Effect of : redo with RSE

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Introduction and motivation

Travelers of Interstate Highway 5 (I-5) pass a memorable landmark in California's Central Valley- the Harris Ranch feedlot. Located near the intersection of I-5 and California Route 198, it is readily visible from I-5 to motorists. It is also well-known for the pungent smell of thousands of cattle, usually noticable for several miles.

For city-dwellers and other travelers unfamiliar with feedlots, the sight (and smell) may be shocking. An obvious speculation is that beef consumers may, upon viewing the conditions under which cattle are raised in their final weeks prior to slaughter, exhibit a reduced demand for beef.

Summary findings

We found blah blah blah. See figure XYZ. TOTO: use RSE

Methods

Subjects

Mturk (mention English and Spanish populations)

Survey

Talk about demographic section (and co-variatds) treatment videos, "attention-test" digit for compliance test, post-test question and rank order.Give hard link.

Randomization

Data pipeline

Analysis

```
df = read.csv("trial.csv")   #This file has some dummy data in which femail participants who see a feed
                             # reduce their beef consumption next week by one meail, wiht probablity of
#rename some columns
# pre_ is weekly consumption before they watch the video
# post_ is weekly plan for next week

names(df)[names(df) == 'q10_5_text'] <- 'pre_beef'
names(df)[names(df) == 'q11_5_text'] <- 'post_beef'
names(df)[names(df) == 'q10_6_text'] <- 'pre_pork'
```

```r
names(df)[names(df) == 'q11_6_text'] <- 'post_pork'
names(df)[names(df) == 'q9'] <- 'sex'
summary(df)
```

```
##    mturkcode              q1            sex        q10_1_text
##  Min.   :3.638e+07   Min.   :15.00   Female:205   Min.   : 0.000
##  1st Qu.:2.854e+09   1st Qu.:17.00   Male  :195   1st Qu.: 2.000
##  Median :5.222e+09   Median :20.00                Median : 5.000
##  Mean   :5.109e+09   Mean   :20.01                Mean   : 5.125
##  3rd Qu.:7.299e+09   3rd Qu.:23.00                3rd Qu.: 8.000
##  Max.   :9.993e+09   Max.   :25.00                Max.   :10.000
##    q10_2_text       q10_3_text      q10_4_text        pre_beef
##  Min.   : 0.000   Min.   : 0.00   Min.   : 0.000   Min.   :0.000
##  1st Qu.: 2.000   1st Qu.: 2.00   1st Qu.: 2.000   1st Qu.:4.000
##  Median : 5.000   Median : 5.00   Median : 5.000   Median :4.000
##  Mean   : 4.973   Mean   : 5.01   Mean   : 5.037   Mean   :4.125
##  3rd Qu.: 8.000   3rd Qu.: 8.00   3rd Qu.: 8.000   3rd Qu.:5.000
##  Max.   :10.000   Max.   :10.00   Max.   :10.000   Max.   :6.000
##     pre_pork                                    q8        q11_1_text
##  Min.   : 0.000   Use of animals in agriculture   :267   Min.   : 0.000
##  1st Qu.: 1.000   Use of irrigation in agriculture:133   1st Qu.: 3.000
##  Median : 4.000                                         Median : 5.000
##  Mean   : 4.275                                         Mean   : 5.178
##  3rd Qu.: 7.000                                         3rd Qu.: 8.000
##  Max.   :10.000                                         Max.   :10.000
##    q11_2_text       q11_3_text       q11_4_text      post_beef
##  Min.   : 0.000   Min.   : 0.000   Min.   : 0.00   Min.   :0.000
##  1st Qu.: 2.000   1st Qu.: 2.000   1st Qu.: 2.00   1st Qu.:3.000
##  Median : 5.000   Median : 5.000   Median : 5.00   Median :4.000
##  Mean   : 5.027   Mean   : 4.832   Mean   : 5.02   Mean   :4.035
##  3rd Qu.: 8.000   3rd Qu.: 8.000   3rd Qu.: 8.00   3rd Qu.:5.000
##  Max.   :10.000   Max.   :10.000   Max.   :10.00   Max.   :7.000
##    post_pork      video_type attention_correct
##  Min.   : 0.000   F:134      true:400
##  1st Qu.: 1.000   I:133
##  Median : 4.000   P:133
##  Mean   : 4.332
##  3rd Qu.: 7.000
##  Max.   :10.000
```

