Exhibit E

R-CALF v. USDA
Case No. 1:20-cv-02552-RDM

UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF COLUMBIA

RANCHERS-CATTLEMEN ACTION LEGAL FUND, UNITED STOCKGROWERS OF AMERICA, PO Box 30715 Billings, MT 59107 *Plaintiff,* v. UNITED STATES DEPARTMENT OF AGRICULTURE, 1400 Independence Ave., SW Washington, DC 20250, and THOMAS J. VILSACK, in his official capacity as Secretary of the United States Department of Agriculture, 1400 Independence Ave., SW Washington, DC 20250, *Defendants.*	Case No. 20-2552

SUPPLEMENTAL REPORT OF CLAUDIU V. DIMOFTE, PH.D.

I, DR. CLAUDIU DIMOFTE, hereby declare the following:

1. My name is Claudiu Dimofte. I am over the age of 18 and I have personal knowledge of the facts set herein and, if called upon, I could competently testify thereto. I incorporate by reference my prior expert report, dated December 31, 2022.

2. In my December 31, 2022 report, I stated: "Across six studies performed according to the field's best practices, this report finds that the speech (i.e., advertising) funded by the Beef Checkoff program has harmful effects on domestic cattle producers, as alleged. These effects are reliable and consistent at national and state levels. The findings also show that alternative (but very similar) forms of speech (i.e., advertising) that provide consumers with minimal information regarding domestic beef producers (even without explicitly promoting them) may be able to avoid and reverse the harmful effects of current Beef Checkoff campaigns on R-CALF members." Dec. 31, 2022 Dimofte Expert Report ¶¶ 27-28.

3. I have recently been provided several documents that the Defendants produced after my expert report was concluded (i.e., "Expert Rebuttal Report by Harry M. Kaiser, Ph.D." of March 1, 2023, "Deposition of Harry M. Kaiser, Ph.D." or March 17, 2023, and "Supplemental Report by Harry M. Kaiser, Ph.D." of April 17, 2023[1]). Given their direct relevance to my opinion, and the fact that the ideas expressed in the HK Deposition and HK Supplemental overlap with some of those made in the HK Rebuttal without correcting all the errors identified in the latter, I am supplementing my original report as follows.

4. Despite Dr. Kaiser's acknowledgment of a lack of familiarity with marketing research in general (HK Deposition 79:18-22) and the use of ANCOVA in particular (HK Deposition 79:18-

[1] Referred to hereafter as *HK Rebuttal, HK Deposition*, and *HK Supplemental*, respectively.

22), the HK Supplemental (¶¶ 1) doubles down on a prior claim[2] according to which ANOVA is not sufficient to analyze the data in my expert report and multiple regression is required instead.

5. To begin with, the general claim regarding the presumed inability of the statistical analysis procedure employed in my expert report (i.e., analysis of variance – ANOVA) to identify differences across groups in a between-subjects design (HK Rebuttal ¶¶ 26, HK Supplemental ¶¶ 1, 2) is incorrect and flies in the face of decades of social and cognitive psychology research.

6. As described in my expert report and in line with best practices, respondents were randomly assigned to one of three experimental conditions of which they were unaware, within a design that included both control and treatment conditions. Random assignment to condition is one of the fundamental principles of experimental design.

7. In his seminal work on experimental design, Fisher (1949) argued that randomization eliminates bias and permits a valid test of significance. In particular, he stated that randomization is "the only point in the experimental procedure in which the laws of chance, which are to be in exclusive control of our frequency distribution, have been explicitly introduced" (Fisher, 1949, p. 19) and that, critically, "it may be said that the simple precaution of randomization will suffice to guarantee the validity of the test of significance, by which the result of the experiment is to be judged" (Fisher, 1949, p. 21).

8. Countless methodological papers and textbooks have reinforced this basic tenet over the years. For example, a recent textbook on experimental design argues that "The sine qua non of internal validity is random assignment of treatment to experimental units […]. Random treatment

[2] The HK Rebuttal claims that "contrary to Dr. Dimofte's one-way ANOVA findings, multiple regression analysis showed no harm to R-CALF members using the meta-analysis data because it did not show either willingness to pay or intent to purchase to be any different between the unaltered ad group and the altered ad group" (¶¶ 49). As explained below, this claim is based on fatally flawed analyses in the HK Rebuttal and the HK Supplemental that employ inappropriate data and variable selection procedures. As such, it lacks validity and cannot be relied upon.

assignment (also called randomization) is usually the best way to assure that all of the potential confounding variables are equal on average (also called balanced) among the treatment groups" (Seltman, 2018, p. 194).

9. Indeed, all of the potential confounding variables in my data were equal on average (i.e., balanced) among the treatment groups. Not a single one of the ANOVAs that I performed on the variables that could justifiably be considered relevant covariates[3] found a statistically significant effect of treatment condition across the full sample ($N = 1070$). This demonstrates that the original ANOVA was indeed appropriate and sufficient, as expected.

10. Given the appropriateness and effectiveness of randomization to ensure the lack of non-treatment differences across conditions, the insistence that one must take extra steps to control for differences in household-demographics-socioeconomic factors via multiple regressions (HK Rebuttal ¶¶ 26, HK Supplemental ¶¶ 2) is unjustified. Specific concerns about the insufficiency of randomization should be properly documented and supported, beyond mere declarative statements that challenge basic scientific tenets.

11. Nonetheless, even if such concerns were somehow warranted (although clearly they are not), the ANOVA procedure could be altered to simply account for these non-treatment variables (i.e., control for differences in household-demographics-socioeconomic factors). When performed properly, this ANCOVA (i.e., analysis of covariance) procedure produces, expectedly, the same results as the original ANOVA (as shown below).

12. I will first address the HK Rebuttal, as the errors therein (despite acknowledged as rendering the HK Rebuttal analysis unreliable in the HK Deposition – e.g., 199:5-200:11, 244:2-20), are largely repeated in the HK Supplement (wherein Dr. Kaiser does not truly alter his approach).

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[3] These variables are: INCOME, GENDER, EMPLOY, EATER, EDU, MARITAL, KIDS, AGE, AWARE1, DIDBEEF, EXPLICIT, SHOPPER, and STATE.

Moreover, while Dr. Kaiser acknowledges some errors in his rebuttal analysis (e.g., HK Supplement ¶¶ 4), he fails to admit to all of them.

13. The following paragraphs will replicate the alternative analyses provided in the HK Rebuttal, demonstrate their fatal flaws as they fail to follow basic data analysis best practices, and show that – when performed correctly – multiple regression analyses are perfectly consistent with the analyses (and fully supportive of the findings) presented in my original expert report.

14. As a refresher, a one-way analysis of variance (ANOVA) is used with a categorical independent variable and an interval or continuous dependent variable when one wishes to test for differences in the mean values of the dependent variable across the levels of the independent variable (i.e., the exact case of the experimental design employed in my expert report). When the effect of other variables (covariates) on the dependent variable is to be accounted for, it becomes an analysis of covariance (ANCOVA).

15. While similar to a multiple regression analysis, ANCOVA is more appropriate when "the categorical variable is a treatment of primary interest, and the quantitative variable is a "control variable" of secondary interest" (Seltman, 2018, p. 256). Indeed, the primary interest of the design employed in my expert report revolves around the treatment consisting of consumer exposure to different types of beef advertising.

16. Clearly, the selection of covariates is a critical decision with direct implications for the observed results. Key issues when selecting covariates are their relevance and appropriateness. Critically, covariates should not be related to the independent variable and should ideally not be measured after the treatment (Gelman and Hill, 2006), which suggests that their selection should be rigorous and properly justified.

