animals and people benefit from a ban than does a single shopping choice for cage free eggs; as the size of the group affected by a vote increases, individuals are more likely to vote in favor of the initiative, thereby increasing the vote-buy gap.

Another hypothesis, which is confounded with the Public Good Hypothesis was developed by Brennan and Lomansky (1993). They posit that an individual's utility from undertaking an action is comprised of two components, an instrumental value that comes directly from paying for and consuming the good and an expressive value that comes from the action of voting or purchasing in a particular way – it is the psychological pleasure one gets from voting to ban cage eggs or buying cage free eggs (e.g., the feeling of being a "good person" or "looking good" or "doing the right thing") independent of the actual consumption value of cage free eggs or the effects of a cage ban on chickens or humans. In this sense, expressive preferences are similar to the concept of "selfish" warm glow that is argued to motivate giving behavior (Andreoni, 1990). In this model, the divergence in voting and shopping outcomes occurs because a shopping choice is decisive whereas a vote is not. In fact, if the group size is large, the probability of an individual's vote deciding the outcome is vanishingly small. In this case, the instrumental preference is of minor consequence and the expressive preference dominates. By contrast, in a shopping choice, the two are on even playing field. As Brennan and Lomansky (1993, p. 24) put it, "The relative price of expressive elements in any act of choice measured in terms of instrumental benefits forgone, is higher in markets than in electoral settings. As we move from the marketplace to the ballot box, all other things equal, the relative significance of expressive elements increases by a factor equal to the inverse probability of being decisive." This leads us to the fifth hypothesis, called the *Expressive Voting Hypothesis*:

Expressive Voter Hypothesis: The vote-buy gap is caused by the fact that in large groups, an individual's votes is unlikely to be a deciding factor, privileging expressive preferences over instrumental preferences; as a group size increases, and the likelihood an individual's vote is consequential and decisive, individuals are more likely to vote in favor of the initiative, thereby increasing the vote-buy gap.

The Public Good Hypothesis and Expressive Voter Hypothesis yield the same prediction: that the vote-buy gap is increasing in group size. Thus, in most real-world applications the two competing hypothesis are confounded, as they are in our experiment (to be described in the next section). It is possible to imagine experimental designs that could distinguish between the two hypotheses. For example, one could alter the probability a market choice was binding without changing the number of other people or animals affected to more definitively test the Expressive Voter Hypothesis, although this would be an odd decision frame without real-world parallel. It is also worth mentioning that the Public Good Hypothesis and the Expressive Voter Hypothesis are closely related to the citizen vs. consumer hypothesis mentioned in the literature review (Blamey, Common and Quiggin, 1995). Our assessment is that the citizen vs. consumer moniker is just another name for the vote-buy gap, whereas the Public Good Hypothesis and the Expressive Voter Hypothesis are well articulated, and potentially testable, *reasons* for the gap.

It is well known that there are instances where people herd or trend, follow the lead of others, and face pressure to conform to social norms. For example, providing homeowners with information on their energy use compared to their neighbors can reduce energy use (Ayres, Raseman, and Shih, 2012; Allcott, 2011); hotel guests are more likely to reuse towels if asked to join other guests in reusing towels (Goldstein et al., 2007). In the case of animal welfare, there were numerous campaign ads and editorials leading up to Proposition 2, which influenced consumer preferences and increased demand for cage free and organic eggs (Lusk, 2010). Because votes are often accompanied by such public pronouncements and polling information in

the news (whereas shopping behavior is not), this phenomenon could a cause of the divergence in voting and shopping behavior. This leads us to the sixth hypothesis, referred to as the *Bandwagon Hypothesis*:

> Bandwagon Hypothesis: The vote-buy gap is caused by the greater availability of public information about others' behavior and the desire to socially conform; when information is provided on others' voting oncomes, people will be more likely to vote in favor, increasing the vote-buy gap.

CHAPTER IV

METHODS AND PROCEDURES

Overview

This study tests for the existence of a vote-buy gap, and the sensitivity of the gap to the factors

mentioned in the previous chapter, by conducting a non-hypothetical experiment involving real

food, real shopping choices, real votes, and real money. At the end of the experiment, a

questionnaire was given to the participants to assess the demographic make-up of the sample, and

to determine how voting and purchasing patterns varied with demographics and other beliefs and

attitudes.

Sample

In order to conduct this research experiment, an invitation to participate in the experiment in

exchange for $10 was sent via e-mail to 6,000 randomly selected students at Oklahoma State

University, ranging from freshmen to graduate students. Of the 6,000 surveys sent, a total 342

participants completed their surveys. Resulting in 5.7% rate of return on the surveys.

Experiment Treatments

The initial 5,000 participants were randomly assigned to one of four treatments. After the results of the ballot initiative vote were determined, the polling results of the vote outcome from Treatments 2 & 4 were shown to the additional 1,000 participants assigned to Treatments 5 & 6 respectively, prior to the vote section. Treatments 5 & 6 used the polling information from Treatments 2 & 4 respectively, because all treatment conditions – except for polling information given – were identical. The variations amongst the six treatments as shown in Table 1 on page 54 are listed as follows: Treatment 1(Control) – Brand shown, no previous polling information given, and five participants to a group; Treatment 2 – Brand shown, no previous polling information given, and 51 participants to a group; Treatment 3 – Brand & practice shown, no previous polling information given, and five participants to a group; Treatment 4 – Brand & practice shown, no previous polling information given, and 51 participants to a group; Treatment 5 – Brand only, polling information from vote outcome of Treatment 2, and 51 participants to a group; Treatment 6 – Brand & practice shown, polling information from vote outcome of Treatment 4, and 51 participants to a group.

Data Collection and Survey Procedures

Although the experiment was non-hypothetical, in an effort to increase participation and sample size, individuals were allowed to participate online at their convenience, and then collect their participation fee and food at a later date. At the beginning of the experiment, participants were reminded of their $10.00 compensation and were given a randomly assigned ID number for anonymity purposes. Participants were asked several questions to ensure they understood the task was non-hypothetical and to check that the remembered their ID number and knew where to pick up their money and food. A complete copy of the experiment instructions and decision sheets

(exported from the online version to paper format) is available in the appendix beginning on page 64.

Respondents were first asked to make a shopping choice. They were asked to select a snack option selection from a list of six different food options. The choice was non-hypothetical and participants were able to keep any of the remaining money and their purchased snack option, which they were able to pick up at a later set time and date. The six different snack options as shown on the survey can be viewed in the appendix and were listed as follows: (1) a chocolate chip cookie baked using cage-free eggs from Marketside Brand Eggs at a price of $2.00, (2) a chocolate chip cookie baked using cage-free eggs from Farm House Brand Eggs at a price of $2.00, (3) a chocolate chip cookie baked using caged eggs from Great Day Eggs Farm Brand Eggs at a price of $1.00, (4) a chocolate chip cookie baking using caged eggs from Market Brand Eggs at a price of $1.00, (5) a granola bar option – which contained no egg products and was used to represent a vegetarian or vegan option – at a price of $1.00, or (6) none of the above and the participants keeps the $10.00.

Cookies baked with different types of eggs were used to gauge consumer preferences for eggs. Cookies baked containing eggs were used, as opposed to scrambled eggs, an omelet or just simply an egg, because cookies have a longer shelf life and are easier to distribute among participants. Typically, when purchasing cookies, consumers may not think about the type of eggs used to bake cookies. In order to make the type of egg the main focus, wording of the survey explicitly stated eggs were used in the cookie ingredients and specifically asked participants which type of eggs they would prefer in their cookie option. Thus, allowing to gauge participants' preferences of eggs by observing their snack selection.

Once the participants chose their snack option, participants were informed of their group size of either five or fifty-one depending on the treatment they were assigned. Group sizes of five

and fifty-one were used for three reasons: (1) an increase in group size from five to fifty-one is assumed to be large enough of an increase to observe how group size alters consumer vote decisions, (2) these two group sizes are the most reasonable size for the anticipated sample size, and (3) odd group sizes will always result with a majority vote outcome.

After the snack option was selected, participants were then prompted to vote in support or opposition of a ballot initiative worded in manner similar to that of California's Proposition 2 (2008). The ballot initiative as shown in the survey can be found in the appendix on page 71, and read as follows: STANDARDS FOR CONFINING FARM ANIMALS – Requires that chicken eggs used to make cookies in your group come from a system where hens are confined only in ways that allow these animals to lie down, stand up, fully extend their limbs and turn around freely. Please select whether you support or oppose this proposition.

Once the participants read the ballot initiative, they then selected their decision to support or oppose the given ballot initiative. The two voting options given in the survey can be viewed in the appendix and reads as follows: Option 1 – Support the requirement that sales of cookies containing chicken eggs in my group meet the confinement standards and Option 2 – Oppose requirement that sales of cookies containing chicken eggs in my group meet the confinement standards.

After the participants selected their voting decision, participants were then prompted with a second set of snack option to choose from in the instance the ballot initiative passed. However, the only available snack options were snacks using products that would adhere to the production practice regulations implemented by the ballot initiative. If the ballot initiative was shown to pass with 50% or more of the participants per treatment voting in support of the ban, participants would be bound with their purchase from the second set of snack options. On the other hand, if

the ballot initiative was not shown to pass, participants would be bound with their purchase from the first set of snack options.

Both snack selections and the voting decision were conducted all in one survey, as opposed to separate sessions and/or in real-time in order to obtain a larger sample. Conducting the survey in one session allowed participants to complete their survey at their own desired time and convenience. If the survey was segmented into various sessions (i.e. first purchase, vote, and second purchase), it is possible some participants would not be able or willing to participate in later sessions. Similarly, if the experiment was conducted in real-time, many participants may have not been able to participate during the real-time session, due to a conflict in their daily schedules. Therefore, conducting the experiment in a single session allowed participants to complete the survey at their own convenience; ultimately, resulting in a larger amount of completed surveys.

At the end of the survey, an additional questionnaire was given to participants. This questionnaire was used to assess the different demographic make-up of the participants across all treatments. The results to the answers on the questionnaire were used to observe if any other factors cause an individual to vote in a certain manner, besides solely observing their purchase decision.

Logistic Model Predicting Voting Outcomes

Two logistic models were estimated in order to test the hypotheses. The first logistic model created was used to determine the probability that an individual would vote in support of the ballot initiative based on their treatment and snack selection. The dependent variable in this model was denoted as *Vote*, with 1 indicating the participant would vote in favor of the ballot initiative and 0 indicating that the participant would vote in opposition of the ballot initiative. The

explanatory variables used in the logistic model were denoted as *CAT* which takes the value of 1

if an individual chose the cookie option using eggs from cage hens, *CFT* which takes the value of

1 if an individual chose the cookie option using eggs from cage-free hens, *GR* which takes the

value of 1 if an individual chose the granola option, *None* which was dropped from the model in

order to avoid singularity amongst the snack options, *N* as the participants' group size (taking the

value of either 5 or 51) , *Social* is a dummy variable that takes the value of 1 if previous polling

result information was given prior to the voting decision, and *Prac* is a dummy variable equal to 1

if the production practice system was clearly labeled shown in the snack selection description.

