Legislative Effectiveness in Congress

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Does being apart of the majority party increase a Congress member's legislative effectiveness?

For our research, we asked the question above. It is an important one to address because it brings us closer to understanding how to have an effective legislative, which is something that is very important in order to address people's concerns. In the U.S. the two party system has led to increased polarization, which helps bring us to our question. If the two parties are very polarized, then it would make sense that they would vote along party lines, meaning that if this is true there should be some sort of correlation between being apart of the majority party and legislative effectiveness.

Datasets

House:

Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
congress	5364	111	3.4	105	108	113	116
cd	5358	10	10	0	3	13	53
les	5364	1	1.4	0	0.21	1.3	19
leslag	4521	1	1.5	0	0.2	1.2	19
all_bills	5364	14	11	0	7	19	120
dem	5364	0.49	0.5	0	0	1	1
female	5364	0.17	0.38	0	0	0	1
majority	5364	0.54	0.5	0	0	1	1
votepct	5235	67	13	23	58	73	100
chair	5364	0.048	0.21	0	0	0	1
seniority	5364	5.5	4.3	1	2	8	30
dwnom1	5296	0.046	0.44	-0.73	-0.38	0.44	0.93
state_leg	5364	0.51	0.5	0	0	1	1
house_int_term	5364	8.4	11	0	0	14	81

Senate:

Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
congress	1222	111	3.4	105	108	113	116
les	1222	1	0.93	0	0.34	1.4	6
leslag	1062	1	0.97	0	0.34	1.4	7.7
all_bills	1222	35	24	0	19	48	211
dem	1222	0.48	0.5	0	0	1	1
female	1222	0.16	0.37	0	0	0	1
majority	1222	0.54	0.5	0	0	1	1
votepct	1199	59	8.8	39	53	65	100
chair	1222	0.17	0.38	0	0	0	1
seniority	1222	6.4	5.1	1	3	9	26
dwnom1	1221	0.056	0.39	-0.77	-0.32	0.41	0.92
state_leg	1222	0.42	0.49	0	0	1	1
senate_int_term	1222	20	27	0	0	34	211

In order to respond to our question we used the two datasets listed below:
- LES_house_105_116.csv
- LES_senate_105_116.csv

The data comes from the Center for Effective Lawmaking. One of the datasets includes data related to the House from the 105th-116th session and the other dataset includes data related to the Senate from the 105th-116th session. The summary statistics for the datasets are listed to the left.

Key Variables

From both of the datasets, the key variables that we used in our research were:

- les
- all_bills
- majority

In the dataset les stands for legislative effectiveness score, which gives each of the Congress members in the respective dataset a score for their legislative effectiveness. The all_bills variable is the total number of bills that a Congress member introduced. Finally, the majority variable is a binary variable that gives a Congress member a 1 if they are in the majority party and a 0 if they are not.

Methodology

For our methodology we ran two different forms of analysis. The first was a linear regression with control variables. To do this we used the lm() function in R and used the majority variable as our x variable and the les variable as our y variable. We held every other variable in the dataset constant. This regression was run twice, once for the House dataset, and once for the Senate dataset.

The second analysis we ran took a look at heterogenous effects. The equation we used to do this is listed below:

$$Y = \beta_0 + \beta_1 \text{majority} + \beta_2 \text{all\_bills} + \beta_3(\text{majority} * \text{all\_bills})$$

In this equation, β_0 is the intercept, β_1 is the coefficient of majority, β_2 is the coefficient of all_bills, and β_3 is the coefficient of the interaction term, (majority * all_bills). We decided to incorporate the all_bills variable because we wanted to know the effect of being in the majority party on the number of bills that a member introduces. Our model assumes that the effect of the majority linearly depends on the all_bills variable. This means that as we increase all_bills by one bill, the change in the average outcome associated with being in the majority party goes up by β_3.
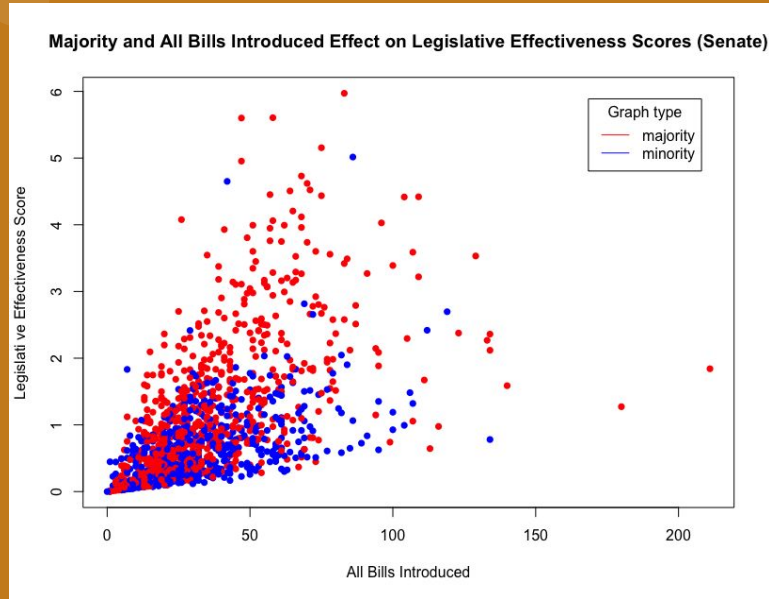
Results

