

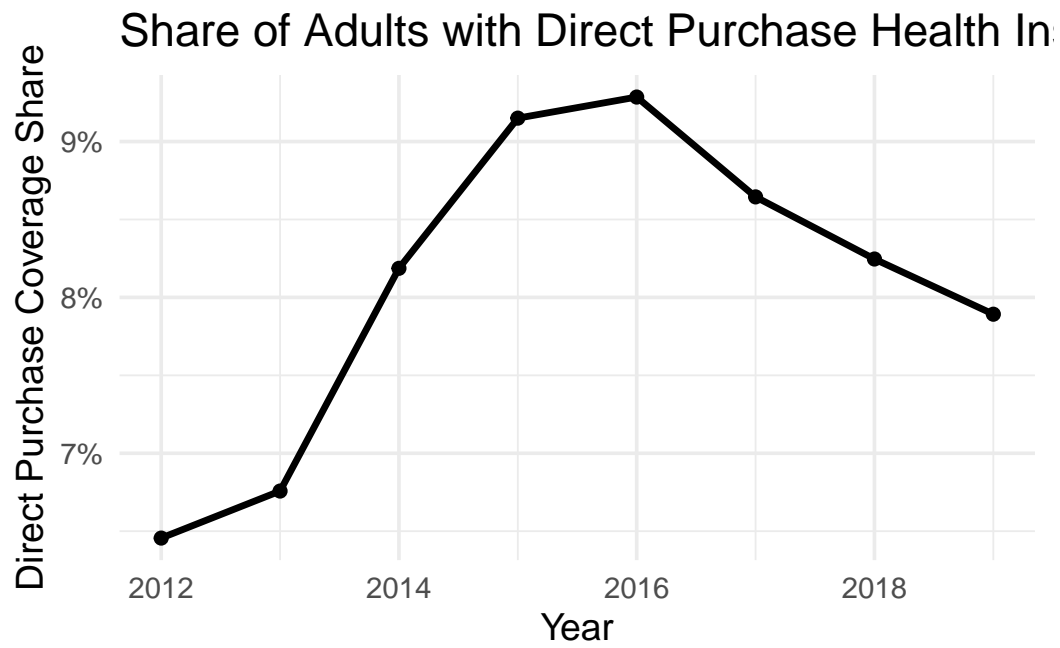
# Homework 5

ECON 470, Spring 2025

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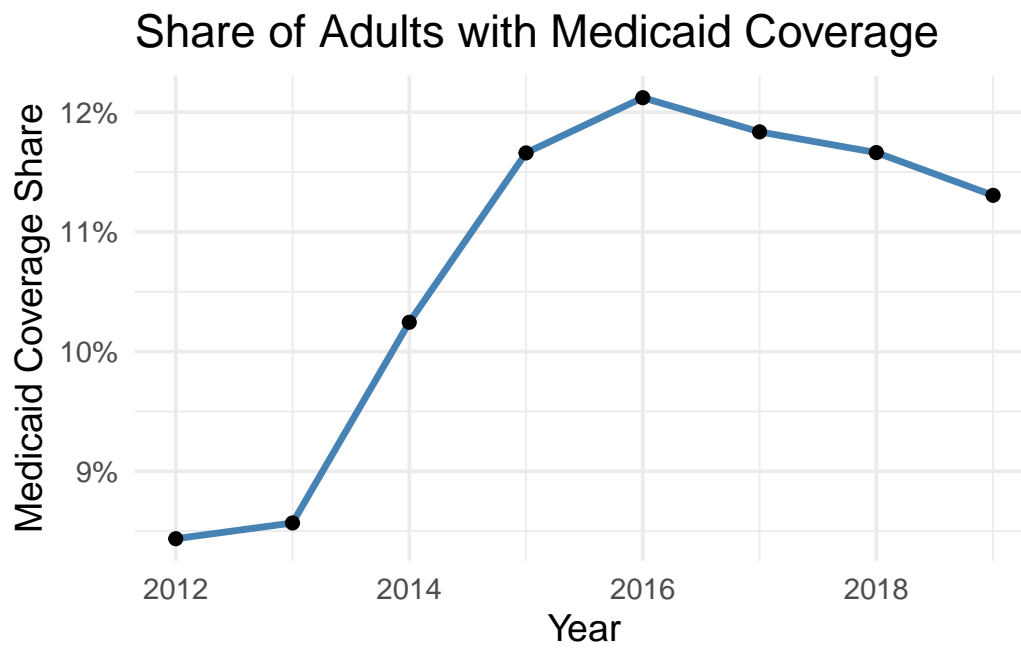
Here is a link to my repository: `{https://github.com/bemur3/hwk5}`