The logistic model for Model 1 is shown as follows:

(1) $Prob(Vote = 1)$

$$= \frac{\exp(\alpha_0 + \beta_1 * CAT + \beta_2 * CFT + \beta_3 * GR + \beta_4 * N + \beta_5 * Social + \beta_6 * Prac)}{1 + \exp(\alpha_0 + \beta_1 * CAT + \beta_2 * CFT + \beta_3 * GR + \beta_4 * N + \beta_5 * Social + \beta_6 * Prac)}$$

Using the coefficients we can test the hypothesis by examining if the parameter estimates

values are negative or positive and statistically significant. If the value of the parameter estimates

for a particular variable is positive, this indicates that participant will be more likely to vote in

support of the ballot initiative. On the other hand, if the value of the parameter estimate is shown

to be negative, this indicates that the participant will be more likely to vote in opposition of the

ballot initiative. For example, if the value given for the parameter estimate for cage-free option is

positive, then this indicates that individuals who purchased the cage-free option are more likely to

vote in support of the ballot initiative. Another example is group size, if the parameter estimate

for group size is shown to be positive then this indicates that as group size increases, so does the

probability participants will vote in support of the ballot initiative.

We estimated several versions of equation 1. After the results from the Model 1 were calculated, using only the snack selection and treatments, additional variables were added to test for the robustness of the results. The additional variables used were acquired from the results of the questionnaire distributed at the end of the experimental survey. This questionnaire helped further assess the various demographics of the participants by asking political affiliation, gender, ethnicity, roles of government regulation, most important food characteristic (e.g. price, anticipated taste, healthfulness, production practice, safety), college of study at Oklahoma State University, and personal beliefs (e.g. imposing beliefs on others, product knowledge, voting affects).Using the additional information collected from the questionnaire, five additional logistic models were created in order to assess the any additional demographic influences that could possibly effect participants voting decision.

Using Model 1 as a base model, Model 1.2 was created by adding the additional explanatory variables to assess if political affiliation influences the manner in which an individual chooses to vote on the ballot initiative. The participants were given the following options to identify their political affiliation: extremely liberal, slightly liberal, moderate, slightly conservative and extremely conservative. Dummy variables with a value of 1 or 0, 1 indicating the participants' political selection and 0 indicating otherwise, were used to indicate the political selection in which the participant most commonly identifies. The extremely conservative variable was dropped to avoid singularity among the political identification variables. Gender was also assessed in Model 1.2, using dummy variables with a value of 1 to indicate if the participant was female and 0 to indicate if the participant was male.

Using Model 1.2, Model 1.3 was created by adding ethnicity explanatory variables in order to determine if participants' ethnicity would influence any purchase or voting decisions. The ethnicity options were listed as follows: White, Black, Hispanic, Native American, Asian, Native Hawaiian or other Pacific Islander, and Other. Dummy variables with a value of 1 or 0, 1

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indicating the participants' ethnicity and 0 indicating otherwise, were used to indicate the ethnicity in which the participant most commonly identifies. The other variable was dropped in order to avoid singularity among the ethnicity variables.

Using Model 1.3, Model 1.4 was created by adding additional explanatory variables regarding how participants view the government's role in food consumption and the most important food characteristic when selecting their food options. In order to determine how participants view the role of government in food consumption, the participants were asked, "Do you agree or disagree that the government should advise consumers on what to eat/drink?" Along with this question they were given five answers, shown with their correlated number values, listed as follows: (1) strongly agree, (2) somewhat agree, (3) neither agree nor disagree, (4) somewhat disagree, or (5) strongly disagree.

In addition to determining the government's role in food consumption, the participants were also asked to answer which food characteristic is most important when selecting food products. The characteristics given are listed as follows: price, anticipated taste, healthfulness, production practice (e.g. cage-free, organic, caged, color of egg), and food safety (e.g. low risk of food-borne illness). Dummy variables were assigned to the variables with the values of 1 or 0, with 1 indicating the most important characteristic of food products to the participant, 0 indicating otherwise. The food safety variable was dropped in order to avoid singularity among the food characteristic variables.

Using Model 1.4, Model 1.5 was created by adding explanatory variables in relation to the college the participant is attending at Oklahoma State University. The various colleges listed are the College of Agricultural Sciences and Natural Resources, College of Education, College of Engineering, Architecture & Technology, College of Human Sciences, Spears School of Business, Center for Veterinary Health Sciences, College of Arts & Sciences, and other. Dummy

variable with a value of 1 or 0 were assigned in order to indicate the selection of the participant, with 1 indicating the college of study the participant is attending and zero indicating otherwise. The College of Arts & Sciences was dropped in order to avoid singularity among the college of study variables.

Lastly, using model 1.5, Model 1.6 was created by adding explanatory variables in regards to participants' individual beliefs and a variable indicating if they picked-up their purchase at a later set date during the pick-up times. The way in which individuals beliefs were assessed was by asking two different types of questions. One type of question was simple yes or no questions and the other types of questions used a ranking scale in which the participant select either strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree in relation to the statement. For the yes and no questions, dummy variables were used with 1 representing the "yes" answers and 0 representing the "no" answers. The various yes or no questions are listed as follows: (1) if the prices were to be raised on each product by $2, would you have spent the $10 in the same way? , (2) do you agree or disagree: I don't like imposing my views on my group members? , and (3) when selecting my purchase option, I knew which brands contained cage-free chicken eggs and which brands did not.

The ranking questions gave a value to each answer in order to indicate which answer the participant selected. The ranking scale used values from 1-5, with 1 indicating strongly agree and 5 indicating strongly disagree. The participants were asked if they agree or disagree to the following statements: I considered how my vote may affect other individuals' purchase options, I believe my vote did not matter in this study and the voting outcome would have been the same regardless of my voting decision, I don't like imposing my views on my group members, the outcome of the vote will be fair, and I feel that my vote had a positive impact on production practices and animal welfare.

The last variable added to Model 1.6 indicated if the participant picked-up their purchase at the later scheduled pick-up time. This was indicated by using dummy variables of 1 or 0, which 1 indicated that the individual picked-up their purchase and 0 indicated those participants who did not pick-up their purchase.

Logistic Model Predicting Vote-Buy Gap.

The second logistic model was created to predict the probability that an individual would vote in a manner opposite of their purchase. However, this model only used participants who chose the caged or cage-free cookie option from the first snack selection. The reasoning for this is because the caged and cage-free cookie options are the only options in which an individual can vote in a manner which does not reflect their purchase, unlike the selecting the granola or the none option. This allowed for calculation of the probability for the vote/buy gap. The dependent variable in this model was denoted as *OpVote*, with 1 indicating the participant would vote in a manner which is not aligned with their purchase (e.g. purchase caged cookie/vote in support, purchase cage-free cookie/vote in opposition) and 0 indicating that the participant would vote in a manner which does reflect their purchase. All explanatory variables, excluding *GR* and *None*, remained the same as in Model 1. The logistic model for Model 2 is shown as follows:

(2) $\quad Prob(OpVote = 1)$

$$= \frac{\exp(\gamma_0 + \delta_1 * CAT + \delta_2 * CFT + \delta_3 * N + \delta_4 * Social + \delta_5 * Prac)}{1 + \exp(\gamma_0 + \delta_1 * CAT + \delta_2 * CFT + \delta_3 * N + \delta_4 * Social + \delta_5 * Prac)}$$

Similar to the first model, we can test the hypotheses using parameter estimates of the coefficients. If the value of the parameter estimates for a particular variable is positive, this indicates that participant will be more likely to create a vote-buy gap. On the other hand, if the

value of the parameter estimate is shown to be negative, this indicates that the participant will be more likely to create a vote-buy gap. For example, if a the value given for the parameter estimate for caged option is positive, then this indicates that individuals who purchased the caged option are more likely to vote in support of the ballot initiative causing a vote-buy gap. Another example is polling information, if the parameter estimate for production practice is shown to be positive then this indicates that if production practice is given, the probability participants will vote opposite of how they purchase increases as well.

Once the base for Model 2 was created, additional models were created by adding the additional variables obtained from the questionnaire. All explanatory variables were added to model to in the same fashion as to Model 1. The only difference was the *Native Hawaiian/Pacific Islander Ethnicity* and *Center for Veterinary Sciences* explanatory variables were dropped. These two variables were dropped because no participants in these two categories selected a caged or cage-free cookie option. Otherwise, all additional explanatory variables from Model 2.2 – Model 2.6 reflect that of Model 1.2 – Model 1.6, respectively.

Vote Importance

As an experimental manipulation check to determine if participants believe their vote becomes more irrelevant as group size increases, participants were asked the question, "Do you agree or disagree: I believe my vote did not matter in this study and the voting outcome would have been the same regardless of my voting decision?" The participants then responded by selecting strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree. Each answer was given a numeric value of 1-5, with 1 indicating strongly agree and 5 indicating strongly disagree. Using the numeric value assigned to each answer selection, the mean was calculated for each individual treatment. Once the mean was calculated, it was compared

across all treatments to determine if individuals believed their vote becomes less important as group size increased.

Consumer Turnover Rate

Allendar and Richards (2010) suggest that because individuals will not be willing to pay for higher-priced egg premiums, many of the consumers will no longer purchase eggs due to the price increase. Because of the increase in egg prices, many individuals will be excluded from the marketplace. For the current study, the percentage of individuals who will no longer purchase eggs due to the cost increase, yet were consumers of eggs prior to the initiative passing, is referred to as the *Consumer Turnover Rate.* In order to determine the *Consumer Turnover Rate*, dummy variables were assigned to each participant who originally purchased the caged cookie option. If the participant was shown to have chosen a caged cookie option from their first snack selection and then shown to select the *None* option in the second snack selection, then that participant was assigned a value of 1, 0 if otherwise, in order to indicate that the participant was no longer a consumer of products containing eggs due to the more costly cookies being the only available. Once the participants received either a value of 1 or 0, the means were calculated to see the average *Consumer Turnover Rate* per treatment.

CHAPTER V

RESULTS

Initiative Voting Results

The ballot initiative passed in all six treatments. All treatments, indicated in *Figure 1* on page 57, were shown to have support in the 61.9% – 66.67% range, except Treatment 3 with 53.73% support. The results of the voting outcome are shown in *Figure 1* on page 57. The outcome is remarkably (and perhaps coincidentally) similar to the outcome of Proposition 2 in California, which garnered 63.5% support. Once the vote outcome was determined, the percentage of participants' votes and snack options were compared. The snack options selected for the first snack selection (Figure 2) and second snack selection (Figure 3) can be found on pages 58 and 59 of the appendix, respectively. This comparison enabled a determination of whether there was a vote/buy gap for each participant.

As shown in *Figure 4* on page 60, results of the first purchase selection and vote choice indicate that there is in fact a vote-buy gap observed in all treatments. Over half of the participants who initially selected a cookie option made with cage eggs were shown to vote in support of the ballot initiative. Therefore, 50% or more of participants in each treatment who

purchased cookies using cage eggs voted in a manner that does not reflect their purchase, creating a vote-buy gap. Most interestingly was the vote-buy gap that occurred in the Control treatment. The results of the Control indicated that 82.61% of all the participants who purchased cookies using eggs from cage hens chose to vote in support of the ballot initiative. This is a huge gap of more than four-fifths of all cage purchases voting to ban their purchase. Treatments 3 and 6 were both shown to have a vote-buy gap of approximately 70%; Treatments 2, 4, and 5 all displayed a vote-buy gap ranging from 52.17%, 60%, and 57.14%, respectively. All indicating the majority of participants who purchase cookies from caged hens vote in support of the ballot initiative. On the other hand, the majority of participants that selected a cookie option using cage-free eggs were shown to be more likely to vote in a manner that reflected their purchase option. This indicated that the vote-buy gap is created from individuals purchasing cage eggs and voting in support of banning the items that they are purchasing. As indicated from the results, a vote-buy gap is observed across all treatments; therefore, we can accept the Vote-Buy Gap Replication Hypothesis and conclude the vote-buy gap can be recreated in an experimental lab setting.

