Homework 5

ECON 470, Spring 2025

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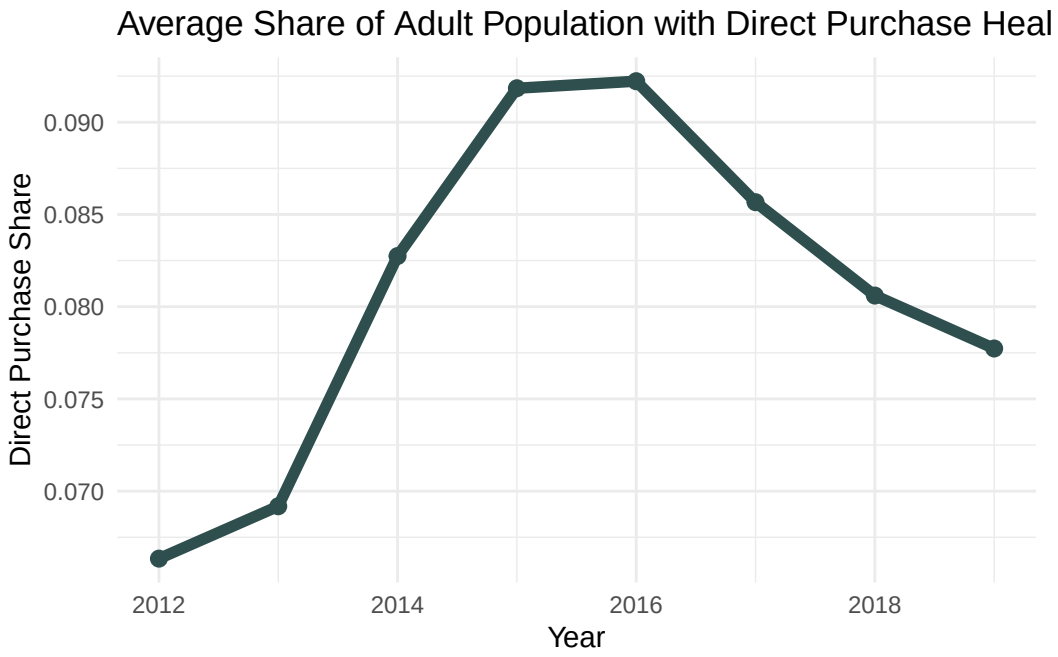
Submission 1, you can find my code here.

Question 1:

Plot the share of the adult population with direct purchase health insurance over time.



Question 2:

Discuss the reduction in direct purchase health insurance in later years. Can you list a couple of policies that might have affected the success of the direct purchase insurance market?

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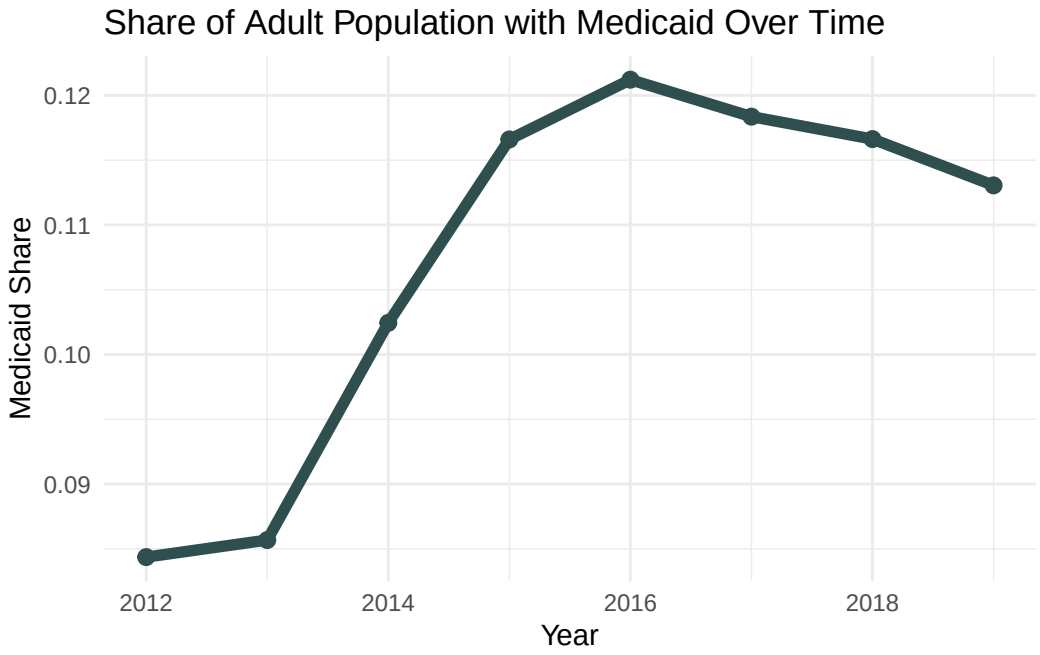
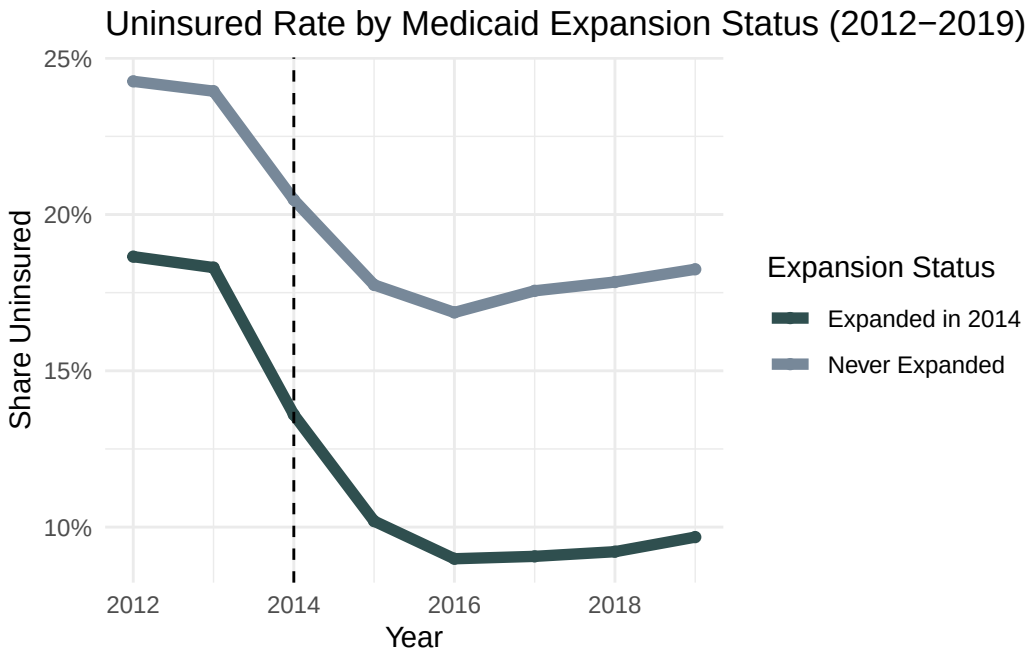


