Comparing Regressions

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4/26/2018

```
## Installing package into '/Users/george/Documents/School/UW/Thesis/thesis_R/packrat/lib/x86_64-apple-
## (as 'lib' is unspecified)

##
## The downloaded binary packages are in
##  /var/folders/6s/cv2xpvws1978z4cyr4w1sl0h0000gn/T//RtmpwEZbgN/downloaded_packages

## Warning: package 'haven' was built under R version 3.4.3

## Installing package into '/Users/george/Documents/School/UW/Thesis/thesis_R/packrat/lib/x86_64-apple-
## (as 'lib' is unspecified)

##
## The downloaded binary packages are in
##  /var/folders/6s/cv2xpvws1978z4cyr4w1sl0h0000gn/T//RtmpwEZbgN/downloaded_packages

## Warning: package 'dplyr' was built under R version 3.4.2

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union

## Installing package into '/Users/george/Documents/School/UW/Thesis/thesis_R/packrat/lib/x86_64-apple-
## (as 'lib' is unspecified)

##
## The downloaded binary packages are in
##  /var/folders/6s/cv2xpvws1978z4cyr4w1sl0h0000gn/T//RtmpwEZbgN/downloaded_packages

## Installing package into '/Users/george/Documents/School/UW/Thesis/thesis_R/packrat/lib/x86_64-apple-
## (as 'lib' is unspecified)

##
## The downloaded binary packages are in
##  /var/folders/6s/cv2xpvws1978z4cyr4w1sl0h0000gn/T//RtmpwEZbgN/downloaded_packages

## Installing package into '/Users/george/Documents/School/UW/Thesis/thesis_R/packrat/lib/x86_64-apple-
## (as 'lib' is unspecified)

##
##   There is a binary version available (and will be installed) but
##   the source version is later:
##      binary source
## MASS 7.3-49 7.3-50
##
##
## The downloaded binary packages are in
```

```
##   /var/folders/6s/cv2xpvws1978z4cyr4w1sl0h0000gn/T//RtmpwEZbgN/downloaded_packages

## Warning: package 'MASS' was built under R version 3.4.3

##
## Attaching package: 'MASS'

## The following object is masked from 'package:dplyr':
##
##     select

## Installing package into '/Users/george/Documents/School/UW/Thesis/thesis_R/packrat/lib/x86_64-apple-d
## (as 'lib' is unspecified)

##
## The downloaded binary packages are in
##   /var/folders/6s/cv2xpvws1978z4cyr4w1sl0h0000gn/T//RtmpwEZbgN/downloaded_packages

## Warning: package 'pscl' was built under R version 3.4.2

## Classes and Methods for R developed in the
## Political Science Computational Laboratory
## Department of Political Science
## Stanford University
## Simon Jackman
## hurdle and zeroinfl functions by Achim Zeileis
```

Comparing regressions 5/2/18 ## Probability: Binge [0][1+] FAMILY Treatedyn

```