Indications from Logistic Models

As shown *Table 2* on page 48, Model 1 indicates that when the production practice was listed on next to the snack selection options, the less likely participants were to vote in favor of passing the initiative; however, the p-values for the practice shown explanatory variable hold no value of significance. Therefore, we must reject the *Knowledge Hypothesis* and cannot claim consumers do not know which products they are purchasing.

When observing the voting behavior of "non-buyers", *Figure 5* on page 61 indicates the majority of "non-buyers" chose to vote in support of the ballot initiative in all treatments excluding Treatment 3. In Treatment 3, participants who did not purchase a cookie option were shown to vote with 60.71% in opposition of the ballot initiative. The parameter estimates

observed in Model 1-Model 1.6 as shown in *Table 2* on page 48 indicate the granola variable*,* relative to cage-free, indicate that "non-buyers" choosing granola are likely to vote in opposition of the initiative. However, the parameter estimates for the none variable, relative to cage-free, indicated "non-buyer" choosing the none option are likely to vote in support of the ballot initiative. Although the parameter estimates indicated "non-buyers" of granola and none were likely to vote in opposition and support, respectively, the p-values were shown to hold no significant value. Therefore, we must reject the *Non-Buyer Hypothesis* and cannot claim that the individuals who are not purchasers of egg products create a vote-buy gap by voting in support of bans on production practices.

Observing *Table 2* located on page 48, Model 1 indicates that as the number of participants per group increases that the probability of that individual voting in support of the proposed initiative increases as well. Although the data shows an increase in the probability of voting in support when group size increases, as hypothesized in the *Public Good Hypothesis,* the p-values indicate the parameter estimates for Model 1-Model1.6 are not significant. In *Table 3,* Model 2.2-Model2.6 indicate that indicates that as group size increases, individuals are more likely to vote in alignment with their vote. Therefore, we must reject the *Public Good Hypothesis* and cannot claim consumers are more likely to vote in support of the ban as group size increases.

On the other hand, *Table* 3 on page 51 shows Model 2.2 – Model 2.6 indicates that individuals purchase the cookie option made with cage eggs, relative to cage-free, the probability of the participants voting in favor of a ban increases. The parameter estimates are shown to be significant at the 1% level and increase from 0.9664-1.8625 from Model 2 – Model 2.6, respectively. Observing the parameter estimates for group size, it is indicated that when group size increases, the probability an individual will vote opposite of their purchase is shown to decrease. The parameter estimates are shown to be significant at the 5% level and decrease from -0.0181 to -0.0234 from Model 2.2 – Model 2.6, respectively. From Model 2 it can be concluded

at the 5% level that as group size increases the probability of individuals voting opposite of their purchase decreases. Therefore, using Model 2 we cannot accept the *Public Good Hypothesis* claiming that as group size increases, the vote-buy gap increases.

Observing the results as shown in *Figure 6* on page 62, the majority of participants tended to disagree with the statement, "I believe my vote did not matter in this study and the voting outcome would have been the same regardless of my voting decision." As indicated in *Figure 6*, all treatments were shown to have a mean ranging from 3.11-3.57, indicating not much changed in participants believing their vote is irrelevant due to an increase in group size. Although there was a slight increase to the mean by 0.15 of individuals believing their vote was irrelevant with the group increase from Treatment 1 to Treatment 2, this difference was too small to draw any conclusions. When observing the change from Treatment 3 to Treatment 4, an opposite effect was show with an increase to the mean by 0.08 of individuals believing that their vote was not irrelevant. Overall, in all treatments participants tended to average between neither agree nor disagree and somewhat disagree From these results we can reject the *Expressive Voter Hypothesis* and conclude that as group size increases, individuals do not believe their vote is irrelevant and that there vote does count. Therefore, we cannot conclude individuals are more likely to vote in favor of the ballot initiative as group size increases.

When examining *Table 2,* as shown on page 48, Model 1 indicates that when participants were more likely to vote in favor of the proposed ballot initiative. Because both previous polling information shown indicated the majority of previous participants voted in support of the ban, this indicates that the participants did tend to follow the voting trends of others. In the same token, when observing *Table 3*, as shown on page 51, Model 2 indicates that participants were more likely to vote in a manner increases the vote-buy gap. However, none of the p-values were shown to be significant for either model. Therefore we must reject the *Band Wagon Hypothesis* and

cannot conclude that there is insufficient evidence to suggest that information on others' votes influenced voting decisions.

As shown in *Figure 7*, as shown on page 63 due to the initiative passing in all treatments, many individuals who originally would have chosen to purchase a cookie decided to select the None option due to the increase in cookie prices. Thus, eliminating many consumers who prior to the passing of the animal welfare initiative would have purchased egg products. The percentage ranged from 21.74 – 43.48% of consumers who would have bought a cookie using eggs from conventional production practices, deciding that they would rather no longer purchase any cookie options. Examining the outcomes of the *Consumer Turnover Rate* in the various treatments, it is evident many consumers will no longer purchase egg due to the cost increase in egg prices.

Conclusion

This research analyzed the choices made by 342 participants in various treatments by asking them to purchase a cookie option using eggs from caged hens, a cookie option using cookies from cage-free hens, a granola bar containing no egg products, or none of the above. After they chose their first snack selection option, participants voted on a ballot initiative regarding egg production practices which would remove all cookies options containing eggs from caged hens. Participants were then prompted a second snack selection option, which only had products that adhere to the ballot initiative standards. Once this was completed, a questionnaire was given to assess the demographic make-up of the participants.

This is the first experiment replicating the vote-buy gap in an experimental lab setting. Successfully replicating the vote-buy gap indicated the vote-buy gap is in fact present among individual vote and purchase preferences. Although the vote-buy gap was shown to be present, it was not indicated to be present due to the reasons hypothesized (i.e. *Knowledge Hypothesis, Non-Buyer Hypothesis, Public Good Hypothesis, Expressive Voter Hypothesis, and Bandwagon*

Hypothesis). However, the results of the vote-buy gap are successful in demonstrating many consumers do not vote in a manner that reflects their purchase. As observed in this experiment, it can be concluded that the vote-buy gap is present and is capable of being successfully replicated in an experimental lab setting.

Once the vote-buy gap was indicated, two logistic models predicting participants vote decision and the vote-buy gap were created. These two logistic models were used in order to test the hypothesis and determine why the majority of individuals vote in favor of banning controversial agricultural products, when the majority of consumers regularly purchase these controversial agricultural products. Although the data did not show the results hypothesized, other variables not specifically related to the hypotheses were shown to be significant. Model 1.2 – Model 1.6, as shown in *Table 2*, suggest participants who claimed to be extremely liberal – relative to extremely conservative – were shown to vote in favor of the ballot initiative. This could suggest one reason for a vote-buy gap is because individuals may be voting in a manner that aligns with their political affiliation, as opposed to how they would shop in the market place. Since extremely liberal individuals are known to align more with the Democratic Party and the Democratic Party has been known to endorse animal welfare legislation, this could suggest individuals are basing their vote decision off their political affiliation rather than their WTP for the product.

Model 2.1 – Model 2.6 in *Table 3* suggests that participants who purchased cookies using eggs from caged hens – relative to participants who purchased cookies using eggs from cage-free hens – are more likely to vote in a manner which does not reflect their purchase behavior. Model 2.2 – Model 2.6 suggests that as the group size increases, participants are less likely to vote in a manner which does not reflect their purchase option. This contradicts the *Public Good Hypothesis* and the *Expressive Voter Hypothesis*. In Model 1 it was observed that individuals who are not consumers of egg products are more likely to vote in favor of the ballot initiative;

however, the p-values were not shown to be significant. Thus, we cannot accept the *Non-Buyer Hypothesis*. Model 1 also indicated that when consumers were shown the production practice used, they were more likely to vote in a manner that reflected their purchases; however, we cannot accept the *Knowledge Hypothesis* because the p-values showed no levels of significance. Finally, when observing the *Bandwagon Hypothesis,* it was indicated that participants followed the voting patterns from previous votes held; however, the p-values were not shown to be significant. Therefore, we cannot accept the *Bandwagon Hypothesis.*

The next step of this research is to attempt to conduct the experiment in multiple sessions. Although multiple sessions may lead to less participants completing the survey sessions, various sessions will allow participants more time to decide on the choices they prefer. A longer duration of time between purchases and vote could be more similar to a "real-world" scenario, because individuals typically know the initiatives they will be voting on prior to stepping into the ballot box; allowing individuals to possibly do research on the issue prior to casting their vote. In this survey, participants were immediately asked to vote right after the purchase – forcing participants to make quicker decisions than normal. Giving participants the ballot initiative information, while allowing participants a longer amount of time between purchases and vote, could possibly cause participants to select a different snack option and/or vote decision than selected in the current research experiment.

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APPENDICES

APPENDIX – A

Treatment	Participants Per Treatment	Treatment Name	Group Size	Production Practice Shown	Previous Polling Info.
1	67	Control	5	no	no
2	62	Large Group	51	no	no
3	67	Production Practice Small Group	5	yes	no
4	63	Production Practice Large Group	51	yes	no
5	42	Polling Info Large Group	51	no	yes
6	41	Polling Info with Production Practice Large Group	51	yes	yes

Table 1. Treatment used to test hypotheses regarding the vote-buy gap.

Note: Although the amount of participants in Treatment 5 and Treatment 6 indicated is less than the group size, participants believed they were in a group size of 51. Therefore, the actual amount of participants does not affect the decisions that participants purchase and vote.

Logistic Model Predicting Voting Outcomes

Parameter	Model 1	Model 1.2	Model 1.3	Model 1.4	Model 1.5	Model 1.6
Constant	0.0483	-0.1671	-0.9575	-0.4522	-0.1998	2.0311
	(2.622)[a]	(0.047)	(0.085)	(1.009)	(1.097)	(1.513)
Purchased caged vs none	0.1853	0.3588	0.3477	0.3568	0.2960	0.0935
	(0.257)	(0.280)	(0.284)	(0.293)	(0.319)	(0.358)
Purchased cage-free vs none	-0.2001	0.0004	0.0060	-0.0372	-0.1286	-0.6513
	(0.304)	(0.323)	(0.326)	(0.379)	(0.394)	(0.444)
Purchased granola vs none	-0.8202	-0.3448	-0.5012	-0.5211	-0.4431	-0.9687
	(0.931)	(1.026)	(1.054)	(1.082)	(1.124)	(1.456)
Number of participants per group	0.0026	0.0045	0.0043	0.0042	0.0027	0.0017
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
Production practice shown	-0.2174	-0.2032	-0.1769	-0.0893	-0.1053	0.0206
	(0.225)	(0.238)	(0.239)	(0.248)	(0.257)	(0.278)
Previous polling information given	0.1314	0.1650	0.1287	0.1869	0.1613	0.1051
	(0.299)	(0.322)	(0.338)	(0.343)	(0.354)	(0.387)
Extremely liberal vs extremely conservative		1.1395*	1.1858*	1.2608*	1.1824*	1.2084*
		(0.509)	(0.516)	(0.533)	(0.565)	(0.596)
Slightly liberal vs extremely conservative		0.5197	0.5314	0.5090	0.6249	0.9410
		(0.420)	(0.430)	(0.434)	(0.452)	(0.505)
Moderate vs extremely conservative		0.6884	0.6380	0.5758	0.5725	0.6396
		(0.400)	(0.041)	(0.416)	(0.431)	(0.480)
Slightly conservative vs extremely conservative		0.7009	0.7220	0.7589	0.6708	0.8851
		(0.407)	(0.411)	(0.417)	(0.428)	(0.465)
Female vs male		-0.2277	-0.2125	-0.2304	-0.1298	-0.5306
		(0.245)	(0.252)	(0.261)	(0.279)	(0.316)
White vs other ethnicity			0.7983	0.8659	1.2442	1.7046*
			(0.699)	(0.722)	(0.755)	(0.813)
Black vs other ethnicity			1.0779	0.9641	1.4127	1.8200

