Assignment 2

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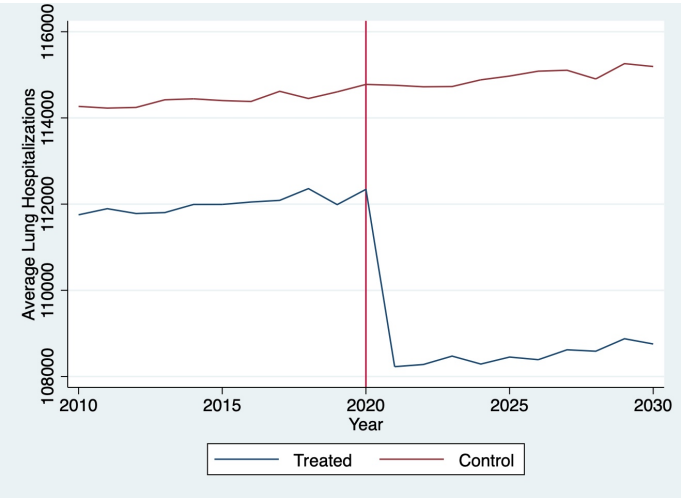
1 Difference-in-Differences Line Graph

Figure 1: **Average Lung Hospitalizations over Time**



Prior to the vaping bans going into effect in 2021, we see that the trend lines for the treated and control states have similar trends. However, after 2020, the average number of lung hospitalizations across treated states appear to be much smaller than those in the control states.

2 Regression Tables

	(1) Parallel Trends Test	(2) DiD
treated_year	-1.209***	
	(-31.46)	
treated_post		-4030.5***
		(-61.64)
State=1		0
		(.)
State=2		-203.4
		(-1.25)
State=3		229.3
		(1.41)
State=4		54.38
		(0.33)
State=5		483.8**
		(2.97)
State=6		411.7*
		(2.53)
State=7		464.7**
		(2.86)
State=8		453.9**
		(2.79)
State=9		971.4***
		(5.97)
State=10		632.8***
		(3.89)
State=11		969.6***
		(5.96)
State=12		1002.0***
		(6.16)
State=13		1092.6***

	(6.71)
State=14	1225.7***
	(7.53)
State=15	1360.2***
	(8.36)
State=16	1257.0***
	(7.72)
State=17	1482.4***
	(9.11)
State=18	1819.9***
	(11.18)
State=19	1598.8***
	(9.82)
State=20	1774.2***
	(10.90)
State=21	2078.9***
	(12.77)
State=22	1995.4***
	(12.26)
State=23	2030.8***
	(12.48)
State=24	1979.1***
	(11.94)
State=25	2182.9***
	(13.17)
State=26	2266.3***
	(13.68)
State=27	2458.9***
	(14.84)
State=28	2535.4***
	(15.30)

State=29	2627.4***
	(15.86)
State=30	2738.8***
	(16.53)
State=31	2923.4***
	(17.64)
State=32	3128.3***
	(18.88)
State=33	3099.8***
	(18.71)
State=34	3120.5***
	(18.83)
State=35	3223.7***
	(19.46)
State=36	3288.3***
	(19.84)
State=37	3433.5***
	(20.72)
State=38	3462.1***
	(20.89)
State=39	3748.6***
	(22.62)
State=40	3809.3***
	(22.99)
State=41	3823.5***
	(23.08)
State=42	3960.6***
	(23.90)
State=43	3993.4***
	(24.10)
State=44	3996.4***
	(24.12)

State=45	4161.8***
	(25.12)
State=46	4389.1***
	(26.49)
State=47	4584.8***
	(27.67)
State=48	4624.6***
	(27.91)
State=49	4504.9***
	(27.19)
State=50	4917.5***
	(29.68)
Year=2010	0
	(.)
Year=2011	43.72
	(0.41)
Year=2012	1.140
	(0.01)
Year=2013	106.0
	(1.01)
Year=2014	205.0
	(1.94)
Year=2015	183.3
	(1.74)
Year=2016	198.0
	(1.88)
Year=2017	343.4**
	(3.26)
Year=2018	378.0***
	(3.58)
Year=2019	291.1**
	(2.76)

Year=2020		546.8***
		(5.18)
Year=2021		497.9***
		(4.54)
Year=2022		502.0***
		(4.58)
Year=2023		594.6***
		(5.42)
Year=2024		593.9***
		(5.41)
Year=2025		716.2***
		(6.53)
Year=2026		748.9***
		(6.83)
Year=2027		865.8***
		(7.89)
Year=2028		742.0***
		(6.76)
Year=2029		1067.1***
		(9.73)
Year=2030		974.6***
		(8.89)
Constant	114439.8***	110787.4***
	(2180.10)	(807.50)
Observations	550	1050

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3 Questions

How many state-level fixed effects are there?

There are 50 state-level fixed effects.

What is the interpretation of the coefficient for each state-level fixed effect?

The coefficient for each state-level fixed effect is not zero, relative to state 1. The coefficients are significant for all states except for 3. This would mean that there variation between states when it comes to lung hospitalization.

Can you reject the hypothesis that state fixed effects are all zero?

With the *testparm* function, we test whether state ID fixed effects are equal to zero. Since the p-value is 0.0000, we reject the null hypothesis that the state fixed effects are zero.