```r
# remember, video_type:  "F" => feedlot, "P" => Pasture, "I" => Irrigation
# Create a new column "vegetarian" for those who never eat meat before treatment
#mean(df$pre_beef)
#mean(df$post_beef)
#mean(df$post_beef[df$sex=="Male"])
#mean(df$post_beef[df$sex=="Female"])
#mean(df$post_beef[df$sex=="Female" & df$video_type=="F"])
#mean(df$post_beef[df$sex=="Female" & df$video_type=="P"])
#mean(df$post_beef[df$sex=="Female" & df$video_type=="I"])


# try a simple regression; set male and Irrigation video as reference levels for those factors
df$sex <-relevel(df$sex, ref = "Male")
df$video_type <-relevel(df$video_type, ref = "I")
```

```r
df$vegetarian <- (df$pre_beef == 0) & (df$pre_pork == 0)
model1 = lm( post_beef ~ pre_beef + vegetarian + factor(sex)*factor(video_type)*vegetarian, data=df)
summary(model1)
```

```
##
## Call:
## lm(formula = post_beef ~ pre_beef + vegetarian + factor(sex) *
##     factor(video_type) * vegetarian, data = df)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -1.5020 -0.9217  0.0000  0.9746  1.5313
##
## Coefficients:
##                                                          Estimate Std. Error
## (Intercept)                                              0.074835   0.270462
## pre_beef                                                 0.983338   0.054949
## vegetarianTRUE                                          -0.074835   0.388207
## factor(sex)Female                                        0.017222   0.153933
## factor(video_type)F                                      0.001865   0.152848
## factor(video_type)P                                     -0.015378   0.161636
## factor(sex)Female:factor(video_type)F                   -0.525298   0.215870
## factor(sex)Female:factor(video_type)P                   -0.088293   0.218438
## vegetarianTRUE:factor(sex)Female                        -0.017222   0.466458
## vegetarianTRUE:factor(video_type)F                      -0.001865   0.447919
## vegetarianTRUE:factor(video_type)P                       0.015378   0.436956
## vegetarianTRUE:factor(sex)Female:factor(video_type)F     0.525298   0.692676
## vegetarianTRUE:factor(sex)Female:factor(video_type)P     0.088293   0.684435
##                                                         t value Pr(>|t|)
## (Intercept)                                               0.277   0.7822
## pre_beef                                                 17.896   <2e-16 ***
## vegetarianTRUE                                           -0.193   0.8472
## factor(sex)Female                                         0.112   0.9110
## factor(video_type)F                                       0.012   0.9903
## factor(video_type)P                                      -0.095   0.9243
## factor(sex)Female:factor(video_type)F                    -2.433   0.0154 *
## factor(sex)Female:factor(video_type)P                    -0.404   0.6863
## vegetarianTRUE:factor(sex)Female                         -0.037   0.9706
## vegetarianTRUE:factor(video_type)F                       -0.004   0.9967
## vegetarianTRUE:factor(video_type)P                        0.035   0.9719
## vegetarianTRUE:factor(sex)Female:factor(video_type)F      0.758   0.4487
## vegetarianTRUE:factor(sex)Female:factor(video_type)P      0.129   0.8974
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.8355 on 387 degrees of freedom
## Multiple R-squared:  0.7803, Adjusted R-squared:  0.7735
## F-statistic: 114.5 on 12 and 387 DF,  p-value: < 2.2e-16
```