	(0.989)	(1.011)	(1.037)	(1.171)
Hispanic vs other ethnicity	0.3421	0.4109	0.6858	1.1194
	(0.890)	(0.920)	(0.958)	(1.019)
Native American vs other ethnicity	1.0838	1.1147	1.4175	1.9792
	(0.920)	(0.938)	(0.984)	(1.116)
Asian vs other ethnicity	0.9190	1.0632	1.4571	1.7633
	(0.791)	(0.815)	(0.843)	(0.926)
Native Hawaiian/Pacific Islander vs other ethnicity	0.5539	0.4876	0.8784	2.1074
	(1.586)	(1.602)	(1.748)	(1.833)
Government should advise consumers on what to eat/drink		-0.0889	-0.0893	-0.0356
		(0.109)	(0.112)	(0.121)
Price of item is the most important characteristic vs food safety		-0.4017	-0.3624	-0.7909
		(0.502)	(0.520)	(0.596)
Anticipated taste of item is the most important characteristic vs food safety		0.0005	0.2197	-0.4948
		(0.565)	(0.586)	(0.665)
Healthfulness of item is the most important characteristic vs food safety		-0.4164	-0.2378	-0.8619
		(0.510)	(0.528)	(0.605)
Production practice is the most important characteristic vs food safety		-0.3528	-0.2107	-0.3659
		(0.589)	(0.611)	(0.691)
College of Agricultural Sciences and Natural Resources vs College of Arts & Sciences			-0.6981	-0.6044
			(0.473)	(0.502)
College of Education vs College of Arts & Sciences			-1.0705*	-1.3122*
			(0.507)	(0.553)
College of Engineering, Architecture, and Technology vs College of Arts & Sciences			-0.1292	-0.1690
			(0.523)	(0.561)
College of Human Sciences vs College of Arts & Sciences			- 1.670**	-1.624**
			(0.509)	(0.527)
Spears School of Business vs College of Arts & Sciences			-0.8572	-0.9768*
			(0.467)	(0.495)

Center for Veterinary Health Sciences vs College of Arts & Sciences					12.1617	10.9093
					(771.300)	(778.000)
Other vs College of Arts & Sciences					-0.4203	-0.3675
					(0.530)	(0.563)
Considered how vote may affect other individuals' purchase options						-0.0972
						(0.118)
Purchase the same way if price increased by $2.00						-0.4349
						(0.307)
Believe their vote did not matter						-0.0492
						(0.136)
Do not like to impose their views on others						-0.088
						(0.287)
Outcome of the vote will be fair						-0.2774
						(0.165)
Vote had a positive impact on production practices and animal welfare						-0.2317
						(0.145)
Knew which brands were cage-free eggs and which brands were caged						0.1866
						(0.316)
Picked up purchase selection						-0.4328
						(0.294)
Number of Observations	342	315	314	311	311	296
Likelihood Ratio(Pr>Chi-Sq)	0.6413	0.4723	0.7508	0.7753	0.2457	0.1251
AIC	463.007	429.999	438.936	440.067	437.024	416.306

Note: ** and * denote 1% and 5% significance levels, respectively.

[a] Numbers in parentheses are standard errors.

Table 2. Logistic Model using snack selection, group size, production practice shown, polling information given, and other demographic explanatory variables to determine the probability an individual would vote in favor of the ballot initiative.

Logistic Model Predicting Vote Buy Gap

Parameter	Model 2	Model 2.2	Model 2.3	Model 2.4	Model 2.5	Model 2.6
Constant	-0.0013	0.0473	-1.0139	-1.2671	-1.0498	-0.7351
	(0.3881)[a]	(0.604)	(1.095)	(1.353)	(1.463)	(2.033)
Purchased caged vs cage-free	0.9664**	1.1526**	1.0753**	1.242**	1.7516**	1.8625**
	(0.326)	(0.355)	(0.366)	(0.468)	(0.528)	(0.591)
Number of participants per group	-0.0135	-0.0181*	-0.0199*	-0.0199*	-0.0214*	-0.0234*
	(0.008)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Production practice shown	0.1816	0.1829	0.2611	0.2507	0.1389	0.4085
	(0.317)	(0.337)	(0.347)	(0.362)	(0.386)	(0.417)
Previous polling information given	0.2969	0.4200	0.5696	0.5915	0.4811	0.8639
	(0.410)	(0.443)	(0.484)	(0.490)	(0.512)	(0.585)
Extremely liberal vs extremely conservative		-0.0865	-0.0189	-0.0612	-0.4750	-0.3977
		(0.718)	(0.734)	(0.762)	(0.820)	(0.921)
Slightly liberal vs extremely conservative		-0.0927	-0.0229	-0.0403	-0.2524	-0.3192
		(0.537)	(0.556)	(0.562)	(0.598)	(0.697)
Moderate vs extremely conservative		0.1112	0.4101	0.4254	0.2820	0.5270
		(0.506)	(0.545)	(0.554)	(0.577)	(0.720)
Slightly conservative vs extremely conservative		-0.5582	-0.3439	-0.2566	-0.4316	-0.4618
		(0.509)	(0.525)	(0.534)	(0.561)	(0.641)
Female vs male		0.1339	0.1272	0.1002	-0.0472	-0.2984
		(0.338)	(0.353)	(0.363)	(0.392)	(0.458)
White vs other ethnicity			1.1150	1.2489	1.2762	1.3202
			(0.927)	(0.948)	(0.993)	(1.053)
Black vs other ethnicity			1.5493	1.1680	1.2703	0.9374
			(1.306)	(1.411)	(1.474)	(1.559)
Hispanic vs other ethnicity			1.5493	1.8716	2.3144	2.3345
			(1.306)	(1.391)	(1.468)	(1.586)
Native American vs other ethnicity			0.1710	0.2613	0.4505	0.7560
			(1.188)	(1.222)	(1.328)	(1.363)
Asian vs other ethnicity			-0.0857	0.1976	0.7926	0.4371
			(1.110)	(1.153)	(1.223)	(1.368)
Government should advise consumers on what to eat/drink				-0.0175	-0.0260	-0.0205
				(0.148)	(0.155)	(0.170)
Price of item is the most important characteristic vs food safety				-0.1263	0.0335	0.2047
				(0.742)	(0.779)	(0.839)
Anticipated taste of item is the most important characteristic vs food safety				-0.0802	0.0196	0.1348
				(0.791)	(0.818)	(0.930)
Healthfulness of item is the most important characteristic vs food safety				0.5154	0.6211	0.5897
				(0.795)	(0.835)	(0.878)
Production practice is the most important characteristic vs food safety				0.2185	0.5561	0.9101
				(0.821)	(0.853)	(0.942)

College of Agricultural Sciences and Natural Resources vs College of Arts & Sciences					-0.3636	-0.1749
					(0.632)	(0.684)
College of Education vs College of Arts & Sciences					-0.1815	-0.2616
					(0.735)	(0.830)
College of Engineering, Architecture, and Technology vs College of Arts & Sciences					-0.5628	-0.8414
					(0.751)	(0.840)
College of Human Sciences vs College of Arts & Sciences					1.0317	0.9289
					(0.918)	(0.986)
Spears School of Business vs College of Arts & Sciences					-1.2974	-1.1281
					(0.694)	(0.738)
Other vs College of Arts & Sciences					-0.3435	-0.0956
					(0.776)	(0.844)
Considered how vote may affect other individuals' purchase options						0.1768
						(0.181)
Purchase the same way if price increased by $2.00						-0.2661
						(0.438)
Believe their vote did not matter						0.0969
						(0.203)
Do not like to impose their views on others						0.3179
						(0.433)
Outcome of the vote will be fair						-0.2205
						(0.228)
Vote had a positive impact on production practices and animal welfare						-0.2656
						(0.215)
Knew which brands were cage-free eggs and which brands were not						-0.3700
						(0.521)
Picked up purchase selection						0.1716
						(0.172)
Number of Observations	179	168	167	166	166	160
-2 Log Likelihood	230.604	211.449	204.896	202.238	193.938	176.173
Likelihood Ratio(Pr>Chi-Sq)	0.0122	0.0427	0.0626	0.2040	0.1152	0.1880
AIC	240.604	231.449	234.896	242.238	245.983	244.173

Note: ** and * denote 1% and 5% significance levels, respectively.

[a] Numbers in parentheses are standard errors.

Wald Chi-Square test that all coefficients, excluding the constant, are equal to zero.

Table 3.Logistic Model using snack selection, group size, production practice shown, polling information given, and other demographic explanatory variables to determine the probability an individual would vote in a manner which does not reflect their purchase (e.g. vote in support/purchase caged or vote in opposite/purchase cage-free). Thus, creating a vote/buy gap.

Variable Means from Logistic Model Predicting Voting Outcomes

Variable	Amount of Participants	Mean	Std Deviation	Min	Max
Voting Decision (Vote)	342	0.623	0.485	0	1
Purchased caged (CAT)	342	0.339	0.474	0	1
Purchased cage-free (CFT)	342	0.184	0.388	0	1
Purchased granola (GR)	342	0.015	0.120	0	1
No purchase (None)	342	0.462	0.499	0	1
People per group (N)	342	32.977	22.488	5	51
Production practice shown (Prac)	342	0.500	0.501	0	1
Previous polling information given (Social)	342	0.243	0.429	0	1
Extremely liberal	315	0.114	0.319	0	1
Somewhat liberal	315	0.213	0.410	0	1
Politically moderate	315	0.289	0.454	0	1
Somewhat conservative	315	0.260	0.440	0	1
Extremely conservative	315	0.124	0.330	0	1
Female	342	0.591	0.492	0	1
White	337	0.715	0.452	0	1
Black	337	0.042	0.200	0	1
Hispanic	337	0.039	0.193	0	1
Native American	337	0.039	0.193	0	1
Asian	337	0.131	0.337	0	1
Native Hawaiian or Pacific Islander	337	0.006	0.077	0	1
Other ethnicity	337	0.030	0.170	0	1
Government should advise consumers on what to eat/drink*	335	3.110	1.202	1	5
Price of item is the most important characteristic	342	0.368	0.483	0	1
Anticipated taste of item is the most important characteristic	342	0.152	0.360	0	1
Healthfulness of item is the most important characteristic	342	0.263	0.441	0	1
Production practice is the most important characteristic	342	0.126	0.332	0	1
Safety is the most important characteristic	342	0.079	0.270	0	1
College of Agricultural Sciences and Natural Resources	337	0.175	0.381	0	1
College of Education	337	0.116	0.320	0	1
College of Engineering, Architecture, and Technology	337	0.136	0.344	0	1
College of Human Sciences	337	0.113	0.317	0	1
Spears School of Business	337	0.181	0.386	0	1
Center for Veterinary Health Sciences	337	0.003	0.054	0	1
College of Arts & Sciences	337	0.151	0.359	0	1
Other college of study	337	0.125	0.331	0	1
Considered how vote may affect other individuals' purchase options	328	2.860	1.191	1	5

Purchase the same way if price increased by $2.00	330	0.491	0.501	0	1
Believe their vote did not matter	327	3.413	1.107	1	5
Do not like to impose their views on others*	328	0.460	0.499	0	1
Outcome of the vote will be fair	328	2.369	0.971	1	5
Vote had a positive impact on production practices and animal welfare*	328	2.582	1.083	1	5
Knew which brands were cage-free eggs and which brands were caged*	328	0.649	0.478	0	1
Picked up purchase selection	342	0.336	0.473	0	1

Note: * indicates questions used ranking answers with 1 = strongly agree, 2 = somewhat agree, 3 = neither agree nor disagree, 4 = somewhat disagree, and 5 = strongly disagree.

