Homework 5

ECON 470, Spring 2025

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1. Plot the share of insured individuals with direct purchase health insurance over time.

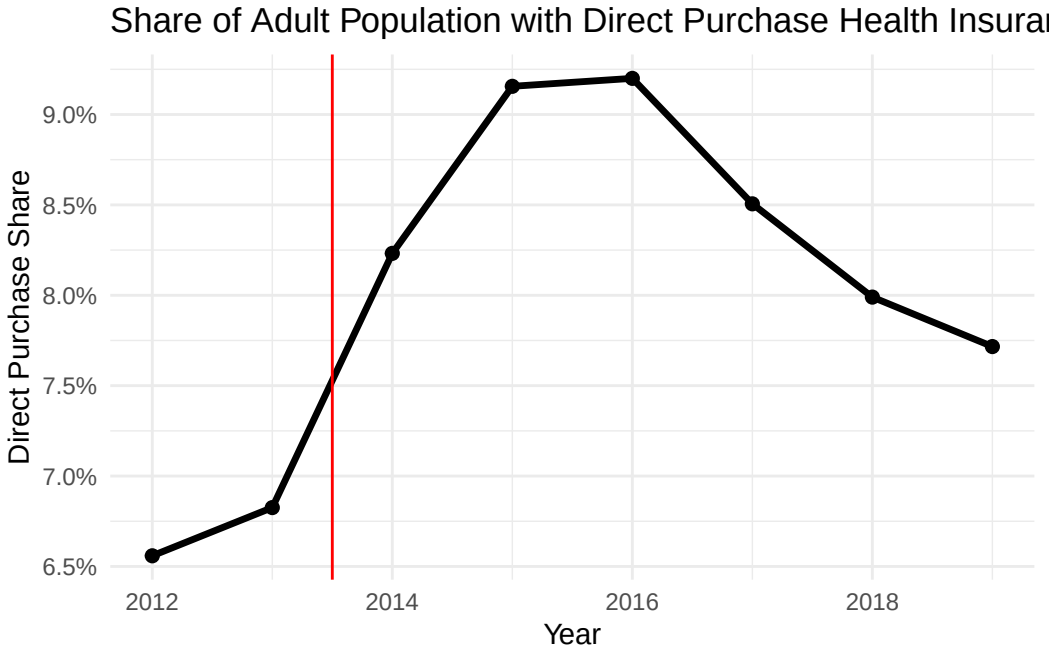

Figure 1: Share of Individuals with Direct Purchase

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?

> In later years, there was a decline in the proportion of adults with direct purchase health insurance, largely due to Trump-era efforts to undermine the ACA. These actions included cutting funding for marketing and outreach efforts supporting the health insurance marketplaces, as well as eliminating the individual mandate penalty by setting it to zero.

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

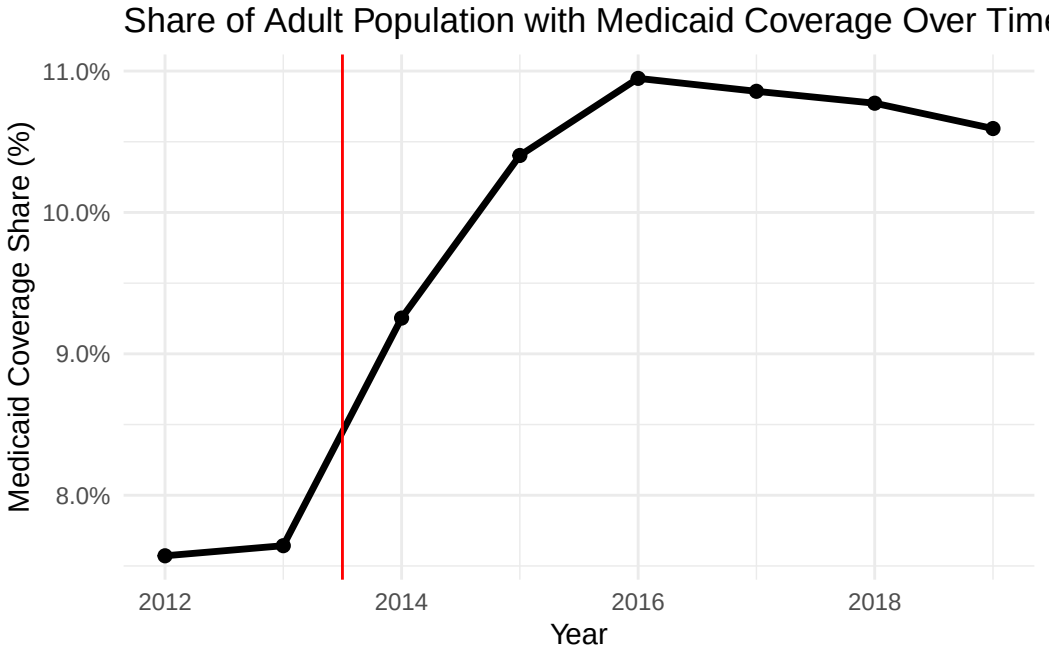

Figure 2: Share of Individuals with Medicaid

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.