17. Prior literature strongly cautions about the inappropriate use of covariates. For example, "Just because we can include covariates in our analyses does not mean we should include them. Unless they are carefully chosen, covariate adjustment can do more harm than good. […] A second, and perhaps more important, consideration is that the covariates must be independent of the intervention. If the covariates are related to it, then removing their effect also removes part of the effect of the intervention from the DV [dependent variable], a situation called 'over-control' or 'over adjustment.' […] The ideal covariates are those that are related to intrinsic properties of the participants, such as age or sex, or are measured before the randomization" (Streiner, 2016, p. 4). Similarly, "Modern literature on ANCOVA began with Cochran (1957), who stated, "[I]t is important to verify that the treatments have had no effect on" the covariate and "a covariance adjustment… may remove most of the real treatment effect" (Miller and Chapman, 2001, p. 264)." Thus, an important "assumption in the [ANCOVA] design is that the covariate and the treatment are independent" (Cardinal and Aitken, 2013) and therefore "We recommend controlling for pre-treatment covariates when estimating causal effects in experiments and observational studies. However, it is generally not a good idea to control for variables measured after the treatment" (Gelman and Hill, 2006, p. 188).

18. In line with these basic requirements for valid and reliable data analysis and despite acknowledgments in the HK Deposition (199:5-200:11, 244:2-20) and HK Supplemental (¶¶ 4) that the multiple regressions included in the HK Rebuttal were riddled with errors, the problems therein are even more significant than disclosed. For example, only some of the covariates employed in the HK Rebuttal multiple regressions were appropriate. They include INCOME, GENDER, EMPLOY, EDU, MARITAL, KIDS, AGE, DIDBEEF, and STATE. Several other variables were potentially inappropriate given that they were measured after treatment: EATER, AWARE1, SHOPPER, and

EXPLICIT. Finally, three of the employed variables were clearly inappropriate as covariates given that they were both related to treatment[4] and measured after it: COMMODITY13, SOURCE, and ADINFL. In fact, COMMODITY 13[5] is explicitly employed as a dependent measure (i.e., a variable expected to be influenced by the experimental treatment) in my expert report (e.g., Dec. 31, 2022 Dimofte Expert Report ¶¶ 52, 68, 87, 93, 99, 105, 111, 118). This is a fatal flaw that invalidates the HK Rebuttal analyses and renders them unreliable.

19. The analyses in the HK Rebuttal also unnecessarily trim the combined data file by removing all respondents who did not provide full data. Software packages generally adjust their analyses to account for all available data, which is a preferable approach to that of indiscriminately removing valid observations on specific variables and thus reducing the overall sample size and therefore statistical power.[6]

20. Most importantly, the HK Supplement (¶¶ 4) admits to another critical error, whereby the HK Rebuttal analyses incorrectly included respondents whose specific variable response choices render them inappropriate for analysis. For example, my expert report clearly describes the coding categories associated with each variable, including the use (in line with best survey design practices) of a "do not know / no opinion" response option where appropriate (see Dec. 31, 2022 Dimofte Expert Report ¶¶ 50, 52, 53, 54, 55, 57; also see Appendix F therein).[7]

21. The HK Rebuttal fails to eliminate from its analyses the respondents who select this response option, instead mistakenly treating them as quantitative values of larger magnitude than the

[4] "Treatment" refers to an independent variable (e.g., beef advertising type) manipulated in an experimental design.

[5] The HK Rebuttal incorrectly labels/refers to this. The variable is in fact labeled COMMODITY3 in my expert report. This error is acknowledged in the HK Deposition (211:20-212:3).

[6] Statistical power represents the probability of a hypothesis test identifying a significant effect if one exists (i.e., the probability of correctly rejecting the null hypothesis). For a set level of statistical significance and effect size, power increases with sample size (Cohen, 1992).

[7] Despite my expert report providing all details necessary, Dr. Kaiser performed analyses without an awareness of what the variables represented (HK Deposition. 205: 10-19) and how they were coded (e.g., HK Deposition 207: 10-13, 209:4-9), both key errors that severely undermine the reliability of the HK Rebuttal.

other response categories. For example, on a willingness-to-pay scale anchored at 1 = *under $5/lb* and 5 = *$11/lb or more*, the selection of the response category 6 = *do not know / no opinion* erroneously considers the respective response as displaying the highest willingness to pay rather than lack of knowledge or opinion. Similarly, on an attribute importance scale anchored at 1 = *extremely unimportant* and 7 = *extremely important*, the selection of the response category 8 = *do not know / no opinion* erroneously treats the respective response as deeming the measured attribute of the highest importance rather than showing lack of knowledge or opinion.[8] This is a fatal flaw that invalidates the HK Rebuttal analyses and renders them unreliable.

22. For the willingness-to-pay (WTP) measure, the HK Rebuttal multiple regression analyses (with an incorrectly trimmed data set and incorrect selection of covariates) produced the outputs in Figures 1 and 2 in the Appendix. Figures 3 and 4 in the Appendix display my replication of these analyses with Dr. Kaiser's data set. Figures 5 and 6 in the Appendix show the analysis outputs when the analyses are properly conducted (i.e., they include all available data points, properly discard "do not know/no opinion" responses, and remove all inappropriate covariates: COMMODITY13, SOURCE, ADINFL). Finally, Figure 7 in the Appendix presents the same properly conducted multiple regression analysis as an ANCOVA with statistical contrasts.

23. In short, when properly performed, analyses that include covariates clearly replicate and reinforce the original meta-analysis conclusion: the current, generic Beef Checkoff ads did not improve willingness-to-pay relative to lack of beef advertising, whereas the adjusted Beef Checkoff ads significantly improved willingness-to-pay relative to both lack of beef advertising and the current Beef Checkoff ads.

[8] Although the HK Rebuttal (¶¶ 32) discusses the beef attribute importance variables explicitly (incidentally, mistakenly referring to their measurement as ranking rather than rating), the accompanying data file does not include these variables (they were apparently not deemed to be relevant covariates, unlike in the subsequent HK Supplemental). In the absence of the data it is difficult to be certain, but it appears that the importance scores of 8 were not discarded.

24. For the purchase intent (ACT) measure, the HK Rebuttal multiple regression analyses (with an incorrectly trimmed data set and incorrect selection of covariates) produced the outputs in Figures 8 and 9 in the Appendix. Figures 10 and 11 in the Appendix display my replication of these analyses. Figures 12 and 13 in the Appendix show the analysis outputs when the analyses are properly conducted (i.e., they include all available data points, discard "do not know/no opinion" responses, and remove all inappropriate covariates: COMMODITY13, SOURCE, ADINFL). Finally, Figure 14 in the Appendix presents the same properly conducted multiple regression analysis as an ANCOVA with statistical contrasts.

25. In short, when properly performed, analyses that include covariates clearly replicate and reinforce the original meta-analysis conclusion: both the current, generic Beef Checkoff ads and the adjusted Beef Checkoff ones significantly improved consumer desire to purchase beef relative to lack of beef advertising. The two types of Beef Checkoff ads did not differ significantly in terms of their impact of consumer purchase intent.

26. For the beef-as-commodity (COMMODITY3) dependent measure, the HK Rebuttal did not include any regression analyses, although Dr. Kaiser now appears to effectively concede that it is a dependent variable. Unlike the HK Rebuttal, the HK Supplemental (¶¶ 4, 5) does not use it as a control variable anymore, while the HK Deposition (217:11-22) suggests that the only reason Dr. Kaiser used it as a control was because he did not know what the variable represented. Therefore, I assume that had he correctly identified the variable in the HK Rebuttal, he would have performed the same regression for COMMODITY13 as for WTP and ACT.

27. Outputs for analyses employing the same erroneous assumptions as in the HK Rebuttal WTP and ACT analyses (less the use of COMMODITY13 as covariate) are presented in Figures 15 and 16 in the Appendix. Figures 17 and 18 in the Appendix show the analysis outputs

when the analyses are properly conducted (i.e., they include all available data points, discard "do not know/no opinion" responses, and remove inappropriate covariates: SOURCE, ADINFL). Finally, Figure 19 in the Appendix presents the same properly conducted multiple regression analysis as an ANCOVA with statistical contrasts.

