Homework 5

ECON 470, Spring 2025

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Here is a link to my repository: {https://github.com/mollyjc02/Homework_5.git}

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

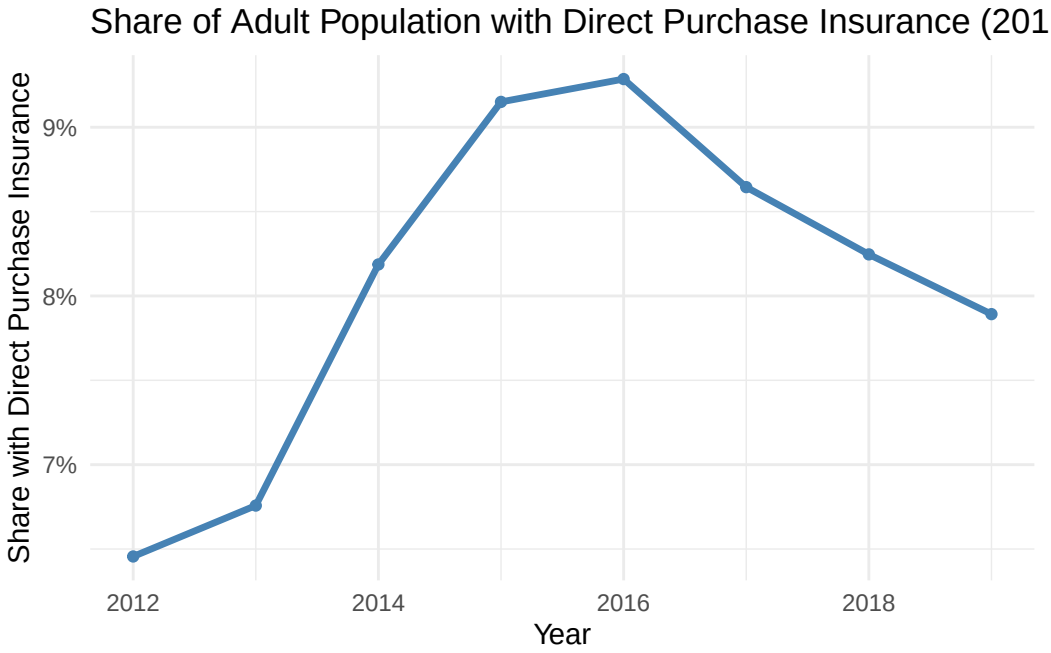

Figure 1

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?

