Multi-year panel data: Impact of enterprise zones on employment

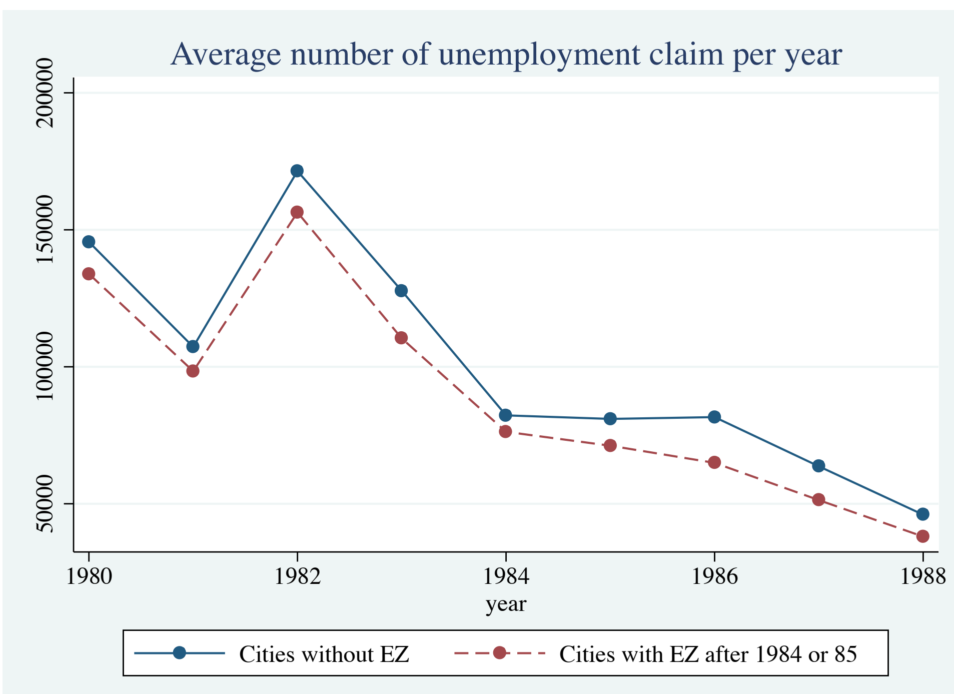
Source: data file EZUNEM (Wooldridge). 22 cities in Indiana, from 1980 to 1988.
Six enterprise zones created in 1984, and 4 more in 1985.
uclms is number of unemployment claims file during the year

```
. sum

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
        year |       198        1984    2.588534       1980       1988
       uclms |       198    95383.39    89173.63      12360     667208
          ez |       198    .2323232    .4233845          0          1


. table year, c(n uclms mean uclms min uclms max uclms)

--------------------------------------------------------------
     year |   N(uclms)  mean(uclms)   min(uclms)   max(uclms)
----------+---------------------------------------------------
     1980 |         22     140267.2        48490       533598
     1981 |         22       103229        34489       435754
     1982 |         22     164579.3        46225       667208
     1983 |         22     119835.9        34154       545625
     1984 |         22     79541.59        30062       340092
     1985 |         22     76527.23        25004       325797
     1986 |         22     74040.95        21100       303724
     1987 |         22     58051.14        16913       262512
     1988 |         22     42378.32        12360       209103
--------------------------------------------------------------
```



```
. reg luclms ez i.year i.city

      Source |       SS       df       MS              Number of obs =     198
-------------+------------------------------           F( 30,   167) =   77.75
       Model |  93.7818454    30  3.12606151           Prob > F      =  0.0000
    Residual |  6.71437093   167  .040205814           R-squared     =  0.9332
-------------+------------------------------           Adj R-squared =  0.9212
       Total |  100.496216   197  .510133078           Root MSE      =  .20051

------------------------------------------------------------------------------
      luclms |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          ez |  -.1044144   .0554191    -1.88   0.061    -.2138267    .0049979
             |
        year |
        1981 |  -.3216314   .0604572    -5.32   0.000    -.4409903   -.2022725
        1982 |   .1354959   .0604572     2.24   0.026      .016137    .2548548

        1987 |  -.8889487   .0654953   -13.57   0.000    -1.018254   -.7596432
        1988 |  -1.227633   .0654953   -18.74   0.000    -1.356938   -1.098327
             |
        city |
          2  |  -.1934845    .099411    -1.95   0.053    -.3897488    .0027797
          3  |  -.3789357    .099411    -3.81   0.000       -.5752   -.1826714

         21  |   .4577925   .0945231     4.84   0.000     .2711782    .6444068
         22  |   .2186422    .099411     2.20   0.029     .0223779    .4149065
             |
       _cons |   11.67615   .0800792   145.81   0.000     11.51805    11.83425
------------------------------------------------------------------------------

. xtreg luclms ez i.year, fe i(city)

Fixed-effects (within) regression               Number of obs      =       198
Group variable: city                            Number of groups   =        22

R-sq:  within  = 0.8416                         Obs per group: min =         9
       between = 0.0002                                        avg =       9.0
       overall = 0.3528                                        max =         9

                                                F(9,167)           =     98.59
corr(u_i, Xb)  = -0.0039                        Prob > F           =    0.0000

------------------------------------------------------------------------------
      luclms |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          ez |  -.1044144   .0554191    -1.88   0.061    -.2138267    .0049979
             |
        year |
        1981 |  -.3216314   .0604572    -5.32   0.000    -.4409903   -.2022725
        1982 |   .1354959   .0604572     2.24   0.026      .016137    .2548548
        1983 |  -.2192554   .0604572    -3.63   0.000    -.3386144   -.0998965
        1984 |   -.579152   .0623179    -9.29   0.000    -.7021843   -.4561196
        1985 |  -.5917876   .0654953    -9.04   0.000    -.7210931   -.4624821
        1986 |   -.621265   .0654953    -9.49   0.000    -.7505704   -.4919595
        1987 |  -.8889487   .0654953   -13.57   0.000    -1.018254   -.7596432
        1988 |  -1.227633   .0654953   -18.74   0.000    -1.356938   -1.098327
             |
       _cons |   11.69439   .0427497   273.55   0.000     11.60999    11.77879
-------------+----------------------------------------------------------------
     sigma_u |  .55551507
     sigma_e |  .20051387
         rho |  .88473197   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(21, 167) =    68.95             Prob > F = 0.0000
```

