Gov52 Replication Project

Lindsey Greenhill

4/16/2021

Replication of Political Disaster: Unilateral Powers, Electoral Incentives,

and Presidential Disaster Declarations

In the following report, I replicate Andrew Reeves's 2011 paper "Political Disaster: Unilateral Powers, Electoral Incentives,and Presidential Disaster Declarations." I first provide an overview of the original paper, then explain my replication process, and finally propose an extension to Reeves's work.

Overview

Reeves's work explores the relationship between presidential disaster declarations and electoral competitiveness. It seeks to find evidence that presidents disproportionately declare disasters and reward aid to electorally competitive states in an effort to gain votes for reelection. For context, a President can declare a disaster without the approval of other branches of government. Such a declaration makes states eligible for grants and other sorts of aid. In his analysis, Reeves utilizes a data set of all presidential disaster declarations in the United States from 1981 to 2004. The unit of analysis is the amount of disaster declarations in a state per year. Reeves purposefully split his analysis into two parts: years before and after the Stafford Disaster Relief and Emergenccy Assistance Act of 1988. The Stafford Act expanded the powers of the president to provide disaster relief. Ultimately, Reeves finds that after 1988, there is a positive relationship between electoral competitiveness and number and disaster declarations. Additionally, Reeves finds evidence that there is a positive relationship between disaster declarations and electoral support, meaning that states who received more disaster declarations were more likely to support the incumbent president in the next election.

Replication

For the replication part of this report, I replicated the paper's one summary table, two models, and two figures. I will describe the specifics of each part of the replication below.

- Note on the data: I did not have to do any data cleaning for the replication, as the replication data had no missing values and was already transformed into its final state

Table 1

The first table I replicated is summary table of key variables used in Reeves's analysis. The variables are as follows:

- Presidential Disaster Declarations: how many disasters declared a state for that year

- Actual Disasters: objective count of disasters according to the Property Claims Service, a branch of the Insurance Services Office (a private company contracted by insurance companies)

- Electoral Votes

- Competitiveness: measured by the average of the loser's vote margin in the last three elections

- Logged Per Capita Personal Income

- Logged Insurance Dollars: the inflation-adjusted dollar value of the actual disasters recorded by the ISO.

- Congressional Delegation Same party as the President: whether or not a state congressional delegation's partisanship is the same as the president's

- Governor Same Party as the President: whether or not the governor's partisanship is the same as the president's

variable	Mean	Std_Dev	Min	Max
Presidential Disaster Declaration	0.8	1.0	0.0	6.0
Actual Disasters	2.7	2.7	0.0	17.0
Electoral Votes	10.7	9.2	3.0	54.0
Competitiveness	42.4	4.2	26.5	48.6
Per Capita Personal Income (logged)	10.2	0.2	9.6	10.7
InsuranceDollars (logged)	13.6	7.7	0.0	23.7
Congressional Delegation Same party as the President	0.5	0.3	0.0	1.0
Governor Same Party as the President	0.4	0.5	0.0	1.0

Discussion

There is significant variation across many of the variables, especially within actual disasters and presidential disaster declarations.

Model 1

The first model I replicated is a Poisson regression. Reeves actually creates three different models: one with all of the data from 1981 - 2004, one with data pre stafford act (1981 to 1988), and one with data post Stafford act (1988 - 2004). I replicated all three models. They are shown in the table below.

As a reminder, the unit of analysis in the data set is a state-year. For example, Wyoming in 1981.

The dependent variable is **number of disaster declarations** in each state-year.