answer here

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

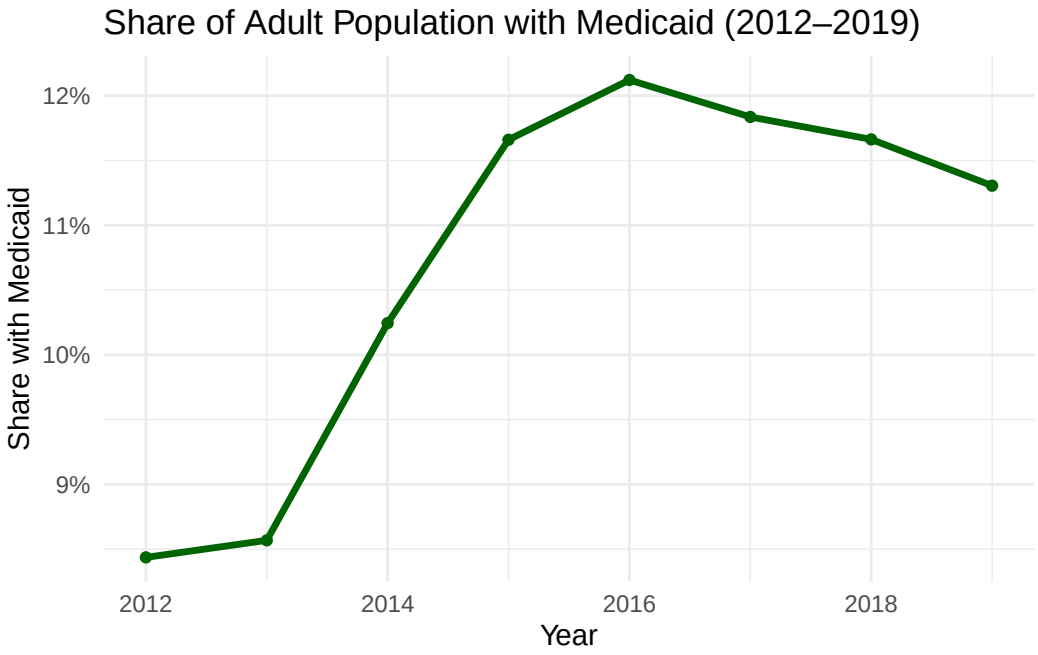

Figure 2

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.

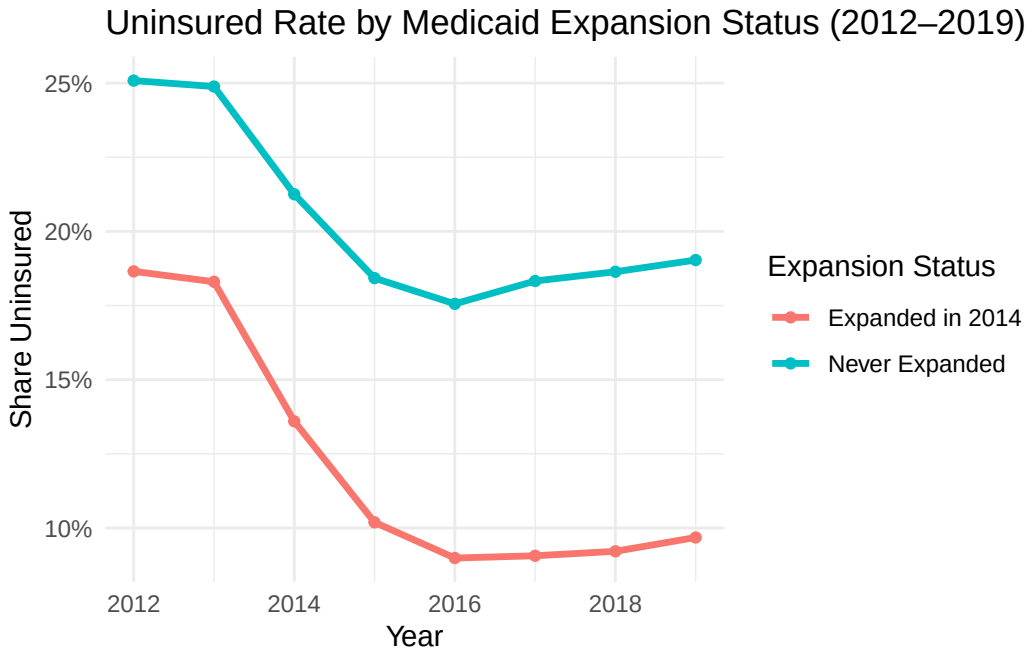

Figure 3

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.

Table 1: Difference-in-Differences Table of Uninsured Rates

group	2012	2015	diff
Expansion	0.187	0.102	-0.085
Non-Expansion	0.251	0.184	-0.067

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.

```
Warning: package 'broom' was built under R version 4.4.3
```

Table 2: Difference-in-Differences Regression: Effect of Medicaid Expansion on Uninsurance Rate

Term	Estimate	Std. Error	t value	p value	95% CI (Low)	95% CI (High)
(Intercept)	0.2114	0.0093	22.606514	0.0000000	0.1930	0.2298
post	-0.0518	0.0108	-4.793510	0.0000026	-0.0730	-0.0305
expand_ever	-0.0437	0.0111	-3.941770	0.0001007	-0.0655	-0.0219
treat	-0.0211	0.0128	-1.651244	0.0997352	-0.0464	0.0041

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.