Examples of policy analysis with panel data

Carpenter, Christopher, Sabina Postolek, and Casey Warman. 2011. "Public-Place Smoking Laws and Exposure to Environmental Tobacco Smoke (ETS)." *American Economic Journal: Economic Policy*, 3(3): 35-61.

TABLE 2—PUBLIC-PLACE SMOKING LAWS AND EXPOSURE TO ETS IN SPECIFIC PUBLIC PLACES, CTUMS 2005–2008

Exposed to ETS:	On an outdoor patio of a restaurant or bar (1)	Inside a restaurant (2)	Inside a bar or tavern (3)	At a bus stop or shelter (4)	At your workplace (5)	At your school (6)	At any other public place ... † (7)	Anywhere else (8)
Mean of dep. var. in 2005, no law:	0.394	0.539	0.376	0.138	0.274	0.069	0.338	0.044
Public-place smoking law	−0.113** [0.016] {−28.7%}	−0.396** [0.049] {−73.5%}	−0.239** [0.015] {−63.6%}	−0.024 [0.019] {−17.4%}	−0.012 [0.015] {−4.4%}	0.001 [0.005] {1.4%}	−0.051** [0.012] {−15.1%}	−0.030** [0.008] {−68.2%}
Observations	37,693	37,693	37,693	37,693	37,693	37,693	37,693	37,693
R^2	0.08	0.23	0.15	0.08	0.05	0.19	0.04	0.02
Individual and provincial controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City and year fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Sample includes adults age 18–64 in the CTUMS 2002–2008. The dependent variable in each column is an indicator equal to one if the individual reports being exposed to someone else's smoke in each of the specific areas. See notes to Table 1 for control variables. Robust standard errors in brackets are clustered on statistical areas (SAs). Implied percent impact as a proportion of base year average value of dependent variable for people living in places without a law in curly braces.

† The remainder of the question reads "... such as a shopping mall, arena, bingo hall, concert, or sporting event."

** Significant at the 1 percent level.

* Significant at the 5 percent level.

Public-place smoking restrictions are the most important non-price tobacco control measures worldwide, yet surprisingly little is known about their effects on exposure to environmental tobacco smoke (ETS). We study these laws in Canada using data with questions about respondents' ETS exposure in public and private places. In fixed effects models we find these laws had no effects on smoking but induced large and statistically significant reductions in public-place ETS exposure, especially in bars and restaurants. We do not find significant evidence of ETS displacement to private homes. Our results indicate wide latitude for health improvements from banning smoking in public places.

Gruber, Jonathan, and Samuel A. Kleiner. 2012. "Do Strikes Kill? Evidence from New York State." *American Economic Journal: Economic Policy*, 4(1): 127-57.
Hospitals now represent one of the largest union sectors of the US economy, and there is particular concern about the impact of strikes on patient welfare. We analyze the effects of nurses' strikes in hospitals on patient outcomes in New York State. Controlling for hospital specific heterogeneity, the results show that nurses' strikes increase in-hospital mortality by 18.3 percent and 30-day readmission by 5.7 percent for patients admitted during a strike, with little change in patient demographics, disease severity or treatment intensity. The results suggest that hospitals functioning during nurses' strikes do so at a lower quality of patient care.

Kapoor, Sacha, and Arvind Magesan. 2014. "Paging Inspector Sands: The Costs of Public Information." *American Economic Journal: Economic Policy*, 6(1): 92-113.
We exploit the introduction of pedestrian countdown signals—timers that indicate when traffic lights will change—to evaluate a policy that improves the information of all market participants. We find that although countdown signals reduce the number of pedestrians struck by automobiles, they increase the number of collisions between automobiles. They also cause more collisions overall, implying that welfare gains can be attained by hiding the information from drivers. Whereas most empirical studies on the role of information in markets suggest that asymmetric information reduces welfare, we conclude that asymmetric information can, in fact, improve it.

TABLE 2—COLLISIONS AND PEDESTRIAN COUNTDOWN SIGNALS

	(1)	(2)	(3)	(4)
Pedestrian countdown	−0.055***	−0.022***	0.012**	0.011*
Signal activated	(0.006)	(0.004)	(0.006)	(0.006)
Controls				
Intersection	No	Yes	Yes	Yes
Month-year	No	No	Yes	Yes
Lagged collisions	No	No	No	Yes
R^2	0.001	0.003	0.004	0.003
Intersections	1,794	1,794	1,794	1,794
Observations	107,640	107,640	107,640	105,846

Notes: The dependent variable is number of collisions. Robust standard errors clustered at the intersection level.
***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

TABLE 3—COLLISION INVOLVEMENTS AND CONDITIONS

	Collisions involving:		
	Driver-driver	Driver-pedestrian	Driver-cyclist
Pedestrian countdown	0.0117**	−0.0032**	0.0014
Signal activated	(0.0052)	(0.0015)	(0.0011)
R^2	0.004	0.002	0.003
Intersections	1,794	1,794	1,794
Observations	107,640	107,640	107,640

Notes: Robust standard errors clustered at the intersection level. All regressions include fixed effects for the intersection and month-year.
***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.