The independent variables are as follows:

- Competitiveness, actual disasters, logged insurance dolalrs, per capita income, electoral votes, congressional/presidential partisanship, gubernatorial/presidential partisanship, an indicator variable for year of administration, and control variables for each administration from 1981 - 2004 (Reagan 1, Reagan 2, GHW Bush, Clinton, W Bush)

Discussion and Interpretation of Key Coefficients

- Interestingly, competitiveness is not statistically significant in the pre Stafford act model. However, in both the full and post Stafford model, the effect of competitiveness is positive and statistically

Model of Presidential Disaster Declarations

	Dependent variable:		
	fema.dis		
	full	pre	post
	(1)	(2)	(3)
Competitiveness	0.03**	−0.11	0.04**
	(0.02)	(0.10)	(0.02)
Actual Disasters	0.13***	0.19***	0.13***
	(0.02)	(0.05)	(0.02)
Insurance cost (logged)	0.02**	0.03	0.01
	(0.01)	(0.02)	(0.01)
Per capita income	1.33	1.52	−0.70
	(1.02)	(2.63)	(1.58)
Electoral Votes	−0.02	−0.11	−0.06
	(0.03)	(0.10)	(0.05)
year 2 of admin	0.09	0.48**	0.05
	(0.10)	(0.23)	(0.12)
year 3 of admin	0.08	0.17	0.12
	(0.10)	(0.26)	(0.12)
year 4 of admin	0.26**	0.28	0.37***
	(0.11)	(0.29)	(0.13)
Congressional partisanship	0.04	0.62	0.03
	(0.16)	(1.13)	(0.17)
President / Governor same party	0.001	−0.26	0.03
	(0.07)	(0.22)	(0.08)
Reagan (term 1)	−0.42	−0.15	
	(0.30)	(0.30)	
Reagan (term 2)	−0.58***		
	(0.22)		
GHW Bush	−0.21		−0.46**
	(0.17)		(0.23)
W Bush	0.06		0.13
	(0.11)		(0.12)
Clinton (term 1)	−0.15		−0.32*
	(0.14)		(0.18)
Intercept	−15.19	−11.83	5.57
	(10.42)	(26.16)	(16.08)
Observations	1,200	400	800
Log Likelihood	−1,198.75	−280.21	−882.90
Akaike Inf. Crit.	2,527.50	682.43	1,891.80

| *Note:*	*p<0.1; **p<0.05; ***p<0.01

significant. This makes sense, as presidents did not have the power to make as large of an impact pre stafford act. Post stafford act, it makes sense that presidents tried to leverage their new power in the hopes of gaining more electoral support.

- The effect of actual disasters is positive and statistically significant in all three models. It makes sense, and is perhaps obvious, that as actual disasters increase disaster declarations also increase.

- The effect of insurance dollars is positive in all models but only statistically significant for the full model. This suggests that the size of a disaster is not necessarily correlated with an increased likelihood in a disaster declaration.

- The effect of year of administration changes from pre Stafford to post Stafford. Pre Stafford act, the president (Reagan) declared the most disasters on average in year 2 of the administration. Post Stafford act, the presidents on average declared the most disasters in year 4 of administration. It makes sense that presidents were more likely to declare disasters near the end of their term, in election years, if they wanted to gain the most electoral support for their actions. It is similar to the way a president might enact more fiscal policy in year 4 in an effort to boost the economy before an election.

Figure 1

In the figure below, I show the marginal effect of competitiveness on predicted disaster declarations for the post Stafford era model. I used the sjPlot library for my analysis.