Table 3: Two-Way Fixed Effects DiD Regression Results

Term	Estimate	Std. Error	t value	p value	95% CI (Low)	95% CI (High)
treat	-0.0211	0.0089	-2.367315	0.0232588	-0.0392	-0.003

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

Table 4: DiD Regression with State and Year Fixed Effects (All States Included)

Term	Estimate	Std. Error	t value	p value	95% CI (Low)	95% CI (High)
treat	-0.016	0.0079	-2.034469	0.0471199	-0.0319	-2e-04

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
2012 -0.002177719 -0.006602279  0.0022468417           2012
2013  0.000000000  0.000000000  0.0000000000           2013
2014 -0.015053495 -0.025976013 -0.0041309763           2014
2015 -0.019677088 -0.037418527 -0.0019356503           2015
2016 -0.021468733 -0.042468406 -0.0004690603           2016
2017 -0.025825189 -0.047460518 -0.0041898608           2017
2018 -0.025079284 -0.044990237 -0.0051683314           2018
2019 -0.026320522 -0.048291519 -0.0043495244           2019
       estimate_names_raw is_ref id x            y
2012 year::2012:expansion  FALSE  1 1 -0.002177719
2013 year::2013:expansion   TRUE  1 2  0.000000000
2014 year::2014:expansion  FALSE  1 3 -0.015053495
2015 year::2015:expansion  FALSE  1 4 -0.019677088
2016 year::2016:expansion  FALSE  1 5 -0.021468733
2017 year::2017:expansion  FALSE  1 6 -0.025825189
2018 year::2018:expansion  FALSE  1 7 -0.025079284
2019 year::2019:expansion  FALSE  1 8 -0.026320522

$is_iplot
[1] TRUE

$at
[1] 1 2 3 4 5 6 7 8

$labels
[1] 2012 2013 2014 2015 2016 2017 2018 2019
Levels: 2012 2013 2014 2015 2016 2017 2018 2019
```

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 estimate_names_raw
-5 -0.014639223 -0.024476414 -0.0048020313             -5     event_time::-5
-4 -0.004929503 -0.020561980  0.0107029751             -4     event_time::-4
-3 -0.003381914 -0.015945649  0.0091818197             -3     event_time::-3
-2 -0.002760595 -0.008810619  0.0032894294             -2     event_time::-2
-1  0.000000000  0.000000000  0.0000000000             -1     event_time::-1
0  -0.014232510 -0.020801724 -0.0076632948              0      event_time::0
1  -0.018743055 -0.025871536 -0.0116145744              1      event_time::1
2  -0.016296509 -0.023451008 -0.0091420097              2      event_time::2
3  -0.011288767 -0.016345054 -0.0062324805              3      event_time::3
4  -0.005598021 -0.010202217 -0.0009938249              4      event_time::4
5   0.000000000  0.000000000  0.0000000000              5      event_time::5
   is_ref id  x            y
-5  FALSE  1  1 -0.014639223
-4  FALSE  1  2 -0.004929503
-3  FALSE  1  3 -0.003381914
-2  FALSE  1  4 -0.002760595
-1   TRUE  1  5  0.000000000
0   FALSE  1  6 -0.014232510
1   FALSE  1  7 -0.018743055
2   FALSE  1  8 -0.016296509
3   FALSE  1  9 -0.011288767
4   FALSE  1 10 -0.005598021
5   FALSE  1 11  0.000000000

$is_iplot
[1] TRUE

$at
 [1]  1  2  3  4  5  6  7  8  9 10 11

$labels
 [1] -5 -4 -3 -2 -1 0  1  2  3  4  5
Levels: -5 -4 -3 -2 -1 0 1 2 3 4 5
```