##
## Call:
## lm(formula = binge2cat ~ faminc_mid + treatedyn + alctry + evermj +
##     evercoc + edu4cat + age + sex + marital + dependents + era +
##     faminc_mid * treatedyn + edu4cat * treatedyn, data = data_clean,
##     na.action = na.omit)
##
## Residuals:
##     Min     1Q  Median     3Q     Max
## -0.7924 -0.2904 -0.1556  0.4188  1.2264
##
## Coefficients:
##                             Estimate Std. Error t value Pr(>|t|)
## (Intercept)                0.4916900  0.0091963  53.466  < 2e-16 ***
## faminc_mid                 0.0033358  0.0005190   6.427 1.31e-10 ***
## treatedynYes              -0.0096358  0.0127300  -0.757  0.44909
## alctry                    -0.0068766  0.0003350 -20.530  < 2e-16 ***
## evermjyes                  0.0884658  0.0031519  28.068  < 2e-16 ***
## evercocyes                 0.0976769  0.0039556  24.693  < 2e-16 ***
## edu4catHS                 -0.0132751  0.0047430  -2.799  0.00513 **
## edu4catSome C             -0.0527273  0.0049574 -10.636  < 2e-16 ***
## edu4catC Grad             -0.0869093  0.0051049 -17.025  < 2e-16 ***
## age 30-34                 -0.0432595  0.0046011  -9.402  < 2e-16 ***
## age 35-49                 -0.1150866  0.0041570 -27.685  < 2e-16 ***
## age 50-64                 -0.1941982  0.0051257 -37.887  < 2e-16 ***
## age 65+                   -0.2507978  0.0062739 -39.975  < 2e-16 ***
## sex f                     -0.1542752  0.0027262 -56.590  < 2e-16 ***
## marital widowed            0.0473904  0.0072387   6.547 5.90e-11 ***
## marital divorced           0.0584432  0.0040242  14.523  < 2e-16 ***
## marital never              0.0698975  0.0040589  17.221  < 2e-16 ***
## dependents1               -0.0438257  0.0039925 -10.977  < 2e-16 ***
## dependents2               -0.0410382  0.0041153  -9.972  < 2e-16 ***
## dependents3+              -0.0518834  0.0050459 -10.282  < 2e-16 ***
## era                        0.0318405  0.0026831  11.867  < 2e-16 ***
## faminc_mid:treatedynYes   -0.0018225  0.0017399  -1.047  0.29489
## treatedynYes:edu4catHS    -0.0006431  0.0143954  -0.045  0.96437
## treatedynYes:edu4catSome C 0.0033541  0.0152211   0.220  0.82559
## treatedynYes:edu4catC Grad 0.0528759  0.0177640   2.977  0.00292 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4136 on 99776 degrees of freedom
##   (317 observations deleted due to missingness)
## Multiple R-squared:  0.1318, Adjusted R-squared:  0.1316
## F-statistic:   631 on 24 and 99776 DF,  p-value: < 2.2e-16
```

```
## Probability: Binge [0][1+] FAMILY Treated
##
## Call:
## lm(formula = binge2cat ~ faminc_mid + treated + alctry + evermj +
##     evercoc + edu4cat + age + sex + marital + dependents + era +
##     faminc_mid * treated + edu4cat * treated, data = data_clean,
##     na.action = na.omit)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.7927 -0.2903 -0.1556  0.4180  1.2262
##
## Coefficients:
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                   0.4917154  0.0091964  53.468  < 2e-16 ***
