

Table 1: Pre-treatment plant characteristics for treatment and control groups

	Treatment (1)	Controls (2)	Difference (2) - (1)
<i>Panel (a): 1987–1989 Means</i>			
Log employment	4.907 (0.742)	4.788 (0.860)	-0.119 (-1.714)
Log generation (MWh)	14.176 (1.510)	14.377 (1.408)	0.200 (1.541)
Log capacity (MW)	6.352 (0.848)	6.334 (0.875)	-0.017 (-0.230)
Oldest unit (years)	30.253 (11.032)	24.273 (12.009)	-5.980*** (-5.952)
Muni	0.134 (0.342)	0.261 (0.440)	0.126*** (3.766)
Restructured	0.711 (0.454)	0.272 (0.445)	-0.440*** (-11.055)
Coal	0.468 (0.496)	0.727 (0.445)	0.260*** (6.159)
Gas	0.333 (0.463)	0.239 (0.421)	-0.094* (-2.385)
PM or SO <sub>2</sub> nonattainment	0.254 (0.436)	0.095 (0.294)	-0.158*** (-4.597)
Title IV NOx	0.279 (0.449)	0.440 (0.497)	0.161*** (3.912)
Plants	201	357	
<i>Panel (b): 1987–1989 Differences</i>			
Log employment	-0.012 (0.124)	-0.026 (0.099)	-0.014 (-1.291)
Log generation (MWh)	0.099 (0.453)	0.077 (0.412)	-0.022 (-0.560)
Log capacity (MW)	0.003 (0.042)	0.002 (0.049)	-0.001 (-0.140)
Oldest unit (years)	2.150 (2.048)	1.882 (1.843)	-0.268 (-1.480)
Plants	187	331	

Table 2: NOx RACT impact on employment and generation

Dependent Variable:	ln(employment) (1)	ln(MWh) (2)
NOx RACT $\times$ 90–92	–0.030 (0.019)	–0.007 (0.043)
NOx RACT $\times$ 93–98	–0.134*** (0.032)	–0.019 (0.052)
PM or SO <sub>2</sub> nonattainment $\times$ 90–92	–0.017 (0.019)	0.037 (0.030)
PM or SO <sub>2</sub> nonattainment $\times$ 93–98	–0.007 (0.030)	0.053 (0.052)
South Coast $\times$ 90–92	–0.015 (0.026)	–0.213*** (0.038)
South Coast $\times$ 93–98	0.016 (0.051)	–0.159* (0.088)
Restructured	–0.062 (0.041)	–0.038 (0.046)
Muni $\times$ 90–92	0.070*** (0.016)	–0.012 (0.049)
Muni $\times$ 93–98	0.073*** (0.022)	–0.086 (0.059)
Title IV NOx	–0.027 (0.019)	–0.021 (0.030)
Plant F.E.	Yes	Yes
Region $\times$ Year $\times$ Fuel F.E.	Yes	Yes
$R^2$	0.490	0.295
Plant-years	6424	6424
Plants	594	594