28. In short, when properly performed, analyses that include covariates clearly replicate and reinforce the original meta-analysis conclusion: the adjusted Beef Checkoff ads significantly lowered consumer perceptions of beef as a commodity relative to both the lack of beef advertising and the current, generic Beef Checkoff ads. The beef differentiation perceptions of consumers exposed to current, generic Beef Checkoff ads were no different from those of consumers unexposed to beef marketing.

29. The HK Deposition revisits an extreme claim from the HK Rebuttal, according to which "meta-analysis has the appearance of data mining and cherry picking to find a desired result that did not occur in the individual studies" (HK Rebuttal ¶¶ 45). While this is likely the only time such claim has been made about meta-analysis,[9] Dr. Kaiser subsequently admits that the claim was not based on fact, but merely on subjective belief (HK Deposition 178: 1-9).

30. The HK Deposition (199:5-200:11, 244:2-20) as well as the HK Supplemental (¶¶ 4) acknowledge critical errors in the HK Rebuttal, a document which, in both conceptual and empirical terms, lacks solid anchoring in scientific research. The HK Rebuttal's fatally flawed analyses and unsubstantiated claims are without merit and therefore lack validity and cannot be relied upon.

[9] In fact, meta-analysis is a widely used research methodology in fields ranging from psychology to medicine and economics. The reason and outcome of meta-analysis is precisely the opposite of that claimed in the HK Rebuttal: it aims to find a "more precise estimate of the effect of treatment […] or other outcomes, than any individual study contributing to the pooled analysis" and "the benefits of meta-analysis include a consolidated and quantitative review of a large, and often complex, sometimes apparently conflicting, body of literature" (Haidich, 2010, p. 27).

31. The new, alternative analysis performed in the HK Supplemental document increases the number of variables that are indiscriminately thrown into the multiple regression. This "kitchen sink" approach (that prompts concerns regarding the validity of the results due to model overfitting, multicollinearity, etc.)[10] is an example of what scholars have labeled "reverse p-hacking" (Chuard et al., 2019), where the goal is not to find statistically significant results.[11]

32. The HK Supplemental analysis incorrectly retains the ADINFL covariate despite its inappropriateness, as this is a variable that is influenced by the experimental condition. The new variables[12] employed as covariates (i.e., FOODHEALTHY, FOODATREAT, FOODSAFETY, FOODORIGIN, FOODQUALITY, FOODTASTE, FOODBRAND, FOODPRICE) are inappropriate for the same reason.[13]

33. In addressing the acknowledged HK Rebuttal failure to account for the "do not know/ no opinion" responses, the HK Supplemental displays a troubling lack of rigor and consistency in data coding and analysis. For the WTP variable, that response now entails dropping respondents (i.e., the correct approach as described above), because "someone who doesn't know their willingness to pay for steak might be just as likely to pay a large amount, a small amount, or an average amount of money." (HK Supplemental ¶¶ 4).

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[10] "Overfitting is the use of models or procedures that violate parsimony that is, that include more terms than are necessary or use more complicated approaches than are necessary" (Hawkins, 2004, p. 1). "Multicollinearity occurs when the multiple linear regression analysis includes several variables that are significantly correlated not only with the dependent variable but also to each other. Multicollinearity makes some of the significant variables under study to be statistically insignificant" (Shrestha, 2020, p. 39).

[11] In a similar vein, Hassler and Pohle (2022, p. 403) state: "Reverse *p*-hacking might also be observed in research influenced by industries, which are interested in weakening evidence of negative effects of their products on health, for example, of cigarette smoking on lung cancer."

[12] The HK Supplemental refers to these as "attitudinal variables," although they assess consumer ratings of product attribute importance rather than consumer attitudes (i.e., negatively or positively valenced evaluations of an object).

[13] In other words, respondents exposed to no beef ad, versus those exposed to a generic beef ad, versus those exposed to an altered beef ad will likely display different levels of salience and therefore importance for various beef attributes (in particular for origin).

34. However, when it comes to the similarly coded beef attribute importance items,[14] respondents with the same "no opinion" answer are now assumed to have picked the middle of the scale (which in fact they did not, despite having the option to pick the middle of the scale) instead of being dropped, because in this case "having no opinion would be the same as being neither important nor unimportant" (HK Supplemental ¶¶ 6, 7).

35. The inconsistency in the treatment of the "do not know/no opinion" responses across items is troubling, difficult to explain, and directly undermining the validity and reliability of the HK Supplemental analyses.

36. In the end, despite what seems to be significant effort at reverse p-hacking (including the sudden, unwarranted use of new covariates beyond those used in the HK Rebuttal and inconsistent treatment of "do not know/no opinion" responses), the HK Supplemental analyses for the WTP measure now find statistical significance at the .06 (rather than the generally accepted .05) level,[15] a claimed reason to disqualify my entire expert report.

37. To clarify the issue of statistical significance, p-value represents the probability of obtaining an effect at least as extreme as the one in the sampled data, assuming the truth of the null hypothesis. In our case, let us assume that the null hypothesis is true and there is no treatment effect – in other words, different beef ad campaigns do not in fact change consumer willingness-to-pay,

[14] In these items, respondents were requested to assess how important various beef attributes were to them on a scale anchored at 1 = *extremely unimportant* and 7 = *extremely important*. The final response option was: 8 = *no opinion*.

[15] Di Leo and Sardanelli (2020, p.3) provide a useful summary of why the 5% level has been employed as a benchmark for statistical significance: "For decades, 0.05 (5%, i.e., 1 of 20) has been conventionally accepted as the threshold to discriminate significant from non-significant results, inappropriately translated into existing from not existing differences or phenomena. This cutoff has peculiar reasons. Early in the 1900s, statistics textbooks reported many tables with long series of p values. Fisher shortened the tables previously published by Karl Pearson (1857-1936), not only for reasons of editorial space but probably also for copyright reasons (it seems that Fisher and Pearson were not on good terms). Some p values were selected and became more important than others, as Fisher wrote for researchers (the users) and not for experts in statistics (the theoreticians). Fisher himself provided a selection of probabilities which simplified the choice to help in decision-making and attributed a special status to 0.05, asserting explicitly that 'the value for which p = 0.05, or 1 in 20, is 1.96 or nearly 2. It is convenient to take this point as a limit in judging whether a deviation ought to be considered significant or not.'"

as claimed in the HK Rebuttal and HK Supplemental. In this alternative universe, the results of my expert report analysis would be unusual or extreme. However, the observed p-value of .01 in my sample says that the chance of finding such an extreme result (or one even more extreme) is only 1%. In other words, if the study were to be done 100 different times in the alternative universe in which different beef ads do not produce different effects, results such as those that I observed would only emerge once (i.e., I happened to stumble upon the 1 in 100 samples that would incorrectly show that there is an effect of beef ad campaign on consumer willingness-to-pay when in reality no such effect exists).

38. A p-value of .06 then means, similarly, that if beef ad exposure truly had no effect on consumer willingness-to-pay and the study were to be done 100 different times, effects such as those described in the HK Supplemental analysis would only emerge 6 times. In other words, if one accepts the HK Supplemental analysis as correct (which is not the case), it argues that my expert report findings regarding the impact of beef ad campaigns on consumer willingness-to-pay have a 6% chance of being an extreme anomaly, rather than the 5% chance that Dr. Kaiser would have found acceptable and the 1% chance that my report uncovered.[16]

39. Unlike the case of the HK Rebuttal data, I was unable to replicate the HK Supplemental regression results with the data file provided by Dr. Kaiser. Figure 20 in the Appendix presents the multiple regression analysis that I performed with the HK Supplemental data file. Figure 21 in the Appendix presents the analysis after removing the inappropriate ADINFL covariate (as also

[16] In a classic article on statistical data analysis and inductive inference, Rosnow and Rosenthal (1989) allude to the rather arbitrary choice of the 5% significance level in hypothesis testing by stating: "we want to underscore that, surely, God loves the .06 nearly as much as the .05" (Rosnow & Rosenthal, 1989, p, 1276). A .06 level of statistical significance has been often referred to as "marginally significant" and studies featuring this p-value have been often published in leading scholarly journals. In fact, even the originator of the 5% benchmark argued for flexibility in its application: "No scientific worker has a fixed level of significance at which from year to year, and in all circumstances, he rejects hypotheses; he rather gives his mind to each particular case in the light of his evidence and his ideas" (Fisher,1956, p.42).

described in the HK Rebuttal critique above). Figure 22 in the Appendix presents the analysis after further removing the clearly inappropriate FOODORIGIN covariate. Finally, Figure 23 in the Appendix presents the analysis after also removing the remaining inappropriate beef attribute importance covariates as discussed above.