## faminc_mid                    0.0033472  0.0005191   6.449 1.13e-10 ***
## treatedDistant               -0.0055596  0.0150221  -0.370 0.711313
## treatedRecent                -0.0135423  0.0217889  -0.622 0.534258
## alctry                       -0.0068749  0.0003350 -20.525  < 2e-16 ***
## evermjyes                     0.0884057  0.0031520  28.047  < 2e-16 ***
## evercocyes                    0.0978203  0.0039564  24.725  < 2e-16 ***
## edu4catHS                    -0.0132831  0.0047429  -2.801 0.005101 **
## edu4catSome C                -0.0527563  0.0049573 -10.642  < 2e-16 ***
## edu4catC Grad                -0.0869531  0.0051049 -17.033  < 2e-16 ***
## age 30-34                    -0.0433512  0.0046012  -9.422  < 2e-16 ***
## age 35-49                    -0.1152724  0.0041575 -27.726  < 2e-16 ***
## age 50-64                    -0.1944713  0.0051271 -37.930  < 2e-16 ***
## age 65+                      -0.2510006  0.0062747 -40.002  < 2e-16 ***
## sex f                        -0.1542046  0.0027264 -56.560  < 2e-16 ***
## marital widowed               0.0474096  0.0072387   6.549 5.80e-11 ***
## marital divorced              0.0585053  0.0040246  14.537  < 2e-16 ***
## marital never                 0.0700228  0.0040592  17.250  < 2e-16 ***
## dependents1                  -0.0439224  0.0039929 -11.000  < 2e-16 ***
## dependents2                  -0.0410860  0.0041156  -9.983  < 2e-16 ***
## dependents3+                 -0.0519533  0.0050462 -10.296  < 2e-16 ***
## era                           0.0318613  0.0026832  11.874  < 2e-16 ***
## faminc_mid:treatedDistant    -0.0010192  0.0019633  -0.519 0.603667
## faminc_mid:treatedRecent     -0.0063028  0.0036249  -1.739 0.082079 .
## treatedDistant:edu4catHS     -0.0027715  0.0167324  -0.166 0.868443
## treatedRecent:edu4catHS       0.0004666  0.0262633   0.018 0.985825
## treatedDistant:edu4catSome C  0.0022463  0.0176471   0.127 0.898710
## treatedRecent:edu4catSome C   0.0023176  0.0280102   0.083 0.934057
## treatedDistant:edu4catC Grad  0.0352562  0.0201204   1.752 0.079732 .
## treatedRecent:edu4catC Grad   0.1219991  0.0367249   3.322 0.000894 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4135 on 99771 degrees of freedom
##   (317 observations deleted due to missingness)
## Multiple R-squared:  0.1318, Adjusted R-squared:  0.1316
## F-statistic: 522.5 on 29 and 99771 DF,  p-value: < 2.2e-16
```

```
## Negative Binomial: Binge 0-30 w/era FAMILY INCOME Treatedyn
##
## Call:
## glm.nb(formula = dr5day ~ faminc_mid + treatedyn + alctry + evermj +
##     evercoc + edu4cat + age + sex + marital + dependents + era +
##     faminc_mid * treatedyn + edu4cat * treatedyn, data = data_clean,
##     na.action = na.omit, init.theta = 0.1968342402, link = log)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.3425  -0.8168  -0.6511  -0.3014   7.5309
