Policy analysis with 2-period panel data

```
Contains data from TRAFFIC1.dta
  obs:            51
 vars:            13                          30 Jun 1997 14:43
 size:         1,173
-------------------------------------------------------------------------------
              storage  display     value
variable name   type   format      label      variable label
-------------------------------------------------------------------------------
state           str2   %9s
admn90          byte   %8.0g                  =1 if admin. revoc., '90
admn85          byte   %8.0g                  =1 if admin. revoc., '85
open90          byte   %8.0g                  =1 if open cont. law, '90
open85          byte   %8.0g                  =1 if open cont. law, '85
dthrte90        float  %9.0g                 deaths per 100 mill. miles,'90
dthrte85        float  %9.0g                 deaths per 100 mill. miles,'85
speed90         byte   %8.0g                  =1 if 65 mph, 1990
speed85         byte   %8.0g                  =0 always
cdthrte         float  %9.0g                  dthrte90 - dthrte85
cadmn           byte   %9.0g                  admn90 - admn85
copen           byte   %9.0g                  open90 - open85
cspeed          byte   %9.0g                  speed90 - speed85
-------------------------------------------------------------------------------
```

*Do first difference in wide form

States adopted different policies in an attempt to curb drunk
2 types of law:

1) open container laws (illegal for passengers to have open containers of alcoholic beverages)
2) administrative per se laws (allow courts to suspend licenses)

Q: How these laws affect driving fatalities?
Driving fatalities = f(dummy indicators for whether each law is present)

Each state decides whether they need such laws. Therefore, the presence of laws is likely to be related to the average drunk driving fatalities in recent years
>> better to use panel data

Dependent variable: dthrte = number of traffic deaths per 100 million miles driven
In 1985: 19 states had open container laws, 21 states had per se laws
In 1990: 22 states had open container laws, 29 states had per se laws

$$\Delta dthrte = \alpha_0 + \alpha_1 \Delta open + \alpha_2 \Delta admm + u$$

```
reg cdthrte copen cadmn
```

```
      Source |       SS       df       MS              Number of obs =      51
-------------+------------------------------           F(  2,    48) =    3.23
       Model |  .762579785     2  .381289893           Prob > F      =  0.0482
    Residual |  5.66369475    48  .117993641           R-squared     =  0.1187
-------------+------------------------------           Adj R-squared =  0.0819
       Total |  6.42627453    50  .128525491           Root MSE      =   .3435

------------------------------------------------------------------------------
     cdthrte |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       copen |  -.4196787   .2055948    -2.04   0.047    -.8330547   -.0063028
       cadmn |  -.1506024   .1168223    -1.29   0.204    -.3854894    .0842846
       _cons |  -.4967872   .0524256    -9.48   0.000    -.6021959   -.3913784
------------------------------------------------------------------------------
```

```
estimates store fd

estout fd, cells(b(star fmt(3)) se(par fmt(2))) stats(r2 N, fmt(3 0)) starlevels(*
0.10 ** 0.05 *** 0.01)

----------------------------
                        fd
                     b/se
----------------------------
copen                -0.420**
                     (0.21)
cadmn                -0.151
                     (0.12)
_cons                -0.497***
                     (0.05)
----------------------------
r2                    0.119
N                        51
----------------------------
```

Adopting an open container low lowered the traffic fatality rate by 0.42 while the administrative per se law has a smaller effect, lowering the traffic fatality rate by 0.15 (although not statistically significant).