40. With each of these sequential improvements in the validity of the regression model, the statistical significance of the focal result (i.e., the difference between the altered and unaltered ads) improves to p-value levels of .061, .035, and .025, respectively.

41. Although Dr. Kaiser's data file does not include respondent identifiers, I manually searched my original data file and matched respondents on demographics in order to identify which of the scores of 4 on the importance attributes in his file were original 4s and which were recoded 8s from the HK Supplemental. After doing that, I dropped the scores of 8 as appropriate and, as a conservative test, I ran a multiple regression that allowed all importance attributes as covariates, excluding the clearly inappropriate FOODORIGIN and ADINFL covariates.

42. Figure 24 in the Appendix presents this analysis. The statistical significance of the focal result (i.e., the difference between the altered and unaltered ads) is $p = .042$.

43. Surprisingly, no further/alternative analyses are offered in the HK Supplemental for the other key dependent measures of the research in my expert report (i.e., purchase intent – ACT and beef-as-commodity – COMMODITY3).

44. To summarize in both conceptual and empirical terms, the HK Supplemental also lacks anchoring in rigorous scientific research. Its fatally flawed analyses and unsubstantiated claims are without merit and therefore lack validity and cannot be relied upon.

45. In conclusion, the new documents that the Defendant produced after my expert report was concluded exhibit (and acknowledge) fatal flaws, are unreliable, and do not change in any way my expert report findings and opinion.

46. Across six studies performed according to the field's best practices, my expert report finds that the speech (i.e., advertising) funded by the Beef Checkoff program has harmful effects on domestic cattle producers and that alternative (but very similar) forms of speech (i.e., advertising) that provide consumers with minimal information regarding domestic beef producers (even without explicitly promoting them) may be able to avoid and reverse the harmful effects of current Beef Checkoff campaigns on R-CALF members.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 9, 2023

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CLAUDIU V. DIMOFTE, PH.D.

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Appendix

Dependent Variable: willingness to pay
Method: Least Squares
Date: 01/19/23 Time: 06:17
Sample: 1 1009
Included observations: 1009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.136897	0.853252	2.504415	0.0124
ALTERED AD GROUP	0.079180	0.097962	0.808273	0.4191
UNALTERED AD GROUP	-0.113580	0.096496	-1.177041	0.2395
INCOME	8.97E-16	2.52E-15	0.355154	0.7225
GENDER	-0.137604	0.088736	-1.550712	0.1213
EMPLOY	-0.017745	0.037893	-0.468293	0.6397
EATER	-0.084376	0.049353	-1.709623	0.0876
EDU	0.161452	0.030596	5.276859	0.0000
MARITAL	0.089406	0.044201	2.022704	0.0434
KIDS	-0.046962	0.089068	-0.527266	0.5981
AGE	-0.002736	0.003171	-0.862792	0.3885
AWARE1	-0.206658	0.182929	-1.129723	0.2589
COMMODITY13	-0.035993	0.021680	-1.660193	0.0972
DIDBEEF	-0.199384	0.340868	-0.584930	0.5587
EXPLICIT	0.025213	0.028910	0.872122	0.3834
SHOPPER	0.062102	0.078992	0.786186	0.4319
SOURCE	0.086246	0.034175	2.523632	0.0118
STATE	0.002800	0.003235	0.865584	0.3869
ADINFL	0.083715	0.021843	3.832601	0.0001

R-squared	0.070634	Mean dependent var	2.753221
Adjusted R-squared	0.053736	S.D. dependent var	1.290822
S.E. of regression	1.255661	Akaike info criterion	3.311853
Sum squared resid	1560.919	Schwarz criterion	3.404437
Log likelihood	-1651.830	Hannan-Quinn criter.	3.347026
F-statistic	4.180127	Durbin-Watson stat	0.167809
Prob(F-statistic)	0.000000		

Figure 1

Dependent Variable: willingness to pay
Method: Least Squares
Date: 01/19/23 Time: 06:18
Sample: 1 1009
Included observations: 1009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.090633	0.852512	2.452321	0.0144
ALTERED AD GROUP	0.126605	0.089310	1.417587	0.1566
INCOME	1.01E-15	2.52E-15	0.399211	0.6898
GENDER	-0.136211	0.088745	-1.534847	0.1251
EMPLOY	-0.018362	0.037896	-0.484526	0.6281
EATER	-0.082571	0.049339	-1.673533	0.0945
EDU	0.162247	0.030595	5.303095	0.0000
MARITAL	0.089077	0.044209	2.014908	0.0442
KIDS	-0.046023	0.089081	-0.516637	0.6055
AGE	-0.002931	0.003167	-0.925581	0.3549
AWARE1	-0.208882	0.182954	-1.141719	0.2538
COMMODITY13	-0.035501	0.021680	-1.637485	0.1018
DIDBEEF	-0.212921	0.340740	-0.624879	0.5322
EXPLICIT	0.024344	0.028906	0.842168	0.3999
SHOPPER	0.062849	0.079004	0.795514	0.4265
SOURCE	0.086676	0.034180	2.535850	0.0114
STATE	0.003391	0.003196	1.061001	0.2889
ADINFL	0.084819	0.021827	3.885964	0.0001

R-squared	0.069333	Mean dependent var	2.753221
Adjusted R-squared	0.053368	S.D. dependent var	1.290822
S.E. of regression	1.255906	Akaike info criterion	3.311269
Sum squared resid	1563.103	Schwarz criterion	3.398981
Log likelihood	-1652.535	Hannan-Quinn criter.	3.344591
F-statistic	4.342833	Durbin-Watson stat	0.169997
Prob(F-statistic)	0.000000		

Figure 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.266[a]	.071	.054	1.256

1.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	118.633	18	6.591	4.180	<.001[b]
	Residual	1560.919	990	1.577		
	Total	1679.552	1008			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.137	.853		2.504	.012
	AAG	.079	.098	.028	.808	.419
	UAG	-.114	.096	-.040	-1.177	.239
	INCOME	8.966E-16	.000	.011	.355	.723
	GENDER	-.138	.089	-.050	-1.551	.121
	EMPLOY	-.018	.038	-.015	-.468	.640
	EATER	-.084	.049	-.053	-1.710	.088
	EDU	.161	.031	.165	5.277	<.001
	MARITAL	.089	.044	.069	2.023	.043
	KIDS	-.047	.089	-.018	-.527	.598
	AGE	-.003	.003	-.029	-.863	.388
	AWARE1	-.207	.183	-.036	-1.130	.259
	COMMODITY13	-.036	.022	-.053	-1.660	.097
	DIDBEEF	-.199	.341	-.018	-.585	.559
	EXPLICIT	.025	.029	.027	.872	.383
	SHOPPER	.062	.079	.025	.786	.432
	SOURCE	.086	.034	.081	2.524	.012
	STATE	.003	.003	.027	.866	.387
	ADINFL	.084	.022	.122	3.833	<.001

a. Dependent Variable: WTP

Figure 3

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.263[a]	.069	.053	1.256

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116.449	17	6.850	4.343	<.001[b]
	Residual	1563.103	991	1.577		
	Total	1679.552	1008			