##
## Coefficients:
##                              Estimate Std. Error z value Pr(>|z|)
## (Intercept)                  1.263300   0.059345  21.288  < 2e-16 ***
## faminc_mid                  -0.001993   0.003257  -0.612 0.540700
## treatedynYes                 0.274860   0.073038   3.763 0.000168 ***
## alctry                      -0.062083   0.002340 -26.535  < 2e-16 ***
## evermjyes                    0.579775   0.019689  29.446  < 2e-16 ***
## evercocyes                   0.494458   0.023152  21.357  < 2e-16 ***
## edu4catHS                   -0.053604   0.029335  -1.827 0.067655 .
## edu4catSome C               -0.339220   0.030858 -10.993  < 2e-16 ***
## edu4catC Grad               -0.592248   0.031963 -18.529  < 2e-16 ***
## age 30-34                   -0.143790   0.027923  -5.149 2.61e-07 ***
## age 35-49                   -0.290641   0.025262 -11.505  < 2e-16 ***
## age 50-64                   -0.548763   0.031677 -17.324  < 2e-16 ***
## age 65+                     -0.983248   0.040997 -23.983  < 2e-16 ***
## sex f                       -0.995666   0.017013 -58.524  < 2e-16 ***
## marital widowed              0.171818   0.049237   3.490 0.000484 ***
## marital divorced             0.373053   0.024695  15.107  < 2e-16 ***
## marital never                0.264968   0.024731  10.714  < 2e-16 ***
## dependents1                 -0.266053   0.024758 -10.746  < 2e-16 ***
## dependents2                 -0.290362   0.025544 -11.367  < 2e-16 ***
## dependents3+                -0.351412   0.031520 -11.149  < 2e-16 ***
## era                          0.200543   0.016803  11.935  < 2e-16 ***
## faminc_mid:treatedynYes     -0.016556   0.010019  -1.652 0.098448 .
## treatedynYes:edu4catHS      -0.048978   0.082461  -0.594 0.552542
## treatedynYes:edu4catSome C   0.084091   0.087470   0.961 0.336367
## treatedynYes:edu4catC Grad   0.405009   0.102117   3.966 7.30e-05 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for Negative Binomial(0.1968) family taken to be 1)
##
##     Null deviance: 74515  on 99800  degrees of freedom
## Residual deviance: 60664  on 99776  degrees of freedom
##   (317 observations deleted due to missingness)
## AIC: 226798
##
## Number of Fisher Scoring iterations: 1
##
##
##                Theta:  0.19683
```

```
##            Std. Err.:  0.00174
##
##  2 x log-likelihood:  -226746.15500
```

```
## Negative Binomial: Binge 0-30 w/era FAMILY INCOME Treated
##
## Call:
## glm.nb(formula = dr5day ~ faminc_mid + treated + alctry + evermj +
##     evercoc + edu4cat + age + sex + marital + dependents + era +
##     faminc_mid * treated + edu4cat * treated, data = data_clean,
##     na.action = na.omit, init.theta = 0.1968806455, link = log)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.3375  -0.8167  -0.6511  -0.3011   7.5489
##
## Coefficients:
##                               Estimate Std. Error z value Pr(>|z|)
## (Intercept)                   1.266054   0.059346  21.333  < 2e-16 ***
## faminc_mid                   -0.002023   0.003257  -0.621 0.534483
## treatedDistant                0.237258   0.086056   2.757 0.005833 **
## treatedRecent                 0.351517   0.123686   2.842 0.004483 **
## alctry                       -0.062265   0.002340 -26.609  < 2e-16 ***
## evermjyes                     0.580383   0.019689  29.478  < 2e-16 ***
## evercocyes                    0.493810   0.023155  21.326  < 2e-16 ***
## edu4catHS                    -0.053800   0.029333  -1.834 0.066637 .
## edu4catSome C                -0.339554   0.030856 -11.004  < 2e-16 ***
## edu4catC Grad                -0.592541   0.031961 -18.539  < 2e-16 ***
## age 30-34                    -0.143802   0.027922  -5.150 2.6e-07 ***
## age 35-49                    -0.290318   0.025264 -11.491  < 2e-16 ***
## age 50-64                    -0.548228   0.031686 -17.302  < 2e-16 ***
## age 65+                      -0.982528   0.041003 -23.962  < 2e-16 ***
## sex f                        -0.994521   0.017013 -58.456  < 2e-16 ***
## marital widowed               0.168130   0.049257   3.413 0.000642 ***
## marital divorced              0.373008   0.024696  15.104  < 2e-16 ***
## marital never                 0.264946   0.024732  10.713  < 2e-16 ***
## dependents1                  -0.266323   0.024759 -10.756  < 2e-16 ***
## dependents2                  -0.290200   0.025544 -11.361  < 2e-16 ***
## dependents3+                 -0.351295   0.031521 -11.145  < 2e-16 ***
## era                           0.200419   0.016803  11.928  < 2e-16 ***
## faminc_mid:treatedDistant    -0.014904   0.011308  -1.318 0.187497
## faminc_mid:treatedRecent     -0.020934   0.020624  -1.015 0.310099
## treatedDistant:edu4catHS      0.007599   0.095681   0.079 0.936701
## treatedRecent:edu4catHS      -0.204294   0.149156  -1.370 0.170792
## treatedDistant:edu4catSome C  0.078276   0.101325   0.773 0.439804
## treatedRecent:edu4catSome C   0.135343   0.158985   0.851 0.394607
## treatedDistant:edu4catC Grad  0.355146   0.115749   3.068 0.002153 **
## treatedRecent:edu4catC Grad   0.655067   0.207688   3.154 0.001610 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for Negative Binomial(0.1969) family taken to be 1)
##
##     Null deviance: 74526  on 99800  degrees of freedom
## Residual deviance: 60665  on 99771  degrees of freedom
##   (317 observations deleted due to missingness)
## AIC: 226800
```

```
## 
## Number of Fisher Scoring iterations: 1
## 
## 
##                 Theta:  0.19688
##            Std. Err.:  0.00175
## 
##  2 x log-likelihood:  -226738.23000
```