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

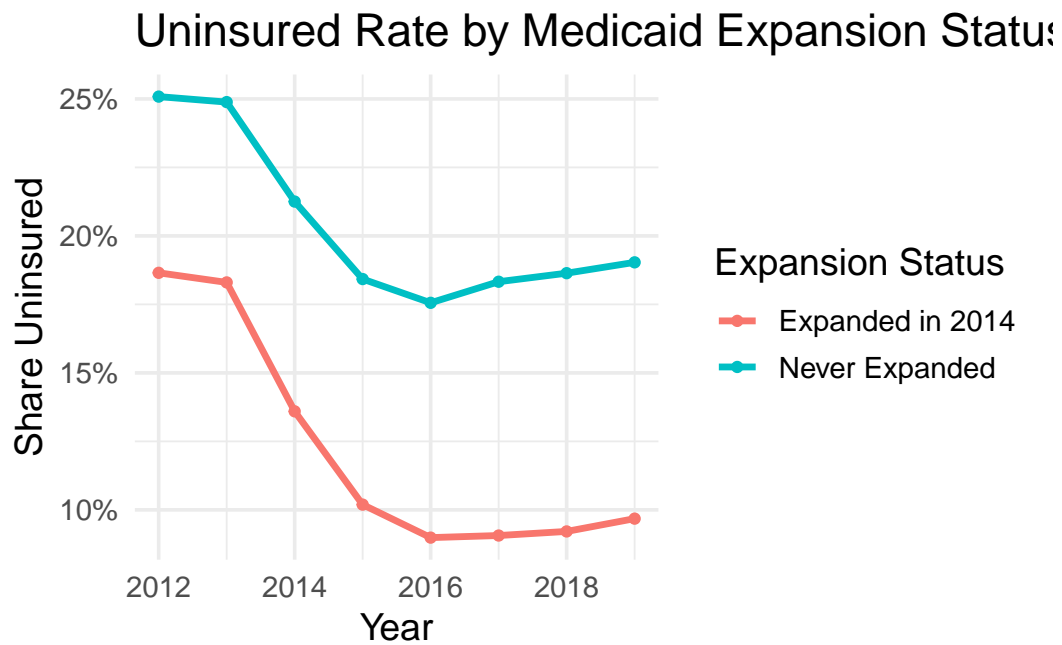


**2. Discuss the reduction in direct purchase health insurance in later years. Can you list a couple of policies that might have affected the success of the direct purchase insurance market?**

### 3. Plot the share of the adult population with Medicaid over time



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.



**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 year_2012 year_2015 diff
  <chr>        <chr>      <chr>    <chr>
1 Expanded in 2014 18.7%      10.2%   -8.5%
2 Never Expanded  25.1%      18.4%   -6.7%
```

**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, data = dd_data)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-0.120827	-0.026406	-0.005254	0.027983	0.117597

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	0.21136	0.00935	22.607	< 2e-16 ***
treat	-0.04372	0.01109	-3.942	0.000101 ***
post	-0.05175	0.01080	-4.794	2.58e-06 ***
treat:post	-0.02115	0.01281	-1.651	0.099735 .

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.04385 on 300 degrees of freedom

Multiple R-squared: 0.4549, Adjusted R-squared: 0.4494

F-statistic: 83.44 on 3 and 300 DF, p-value: < 2.2e-16

**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: 304
Fixed-effects: State: 38, year: 8
Standard-errors: Clustered (State)
      Estimate Std. Error  t value Pr(>|t|)
treat_post -0.021149   0.008934 -2.36732 0.023259 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
RMSE: 0.013938      Adj. R2: 0.934467
              Within R2: 0.08155
```



**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.: perc_unins
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
```

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.

```
$prms
      estimate      ci_low      ci_high estimate_names
event_time::-2 -0.002177719 -0.006594644  0.0022392066 event_time::-2
event_time::0  -0.015053495 -0.025957165 -0.0041498245 event_time::0
event_time::1  -0.019677088 -0.037387911 -0.0019662654 event_time::1
event_time::2  -0.021468733 -0.042432168 -0.0005052979 event_time::2
event_time::3  -0.025825189 -0.047423183 -0.0042271953 event_time::3
event_time::4  -0.025699903 -0.046492405 -0.0049074012 event_time::4

      estimate_names_raw id x      y
event_time::-2 event_time::-2 1 1 -0.002177719
event_time::0 event_time::0 1 2 -0.015053495
event_time::1 event_time::1 1 3 -0.019677088
event_time::2 event_time::2 1 4 -0.021468733
event_time::3 event_time::3 1 5 -0.025825189
event_time::4 event_time::4 1 6 -0.025699903

$is_iplot
[1] FALSE

$at
[1] 1 2 3 4 5 6

$labels
[1] "-2" "0" "1" "2" "3" "4"
```

**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.**

```
$prms
      estimate      ci_low      ci_high      estimate_names
event_time_all::-3  0.006969764 -0.005597716  0.019537244 event_time_all::-3
event_time_all::-2  0.001312882 -0.002859236  0.005485001 event_time_all::-2
event_time_all::0   -0.018293108 -0.025231476 -0.011354739 event_time_all::0
event_time_all::1   -0.027976677 -0.039352516 -0.016600837 event_time_all::1
event_time_all::2   -0.030862749 -0.044881775 -0.016843723 event_time_all::2
event_time_all::3   -0.031140176 -0.046435179 -0.015845173 event_time_all::3
event_time_all::4   -0.030515513 -0.048466896 -0.012564131 event_time_all::4

      estimate_names_raw id x      y
event_time_all::-3 event_time_all::-3  1 1  0.006969764
event_time_all::-2 event_time_all::-2  1 2  0.001312882
event_time_all::0   event_time_all::0  1 3 -0.018293108
event_time_all::1   event_time_all::1  1 4 -0.027976677
event_time_all::2   event_time_all::2  1 5 -0.030862749
event_time_all::3   event_time_all::3  1 6 -0.031140176
event_time_all::4   event_time_all::4  1 7 -0.030515513

$is_iplot
[1] FALSE

$at
[1] 1 2 3 4 5 6 7

$labels
[1] "-3" "-2" "0"  "1"  "2"  "3"  "4"
```