2.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.091	.853		2.452	.014
	AAG	.127	.089	.044	1.418	.157
	INCOME	1.007E-15	.000	.012	.399	.690
	GENDER	-.136	.089	-.050	-1.535	.125
	EMPLOY	-.018	.038	-.015	-.485	.628
	EATER	-.083	.049	-.052	-1.674	.095
	EDU	.162	.031	.166	5.303	<.001
	MARITAL	.089	.044	.068	2.015	.044
	KIDS	-.046	.089	-.018	-.517	.606
	AGE	-.003	.003	-.031	-.926	.355
	AWARE1	-.209	.183	-.036	-1.142	.254
	COMMODITY13	-.036	.022	-.052	-1.637	.102
	DIDBEEF	-.213	.341	-.019	-.625	.532
	EXPLICIT	.024	.029	.026	.842	.400
	SHOPPER	.063	.079	.025	.796	.427
	SOURCE	.087	.034	.081	2.536	.011
	STATE	.003	.003	.033	1.061	.289
	ADINFL	.085	.022	.124	3.886	<.001

a. Dependent Variable: WTP

Figure 4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.260[a]	.068	.054	1.124

1.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	92.357	15	6.157	4.872	<.001[b]
	Residual	1273.845	1008	1.264		
	Total	1366.202	1023			

2.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.413	.767		1.843	.066
	AAG	.227	.087	.092	2.618	.009
	UAG	.001	.086	.001	.016	.987
	INCOME	2.058E-15	.000	.028	.911	.362
	GENDER	-.089	.078	-.036	-1.144	.253
	EMPLOY	-.011	.034	-.010	-.333	.739
	EATER	-.114	.044	-.081	-2.595	.010
	EDU	.178	.027	.205	6.581	<.001
	MARITAL	.032	.039	.027	.819	.413
	KIDS	.139	.079	.060	1.764	.078
	AGE	-.005	.003	-.056	-1.711	.087
	AWARE1	-.031	.161	-.006	-.193	.847
	DIDBEEF	.369	.316	.036	1.168	.243
	EXPLICIT	-.015	.026	-.018	-.603	.547
	SHOPPER	.031	.066	.015	.465	.642
	STATE	.002	.003	.025	.807	.420

a. Dependent Variable: WTP

Figure 5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.260[a]	.068	.054	1.124

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	92.357	15	6.157	4.872	<.001[b]
	Residual	1273.845	1008	1.264		
	Total	1366.202	1023			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.414	.771		1.834	.067
	AAG	.226	.087	.092	2.613	.009
	CG	-.001	.086	-.001	-.016	.987
	INCOME	2.058E-15	.000	.028	.911	.362
	GENDER	-.089	.078	-.036	-1.144	.253
	EMPLOY	-.011	.034	-.010	-.333	.739
	EATER	-.114	.044	-.081	-2.595	.010
	EDU	.178	.027	.205	6.581	<.001
	MARITAL	.032	.039	.027	.819	.413
	KIDS	.139	.079	.060	1.764	.078
	AGE	-.005	.003	-.056	-1.711	.087
	AWARE1	-.031	.161	-.006	-.193	.847
	DIDBEEF	.369	.316	.036	1.168	.243
	EXPLICIT	-.015	.026	-.018	-.603	.547
	SHOPPER	.031	.066	.015	.465	.642
	STATE	.002	.003	.025	.807	.420

a. Dependent Variable: WTP

Figure 6

Between-Subjects Factors

		Value Label	N
Condition	1	Control	341
	2	Unaltered Ad	350
	3	Altered Ad	333

Descriptive Statistics

Dependent Variable: WTP

Condition	Mean	Std. Deviation	N
Control	2.57	1.113	341
Unaltered Ad	2.55	1.166	350
Altered Ad	2.78	1.175	333
Total	2.63	1.156	1024

Tests of Between-Subjects Effects

Dependent Variable: WTP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	92.357[a]	15	6.157	4.872	<.001
Intercept	4.764	1	4.764	3.770	.052
INCOME	1.049	1	1.049	.830	.362
GENDER	1.653	1	1.653	1.308	.253
EMPLOY	.140	1	.140	.111	.739
EATER	8.507	1	8.507	6.732	.010
EDU	54.740	1	54.740	43.316	<.001
MARITAL	.849	1	.849	.671	.413
KIDS	3.932	1	3.932	3.112	.078
AGE	3.698	1	3.698	2.926	.087
AWARE1	.047	1	.047	.037	.847
DIDBEEF	1.724	1	1.724	1.365	.243
EXPLICIT	.460	1	.460	.364	.547
SHOPPER	.274	1	.274	.216	.642
STATE	.823	1	.823	.652	.420
CONDITION	11.463	2	5.731	4.535	.011
Error	1273.845	1008	1.264		
Total	8459.000	1024			
Corrected Total	1366.202	1023			

a. R Squared = .068 (Adjusted R Squared = .054)

Contrast Results (K Matrix)

Condition Repeated Contrast			Dependent Variable WTP
Level 1 vs. Level 2	Contrast Estimate		-.001
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.001
	Std. Error		.086
	Sig.		.987
	95% Confidence Interval for Difference	Lower Bound	-.170
		Upper Bound	.167
Level 2 vs. Level 3	Contrast Estimate		-.226
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.226
	Std. Error		.087
	Sig.		.009
	95% Confidence Interval for Difference	Lower Bound	-.396
		Upper Bound	-.056

Figure 7

Dependent Variable: ACT (intent to purchase)
Method: Least Squares
Date: 01/19/23 Time: 06:20
Sample: 1 1009
Included observations: 1009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.168636	1.097980	4.707404	0.0000
ALTERED AD GROUP	0.403912	0.126059	3.204147	0.0014
UNALTERED AD GROUP	0.358411	0.124173	2.886397	0.0040
INCOME	1.16E-15	3.25E-15	0.356187	0.7218
GENDER	-0.111835	0.114187	-0.979400	0.3276
EMPLOY	0.057727	0.048761	1.183889	0.2367
EATER	-0.181702	0.063509	-2.861042	0.0043
EDU	0.002539	0.039372	0.064479	0.9486
MARITAL	-0.082418	0.056879	-1.449005	0.1477
KIDS	0.179716	0.114614	1.568017	0.1172
AGE	-0.004695	0.004080	-1.150624	0.2502
AWARE1	0.053640	0.235396	0.227871	0.8198
COMMODITY13	0.051863	0.027898	1.858996	0.0633
DIDBEEF	-0.388843	0.438635	-0.886483	0.3756
EXPLICIT	-0.049174	0.037202	-1.321825	0.1865
SHOPPER	-0.028598	0.101648	-0.281345	0.7785
SOURCE	0.144941	0.043978	3.295800	0.0010
STATE	0.003597	0.004163	0.864085	0.3878
ADINFL	0.103413	0.028108	3.679165	0.0002

R-squared	0.063819	Mean dependent var	5.738355
Adjusted R-squared	0.046798	S.D. dependent var	1.654997
S.E. of regression	1.615808	Akaike info criterion	3.816198
Sum squared resid	2584.726	Schwarz criterion	3.908782
Log likelihood	-1906.272	Hannan-Quinn criter.	3.851371
F-statistic	3.749328	Durbin-Watson stat	1.984016
Prob(F-statistic)	0.000000		

