log-linear specification imposes a multiplicative error term in y while Poisson estimation of an exponential relaxes this assumption, allowing both multiplicative and additive error terms.8 Log-linear regression estimates, which are similar, are available in the Appendix

Synthetic controls models permit different (non-equal) weights to be used to create a “synthetic control” which is more similar to the treated state

The percent reduction is 100\*(exp(-0.041-.164)-1)%=-18.5%

<http://www.antoniocasella.eu/archila/Powell_Rand_2015.pdf>

. A count model, such as the fixed effects negative binomial model, is appropriate for our data because the values of our outcome variable are always positive integers or zero. Because the variance of our outcome variable was substantially larger than its mean (i.e., the outcome variable was over-dispersed), the negative binomial distribution was more appropriate than the Poisson distribution for our data.

Statistical significance in SCM is derived through “placebo” tests, in which each comparison state is treated as if it were the intervention state, and estimates of these placebo intervention effects form a distribution against which the actual intervention effect can be compared. Using this method, p-values represent the proportion of donor states (“donors” are candidate comparison states) that have a treatment effect as large or larger than the intervention state.16

The effect is then the difference in outcomes between the intervention and synthetic control groups in the post-intervention period.