Table 4. Depicts the amount of participants, mean, standard deviation, and the min/max value for all variables used in the Logistic Model Predicting Voting Outcomes.

Variable Means used in Logistic Model Predicting Vote Buy Gap

| Variable	Amount of Participants		Mean		Std Deviation		Min	Max
Vote Opposite of Purchase (OpVote)	342	179	0.581006	0.494779	0	1	1	
Purchased caged (CAT)	342	179	0.648045	0.47892	0	1	1	
Purchased cage-free (CFT)	342	179	0.351955	0.47892	0	1	1	
People per group (N)	342	179	32.49721	22.61932	5	51	51	
Production practice shown (Prac)	342	179	0.486034	0.501207	0	1	1	
Previous polling information given (Social)	342	179	0.24581	0.431774	0	1	1	
Extremely liberal	315	168	0.077381	0.267994	0	1	1	
Somewhat liberal	315	168	0.214286	0.411553	0	1	1	
Politically moderate	315	168	0.27381	0.447246	0	1	1	
Somewhat conservative	315	168	0.255952	0.4377	0	1	1	
Extremely conservative	315	168	0.178571	0.384138	0	1	1	
Female	342	179	0.608939	0.489357	0	1	1	
White	337	176	0.755682	0.430908	0	1	1	
Black	337	176	0.039773	0.195982	0	1	1	
Hispanic	337	176	0.034091	0.18198	0	1	1	
Native American	337	176	0.045455	0.208893	0	1	1	
Asian	337	176	0.085227	0.280016	0	1	1	
Other ethnicity	337	176	0.034091	0.18198	0	1	1	
Government should advise consumers on what to eat/drink*	335	176	3.0625	1.247426	1	5	5	
Price of item is the most important characteristic	342	179	0.374302	0.4853	0	1	1	
Anticipated taste of item is the most important characteristic	342	179	0.173184	0.379468	0	1	1	
Healthfulness of item is the most important characteristic	342	179	0.178771	0.384235	0	1	1	
Production practice is the most important characteristic	342	179	0.184358	0.388863	0	1	1	
Safety is the most important characteristic	342	179	0.078212	0.269259	0	1	1	
College of Agricultural Sciences and Natural Resources	337	176	0.25	0.434248	0	1	1	
College of Education	337	176	0.119318	0.325087	0	1	1	
College of Engineering, Architecture, and Technology	337	176	0.125	0.331663	0	1	1	
College of Human Sciences	337	176	0.0625	0.242752	0	1	1	

Spears School of Business	337	176	0.181818	0.386795	0	1	1
College of Arts & Sciences	337	176	0.102273	0.303871	0	1	1
Other college of study	337	176	0.159091	0.366804	0	1	1
Considered how vote may affect other individuals' purchase options	328	171	2.830409	1.18342	1	5	5
Purchase the same way if price increased by $2.00	330	172	0.377907	0.48628	0	1	1
Believe their vote did not matter	327	172	3.418605	1.102524	1	5	5
Do not like to impose their views on others*	328	173	0.445087	0.498418	0	1	1
Outcome of the vote will be fair	328	171	2.345029	0.909568	1	5	5
Vote had a positive impact on production practices and animal welfare*	328	171	2.608187	1.081254	1	5	5
Knew which brands were cage-free eggs and which brands were caged*	328	172	0.744186	0.437592	0	1	1
Picked up purchase selection	342	179	0.312849	0.464954	0	1	1

Note: * indicates questions used ranking answers with 1 = strongly agree, 2 = somewhat agree, 3 = neither agree nor disagree, 4 = somewhat disagree, and 5 = strongly disagree.