Figure 8

Dependent Variable: ACT (intent to purchase)
Method: Least Squares
Date: 01/19/23 Time: 06:21
Sample: 1 1009
Included observations: 1009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.527047	1.099281	5.027877	0.0000
ALTERED AD GROUP	0.045501	0.135771	0.335131	0.7376
NO BEEF AD GROUP	-0.358411	0.124173	-2.886397	0.0040
INCOME	1.16E-15	3.25E-15	0.356187	0.7218
GENDER	-0.111835	0.114187	-0.979400	0.3276
EMPLOY	0.057727	0.048761	1.183889	0.2367
EATER	-0.181702	0.063509	-2.861042	0.0043
EDU	0.002539	0.039372	0.064479	0.9486
MARITAL	-0.082418	0.056879	-1.449005	0.1477
KIDS	0.179716	0.114614	1.568017	0.1172
AGE	-0.004695	0.004080	-1.150624	0.2502
AWARE1	0.053640	0.235396	0.227871	0.8198
COMMODITY13	0.051863	0.027898	1.858996	0.0633
DIDBEEF	-0.388843	0.438635	-0.886483	0.3756
EXPLICIT	-0.049174	0.037202	-1.321825	0.1865
SHOPPER	-0.028598	0.101648	-0.281345	0.7785
SOURCE	0.144941	0.043978	3.295800	0.0010
STATE	0.003597	0.004163	0.864085	0.3878
ADINFL	0.103413	0.028108	3.679165	0.0002

R-squared	0.063819	Mean dependent var	5.738355
Adjusted R-squared	0.046798	S.D. dependent var	1.654997
S.E. of regression	1.615808	Akaike info criterion	3.816198
Sum squared resid	2584.726	Schwarz criterion	3.908782
Log likelihood	-1906.272	Hannan-Quinn criter.	3.851371
F-statistic	3.749328	Durbin-Watson stat	1.984016
Prob(F-statistic)	0.000000		

Figure 9

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.253[a]	.064	.047	1.616

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	176.200	18	9.789	3.749	<.001[b]
	Residual	2584.726	990	2.611		
	Total	2760.926	1008			

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.169	1.098		4.707	<.001
	AAG	.404	.126	.110	3.204	.001
	UAG	.358	.124	.099	2.886	.004
	INCOME	1.157E-15	.000	.011	.356	.722
	GENDER	-.112	.114	-.032	-.979	.328
	EMPLOY	.058	.049	.038	1.184	.237
	EATER	-.182	.064	-.089	-2.861	.004
	EDU	.003	.039	.002	.064	.949
	MARITAL	-.082	.057	-.049	-1.449	.148
	KIDS	.180	.115	.054	1.568	.117
	AGE	-.005	.004	-.038	-1.151	.250
	AWARE1	.054	.235	.007	.228	.820
	COMMODITY13	.052	.028	.059	1.859	.063
	DIDBEEF	-.389	.439	-.027	-.886	.376
	EXPLICIT	-.049	.037	-.041	-1.322	.187
	SHOPPER	-.029	.102	-.009	-.281	.779
	SOURCE	.145	.044	.106	3.296	.001
	STATE	.004	.004	.027	.864	.388
	ADINFL	.103	.028	.117	3.679	<.001

a. Dependent Variable: ACT

Figure 10

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.253[a]	.064	.047	1.616

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	176.200	18	9.789	3.749	<.001[b]
	Residual	2584.726	990	2.611		
	Total	2760.926	1008			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.527	1.099		5.028	<.001
	AAG	.046	.136	.012	.335	.738
	CG	-.358	.124	-.107	-2.886	.004
	INCOME	1.157E-15	.000	.011	.356	.722
	GENDER	-.112	.114	-.032	-.979	.328
	EMPLOY	.058	.049	.038	1.184	.237
	EATER	-.182	.064	-.089	-2.861	.004
	EDU	.003	.039	.002	.064	.949
	MARITAL	-.082	.057	-.049	-1.449	.148
	KIDS	.180	.115	.054	1.568	.117
	AGE	-.005	.004	-.038	-1.151	.250
	AWARE1	.054	.235	.007	.228	.820
	COMMODITY13	.052	.028	.059	1.859	.063
	DIDBEEF	-.389	.439	-.027	-.886	.376
	EXPLICIT	-.049	.037	-.041	-1.322	.187
	SHOPPER	-.029	.102	-.009	-.281	.779
	SOURCE	.145	.044	.106	3.296	.001
	STATE	.004	.004	.027	.864	.388
	ADINFL	.103	.028	.117	3.679	<.001

a. Dependent Variable: ACT

Figure 11

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.200[a]	.040	.026	1.651

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	119.036	15	7.936	2.910	<.001[b]
	Residual	2846.923	1044	2.727		
	Total	2965.958	1059			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.852	1.066		5.487	<.001
	AAG	.521	.125	.146	4.151	<.001
	UAG	.449	.124	.127	3.618	<.001
	INCOME	1.567E-15	.000	.014	.473	.637
	GENDER	-.116	.113	-.032	-1.027	.304
	EMPLOY	.066	.048	.043	1.370	.171
	EATER	-.190	.061	-.097	-3.124	.002
	EDU	.005	.039	.004	.133	.894
	MARITAL	-.091	.056	-.054	-1.615	.107
	KIDS	.225	.113	.067	1.988	.047
	AGE	-.004	.004	-.034	-1.030	.303
	AWARE1	.214	.236	.028	.906	.365
	DIDBEEF	-.187	.431	-.013	-.433	.665
	EXPLICIT	-.049	.037	-.041	-1.329	.184
	SHOPPER	.002	.096	.001	.023	.982
	STATE	.002	.004	.014	.470	.638

a. Dependent Variable: ACT

Figure 12

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.200[a]	.040	.026	1.651

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	119.036	15	7.936	2.910	<.001[b]
	Residual	2846.923	1044	2.727		
	Total	2965.958	1059			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	6.302	1.071		5.881	<.001
	AAG	.071	.125	.020	.570	.569
	CG	-.449	.124	-.127	-3.618	<.001
	INCOME	1.567E-15	.000	.014	.473	.637
	GENDER	-.116	.113	-.032	-1.027	.304
	EMPLOY	.066	.048	.043	1.370	.171
	EATER	-.190	.061	-.097	-3.124	.002
	EDU	.005	.039	.004	.133	.894
	MARITAL	-.091	.056	-.054	-1.615	.107
	KIDS	.225	.113	.067	1.988	.047
	AGE	-.004	.004	-.034	-1.030	.303
	AWARE1	.214	.236	.028	.906	.365
	DIDBEEF	-.187	.431	-.013	-.433	.665
	EXPLICIT	-.049	.037	-.041	-1.329	.184
	SHOPPER	.002	.096	.001	.023	.982
	STATE	.002	.004	.014	.470	.638

a. Dependent Variable: ACT

Figure 13

Between-Subjects Factors

		Value Label	N
Condition	1	Control	353
	2	Unaltered Ad	361
	3	Altered Ad	346

Descriptive Statistics

Dependent Variable: ACT

Condition	Mean	Std. Deviation	N
Control	5.39	1.942	353
Unaltered Ad	5.82	1.566	361
Altered Ad	5.93	1.422	346
Total	5.72	1.674	1060

Tests of Between-Subjects Effects

Dependent Variable: ACT

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	119.036[a]	15	7.936	2.910	<.001
Intercept	91.555	1	91.555	33.574	<.001
INCOME	.609	1	.609	.223	.637
GENDER	2.878	1	2.878	1.055	.304
EMPLOY	5.120	1	5.120	1.878	.171
EATER	26.605	1	26.605	9.756	.002
EDU	.048	1	.048	.018	.894
MARITAL	7.110	1	7.110	2.607	.107
KIDS	10.780	1	10.780	3.953	.047
AGE	2.895	1	2.895	1.062	.303
AWARE1	2.237	1	2.237	.820	.365
DIDBEEF	.512	1	.512	.188	.665
EXPLICIT	4.818	1	4.818	1.767	.184
SHOPPER	.001	1	.001	.001	.982
STATE	.603	1	.603	.221	.638
CONDITION	55.674	2	27.837	10.208	<.001
Error	2846.923	1044	2.727		
Total	37588.000	1060			
Corrected Total	2965.958	1059			

a. R Squared = .040 (Adjusted R Squared = .026)

Contrast Results (K Matrix)