Question 4:

Plot the share of uninsured over time, separately by states that expanded Medicaid in 2014 versus those that did not. Drop all states that expanded after 2014.



Estimating ATEs

Question 5:

Calculate the average percent of uninsured individuals in 2012 and 2015, separately for expansion and non-expansion states. Present your results in a basic 2x2 DD table.

```
# A tibble: 2 x 4
  expand_group     `2012` `2015`    diff
  <chr>             <dbl>  <dbl>   <dbl>
1 Expanded in 2014  0.187  0.102 -0.0846
2 Never Expanded    0.243  0.177 -0.0651
```

Question 6:

Estimate the effect of Medicaid expansion on the uninsurance rate using a standard DD regression estimator, again focusing only on states that expanded in 2014 versus those that never expanded.

```
Call:
lm(formula = uninsured_rate ~ treat + post + treat_post, data = dd.reg.data)

Residuals:
      Min        1Q    Median        3Q       Max
-0.116851 -0.026406 -0.005442  0.027770  0.117597

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.207384   0.007016  29.559  < 2e-16 ***
treat       -0.039745   0.009058  -4.388 1.51e-05 ***
post        -0.051073   0.008101  -6.304 8.58e-10 ***
treat_post  -0.021826   0.010459  -2.087   0.0376 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.0421 on 356 degrees of freedom
Multiple R-squared:  0.4692,    Adjusted R-squared:  0.4648
F-statistic: 104.9 on 3 and 356 DF,  p-value: < 2.2e-16
```

Question 7:

Include state and year fixed effects in your estimates. Try using the lfe or fixest package to estimate this instead of directly including the fixed effects.

```
OLS estimation, Dep. Var.: uninsured_rate
Observations: 360
Fixed-effects: State: 45,  year: 8
Standard-errors: Clustered (State)
            Estimate Std. Error  t value  Pr(>|t|)
treat_post -0.021826   0.007587 -2.87672 0.0061752 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
RMSE: 0.013217     Adj. R2: 0.938124
                 Within R2: 0.109297
```

Question 8:

Repeat the analysis in question 7 but include all states (even those that expanded after 2014). Are your results different? If so, why?

```
OLS estimation, Dep. Var.: uninsured_rate
Observations: 416
Fixed-effects: State: 52,  year: 8
Standard-errors: Clustered (State)
       Estimate Std. Error t value   Pr(>|t|)
treat -0.023766   0.005602 -4.2423 9.3304e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
RMSE: 0.013106     Adj. R2: 0.937003
                 Within R2: 0.155529
```

Question 9:

Provide an "event study" graph showing the effects of Medicaid expansion in each year. Use the specification that includes state and year fixed effects, limited to states that expanded in 2014 or never expanded.

Question 10:

Repeat part 9 but again include states that expanded after 2014. Note: this is tricky…you need to put all states onto "event time" to create this graph.