> Trends are similar for both expanded and not expanded states but there is a clear difference in the uninsured populations in each.

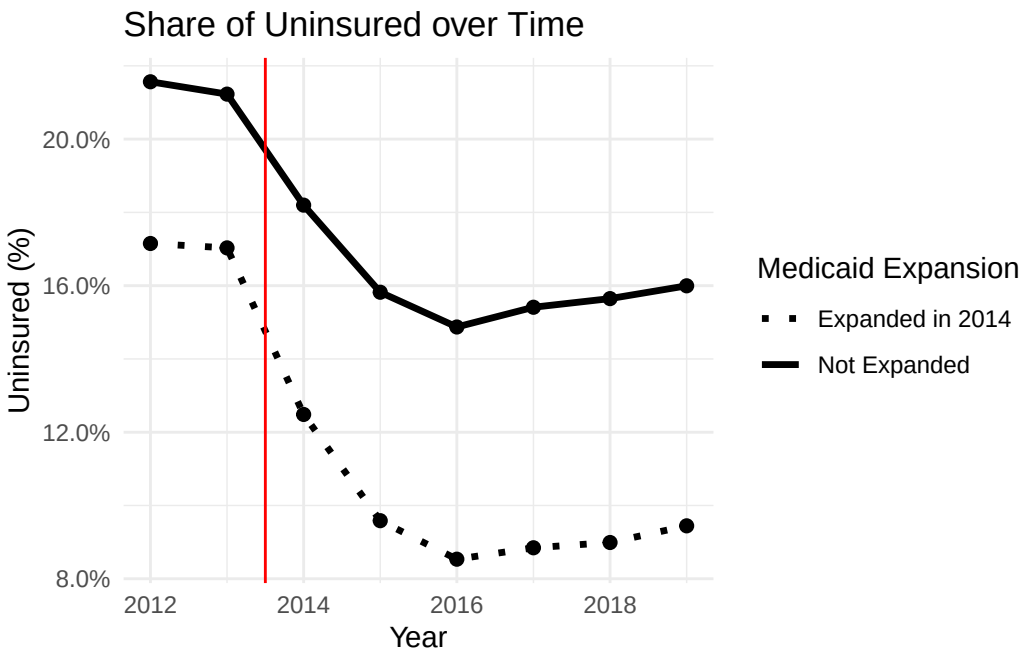

Figure 3: Average Uninsured by Medicaid Expansion

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: DD Table for Medicaid Expansion

Group	Pre	Post
Non-expansion	0.22	0.16
Expansion	0.17	0.10

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.

Table 2: DD Estimates for Medicaid Expansion

	(1)
(Intercept)	0.214
	(0.007)
Post 2014	−0.054
	(0.008)
Expand	−0.043
	(0.009)
Post x Expand	−0.020
	(0.010)
Num.Obs.	344
R2	0.508
RMSE	0.04

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.

> The estimates with year and state fixed effects are the same to those of the standard DD estimator.

Table 3: DD Estimates for Medicaid Expansion with TWFE

	Standard DD	TWFE
(Intercept)	0.214	
	(0.007)	
Post 2014	−0.054	
	(0.008)	
Expand	−0.043	
	(0.009)	
Post x Expand	−0.020	−0.020
	(0.010)	(0.007)
Num.Obs.	344	344
R2	0.508	0.952
R2 Within		0.106
RMSE	0.04	0.01
Std.Errors		by: State

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

When including all states (even those that expanded after 2014) and using time-varying treatment indicators, the results are slightly different: the treatment effect becomes slightly larger in magnitude (0.023 compared to 0.020) and more precisely estimated (smaller standard error), because this approach better accounts for the staggered timing of Medicaid expansion across states, leading to more accurate identification of the treatment effect.