Condition Repeated Contrast			Dependent Variable ACT
Level 1 vs. Level 2	Contrast Estimate		-.449
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.449
	Std. Error		.124
	Sig.		<.001
	95% Confidence Interval for Difference	Lower Bound	-.693
		Upper Bound	-.206
Level 2 vs. Level 3	Contrast Estimate		-.071
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.071
	Std. Error		.125
	Sig.		.569
	95% Confidence Interval for Difference	Lower Bound	-.316
		Upper Bound	.174

Figure 14

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.249[a]	.062	.046	1.840

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	220.977	17	12.999	3.840	<.001[b]
	Residual	3354.491	991	3.385		
	Total	3575.469	1008			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.681	1.247		2.150	.032
	AAG	-.586	.142	-.140	-4.120	<.001
	UAG	-.086	.141	-.021	-.607	.544
	INCOME	-4.751E-15	.000	-.040	-1.285	.199
	GENDER	-.341	.130	-.085	-2.633	.009
	EMPLOY	.079	.055	.046	1.431	.153
	EATER	-.043	.072	-.019	-.599	.549
	EDU	.011	.045	.008	.239	.812
	MARITAL	.190	.064	.100	2.949	.003
	KIDS	-.026	.131	-.007	-.197	.844
	AGE	.015	.005	.107	3.231	.001
	AWARE1	.283	.268	.034	1.057	.291
	DIDBEEF	.506	.499	.031	1.014	.311
	EXPLICIT	.086	.042	.063	2.045	.041
	SHOPPER	.139	.116	.038	1.198	.231
	SOURCE	-.080	.050	-.051	-1.599	.110
	STATE	-.002	.005	-.015	-.461	.645
	ADINFL	.054	.032	.054	1.688	.092

a. Dependent Variable: COMMODITY13

Figure 15

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.249[a]	.062	.046	1.840

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	220.977	17	12.999	3.840	<.001[b]
	Residual	3354.491	991	3.385		
	Total	3575.469	1008			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.595	1.249		2.078	.038
	AAG	-.500	.154	-.120	-3.255	.001
	CG	.086	.141	.023	.607	.544
	INCOME	-4.751E-15	.000	-.040	-1.285	.199
	GENDER	-.341	.130	-.085	-2.633	.009
	EMPLOY	.079	.055	.046	1.431	.153
	EATER	-.043	.072	-.019	-.599	.549
	EDU	.011	.045	.008	.239	.812
	MARITAL	.190	.064	.100	2.949	.003
	KIDS	-.026	.131	-.007	-.197	.844
	AGE	.015	.005	.107	3.231	.001
	AWARE1	.283	.268	.034	1.057	.291
	DIDBEEF	.506	.499	.031	1.014	.311
	EXPLICIT	.086	.042	.063	2.045	.041
	SHOPPER	.139	.116	.038	1.198	.231
	SOURCE	-.080	.050	-.051	-1.599	.110
	STATE	-.002	.005	-.015	-.461	.645
	ADINFL	.054	.032	.054	1.688	.092

a. Dependent Variable: COMMODITY13

Figure 16

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.238[a]	.057	.043	1.810

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	198.845	15	13.256	4.045	<.001[b]
	Residual	3306.820	1009	3.277		
	Total	3505.664	1024			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.858	1.177		2.427	.015
	AAG	-.634	.139	-.161	-4.554	<.001
	UAG	-.216	.139	-.055	-1.558	.120
	INCOME	-4.613E-15	.000	-.039	-1.268	.205
	GENDER	-.387	.125	-.099	-3.096	.002
	EMPLOY	.074	.054	.043	1.375	.169
	EATER	-.070	.070	-.031	-1.010	.313
	EDU	-.005	.044	-.004	-.126	.900
	MARITAL	.175	.063	.093	2.791	.005
	KIDS	.042	.126	.011	.329	.742
	AGE	.011	.005	.080	2.431	.015
	AWARE1	.314	.261	.038	1.202	.230
	DIDBEEF	.447	.473	.029	.946	.344
	EXPLICIT	.044	.041	.033	1.075	.283
	SHOPPER	.130	.108	.038	1.203	.229
	STATE	.001	.005	.008	.252	.801

a. Dependent Variable: COMMODITY3

Figure 17

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.238[a]	.057	.043	1.810

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	198.845	15	13.256	4.045	<.001[b]
	Residual	3306.820	1009	3.277		
	Total	3505.664	1024			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.641	1.183		2.233	.026
	AAG	-.418	.139	-.106	-3.004	.003
	CG	.216	.139	.055	1.558	.120
	INCOME	-4.613E-15	.000	-.039	-1.268	.205
	GENDER	-.387	.125	-.099	-3.096	.002
	EMPLOY	.074	.054	.043	1.375	.169
	EATER	-.070	.070	-.031	-1.010	.313
	EDU	-.005	.044	-.004	-.126	.900
	MARITAL	.175	.063	.093	2.791	.005
	KIDS	.042	.126	.011	.329	.742
	AGE	.011	.005	.080	2.431	.015
	AWARE1	.314	.261	.038	1.202	.230
	DIDBEEF	.447	.473	.029	.946	.344
	EXPLICIT	.044	.041	.033	1.075	.283
	SHOPPER	.130	.108	.038	1.203	.229
	STATE	.001	.005	.008	.252	.801

a. Dependent Variable: COMMODITY3

Figure 18

Between-Subjects Factors

		Value Label	N
Condition	1	Control	341
	2	Unaltered Ad	345
	3	Altered Ad	339

Descriptive Statistics

Dependent Variable: COMMODITY3

Condition	Mean	Std. Deviation	N
Control	5.30	1.791	341
Unaltered Ad	5.12	1.864	345
Altered Ad	4.68	1.843	339
Total	5.04	1.850	1025

Tests of Between-Subjects Effects

Dependent Variable: COMMODITY3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	198.845[a]	15	13.256	4.045	<.001
Intercept	15.682	1	15.682	4.785	.029
INCOME	5.272	1	5.272	1.609	.205
GENDER	31.424	1	31.424	9.588	.002
EMPLOY	6.197	1	6.197	1.891	.169
EATER	3.346	1	3.346	1.021	.313
EDU	.052	1	.052	.016	.900
MARITAL	25.525	1	25.525	7.788	.005
KIDS	.355	1	.355	.108	.742
AGE	19.363	1	19.363	5.908	.015
AWARE1	4.735	1	4.735	1.445	.230
DIDBEEF	2.932	1	2.932	.895	.344
EXPLICIT	3.788	1	3.788	1.156	.283
SHOPPER	4.747	1	4.747	1.448	.229
STATE	.208	1	.208	.063	.801
CONDITION	70.216	2	35.108	10.712	<.001
Error	3306.820	1009	3.277		
Total	29502.000	1025			
Corrected Total	3505.664	1024			

a. R Squared = .057 (Adjusted R Squared = .043)

Contrast Results (K Matrix)

Condition Repeated Contrast			Dependent Variable COMMODITY3
Level 1 vs. Level 2	Contrast Estimate		.216
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.216
	Std. Error		.139
	Sig.		.120
	95% Confidence Interval for Difference	Lower Bound	-.056
		Upper Bound	.489
Level 2 vs. Level 3	Contrast Estimate		.418
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.418
	Std. Error		.139
	Sig.		.003
	95% Confidence Interval for Difference	Lower Bound	.145
		Upper Bound	.691

Figure 19

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.427[a]	.182	.164	1.060

a. Predictors: (Constant), adinfl, control, gender, foodprice, education, eater, age, state, marital, employment, shopper, foodatreat, children, income, foodorigin, altered, foodsafety, foodbrand, foodhealthy, foodtaste, foodquality

