

A cautionary note regarding count models of alcohol consumption in randomized controlled trials (Horton et al, *BMC Medical Research Methodology*)

Appendix: Stata commands and output

Installing S-Post

SPost must be installed prior to using the `prcounts` routine:

```
. net from http://www.indiana.edu/~jslsoc/stata
. net install spost9_ado
. net get spost9_do
```

For more information, see <http://www.indiana.edu/~jslsoc/spost.htm>.

ASAP Analysis

```
. poisson drkaday treatment if tp==3
```

```
Poisson regression                    Number of obs   =       271
                                      LR chi2(1)       =        5.62
                                      Prob > chi2      =       0.0177
Log likelihood = -1427.546             Pseudo R2      =       0.0020
```

drkaday	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
treatment	-.1336519	.0564694	-2.37	0.018	-.2443298 -.022974
_cons	1.6057	.0377326	42.55	0.000	1.531746 1.679655

```
. poisson drkaday treatment if tp==3, robust
```

```
Poisson regression                    Number of obs   =       271
                                      Wald chi2(1)    =        0.48
                                      Prob > chi2    =       0.4890
Log pseudolikelihood = -1427.546       Pseudo R2      =       0.0020
```

		Robust				
drkaday	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
treatment	-.1336519	.1931739	-0.69	0.489	-.5122657	.2449619
_cons	1.6057	.1429017	11.24	0.000	1.325618	1.885783

. nbreg drkaday treatment if tp==3

note: you are responsible for interpretation of non-count dep. variable

```
Negative binomial regression          Number of obs =      271
                                      LR chi2(1)      =      0.55
Dispersion = mean                    Prob > chi2     =      0.4588
Log likelihood = -692.23918           Pseudo R2      =      0.0004
```

drkaday	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
treatment	-.1336519	.1801373	-0.74	0.458	-.4867144	.2194106
_cons	1.6057	.1243391	12.91	0.000	1.362	1.849401
/lnalpha	.6826635	.1007122			.4852712	.8800558
alpha	1.979142	.1993238			1.624616	2.411034

Likelihood-ratio test of alpha=0: chibar2(01) = 1470.61 Prob>=chibar2 = 0.000

. zip drkaday treatment if tp==3, infl(_cons) robust

```
Zero-inflated Poisson regression      Number of obs =      271
                                      Nonzero obs   =      211
                                      Zero obs       =      60

Inflation model = logit               Wald chi2(1)    =      0.37
Log pseudolikelihood = -1253.585      Prob > chi2     =      0.5424
```

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
drkaday						
treatment	-.1125156	.1846819	-0.61	0.542	-.4744855	.2494544
_cons	1.843205	.1374971	13.41	0.000	1.573716	2.112695
inflate						

```

      _cons |   -1.26964   .1481197   -8.57   0.000   -1.559949   -.9793308
-----+-----

```

```

. ttest drkaday if tp==3, by(treatment) unequal

```

Two-sample t test with unequal variances

```

-----+-----
Group |   Obs   Mean   Std. Err.   Std. Dev. [95% Conf. Interval]
-----+-----
      0 |   141  4.981347   .7130616   8.467138   3.571586   6.391109
      1 |   130  4.358154   .5676215   6.471881   3.235101   5.481207
-----+-----
combined|  271  4.682398   .4597568   7.568552   3.777234   5.587563
-----+-----
diff   |           .6231937   .9114006           -1.171465   2.417852
-----+-----

```

```

diff = mean(0) - mean(1)                               t =   0.6838
Ho: diff = 0           Satterthwaite's degrees of freedom = 260.237

      Ha: diff < 0           Ha: diff != 0           Ha: diff > 0
Pr(T < t) = 0.7526   Pr(|T| > |t|) = 0.4947   Pr(T > t) = 0.2474

```

```

. ranksum drkaday if tp==3, by(treatment)

```

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

```

treatment |   obs   rank sum   expected
-----+-----
          0 |   141   19334.5   19176
          1 |   130   17521.5   17680
-----+-----
combined  |   271   36856   36856

```

```

unadjusted variance   415480.00
adjustment for ties   -4526.13
-----
adjusted variance     410953.87

```

```

Ho: drkaday(treatm~t==0) = drkaday(treatm~t==1)
      z =   0.247
Prob > |z| =   0.8047

```

```
. permute random2 r(sum), reps(10000) nodots nodrop nowarn: summarize drkaday if treatment==1
```

```
Monte Carlo permutation results          Number of obs   =          271
```

```
command: summarize drkaday if treatment==1
      _pm_1: r(sum)
permute var: random2
```

```
-----+-----
T      | T(obs)   c      n    p=c/n   SE(p) [95% Conf. Interval]
-----+-----
      _pm_1 | 566.56  7461  10000  0.7461  0.0044  .7374485  .7546079
-----+-----
```

Note: Confidence interval is with respect to p=c/n.

Note: c = #{|T| >= |T(obs)|}

Plotting predicted values

```
. use "asap.dta", clear
. gen drkinteger = ceil(drkaday)
(124 missing values generated)
. poisson drkinteger treatment if tp==3
```

```
Poisson regression          Number of obs   =          271
                          LR chi2(1)      =           4.75
                          Prob > chi2     =           0.0293
Log likelihood = -1398.9603  Pseudo R2        =           0.0017
```

```
-----+-----
drkinteger|      Coef.   Std. Err.   z    P>|z|   [95% Conf. Interval]
-----+-----
treatment |  -.1182639   .054343  -2.18  0.030  -.2247743  -.0117536
      _cons |   1.673976   .0364662 45.90  0.000   1.602504   1.745449
-----+-----
```

```
. prcounts drkp if treatment==0, max(25) plot
(567 missing values generated)
. label var drkpobeq "Observed"
. label var drkppreq "Poisson Predicted"
. label var drkpval "# of drinks per day after 3 months"
. graph twoway connected drkpobeq drkppreq drkpval,
msymbol(o s) title(Figure 1.) ytitle("Probability")
ylabel(0(.1).3) xlabel(0(1)25)
```