Effect of (Version 0.1)- 20 user pilot: 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

Internationalization

Analysis

```
df = read.csv("Pilot3Cooked.csv")   #This file has some dummy data in which femail participants who see
                                # 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
```

```r
# Get pre-beef estimate
names(df)[names(df) == 'q17_5_text'] <- 'pre_beef'
names(df)[names(df) == 'q11_5_text'] <- 'post_beef'
names(df)[names(df) == 'q17_6_text'] <- 'pre_pork'
names(df)[names(df) == 'q11_6_text'] <- 'post_pork'
names(df)[names(df) == 'q9'] <- 'sex'
summary(df)
```

```
##    mturkcode               q1            sex
##  Min.   :1.653e+08   Min.   :21.00   Female: 6
##  1st Qu.:2.713e+09   1st Qu.:25.00   Male  :15
##  Median :4.465e+09   Median :32.00
##  Mean   :4.467e+09   Mean   :33.14
##  3rd Qu.:6.069e+09   3rd Qu.:39.00
##  Max.   :9.610e+09   Max.   :58.00
##                            q15     q14_1    q14_2     q14_3
##  A City                      :16      :12      :14   Mode:logical
##  A rural area                : 1   Dog: 9   Cat: 7   NA's:21
##  A small town or suburban area: 4
##
##
##
##   q14_4      q17_1_text       q17_2_text       q17_3_text   q17_4_text
##      :16   Min.   : 1.000   Min.   : 0.000   Min.   : 0   Min.   :0.000
##  Fish: 5   1st Qu.: 4.000   1st Qu.: 3.000   1st Qu.: 4   1st Qu.:1.000
##            Median : 7.000   Median : 5.000   Median : 6   Median :2.000
##            Mean   : 6.952   Mean   : 6.095   Mean   : 6   Mean   :2.429
##            3rd Qu.: 7.000   3rd Qu.: 7.000   3rd Qu.: 7   3rd Qu.:4.000
##            Max.   :15.000   Max.   :20.000   Max.   :21   Max.   :8.000
##     pre_beef        pre_pork       q16_1_rank      q16_2_rank
##  Min.   :0.000   Min.   :0.000   Min.   :1.000   Min.   :1.000
##  1st Qu.:1.000   1st Qu.:0.000   1st Qu.:1.000   1st Qu.:1.000
##  Median :2.000   Median :1.000   Median :2.000   Median :2.000
##  Mean   :2.143   Mean   :1.429   Mean   :2.762   Mean   :2.429
##  3rd Qu.:3.000   3rd Qu.:2.000   3rd Qu.:4.000   3rd Qu.:4.000
##  Max.   :5.000   Max.   :8.000   Max.   :5.000   Max.   :5.000
##    q16_3_rank      q16_4_rank      q16_5_rank      q11_1_text
##  Min.   :2.000   Min.   :1.000   Min.   :1.000   Min.   : 1.000
##  1st Qu.:3.000   1st Qu.:3.000   1st Qu.:2.000   1st Qu.: 4.000
##  Median :4.000   Median :4.000   Median :2.000   Median : 7.000
##  Mean   :3.762   Mean   :3.476   Mean   :2.571   Mean   : 7.143
##  3rd Qu.:5.000   3rd Qu.:5.000   3rd Qu.:3.000   3rd Qu.: 7.000
##  Max.   :5.000   Max.   :5.000   Max.   :5.000   Max.   :15.000
##    q11_2_text       q11_3_text       q11_4_text      post_beef
##  Min.   : 1.000   Min.   : 0.000   Min.   :0.000   Min.   :0.000
##  1st Qu.: 3.000   1st Qu.: 2.000   1st Qu.:1.000   1st Qu.:1.000
##  Median : 5.000   Median : 7.000   Median :2.000   Median :2.000
##  Mean   : 6.619   Mean   : 5.667   Mean   :2.571   Mean   :2.333
##  3rd Qu.:10.000   3rd Qu.: 7.000   3rd Qu.:4.000   3rd Qu.:3.000
##  Max.   :25.000   Max.   :20.000   Max.   :7.000   Max.   :5.000
##    post_pork video_type attention_correct
##  Min.   :0   F:7        true:21
##  1st Qu.:0   I:7
##  Median :1   P:7
```

```
##  Mean   :1
##  3rd Qu.:2
##  Max.   :5
```

```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")
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
## -1.0534 -0.1667  0.0000  0.1602  1.3568
##
## Coefficients: (4 not defined because of singularities)
##                                                        Estimate Std. Error
## (Intercept)                                              1.2840     0.4489
## pre_beef                                                 0.7864     0.1260
## vegetarianTRUE                                          -1.2840     0.7814
## factor(sex)Female                                        0.1432     0.5575
## factor(video_type)F                                     -1.8034     0.4533
## factor(video_type)P                                     -0.4765     0.4176
## factor(sex)Female:factor(video_type)F                    1.3034     0.7839
## factor(sex)Female:factor(video_type)P                   -1.0235     1.1839
## vegetarianTRUE:factor(sex)Female                         1.3568     1.0625
## vegetarianTRUE:factor(video_type)F                           NA         NA
## vegetarianTRUE:factor(video_type)P                           NA         NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)F         NA         NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)P         NA         NA
##                                                        t value Pr(>|t|)
## (Intercept)                                              2.860  0.01435 *
## pre_beef                                                 6.239 4.32e-05 ***
## vegetarianTRUE                                          -1.643  0.12627
## factor(sex)Female                                        0.257  0.80162
## factor(video_type)F                                     -3.978  0.00183 **
## factor(video_type)P                                     -1.141  0.27610
## factor(sex)Female:factor(video_type)F                    1.663  0.12227
## factor(sex)Female:factor(video_type)P                   -0.865  0.40426
```

```
## vegetarianTRUE:factor(sex)Female                         1.277  0.22575
## vegetarianTRUE:factor(video_type)F                          NA       NA
## vegetarianTRUE:factor(video_type)P                          NA       NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)F        NA       NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)P        NA       NA
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6396 on 12 degrees of freedom
## Multiple R-squared:  0.8948, Adjusted R-squared:  0.8247
## F-statistic: 12.76 on 8 and 12 DF,  p-value: 8.573e-05
```