Figure 1: Effect of Competitiveness on Number of Disaster Declarations, Post–Stafford Act Only
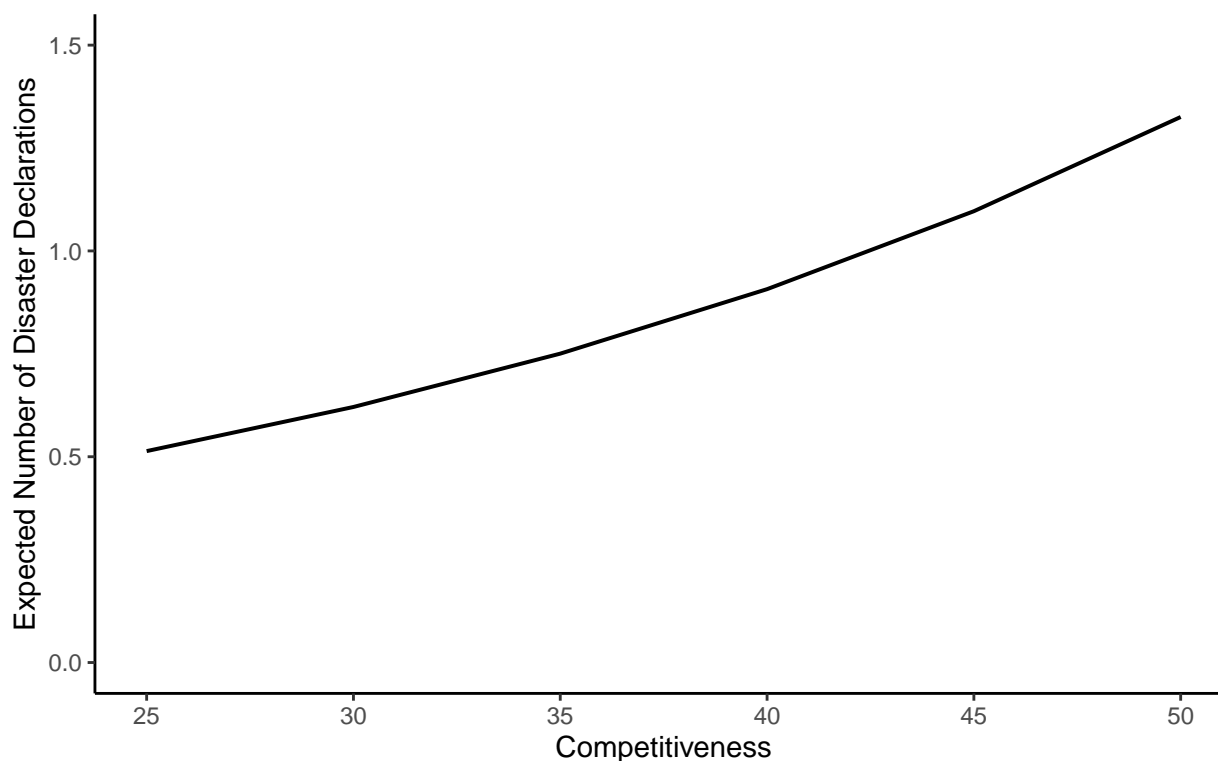
Discussion

As competitiveness increases, the model predicts that the expected number of disaster declarations also increases. Looking at the model above, the effect is statistically significant. Substantively, this finding

suggests that presidents are more likely to give disaster support to key battleground states.

Figure 2

The following figure also shows the effect of competitiveness on expected disaster declarations. To produce the figure, I calculated the predicted y values for both the pre and post stafford models (using the predict function). I then classified the predicted y values by competitiveness. I defined a prediction as highly competitive if it came from a state in the top 25 percent of competitiveness. I defined a prediction as no competitive if it came from a state in the bottom 25 percent of competitiveness.