   If you can recall, in this first analysis we are looking for the effect that being in the majority party has on a Congress member's legislative effectiveness score. After running our linear regression in R we came across a promising outcome. We learned that, in the House, being apart of the majority party increases a member's legislative effectiveness score by 0.597 points on average. In the Senate, being apart of the majority party increases a member's legislative effectiveness score by 0.34 points on average. Additionally, each of the p-values were below 0.05 which makes our findings statistically significant. These results mean that, in both the House and the Senate, there is a positive effect on a member's legislative effectiveness score if they are apart of the majority party. Furthermore, since the average legislative effectiveness score is 1.0002 for the House and 1 for the Senate, then the average increases of 0.597 and 0.34 points, in the respective bodies, make fairly big impacts. In order to go a little further, we also averaged out the results from the House and Senate. The outcome was that being apart of the majority party increases a members legislative effectiveness score by 0.469 points.

Results (Continued)

Majority and All Bills Introduced Effect on Legislative Effectiveness Scores (House)
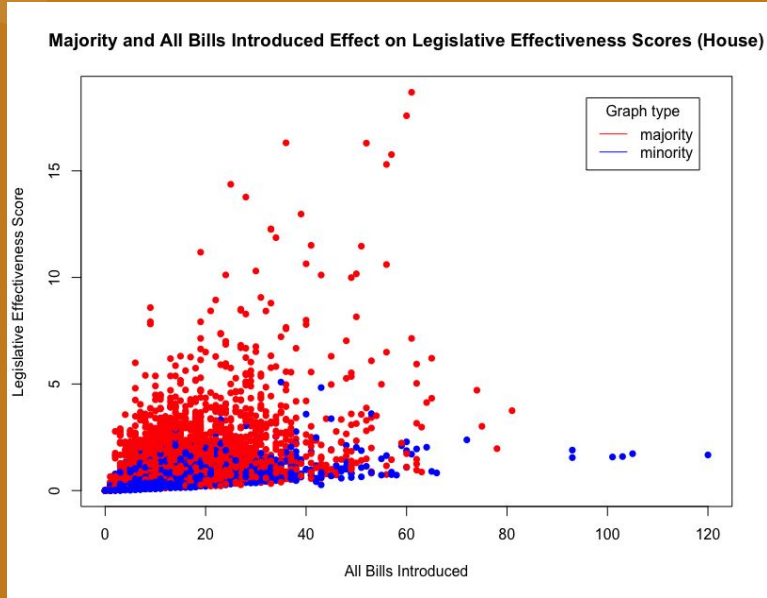
In the second part of the analysis we are checking to see if there were any heterogeneous effects on between being apart of the majority party and all bills introduced on the legislative effectiveness score. The scatterplot on the left shows the results of this analysis, on the House, that is based on the equation that was listed in the methodology slide. Based on the graph it is fairly easy to see that there is a small positive correlation between being apart of the majority party and legislative effectiveness. The blue dots represent the minority and the red dots represent the majority party. The graphs shows that those in the majority party tend to have higher legislative effectiveness scores than those in the minority party. The scatterplot shows slight heterogeneity between bills introduced, the majority, and legislative effectiveness score.

Results (Continued)

Majority and All Bills Introduced Effect on Legislative Effectiveness Scores (Senate)

Continuing on with looking at heterogenous effects, we now look at the dataset for the Senate. The scatterplot on the left shows the results of this analysis, on the Senate, that is based on the equation that was listed in the methodology slide. Based on the graph, there doesn't seem to be as much as a correlation between bills introduced and legislative effectiveness score as in the House dataset. However, there does seem to be a small positive correlation. Similar to the House scatterplot, there is a slightly higher impact on legislative effectiveness score when members are apart of the majority party compared to when they are apart of the minority party. However, there are some outliers with some minority members having very high legislative effectiveness scores.

Conclusion

Our results show that there is correlation between being apart of the majority party and a members legislative effectiveness score. We found that being apart of the majority party positively affects their legislative effectiveness score. Both of the analysis we performed support this conclusion. Additionally, we found that there was a greater impact when the member was apart of the House rather than when they were in the Senate. This was able to see from both our initial regression as well as in the scatterplots that were presented. In the heterogenous analysis we also discovered that the number of bills introduced and the interaction term, although small, had a positive impact on the legislative effectiveness score of a Congress member. In conclusion, our research is able to prove that being apart of the majority party in Congress allows a Congress member to have a greater impact in Congress, and create more effective legislation.