Nicer output courtesy of stargazer

```r
stargazer(model1, type="latex", header=FALSE, no.space=FALSE)
```

```r
# Now try it with standarized beef scores
```

Table 1:

	Dependent variable:
	post_beef
pre_beef	0.983***
	(0.055)
vegetarian	−0.075
	(0.388)
factor(sex)Female	0.017
	(0.154)
factor(video_type)F	0.002
	(0.153)
factor(video_type)P	−0.015
	(0.162)
factor(sex)Female:factor(video_type)F	−0.525**
	(0.216)
factor(sex)Female:factor(video_type)P	−0.088
	(0.218)
vegetarianTRUE:factor(sex)Female	−0.017
	(0.466)
vegetarianTRUE:factor(video_type)F	−0.002
	(0.448)
vegetarianTRUE:factor(video_type)P	0.015
	(0.437)
vegetarianTRUE:factor(sex)Female:factor(video_type)F	0.525
	(0.693)
vegetarianTRUE:factor(sex)Female:factor(video_type)P	0.088
	(0.684)
Constant	0.075
	(0.270)
Observations	400
R^2	0.780
Adjusted R^2	0.773
Residual Std. Error	0.835 (df = 387)
F Statistic	114.541*** (df = 12; 387)
Note:	*p<0.1; **p<0.05; ***p<0.01

```r
df$standardized_pre_beef <- scale(df$pre_beef)
df$standardized_post_beef <- scale(df$post_beef)
model2 = lm( standardized_post_beef ~ standardized_pre_beef + vegetarian + factor(sex)*factor(video_type
summary(model2)
```

```
##
## Call:
## lm(formula = standardized_post_beef ~ standardized_pre_beef +
##     vegetarian + factor(sex) * factor(video_type) * vegetarian,
##     data = df)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.8556 -0.5251  0.0000  0.5552  0.8724
##
## Coefficients:
##                                                          Estimate Std. Error
## (Intercept)                                              0.054746   0.064073
## standardized_pre_beef                                    0.882266   0.049301
## vegetarianTRUE                                          -0.042631   0.221148
## factor(sex)Female                                        0.009811   0.087691
## factor(video_type)F                                      0.001063   0.087073
## factor(video_type)P                                     -0.008760   0.092079
## factor(sex)Female:factor(video_type)F                   -0.299245   0.122974
## factor(sex)Female:factor(video_type)P                   -0.050297   0.124437
## vegetarianTRUE:factor(sex)Female                        -0.009811   0.265725
## vegetarianTRUE:factor(video_type)F                      -0.001063   0.255164
## vegetarianTRUE:factor(video_type)P                       0.008760   0.248919
## vegetarianTRUE:factor(sex)Female:factor(video_type)F     0.299245   0.394594
## vegetarianTRUE:factor(sex)Female:factor(video_type)P     0.050297   0.389899
##                                                         t value Pr(>|t|)
## (Intercept)                                               0.854   0.3934
## standardized_pre_beef                                    17.896   <2e-16 ***
## vegetarianTRUE                                           -0.193   0.8472
## factor(sex)Female                                         0.112   0.9110
## factor(video_type)F                                       0.012   0.9903
## factor(video_type)P                                      -0.095   0.9243
## factor(sex)Female:factor(video_type)F                    -2.433   0.0154 *
## factor(sex)Female:factor(video_type)P                    -0.404   0.6863
## vegetarianTRUE:factor(sex)Female                         -0.037   0.9706
## vegetarianTRUE:factor(video_type)F                       -0.004   0.9967
## vegetarianTRUE:factor(video_type)P                        0.035   0.9719
## vegetarianTRUE:factor(sex)Female:factor(video_type)F      0.758   0.4487
## vegetarianTRUE:factor(sex)Female:factor(video_type)P      0.129   0.8974
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4759 on 387 degrees of freedom
## Multiple R-squared:  0.7803, Adjusted R-squared:  0.7735
## F-statistic: 114.5 on 12 and 387 DF,  p-value: < 2.2e-16
```

```r
stargazer(model2, type="latex", header=FALSE, no.space=FALSE)
```

Table 2:

	Dependent variable:
	standardized_post_beef
standardized_pre_beef	0.882***
	(0.049)
vegetarian	−0.043
	(0.221)
factor(sex)Female	0.010
	(0.088)
factor(video_type)F	0.001
	(0.087)
factor(video_type)P	−0.009
	(0.092)
factor(sex)Female:factor(video_type)F	−0.299**
	(0.123)
factor(sex)Female:factor(video_type)P	−0.050
	(0.124)
vegetarianTRUE:factor(sex)Female	−0.010
	(0.266)
vegetarianTRUE:factor(video_type)F	−0.001
	(0.255)
vegetarianTRUE:factor(video_type)P	0.009
	(0.249)
vegetarianTRUE:factor(sex)Female:factor(video_type)F	0.299
	(0.395)
vegetarianTRUE:factor(sex)Female:factor(video_type)P	0.050
	(0.390)
Constant	0.055
	(0.064)
Observations	400
R^2	0.780
Adjusted R^2	0.773
Residual Std. Error	0.476 (df = 387)
F Statistic	114.541*** (df = 12; 387)
Note:	*p<0.1; **p<0.05; ***p<0.01

Conclusions and directions for further investigations

Appendix: Notes on mehods

Qualtrics

Amazon Mechanical Turk

Production of Treatment and Control Videos

Field trips Editing and rendering Hosting

Support Scripts

Pulling results from qualtrics Paying subjects Automated test/validation generation