Predicted Disasters by Competitiveness Pre−Stafford

Predicted Disasters by Competitiveness Post−Stafford
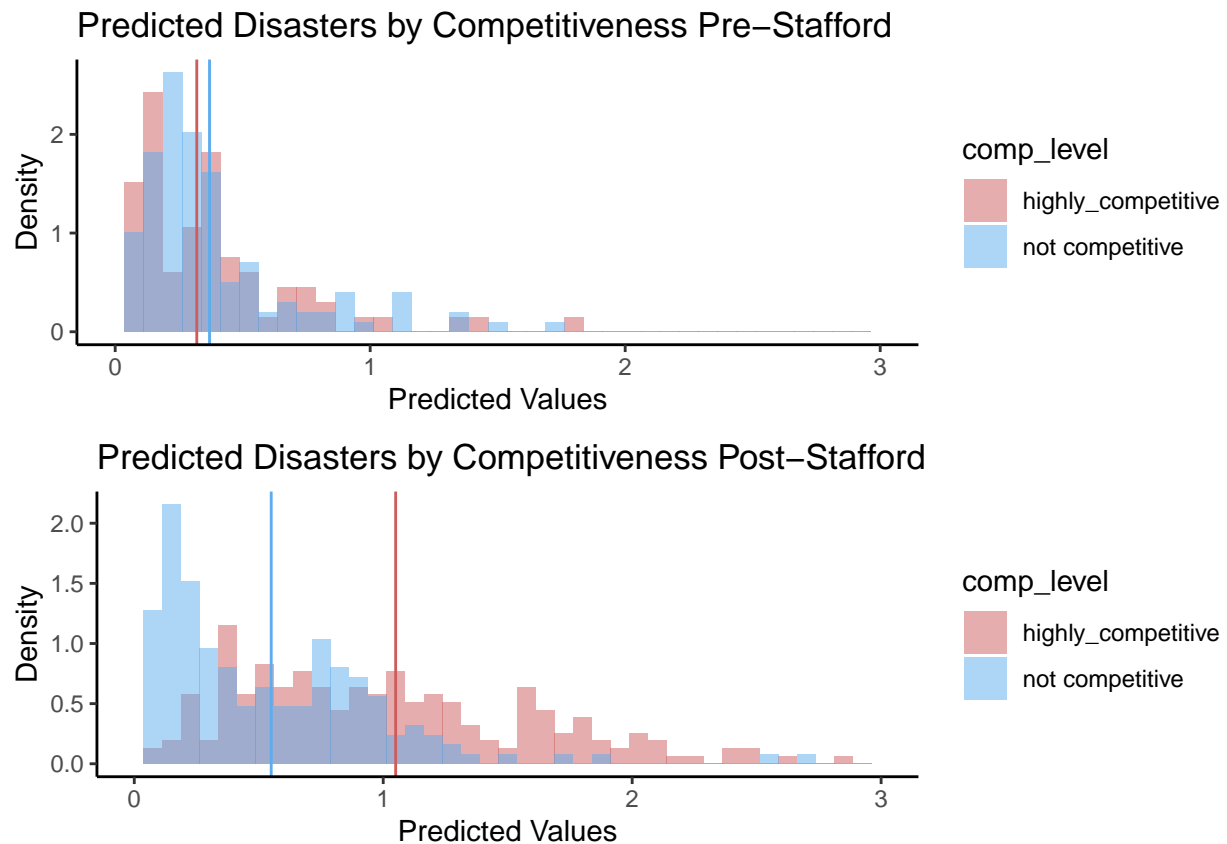
Discussion

This figures shows the different effects of competitiveness for the pre and post Stafford models. In the pre stafford model, the predicted y values for highly competitive and not competitive states are not systematically different. The average prediction values (shown by the vertical lines) for the two categories are very similar. Contrastingly, the predicted values for the post Stafford model vary significantly based on competitiveness. The average predicted value for highly competitive states is much higher than the average predicted value for not competitive states.

Model 2

This Least Squares Regression looks at the effect of presidential disaster declarations on election outcomes. Model 1 predicts election outcomes using number of disaster declarations and Model 2 predicts election outcomes using the square root transformation of the number of disaster declarations.

The dependent variable in this model is **presidential vote share**

The indepenent variables are as follows:

- number of presidential disaster declarations (sqrt of this in Model 2), party vote share in last election, logged per capita income, change in per capita income, whether or not the congressional delegation is the same party as the president, whether or not the governor is the same party as the president, competitiveness, electoral votes, whether or not the president is an incumbent, and an indicator variable for each state.

Model of State-Wide Presidential Election Outcomes

	Dependent variable:	
	curr.pct	
	Model 1	Model 2
	(1)	(2)
Presidential Disaster Declarations	1.29***	
	(0.35)	
Presidential Disaster Declarations (sqrt)		2.17***
		(0.55)
Previous Vote Share	0.75***	0.75***
	(0.05)	(0.05)
Personal Per Capita Income (logged)	−14.18***	−14.35***
	(3.43)	(3.42)
Change in Per Capita Income	0.67***	0.70***
	(0.25)	(0.25)
Congressional Partisanship	6.30***	6.16***
	(1.55)	(1.54)
Governor's Partisanship	−0.45	−0.31
	(0.86)	(0.85)
Competitiveness	−0.25**	−0.26**
	(0.13)	(0.13)
Electoral Votes	0.03	−0.01
	(0.31)	(0.31)
Incumbent	0.47	0.31
	(0.67)	(0.67)
Intercept	162.23***	163.62***
	(33.87)	(33.73)
Observations	300	300
R^2	0.70	0.70
Adjusted R^2	0.63	0.63