Table 4: DD Estimates for Medicaid Expansion with Staggered Treatment

	Standard DD	TWFE	Time-varying Treatment
(Intercept)	0.214		
	(0.007)		
Post 2014	−0.054		
	(0.008)		
Expand	−0.043		
	(0.009)		
Post x Expand	−0.020	−0.020	−0.023
	(0.010)	(0.007)	(0.005)
Num.Obs.	344	344	400
R2	0.508	0.952	0.950
R2 Within		0.106	0.155
RMSE	0.04	0.01	0.01
Std.Errors		by: State	by: State

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.

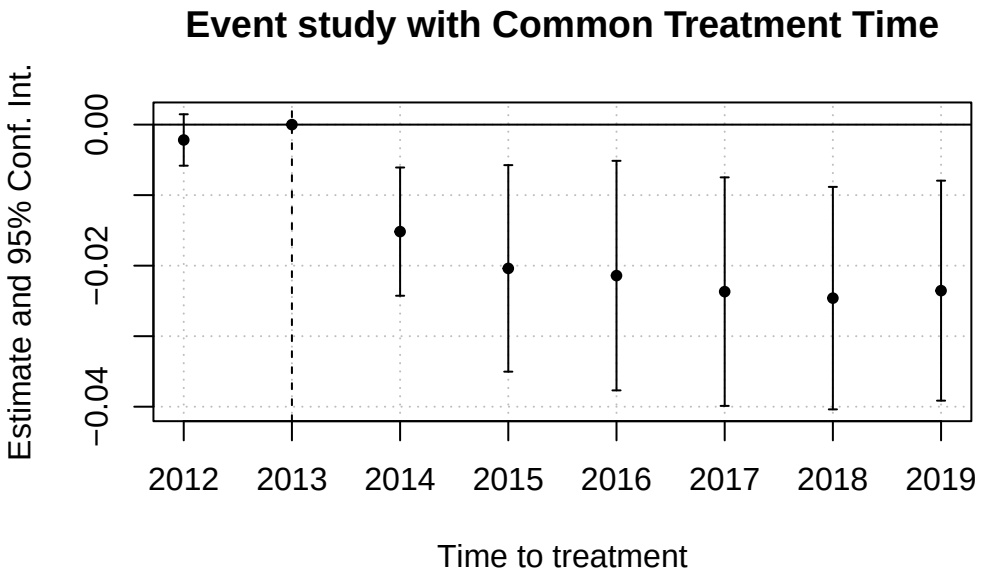

Figure 4: Event Study with Common Treatment Time

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.

Time 0 marks the start of treatment, so t-1 is the reference period that all other periods are compared to. That's why the coefficient for t-1 is set to 0. The full dataset covers 2012 to 2018, meaning that we only observe t-4 for states that expanded in 2016. Since only a few states expanded in 2017 or 2018, they are grouped those into the t-4 category.

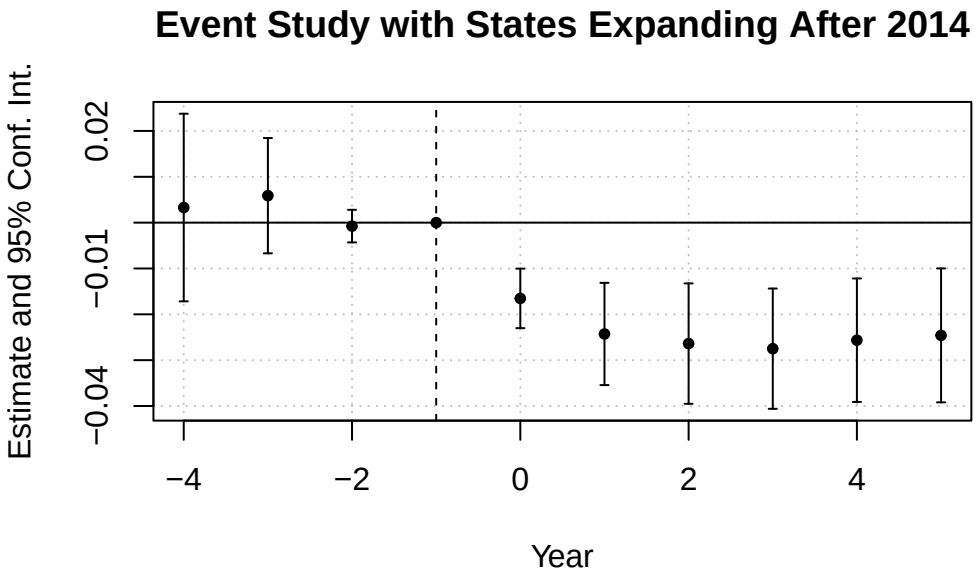

Figure 5: Event Study with Staggered Treatment