Table 3: Ozone nonattainment impact on employment

Dependent Variable:	ln(employment)			
	(1)	(2)	(3)	(4)
New O <sub>3</sub>	−0.008 (0.065)	−0.011 (0.061)		
All O <sub>3</sub> × 90–92			−0.026 (0.019)	
All O <sub>3</sub> × 93–98			−0.121*** (0.028)	
NOx RACT × 90–92				−0.031 (0.020)
NOx RACT × 93–98				−0.143*** (0.032)
Other O <sub>3</sub> × 90–92				−0.013 (0.020)
Other O <sub>3</sub> × 93–98				−0.069 (0.046)
PM or SO <sub>2</sub> nonattainment × 90–92	−0.023 (0.017)	−0.023 (0.017)	−0.017 (0.019)	−0.016 (0.019)
PM or SO <sub>2</sub> nonattainment × 93–98	−0.031 (0.031)	−0.031 (0.032)	−0.002 (0.032)	−0.002 (0.031)
South Coast × 90–92				−0.015 (0.026)
South Coast × 93–98				0.010 (0.052)
Restructured	−0.072* (0.040)	−0.071* (0.040)	−0.063 (0.041)	−0.062 (0.041)
Muni × 90–92	0.072*** (0.017)	0.073*** (0.017)	0.070*** (0.016)	0.070*** (0.016)
Muni × 93–98	0.079*** (0.023)	0.079*** (0.023)	0.078*** (0.022)	0.075*** (0.022)
Title IV NOx	−0.030 (0.020)	−0.030 (0.020)	−0.029 (0.020)	−0.028 (0.020)
Plant F.E.	Yes	Yes	Yes	Yes
Region × Year × Fuel F.E.	Yes	Yes	Yes	Yes
Always nonattainment	Control	Control	Treated	Treated
OTR attainment	Control	Treated	Treated	Treated
R <sup>2</sup>	0.480	0.480	0.490	0.492
Plant-years	6424	6424	6424	6424
Plants	594	594	594	594

Table 4: NOx RACT labor productivity impacts

	Dependent Variable: ln(employment)	
	(1)	(2)
NOx RACT $\times$ 90–92	–0.039* (0.019)	–0.038 (0.025)
NOx RACT $\times$ 93–98	–0.135*** (0.032)	–0.124*** (0.040)
PM or SO <sub>2</sub> nonattainment $\times$ 90–92	–0.011 (0.020)	–0.021 (0.027)
PM or SO <sub>2</sub> nonattainment $\times$ 93–98	0.000 (0.033)	–0.024 (0.048)
South Coast $\times$ 90–92	0.003 (0.021)	0.052 (0.038)
South Coast $\times$ 93–98	0.014 (0.056)	0.047 (0.090)
Restructured	–0.052 (0.040)	–0.044 (0.033)
Muni $\times$ 90–92	0.073*** (0.018)	0.076*** (0.027)
Muni $\times$ 93–98	0.079*** (0.026)	0.108*** (0.036)
Title IV NOx	–0.020 (0.019)	–0.010 (0.023)
ln(MWh)	0.064*** (0.012)	0.434** (0.215)
Plant F.E.	Yes	Yes
Plant-epoch F.E.	Yes	Yes
Region $\times$ Year $\times$ Fuel F.E.	Yes	Yes
Instrument	No	Yes
$R^2$	0.615	0.342
Plant-years	6424	6424
Plant-epochs	715	715
Plants	594	594