Note: *p<0.1; **p<0.05; ***p<0.01

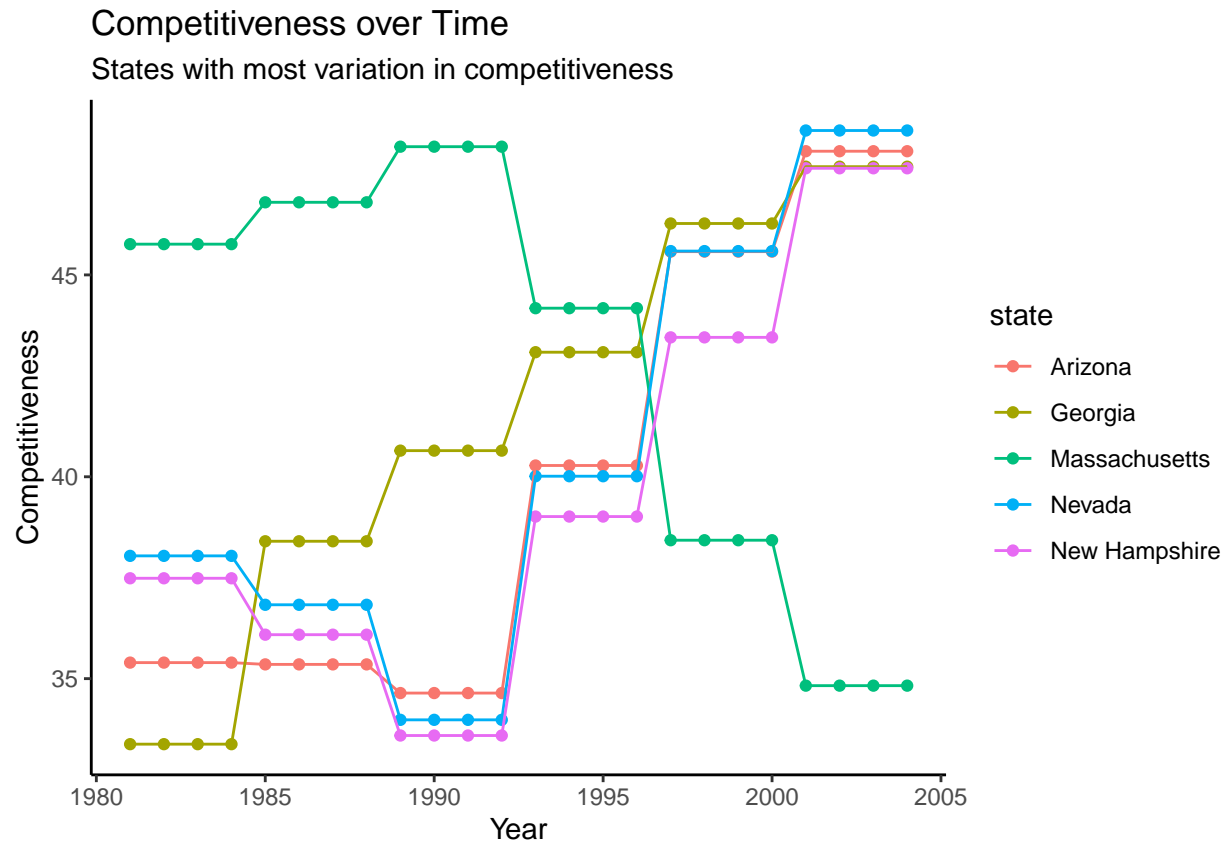**Discussion and Interpretation of Key Coefficients**

- There is a statistically significant and positive relationship between disaster declarations and vote share. Model 1 predicts that for every additional disaster declaration, the presidential vote share increases by 1.29 points on average, holding all else constant. Model 2 predicts that the first disaster declaration results in an additional 2.17 point addition to the presidential vote share on average, holding all else constant. Because Model 2 includes the square root of disaster declarations, the second disaster declaration will have a smaller marginal effect of vote share, and the third declaration will have a smaller effect than the second, and so on. These findings suggest that presidential disaster declarations are effective in garnering support in elections.