Table 5. Depicts the amount of participants, mean, standard deviation, and the min/max value for all variables used in the Logistic Model Predicting Vote Buy Gap.
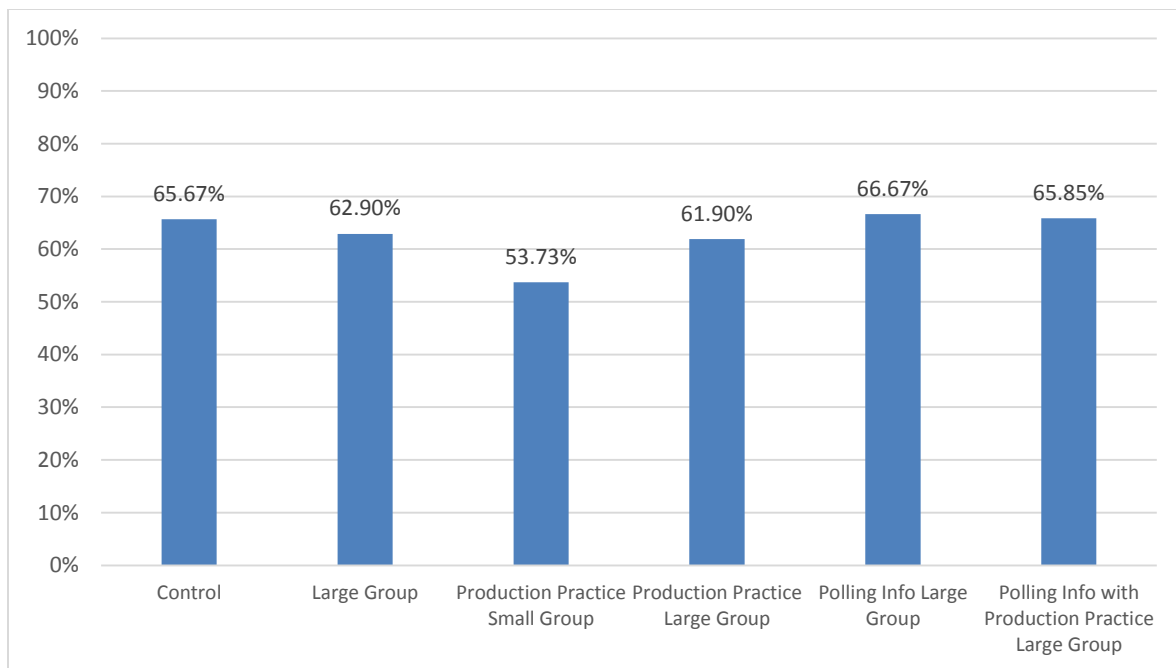
Figure 1. Percentage of participants that voted in support of the proposition banning snacks made with eggs from caged hens by treatment.
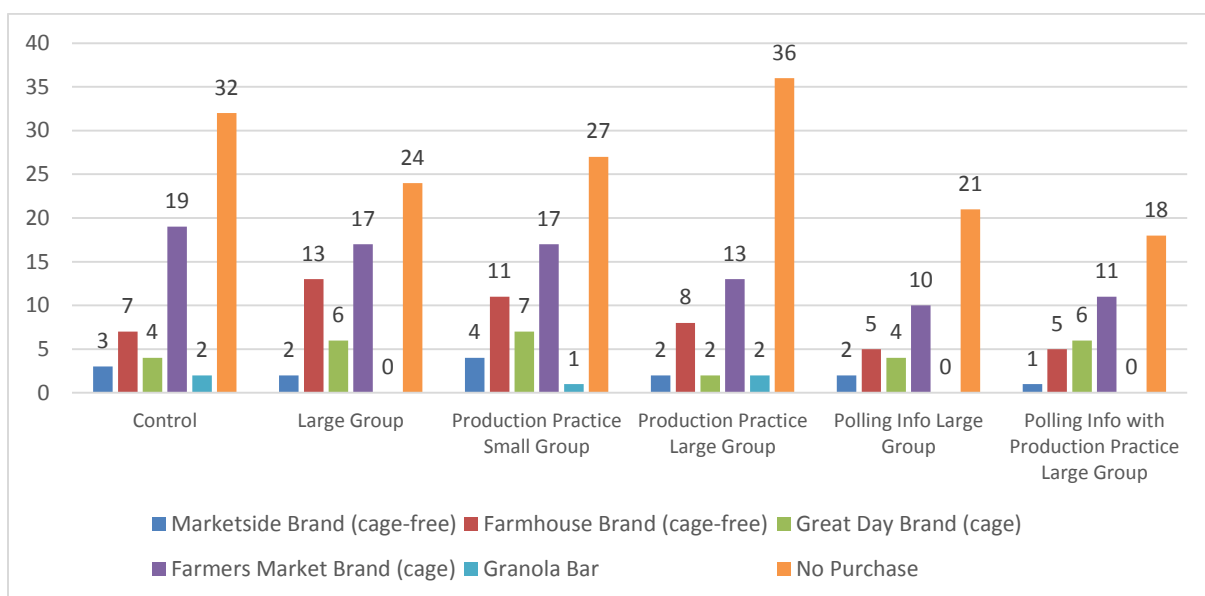
Figure 2. Snack options selected from pre-vote shopping scenario by treatment.
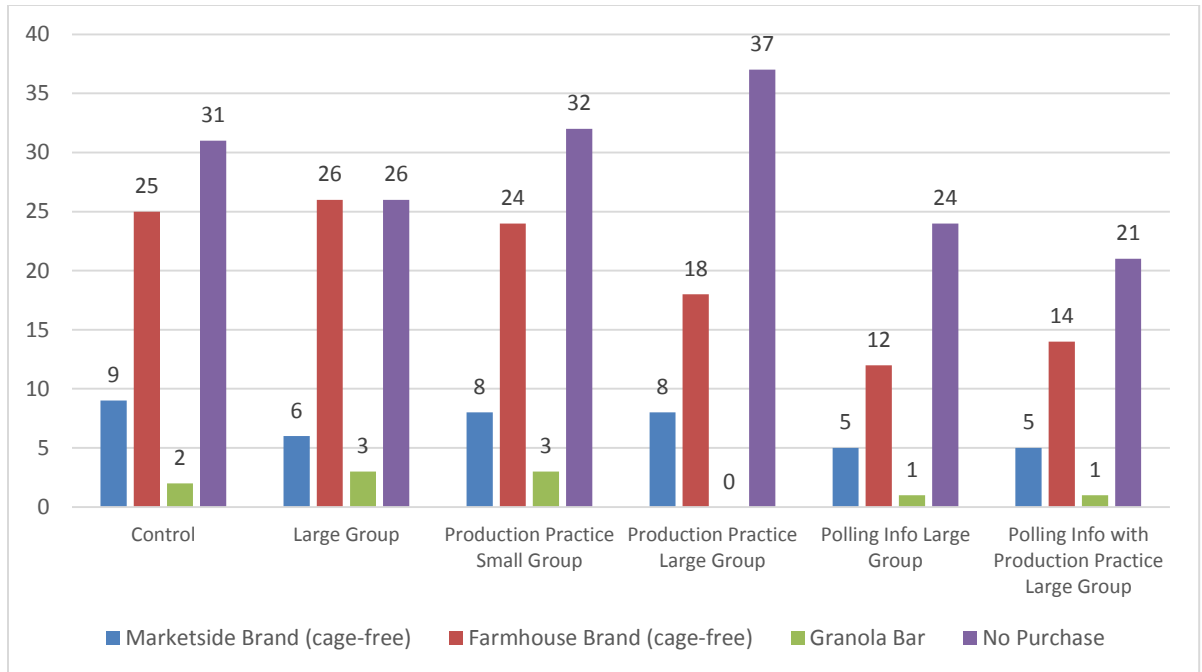
Figure 3. Snack options selected after the vote, assuming the vote passed, by treatment.
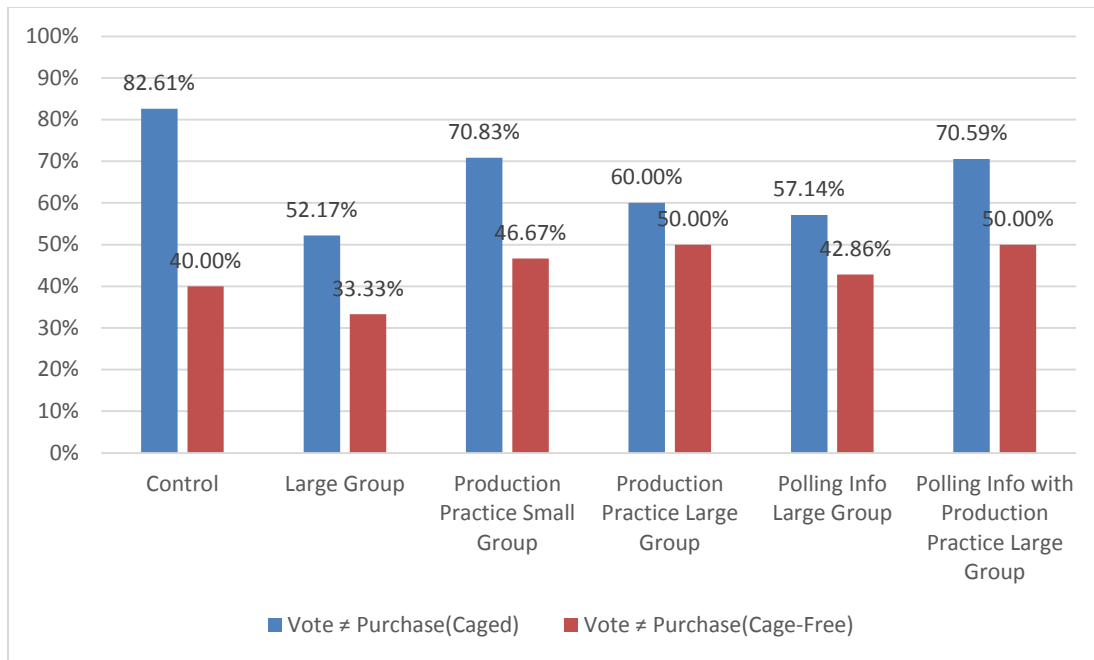
Figure 4. Vote-buy gap percentages for individuals that initially selected caged and cage free eggs by treatment.
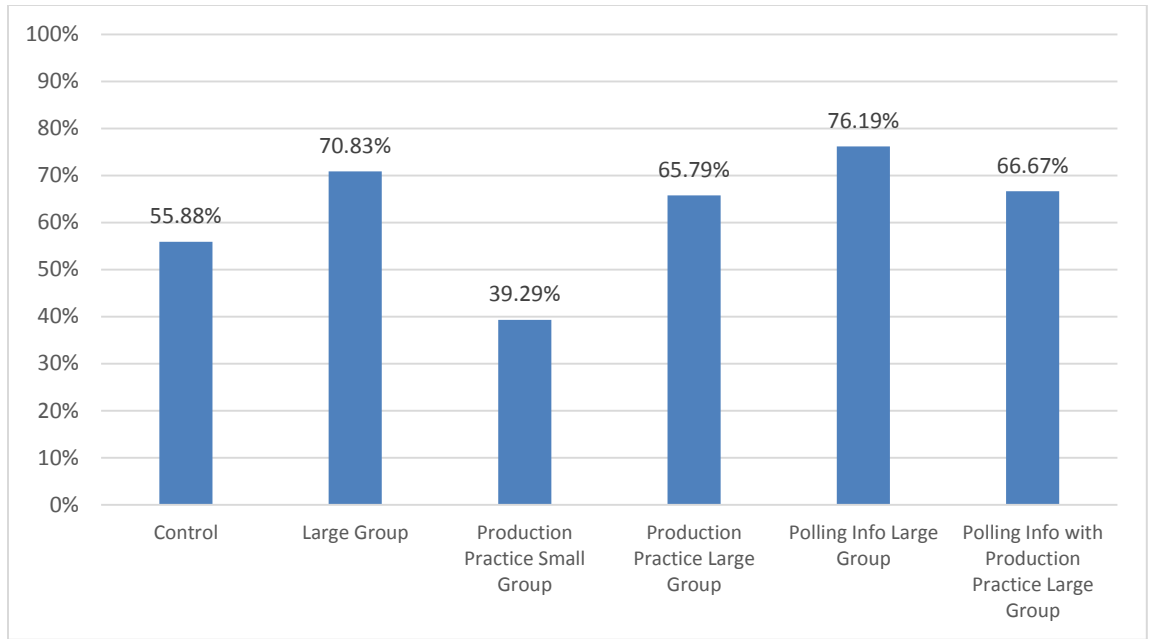
Figure 5. Percent of individuals who selected granola or none as their purchase option who voted in support of the proposed ballot initiative.
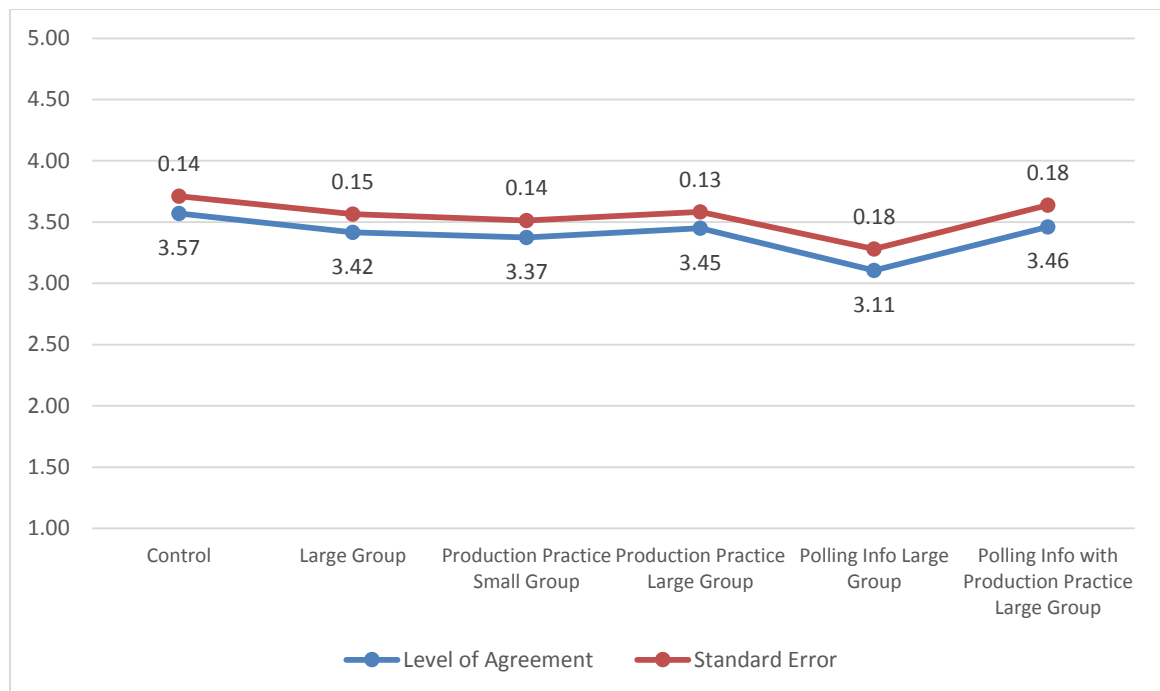
Figure 6. Mean agreement or disagreement with the following statement*: I believe my vote did not matter in this study and the voting outcome would have been the same regardless of my voting decision.* 1 = strongly agree, 2 = somewhat agree, 3 = neither agree nor disagree, 4 = somewhat disagree, and 5 = strongly disagree.
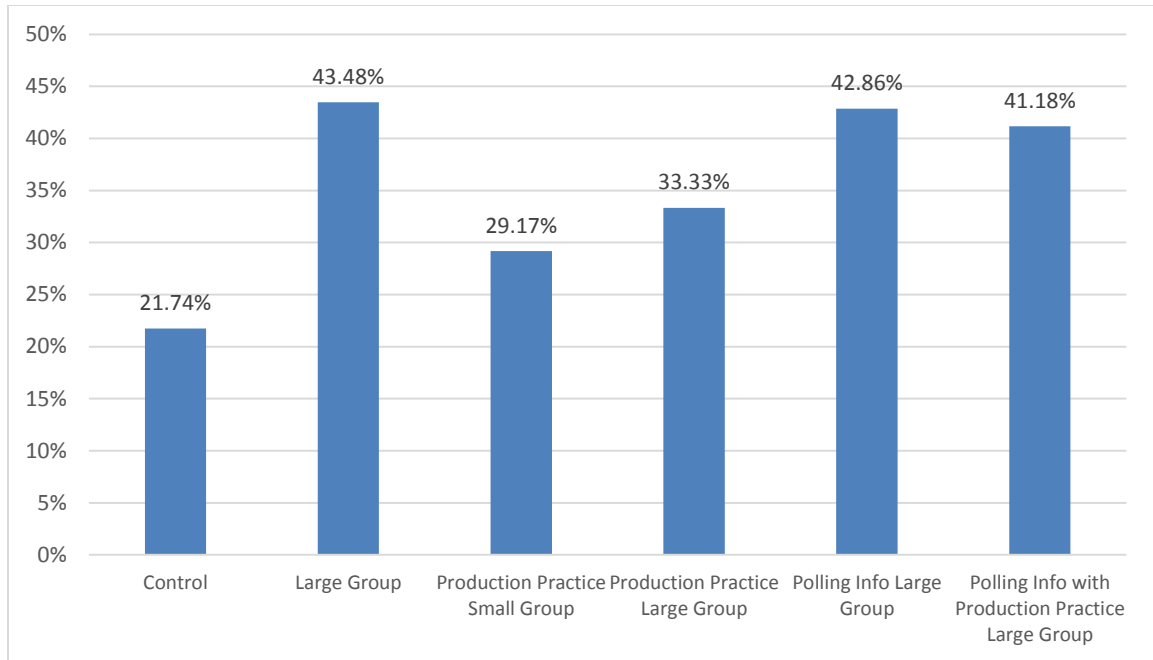
Figure 7. Percent of individuals who originally selected a cookie option before the vote, but did not purchase a cookie option once the cookies made with caged eggs were banned.