Table 5: NO<sub>x</sub> RACT impact on employment: Alternate specifications

Dependent Variable:	ln(employment)						
	(1) Matched Sample <sup>a</sup>	(2) Plant Owner <sup>b</sup>	(3) Electricity Market <sup>c</sup>	(4) Other NAAQS <sup>d</sup>	(5) Input Prices <sup>e</sup>	(6) Entry/ Exit <sup>f</sup>	(7) Balanced Panel <sup>g</sup>
NO <sub>x</sub> RACT × 90–92	−0.032* (0.016)	−0.034 (0.023)	−0.030 (0.019)	−0.014 (0.023)	−0.035** (0.017)	−0.030 (0.019)	−0.023* (0.013)
NO <sub>x</sub> RACT × 93–98	−0.110*** (0.030)	−0.137*** (0.033)	−0.134*** (0.036)	−0.134*** (0.034)	−0.137*** (0.032)	−0.134*** (0.032)	−0.116*** (0.030)
NO <sub>x</sub> RACT × 90–92 × Variable		0.029 (0.043)		−0.078** (0.038)			
NO <sub>x</sub> RACT × 93–98 × Variable		0.021 (0.078)	−0.001 (0.058)	0.000 (0.077)			
PM or SO <sub>2</sub> nonattain × 90–92	−0.047* (0.026)	−0.018 (0.019)	−0.017 (0.019)	0.019 (0.020)	−0.016 (0.019)	−0.017 (0.019)	−0.005 (0.012)
PM or SO <sub>2</sub> nonattain × 93–98	−0.038 (0.046)	−0.008 (0.030)	−0.007 (0.030)	−0.006 (0.038)	−0.006 (0.030)	−0.007 (0.030)	−0.015 (0.034)
South Coast × 90–92	−0.008 (0.020)	−0.022 (0.029)	−0.015 (0.027)	0.013 (0.022)	0.002 (0.029)	−0.015 (0.026)	−0.030 (0.025)
South Coast × 93–98	0.056 (0.038)	0.011 (0.054)	0.016 (0.051)	0.015 (0.052)	0.032 (0.051)	0.016 (0.051)	0.178** (0.073)
Restructured	−0.034 (0.042)	−0.062 (0.041)	−0.062 (0.052)	−0.063 (0.041)	−0.063 (0.042)	−0.062 (0.041)	−0.072* (0.042)
Muni × 90–92	0.090*** (0.031)	0.062*** (0.014)	0.070*** (0.016)	0.072*** (0.016)	0.071*** (0.017)	0.070*** (0.016)	0.082*** (0.020)
Muni × 93–98	0.157*** (0.044)	0.068*** (0.020)	0.073*** (0.022)	0.073*** (0.022)	0.076*** (0.024)	0.073*** (0.022)	0.091*** (0.030)
Title IV NO <sub>x</sub>	0.019 (0.033)	−0.027 (0.019)	−0.027 (0.019)	−0.028 (0.019)	−0.029 (0.019)	−0.027 (0.019)	−0.023 (0.020)
ln(wage)					−0.003 (0.022)		
ln(fuel price)					−0.068 (0.047)		
Interaction variable	None	Muni	Restructured	PM or SO <sub>2</sub>	None	None	None
Plant F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year × Fuel F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.551	0.490	0.490	0.491	0.493	0.490	0.536
Plant-years	3335	6424	6424	6424	6322	6424	4860
Plants	299	594	594	594	588	594	405

Table 6: Potential plant entry and exit by year and 1993 NOx RACT status

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Potential entries										
NOx RACT	0	0	0	1	0	0	1	0	0	0
Controls	2	0	0	2	0	1	0	0	2	2
Potential exits										
NOx RACT	0	0	0	0	1	0	0	0	0	0
Controls	0	0	0	0	0	0	0	0	0	0