- The rest of the variables are meant for control and are not surprising. Previous vote share, per capita income, change in per capita income, congressional partisanship, and competitiveness are statistically significant.
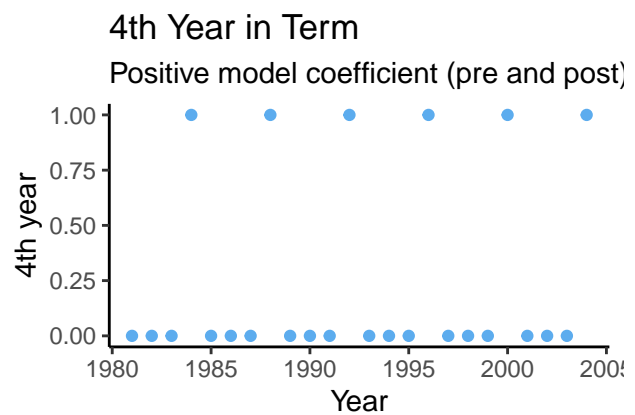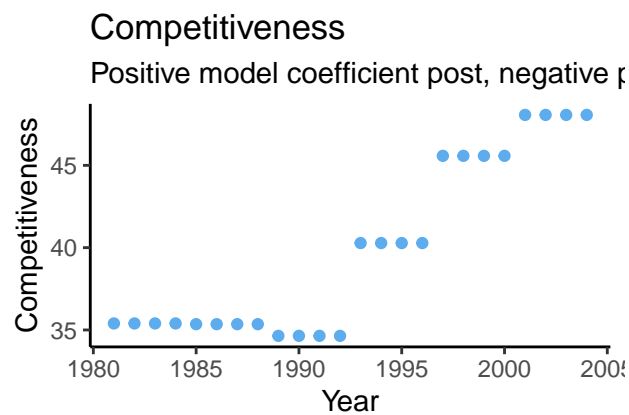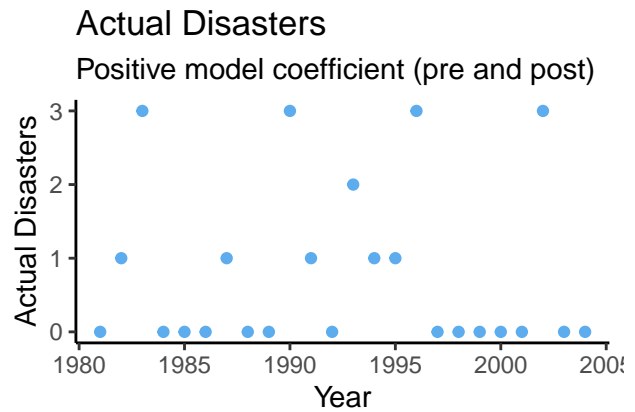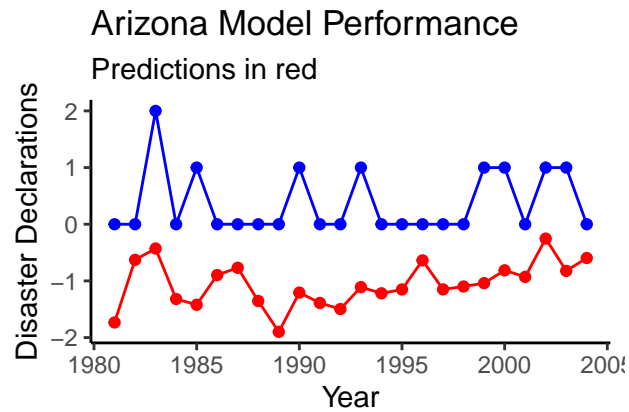
Extension: predictions