Figure 8: Survey

Survey Introduction Used for All Treatments

PARTICIPANT INFORMATION Oklahoma State University   Title: Consumers' Preferences for Food Products Containing Eggs   Investigators: Andrew Paul and Jayson Lusk, PhD   Purpose: The purpose of this research is to determine preferences for different types of cookies in different decision making contexts.   What to Expect: This research will be administered online. You will be asked to make a series of choices between different cookie options that may be purchased. You will be given a total of $10 for participation which can be picked up at a later date. You can use this $10 to purchase cookies. Any remaining money left over after your purchase will be given to you. The specific procedures that will be employed will be explained on your computer screen as you proceed through the experiment. Once the session is completed you will be given a date and time in which you may pick up your remaining money and your food selection. Your participation is expected to last approximately thirty minutes.   Risks: There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.   Benefits: Results from the study will be used to help farmers, food processors, retailers, and regulators make better decisions about how to improve the production and distribution of food in a way that is desirable to consumers.   Compensation: You will be given a credit of $10 at the beginning of this session. You may choose to use some of this money to purchase a food option. After the food purchase, you will be able to keep any of the remaining money. Once the session is completed you will be given a date and time in which you may pick up any remaining money and your food selection. Your participation in today's session is voluntary. In the event that you decide to discontinue your participation at any point, you can still collect the participation fee when you choose to depart.   Your Rights and Confidentiality: Your participation in this research is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time.   Confidentiality: You will be assigned an ID number to assure confidentiality. Your responses are anonymous. We will have no way to link individual's names to responses. In the reports of the data, neither your name nor specific personal information will be released. Results of the survey will only be used in aggregate form and only for research purposes. Data will be stored on hard drive in Mr. Paul's, Dr. Norwood's, and Lusk's offices. We do not intend to destroy the data file. The OSU IRB has the authority to inspect consent records and data files to assure compliance with approved procedures.   Contacts: For any questions about the survey, you may contact Andrew Paul at 421-G Agricultural Hall, Stillwater, OK 74078, 661-201-3573, or andrew.s.paul@okstate.edu. If you have questions about your rights as a research volunteer, you may contact the IRB Office at 223 Scott Hall, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu.   If you choose to participate: Please, click NEXT if you choose to participate. By clicking NEXT, you are indicating that you freely and voluntarily and agree to participate in this study and you also acknowledge that you are at least 18 years of age.   It is recommended that you print a copy of this consent page for your records before you begin the study by clicking below.

As indicated, you will be given $10 in cash for participating in this study. You may use this money to purchase a cookie from the listed items you will be shown. You will also be able to keep any of the remaining money that you do not use in your purchase. Importantly, your decisions are NOT hypothetical. We will REALLY pay you $10. We will REALLY charge you the price of whatever you buy. After your final purchase is selected, you will be able to pick up your money and food selection in room 419 located in Ag Hall on March 8, 2016 or March 9, 2016 between 9 a.m. - 11 a.m. and 2 p.m. - 5 p.m. To ensure confidentiality, and to ensure you receive the proper amount of money, you have been randomly assigned the following ID number: Please write this number down and bring it with you. It is the only way we have of connecting you with your payment. To make sure you understand the incentives, please answer the following questions.

Are your choices on this survey hypothetical or non-hypothetical?

❍ My choices are hypothetical; I won't really be paid or receive food
❍ My choices are not hypothetical; I will really be paid and will pay for food I choose

Where can you pick up your payment for participating?

❍ Student Union
❍ Ag Hall
❍ Library

What is your randomly assigned ID number?

Treatment 1 (Control)

Today you will participate in two decision making exercises. One of these exercises will be randomly selected as binding. Again, your choices are NOT hypothetical. If you choose a cookie at a particular price, you will really be given that cookie and the price will be deducted from your $10 payment. We will now begin the first exercise.

Listed below are four different cookie options made using eggs from different farms. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

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You have been randomly assigned to a group with 5 other participants. You will not know the other individuals in your group, only that the size of your group (including you) is 5. Now, you have the opportunity to vote on a proposition that might affect everyone's cookie choice in your group. If more than 50% of your group (3 or more) vote in favor of the proposition (by selecting "support"), it will pass. If more than 50% of your group (3 or more) vote against the proposition (by selecting "oppose"), it will fail. In the case that the proposition passes, you may have to make a different choice than the one you originally made; we will ask you to do that momentarily, but first vote on the proposition.

Proposition   STANDARDS FOR CONFINING FARM ANIMALS. Requires that chicken eggs used to make cookies in your group come from a system where hens are confined only in ways that allow these animals to lie down, stand up, fully extend their limbs and turn around freely. Please select whether you support or oppose this proposition.

❍ Support requirement that sales of cookies containing chicken eggs in my group meet confinement standards.
❍ Oppose requirement that sales of cookies containing chicken eggs in my group meet confinement standards.

We will not know whether the proposition passes until everyone in your group votes. Just in case the majority of people in your group vote in favor of the proposition, please indicate which options you would prefer given the now more restrictive set of choice options.

Listed below are two different cookie options made using eggs from different farms that comply with the confinement standards in the proposition. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

Chocolate chip cookie made using Marketside Brand Eggs - $2

Chocolate chip cookie made using Farm House Brand Eggs - $2

Granola Bar - $2

None: I do not want to buy any of these options - $0

Treatment 2

Today you will participate in two decision making exercises. One of these exercises will be randomly selected as binding. Again, your choices are NOT hypothetical. If you choose a cookie at a particular price, you will really be given that cookie and the price will be deducted from your $10 payment. We will now begin the first exercise.

Listed below are four different cookie options made using eggs from different farms. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

You have been randomly assigned to a group with 51 other participants. You will not know the other individuals in your group, only that the size of your group (including you) is 51. Now, you have the opportunity to vote on a proposition that might affect everyone's cookie choice in your group. If more than 50% of your group (26 or more) vote in favor of the proposition (by selecting "support"), it will pass. If more than 50% of your group (26 or more) vote against the proposition (by selecting "oppose"), it will fail. In the case that the proposition passes, you may have to make a different choice than the one you originally made; we will ask you to do that momentarily, but first vote on the proposition.

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- ○ Support requirement that sales of cookies containing chicken eggs in my group meet confinement standards.
- ○ Oppose requirement that sales of cookies containing chicken eggs in my group meet confinement standards.

We will not know whether the proposition passes until everyone in your group votes. Just in case the majority of people in your group vote in favor of the proposition, please indicate which options you would prefer given the now more restrictive set of choice options.

Listed below are two different cookie options made using eggs from different farms that comply with the confinement standards in the proposition. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or

granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

○ Chocolate chip cookie made using Marketside Brand Eggs - $2

○ Chocolate chip cookie made using Farm House Brand Eggs - $2

○ Granola Bar - $2

○ None: I do not want to buy any of these options - $0

Treatment 3

Today you will participate in two decision making exercises. One of these exercises will be randomly selected as binding. Again, your choices are NOT hypothetical. If you choose a cookie at a particular price, you will really be given that cookie and the price will be deducted from your $10 payment. We will now begin the first exercise.

Listed below are four different cookie options made using eggs from different farms. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

You have been randomly assigned to a group with 5 other participants. You will not know the other individuals in your group, only that the size of your group (including you) is 5. Now, you have the opportunity to vote on a proposition that might affect everyone's cookie choice in your group. If more than 50% of your group (3 or more) vote in favor of the proposition (by selecting "support"), it will pass. If more than 50% of your group (3 or more) vote against the proposition (by selecting "oppose"), it will fail. In the case that the proposition passes, you may have to make a different choice than the one you originally made; we will ask you to do that momentarily, but first vote on the proposition.

Proposition   STANDARDS FOR CONFINING FARM ANIMALS. Requires that chicken eggs used to make cookies in your group come from a system where hens are confined only in ways that

allow these animals to lie down, stand up, fully extend their limbs and turn around freely. Please select whether you support or oppose this proposition.

○ Support requirement that sales of cookies containing chicken eggs in my group meet confinement standards.
○ Oppose requirement that sales of cookies containing chicken eggs in my group meet confinement standards.

We will not know whether the proposition passes until everyone in your group votes. Just in case the majority of people in your group vote in favor of the proposition, please indicate which options you would prefer given the now more restrictive set of choice options.

Listed below are two different cookie options made using eggs from different farms that comply with the confinement standards in the proposition. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

○ Chocolate chip cookie made using Marketside Brand Eggs (brown, cage-free) - $2

○ Chocolate chip cookie made using Farm House Brand Eggs (brown, cage-free) - $2

○ Granola Bar - $2

○ None: I do not want to buy any of these options - $0

Treatment 4

Today you will participate in two decision making exercises. One of these exercises will be randomly selected as binding. Again, your choices are NOT hypothetical. If you choose a cookie at a particular price, you will really be given that cookie and the price will be deducted from your $10 payment. We will now begin the first exercise.

Listed below are four different cookie options made using eggs from different farms. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

You have been randomly assigned to a group with 51 other participants. You will not know the other individuals in your group, only that the size of your group (including you) is 51. Now, you have the opportunity to vote on a proposition that might affect everyone's cookie choice in your group. If more than 50% of your group (26 or more) vote in favor of the proposition (by selecting "support"), it will pass. If more than 50% of your group (26 or more) vote against the proposition (by selecting "oppose"), it will fail. In the case that the proposition passes, you may have to make a different choice than the one you originally made; we will ask you to do that momentarily, but first vote on the proposition.

Proposition   STANDARDS FOR CONFINING FARM ANIMALS. Requires that chicken eggs used to make cookies in your group come from a system where hens are confined only in ways that allow these animals to lie down, stand up, fully extend their limbs and turn around freely. Please select whether you support or oppose this proposition.

○ Support requirement that sales of cookies containing chicken eggs in my group meet confinement standards.
○ Oppose requirement that sales of cookies containing chicken eggs in my group meet confinement standards.

We will not know whether the proposition passes until everyone in your group votes. Just in case the majority of people in your group vote in favor of the proposition, please indicate which options you would prefer given the now more restrictive set of choice options.

Listed below are two different cookie options made using eggs from different farms that comply with the confinement standards in the proposition. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

○ Chocolate chip cookie made using Marketside Brand Eggs (brown, cage-free) - $2

○ Chocolate chip cookie made using Farm House Brand Eggs (brown, cage-free) - $2

○ Granola Bar - $2

○ None: I do not want to buy any of these options - $0

Treatment 5

Today you will participate in two decision making exercises. One of these exercises will be randomly selected as binding. Again, your choices are NOT hypothetical. If you choose a cookie at a particular price, you will really be given that cookie and the price will be deducted from your $10 payment. We will now begin the first exercise.

Listed below are four different cookie options made using eggs from different farms. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

You have been randomly assigned to a group with 51 other participants. You will not know the other individuals in your group, only that the size of your group (including you) is 51.   Now, you have the opportunity to vote on a proposition that might affect everyone's cookie choice in your group. If more than 50% of your group (26 or more) vote in favor of the proposition (by selecting "support"), it will pass. If more than 50% of your group (26 or more) vote against the proposition (by selecting "oppose"), it will fail.   For your information, we have polled other Oklahoma State students to ask how they would vote on an initiative like this. 62.90% of respondents to this poll said they would vote in favor of the initiative.   In the case that the proposition passes, you may have to make a different choice than the one you originally made; we will ask you to do that momentarily, but first vote on the proposition.

Proposition   STANDARDS FOR CONFINING FARM ANIMALS. Requires that chicken eggs used to make cookies in your group come from a system where hens are confined only in ways that allow these animals to lie down, stand up, fully extend their limbs and turn around freely. Please select whether you support or oppose this proposition.

○ Support requirement that sales of cookies containing chicken eggs in my group meet confinement standards.
○ Oppose requirement that sales of cookies containing chicken eggs in my group meet confinement standards.