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	238.014	21	11.334	10.096	<.001[b]
	Residual	1066.513	950	1.123		
	Total	1304.527	971			

a. Dependent Variable: wtp

b. Predictors: (Constant), adinfl, control, gender, foodprice, education, eater, age, state, marital, employment, shopper, foodatreat, children, income, foodorigin, altered, foodsafety, foodbrand, foodhealthy, foodtaste, foodquality

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.613	.432		3.731	<.001
	control	.038	.083	.016	.465	.642
	altered	.158	.090	.061	1.748	.081
	age	-.004	.003	-.047	-1.454	.146
	eater	-.140	.044	-.095	-3.198	.001
	education	.122	.028	.140	4.428	<.001
	employment	-.059	.033	-.055	-1.798	.072
	gender	-.082	.077	-.033	-1.065	.287
	income	2.887E-6	.000	.156	4.675	<.001
	children	.039	.077	.017	.503	.615
	marital	.049	.039	.042	1.266	.206
	shopper	.047	.068	.021	.694	.488
	state	.003	.003	.031	1.036	.301
	foodhealthy	-.103	.033	-.122	-3.088	.002
	foodatreat	.036	.028	.049	1.315	.189
	foodsafety	.039	.041	.041	.958	.338

	foodorigin	.044	.026	.060	1.682	.093
	foodquality	.128	.056	.115	2.296	.022
	foodtaste	.148	.053	.132	2.783	.006
	foodbrand	.019	.026	.028	.733	.464
	foodprice	-.265	.035	-.263	-7.546	<.001
	adinfl	.078	.021	.122	3.768	<.001

a. Dependent Variable: wtp

Figure 20

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.413[a]	.170	.153	1.067

a. Predictors: (Constant), foodprice, eater, income, gender, state, altered, age, foodorigin, employment, shopper, children, education, foodatreat, marital, foodsafety, control, foodbrand, foodhealthy, foodtaste, foodquality

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	222.076	20	11.104	9.755	<.001[b]
	Residual	1082.451	951	1.138		
	Total	1304.527	971			

a. Dependent Variable: wtp

b. Predictors: (Constant), foodprice, eater, income, gender, state, altered, age, foodorigin, employment, shopper, children, education, foodatreat, marital, foodsafety, control, foodbrand, foodhealthy, foodtaste, foodquality

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.871	.430		4.353	<.001
	control	.044	.083	.019	.532	.595
	altered	.170	.091	.066	1.876	.061
	age	-.005	.003	-.062	-1.919	.055
	eater	-.136	.044	-.093	-3.083	.002
	education	.123	.028	.141	4.445	<.001
	employment	-.060	.033	-.056	-1.828	.068
	gender	-.087	.077	-.035	-1.126	.260
	income	3.008E-6	.000	.163	4.843	<.001
	children	.054	.077	.023	.698	.485
	marital	.039	.039	.033	.986	.324
	shopper	.041	.069	.019	.600	.549
	state	.003	.003	.034	1.114	.266
	foodhealthy	-.095	.034	-.112	-2.825	.005

	foodatreat	.039	.028	.053	1.403	.161
	foodsafety	.042	.041	.044	1.028	.304
	foodorigin	.068	.025	.093	2.692	.007
	foodquality	.121	.056	.109	2.166	.031
	foodtaste	.142	.054	.126	2.652	.008
	foodbrand	.030	.026	.044	1.165	.245
	foodprice	-.273	.035	-.271	-7.741	<.001

a. Dependent Variable: wtp

Figure 21

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.405[a]	.164	.147	1.070

a. Predictors: (Constant), foodprice, eater, income, gender, state, altered, age, employment, foodatreat, shopper, children, education, marital, foodbrand, control, foodsafety, foodhealthy, foodtaste, foodquality

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	213.826	19	11.254	9.823	<.001[b]
	Residual	1090.700	952	1.146		
	Total	1304.527	971			

a. Dependent Variable: wtp

b. Predictors: (Constant), foodprice, eater, income, gender, state, altered, age, employment, foodatreat, shopper, children, education, marital, foodbrand, control, foodsafety, foodhealthy, foodtaste, foodquality

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.947	.430		4.522	<.001
	control	.052	.084	.022	.628	.530
	altered	.192	.091	.074	2.115	.035
	age	-.005	.003	-.061	-1.889	.059
	eater	-.130	.044	-.088	-2.933	.003
	education	.125	.028	.143	4.489	<.001
	employment	-.055	.033	-.052	-1.676	.094
	gender	-.098	.077	-.040	-1.267	.205
	income	2.956E-6	.000	.160	4.746	<.001
	children	.061	.077	.026	.790	.430
	marital	.036	.039	.031	.925	.355
	shopper	.038	.069	.017	.554	.579
	state	.003	.003	.028	.931	.352
	foodhealthy	-.087	.034	-.103	-2.586	.010
	foodatreat	.049	.028	.066	1.749	.081

	foodsafety	.042	.041	.044	1.031	.303
	foodquality	.126	.056	.113	2.236	.026
	foodtaste	.142	.054	.126	2.639	.008
	foodbrand	.051	.025	.074	2.071	.039
	foodprice	-.271	.035	-.268	-7.643	<.001

a. Dependent Variable: wtp

Figure 22

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.301[a]	.091	.079	1.112

a. Predictors: (Constant), state, employment, shopper, altered, children, eater, education, gender, age, income, marital, control

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	118.299	12	9.858	7.970	<.001[b]
	Residual	1186.227	959	1.237		
	Total	1304.527	971			

a. Dependent Variable: wtp

b. Predictors: (Constant), state, employment, shopper, altered, children, eater, education, gender, age, income, marital, control

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.128	.400		5.316	<.001
	control	.067	.087	.029	.779	.436
	altered	.210	.094	.082	2.240	.025
	age	-.004	.003	-.044	-1.331	.184
	eater	-.136	.046	-.092	-2.959	.003
	education	.128	.029	.146	4.426	<.001
	employment	-.036	.034	-.034	-1.052	.293
	gender	-.082	.079	-.033	-1.032	.302
	income	3.370E-6	.000	.182	5.260	<.001
	children	.066	.080	.028	.824	.410
	marital	.011	.041	.009	.263	.793
	shopper	.043	.071	.019	.606	.545
	state	.002	.003	.023	.721	.471

a. Dependent Variable: wtp

Figure 23

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.395[a]	.156	.138	1.071

a. Predictors: (Constant), foodprice, eater, income, gender, altered, state, age, foodatreat, employment, children, shopper, education, marital, foodbrand, control, foodsafety, foodhealthy, foodtaste, foodquality

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	187.727	19	9.880	8.609	<.001[b]
	Residual	1014.592	884	1.148		
	Total	1202.319	903			

a. Dependent Variable: wtp

b. Predictors: (Constant), foodprice, eater, income, gender, altered, state, age, foodatreat, employment, children, shopper, education, marital, foodbrand, control, foodsafety, foodhealthy, foodtaste, foodquality

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.176	.450		4.831	<.001
	control	.034	.087	.014	.388	.698
	altered	.191	.094	.075	2.036	.042
	age	-.006	.003	-.071	-2.099	.036
	eater	-.143	.046	-.098	-3.133	.002
	education	.103	.029	.118	3.492	<.001
	employment	-.046	.034	-.043	-1.340	.181
	gender	-.121	.080	-.050	-1.515	.130
	income	3.327E-6	.000	.167	4.646	<.001
	children	.009	.080	.004	.116	.908
	marital	.045	.041	.039	1.101	.271
	shopper	.036	.071	.016	.500	.617
	state	.002	.003	.022	.679	.497
	foodhealthy	-.084	.036	-.099	-2.345	.019

	foodatreat	.053	.029	.072	1.820	.069
	foodsafety	.047	.043	.048	1.086	.278
	foodquality	.076	.063	.063	1.199	.231
	foodtaste	.178	.059	.150	2.998	.003
	foodbrand	.046	.026	.067	1.796	.073
	foodprice	-.264	.037	-.255	-7.058	<.001

a. Dependent Variable: wtp

Figure 24