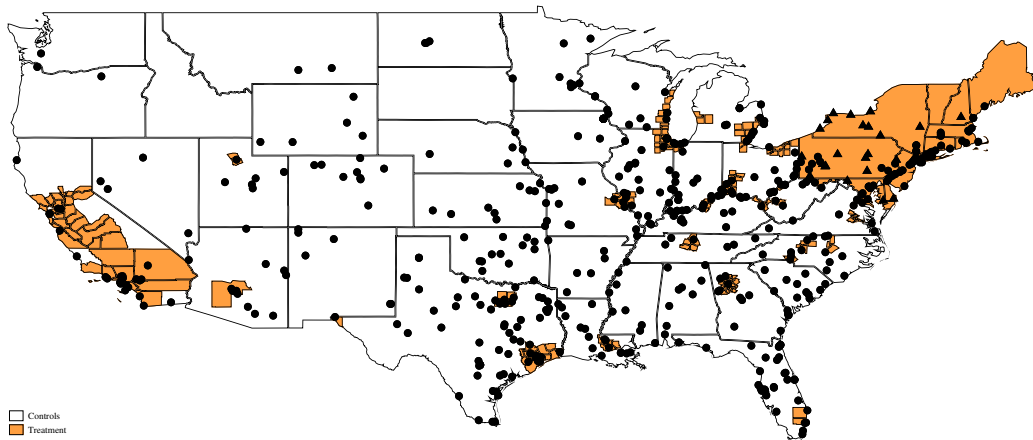


Figure 1: Sample plants by NOx RACT applicability

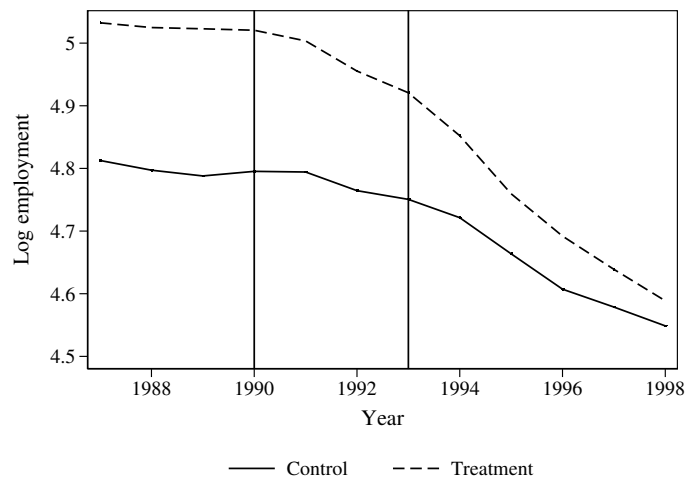


Figure 2: Mean employment trends

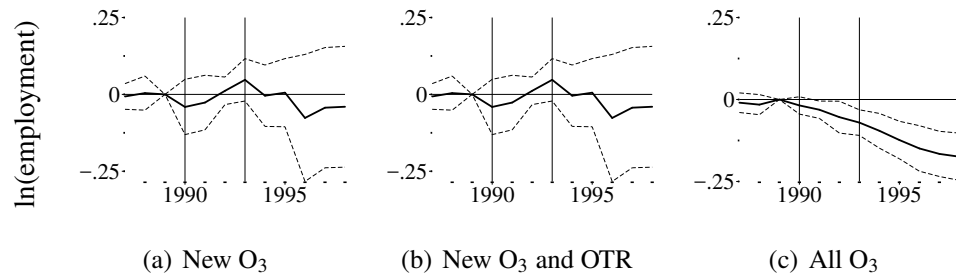


Figure 3: Employment impact of 1993 ozone nonattainment designation over time, by treatment group