Need to make this way more detailed. Maybe I take states with the biggest changes in electoral competitiveness

```
## `summarise()` ungrouping output (override with `.groups` argument)
```
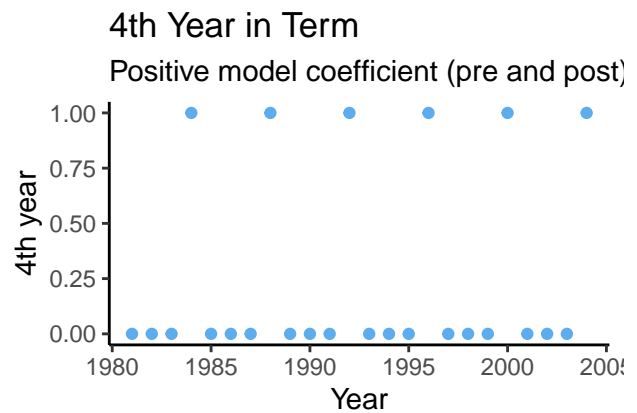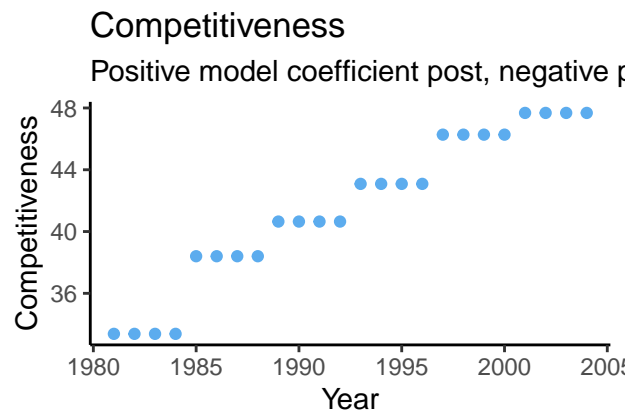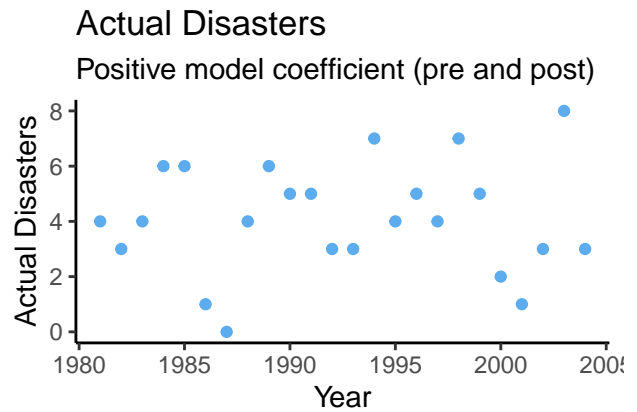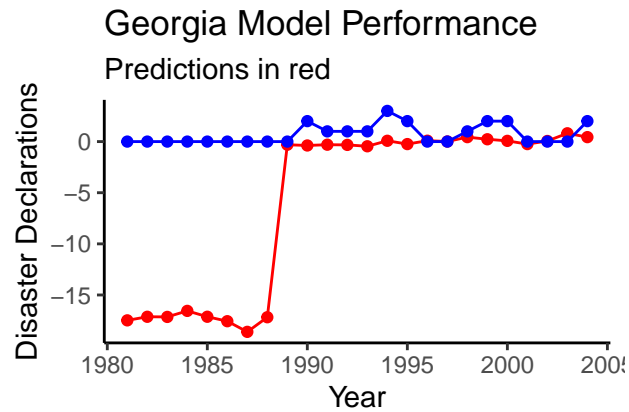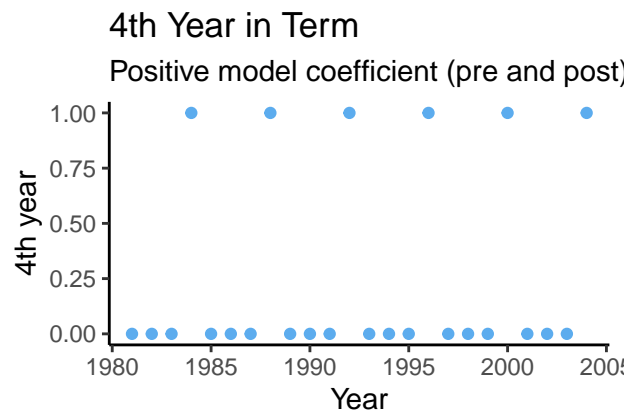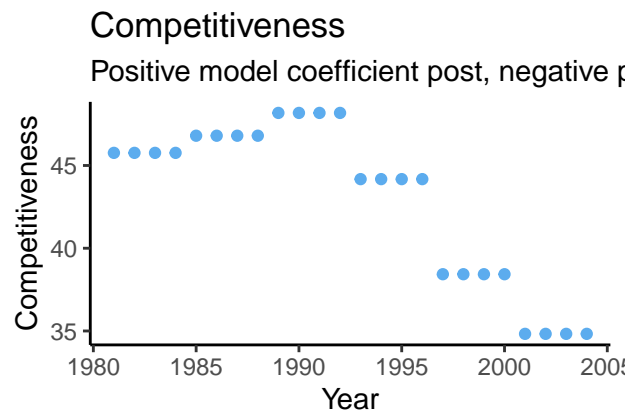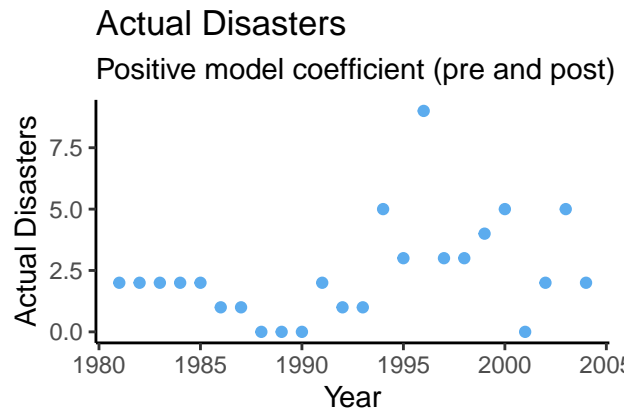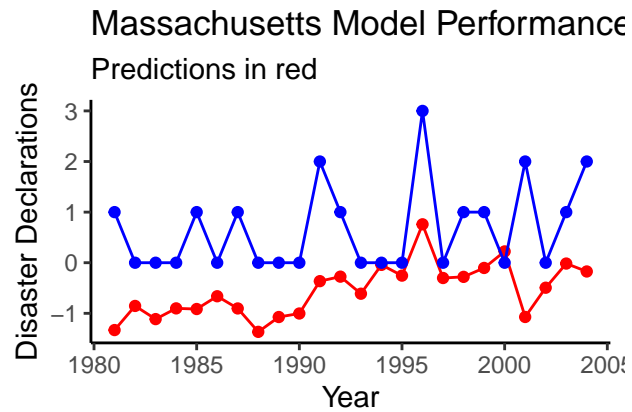