We will not know whether the proposition passes until everyone in your group votes. Just in case the majority of people in your group vote in favor of the proposition, please indicate which options you would prefer given the now more restrictive set of choice options.

Listed below are two different cookie options made using eggs from different farms that comply with the confinement standards in the proposition. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

Chocolate chip cookie made using Marketside Brand Eggs - $2

Chocolate chip cookie made using Farm House Brand Eggs - $2

Granola Bar - $2

None: I do not want to buy any of these options - $0

Treatment 6

Today you will participate in two decision making exercises. One of these exercises will be randomly selected as binding. Again, your choices are NOT hypothetical. If you choose a cookie at a particular price, you will really be given that cookie and the price will be deducted from your $10 payment. We will now begin the first exercise.

Listed below are four different cookie options made using eggs from different farms. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

You have been randomly assigned to a group with 51 other participants. You will not know the other individuals in your group, only that the size of your group (including you) is 51.   Now, you have the opportunity to vote on a proposition that might affect everyone's cookie choice in your group. If more than 50% of your group (26 or more) vote in favor of the proposition (by selecting "support"), it will pass. If more than 50% of your group (26 or more) vote against the proposition (by selecting "oppose"), it will fail. For your information, we have polled other Oklahoma State students to ask how they would vote on an initiative like this. 61.9% of respondents to this poll said they would vote in favor of the initiative.   In the case that the proposition passes, you may have to make a different choice than the one you originally made; we will ask you to do that momentarily, but first vote on the proposition.

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Proposition   STANDARDS FOR CONFINING FARM ANIMALS. Requires that chicken eggs used to make cookies in your group come from a system where hens are confined only in ways that allow these animals to lie down, stand up, fully extend their limbs and turn around freely. Please select whether you support or oppose this proposition.

○ Support requirement that sales of cookies containing chicken eggs in my group meet confinement standards.
○ Oppose requirement that sales of cookies containing chicken eggs in my group meet confinement standards.

We will not know whether the proposition passes until everyone in your group votes. Just in case the majority of people in your group vote in favor of the proposition, please indicate which options you would prefer given the now more restrictive set of choice options.

Listed below are two different cookie options made using eggs from different farms that comply with the confinement standards in the proposition. Please select the cookie (or granola bar) that you prefer. Recall, if this decision is ultimately binding, then you will really get the cookie or granola bar you selected and the price indicated will be deducted from the $10 cash credit you were given at the beginning of this session.

○ Chocolate chip cookie made using Marketside Brand Eggs (brown, cage-free) - $2

○ Chocolate chip cookie made using Farm House Brand Eggs (brown, cage-free) - $2

○ Granola Bar - $2

○ None: I do not want to buy any of these options - $0

End of Survey Questionnaire Used for All Treatments

Please answer the following questions beginning on the next page.

Q44 Are you the primary shopper for food in your household?

❍ Yes
❍ No
❍ The food shopping responsibilities in my household are equally shared.

Q45 Are you on a diet?

❍ Yes
❍ No

Q46 Is there anything special about today that influenced your decision on your purchase?

❍ Yes - Explain: _____
❍ No

Q47 Are you vegetarian, vegan etc.?

❍ Vegetarian
❍ Vegan
❍ Other
❍ Most of the time
❍ No

Q48 Do you agree or disagree that: The government should advise consumers on what to eat/drink?

❍ Strongly agree
❍ Somewhat agree
❍ Neither agree nor disagree
❍ Somewhat disagree
❍ Strongly disagree

Q49 Do you agree or disagree that: The government should limit what consumers can eat/drink?

○ Strongly agree
○ Somewhat agree
○ Neither agree nor disagree
○ Somewhat disagree
○ Strongly disagree

Q50 Do you agree or disagree that: I thought very hard about the purchase choice I selected today?

○ Strongly agree
○ Somewhat agree
○ Neither agree nor disagree
○ Somewhat disagree
○ Strongly disagree

Q51 Which item characteristic is most important to you when making your purchase choice?

○ Price
○ Anticipated taste
○ Healthfulness
○ Production practice (cage-free, organic, caged, color of egg)
○ Safety (low risk of food-borne illness)

Q52 When it comes to politics, do you usually think of yourself as liberal or conservative?

○ Extremely liberal
○ Slightly liberal
○ Moderate
○ Slightly conservative
○ Extremely conservative
○ I don't know

Q53 Do you agree or disagree with the following statement: "I trust in the U.S. Food and Drug Administration."

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Q54 Which political party do you most identify with?

○ Democrat
○ Republican
○ Libertarian
○ Tea Party
○ I am independent
○ Other (e.g., Green)

Q55 Are you married?

○ Yes
○ No

Q56 What is your gender?

○ Male
○ Female

Q57 Do you or does anyone in your immediate family (grandparents, parents, siblings, aunts, or uncles) farm or ranch for a living?

○ Yes
○ No

Q58 Which college are you in?

○ CASNR
○ CAS
○ Education
○ CEAT
○ Human Sciences
○ Spears School of Business
○ CVHS
○ Other

Q59 What is your age?

- ○ 18 years
- ○ 19 years
- ○ 20 years
- ○ 21 years
- ○ 22 years
- ○ 23 years
- ○ 24 years
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- ○ 28 years
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- ○ 94 years
- ○ 95 years
- ○ 96 years
- ○ 97 years
- ○ 98 years

○ 99 years

Q60 At your current residence, what is your household size? This is the total number of people in your household including yourself.

○ 1 person
○ 2 people
○ 3 people
○ 4 people
○ 5 or more people

Q61 What is your education level thus far?

○ Some college
○ Bachelor's degree
○ Graduate degree

Q62 What race or ethnicity do you consider yourself?

○ White
○ Black or African American
○ Hispanic
○ American Indian
○ Asian
○ Native Hawaiian or Other Pacific Islander
○ Other

Q63 Are you financially supported by:

○ No one
○ Parents
○ Spouse
○ Other

Q64 If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

- ○ 100 minutes
- ○ 5 minutes

Q65 In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half the lake?

- ○ 24 days
- ○ 47 days

Q66 Do you agree or disagree: Purchasing local foods is the best option?

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Q67 I voted in favor of the ballot initiative during the session.

- ○ Yes
- ○ No

Q68 When voting do you agree or disagree: I considered how my vote may affect other individuals' purchase options?

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Q69 If the prices were to be raised on each product by $2, would you have spent the $10 in the same way?

○ Yes
○ No

Q70 Do you agree or disagree: I believe my vote did not matter in this study and the voting outcome would have been the same regardless of my voting decision?

○ Strongly agree
○ Somewhat agree
○ Neither agree nor disagree
○ Somewhat disagree
○ Strongly disagree

Q71 Do you agree or disagree: I don't like imposing my views on my group members?

○ Yes, I do
○ No, I do not

Q72 Do you agree or disagree: I am nervous about the outcome of this vote.

○ Strongly agree
○ Somewhat agree
○ Neither agree or disagree
○ Somewhat disagree
○ Strongly disagree

Q73 Do you agree or disagree: The outcome of the vote will be fair.

○ Strongly agree
○ Somewhat agree
○ Neither agree nor disagree
○ Somewhat disagree
○ Strongly disagree

Q74 Do you agree or disagree: I feel that my vote had a positive impact on production practices and animal welfare.

❍ Strongly agree
❍ Somewhat agree
❍ Neither agree nor disagree
❍ Somewhat disagree
❍ Strongly disagree

Q75 When selecting my purchase option, I knew which brands were cage-free chicken eggs and which brands were not.

❍ Yes
❍ No

Q76 How many people were in your group?

❍ 5
❍ 26
❍ 51

Thank you for participating.   You will be able to pick up your money and food selection in room 419 located in Ag Hall on March 8, 2016 or March 9, 2016 between 9 a.m. - 11 a.m. and 2 p.m. - 5 p.m.   Please, remember to bring with you your randomly assigned ID number. For any questions, you may contact Andrew Paul at 421-G Agricultural Hall, Stillwater, OK 74078, 661-201-3573, or andrew.s.paul@okstate.edu
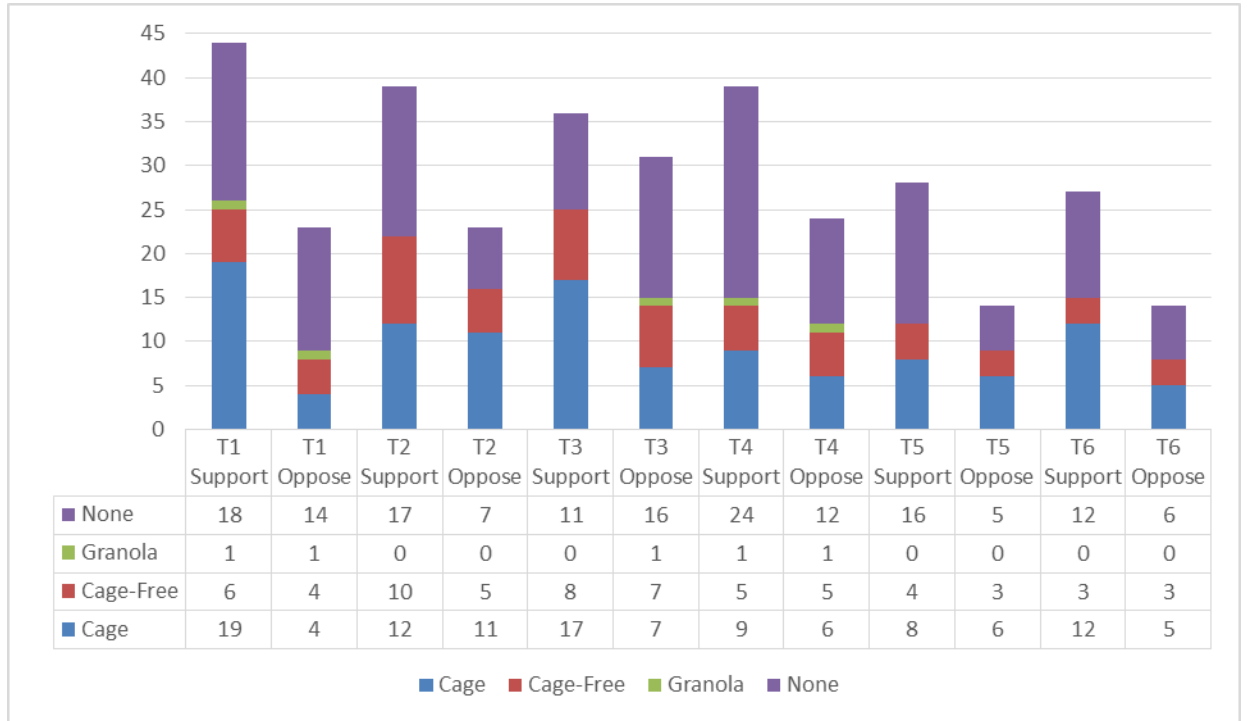
Figure 9. Pre-vote snack selection and vote preference by treatment.

VITA

Andrew Stephen Paul

Candidate for the Degree of

Master of Science

Thesis: ANDREW STEPHEN PAUL

Major Field: Agricultural Economics

Biographical:

        Education:

        Completed the requirements for the Master of Science in agricultural economics
        at Oklahoma State University, Stillwater, Oklahoma in July, 2016.

        Completed the requirements for the Bachelor of Science in business
        administration management at Oklahoma State University, Stillwater,
        Oklahoma in 2013.

        Experience:

        Graduate research assistant in the Department of Agricultural Economics at
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