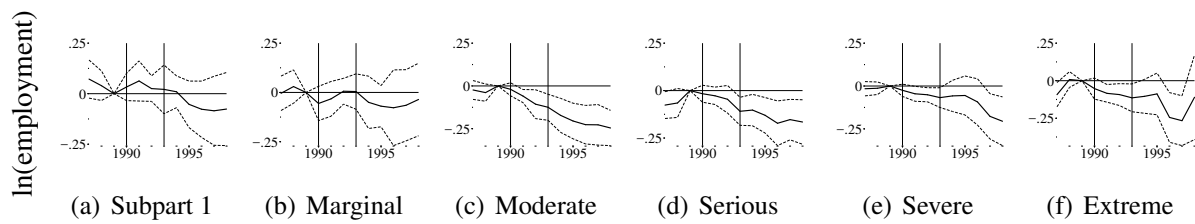


Figure 4: Employment impact of ozone classification over time

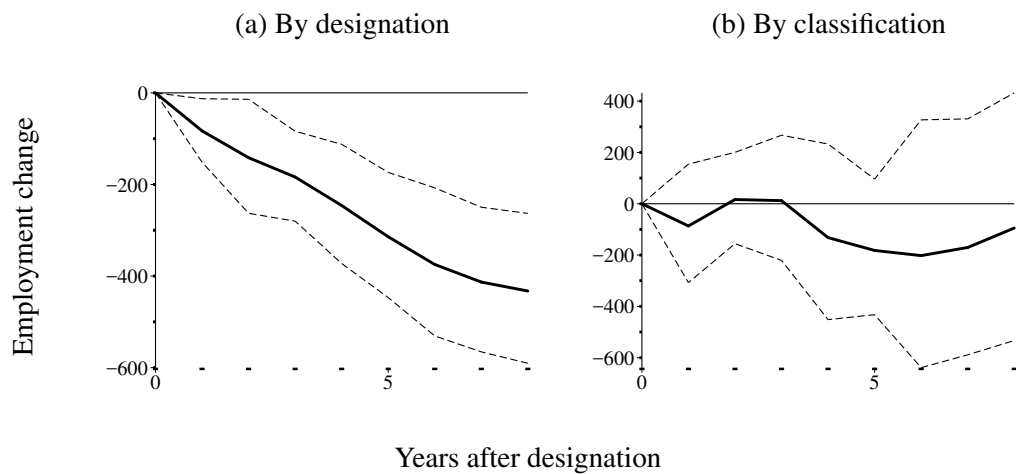


Figure 5: Predicted Employment Impact of 2008 Ozone NAAQS

Table A-1: NOx RACT impact on employment and generation, pre-treatment

Dependent Variable:	ln(employment) (1)	ln(MWh) (2)
NOx RACT $\times$ 1988	-0.006 (0.012)	-0.021 (0.042)
NOx RACT $\times$ 1989	0.003 (0.015)	-0.045 (0.069)
PM or SO <sub>2</sub> nonattainment $\times$ 1988	-0.024* (0.012)	-0.060 (0.056)
PM or SO <sub>2</sub> nonattainment $\times$ 1989	-0.020 (0.017)	-0.040 (0.075)
South Coast $\times$ 1988	0.108** (0.050)	0.051 (0.091)
South Coast $\times$ 1989	0.015 (0.034)	-0.118 (0.289)
Muni $\times$ 1988	0.028*** (0.006)	-0.046 (0.038)
Muni $\times$ 1989	0.052*** (0.010)	-0.048 (0.051)
Plant F.E.	Yes	Yes
Region $\times$ Year $\times$ Fuel F.E.	Yes	Yes
R <sup>2</sup>	0.141	0.236
Plant-years	1615	1615
Plants	558	558

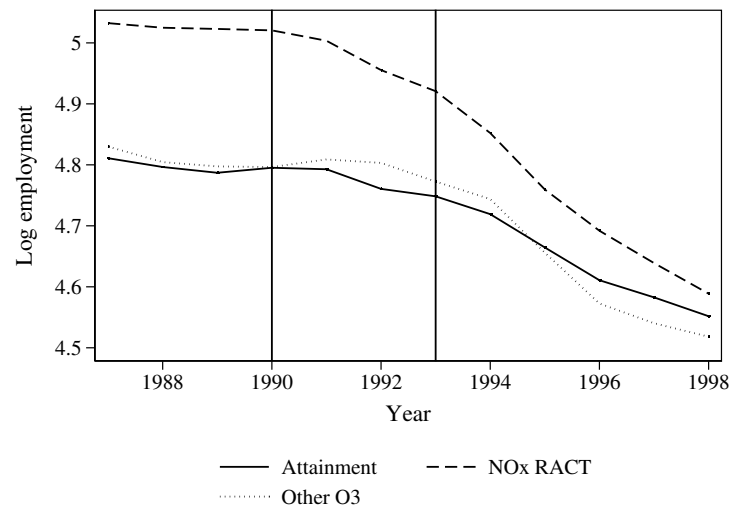


Figure A-1: figure  
Mean employment trends





Table A-3: First-stage instrumental variable labor productivity results

Dependent Variable:	ln(MWh) (1)
State sales	0.724** (0.282)
NOx RACT $\times$ 90–92	0.008 (0.041)
NOx RACT $\times$ 93–98	–0.016 (0.055)
PM or SO <sub>2</sub> nonattainment $\times$ 90–92	0.030 (0.040)
PM or SO <sub>2</sub> nonattainment $\times$ 93–98	0.071 (0.054)
South Coast $\times$ 90–92	–0.127* (0.073)
South Coast $\times$ 93–98	–0.034 (0.165)
Restructured	–0.006 (0.038)
Title IV NOx	–0.034 (0.029)
Muni $\times$ 91–92	–0.011 (0.049)
Muni $\times$ 93–98	–0.081 (0.059)
Plant F.E.	Yes
Plant-epoch F.E.	Yes
Region $\times$ Year $\times$ Fuel F.E.	Yes
$R^2$	0.404
Plant-years	6424
Plant-epochs	715
Plants	594