Nicer output courtesy of stargazer

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

```
# Now try it with standarized beef scores

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
## -0.6896 -0.1091  0.0000  0.1049  0.8882
##
## Coefficients: (4 not defined because of singularities)
##                                                          Estimate Std. Error
## (Intercept)                                               0.41623    0.21141
## standardized_pre_beef                                     0.76855    0.12318
## vegetarianTRUE                                           -0.84056    0.51155
## factor(sex)Female                                         0.09375    0.36494
## factor(video_type)F                                      -1.18060    0.29678
## factor(video_type)P                                      -0.31197    0.27340
## factor(sex)Female:factor(video_type)F                     0.85327    0.51321
## factor(sex)Female:factor(video_type)P                    -0.67001    0.77503
## vegetarianTRUE:factor(sex)Female                          0.88823    0.69555
## vegetarianTRUE:factor(video_type)F                             NA         NA
## vegetarianTRUE:factor(video_type)P                             NA         NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)F           NA         NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)P           NA         NA
##                                                          t value Pr(>|t|)
## (Intercept)                                                1.969  0.07251 .
## standardized_pre_beef                                      6.239 4.32e-05 ***
## vegetarianTRUE                                            -1.643  0.12627
## factor(sex)Female                                          0.257  0.80162
## factor(video_type)F                                       -3.978  0.00183 **
## factor(video_type)P                                       -1.141  0.27610
```

Table 1:

	Dependent variable:
	post_beef
pre_beef	0.786^{***}
	(0.126)
vegetarian	-1.284
	(0.781)
factor(sex)Female	0.143
	(0.557)
factor(video_type)F	-1.803^{***}
	(0.453)
factor(video_type)P	-0.477
	(0.418)
factor(sex)Female:factor(video_type)F	1.303
	(0.784)
factor(sex)Female:factor(video_type)P	-1.023
	(1.184)
vegetarianTRUE:factor(sex)Female	1.357
	(1.062)
vegetarianTRUE:factor(video_type)F	
vegetarianTRUE:factor(video_type)P	
vegetarianTRUE:factor(sex)Female:factor(video_type)F	
vegetarianTRUE:factor(sex)Female:factor(video_type)P	
Constant	1.284^{**}
	(0.449)
Observations	21
R^2	0.895
Adjusted R^2	0.825
Residual Std. Error	0.640 (df = 12)
F Statistic	12.761^{***} (df = 8; 12)
Note:	*p<0.1; **p<0.05; ***p<0.01

```
## factor(sex)Female:factor(video_type)F                  1.663  0.12227
## factor(sex)Female:factor(video_type)P                 -0.865  0.40426
## vegetarianTRUE:factor(sex)Female                       1.277  0.22575
## vegetarianTRUE:factor(video_type)F                        NA       NA
## vegetarianTRUE:factor(video_type)P                        NA       NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)F      NA       NA
## vegetarianTRUE:factor(sex)Female:factor(video_type)P      NA       NA
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4187 on 12 degrees of freedom
## Multiple R-squared:  0.8948, Adjusted R-squared:  0.8247
## F-statistic: 12.76 on 8 and 12 DF,  p-value: 8.573e-05
```

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

```
# Now try it with hamburger rank (1 = most desired, 5 = least desired)
# field is q16_1_rank

df$standardized_pre_beef <- scale(df$pre_beef)
df$standardized_post_beef <- scale(df$post_beef)
model3 = lm( q16_1_rank ~ standardized_pre_beef + factor(video_type), data=df)
summary(model3)
```

```
##
## Call:
## lm(formula = q16_1_rank ~ standardized_pre_beef + factor(video_type),
##     data = df)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.1908 -1.2857 -0.2857  1.3174  2.5388
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)             2.2541     0.6506   3.465  0.00296 **
## standardized_pre_beef  -0.3306     0.3932  -0.841  0.41205
## factor(video_type)F     0.3969     0.9193   0.432  0.67132
## factor(video_type)P     1.1266     0.9308   1.210  0.24270
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.718 on 17 degrees of freedom
## Multiple R-squared:  0.1006, Adjusted R-squared:  -0.05817
## F-statistic: 0.6335 on 3 and 17 DF,  p-value: 0.6035
```

```
stargazer(model3, type="latex", header=FALSE, no.space=FALSE)
```

Table 2:

	Dependent variable:
	standardized_post_beef
standardized_pre_beef	0.769***
	(0.123)
vegetarian	−0.841
	(0.512)
factor(sex)Female	0.094
	(0.365)
factor(video_type)F	−1.181***
	(0.297)
factor(video_type)P	−0.312
	(0.273)
factor(sex)Female:factor(video_type)F	0.853
	(0.513)
factor(sex)Female:factor(video_type)P	−0.670
	(0.775)
vegetarianTRUE:factor(sex)Female	0.888
	(0.696)
vegetarianTRUE:factor(video_type)F	
vegetarianTRUE:factor(video_type)P	
vegetarianTRUE:factor(sex)Female:factor(video_type)F	
vegetarianTRUE:factor(sex)Female:factor(video_type)P	
Constant	0.416*
	(0.211)
Observations	21
R^2	0.895
Adjusted R^2	0.825
Residual Std. Error	0.419 (df = 12)
F Statistic	12.761*** (df = 8; 12)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 3:

	Dependent variable:
	q16_1_rank
standardized_pre_beef	−0.331
	(0.393)
factor(video_type)F	0.397
	(0.919)
factor(video_type)P	1.127
	(0.931)
Constant	2.254***
	(0.651)
Observations	21
R^2	0.101
Adjusted R^2	−0.058
Residual Std. Error	1.718 (df = 17)
F Statistic	0.634 (df = 3; 17)
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