Competitiveness over Time
States with most variation in competitiveness

```
ext_grid("Arizona")
```

Arizona Model Performance
Predictions in red

Actual Disasters
Positive model coefficient (pre and post)

Competitiveness
Positive model coefficient post, negative p

4th Year in Term
Positive model coefficient (pre and post)


```
ext_grid("Georgia")
```

Georgia Model Performance
Predictions in red

Actual Disasters
Positive model coefficient (pre and post)

Competitiveness
Positive model coefficient post, negative p

4th Year in Term
Positive model coefficient (pre and post)


```
ext_grid("Massachusetts")
```

9

Massachusetts Model Performance

Predictions in red

Actual Disasters

Positive model coefficient (pre and post)

Competitiveness

Positive model coefficient post, negative p

4th Year in Term

Positive model coefficient (pre and post)


```
ext_grid("Nevada")
```

Nevada Model Performance
Predictions in red

Actual Disasters
Positive model coefficient (pre and post)

Competitiveness
Positive model coefficient post, negative p

4th Year in Term
Positive model coefficient (pre and post)

```
ext_grid("New Hampshire")
```

New Hampshire Model Performance

Predictions in red

Actual Disasters

Positive model coefficient (pre and post)

Competitiveness

Positive model coefficient post, negative p

4th Year in Term

Positive model coefficient (pre and post)