01 February 2016

1 Overview

This week I continued checking Senate variables and digging into the first methods we used for the Senate Party Calls, as well as the summary stats from them. I include a paragraph in section 1.1 to cover the differences between these. Further, I added a variable to give us the number of votes cast by a Senator to see the range on this in case we want to drop Senators who did not cast a certain number of votes. These are included in the Senate summary tables. Of particular note with these is that we have a Republican who goes from having no `pirate100` value to having one (those missing this value are dropped during data construction). Finally, I provide plots of responsiveness to party calls against responsiveness to noncalls and ideological extremism for the new $p < 0.01$ and $p < 0.05$ party calls as well as the old Senate algorithm as detailed below.

1.1 Old Senate Party Calls Summary

In reviewing the data and code that William and I were working from in the beginning of the project, I found a number of things. First and foremost among these was that we had been randomly selecting half of the votes to serve as the noncalls for the first iteration of the algorithm. Though it is not necessarily the case, it is possible that setting the lopsided votes as the initial noncalls leads the algorithm to get stuck at local minima/maxima instead of reaching the correct conclusions, if in fact the truth is that party calls in the Senate happen as they do in the House. It may be worth retesting this method of coding the Senate Party Calls. Of course, testing it first in the House or doing both simultaneously may be a better approach.

2 Tables and Figures

Section 2.1 contains summary tables for the old Senate sorting method (as described in section 1.1) along with plots of plots and bivariate regression summaries for responsiveness to party calls with responsiveness to non calls and ideological extremism. Section 2.2 contains tables of summary statistics for the corrected Senator year data with responsiveness statistics for the $p < 0.01$ and $p < 0.05$ sorting algorithms included. Finally, section 2.3 contains plots and bivariate regression summaries for responsiveness to party calls with responsiveness to non calls and ideological extremism.

2.1 Old Senate Party Calls

Table 1: Vote Coding from Oldest Method

Congress	Party Calls	Noncalls	Gray Votes
93	411	726	1
94	456	852	3
95	332	820	4
96	411	642	1
97	464	497	5
98	313	346	4
99	306	432	2
100	355	443	1
101	259	378	1
102	278	270	2
103	395	326	3
104	518	394	7
105	295	314	3
106	376	289	7
107	282	346	5
108	381	294	0
109	323	315	7
110	333	321	3
111	487	206	3
112	275	203	8
Total:	7250	8414	70
Mean:	362.5	420.7	3.5
sd:	76.3	191.8	2.4

Table 2: Oldest Method Lopsided and Close Vote Sorting

	Party Calls	Noncalls	Gray
Lopsided	2054	6540	46
Close	5196	1874	24

Table 3: Old Method Summary Stats

Statistic	N	Mean	St. Dev.	Min	Max
Democrats:					
responsiveness_party_calls	1,041	0.858	0.109	0.083	1.000
responsiveness_noncalls	1,040	0.871	0.069	0.496	1.000
party_free_ideal_point	1,041	4.336	0.652	1.872	6.632
ideological_extremism	1,041	−4.256	1.056	−6.359	6.632
Republicans:					
responsiveness_party_calls	931	0.854	0.120	0.337	1.000
responsiveness_noncalls	931	0.845	0.070	0.537	1.000
party_free_ideal_point	931	5.738	0.784	3.424	8.318
ideological_extremism	931	5.738	0.784	3.424	8.318

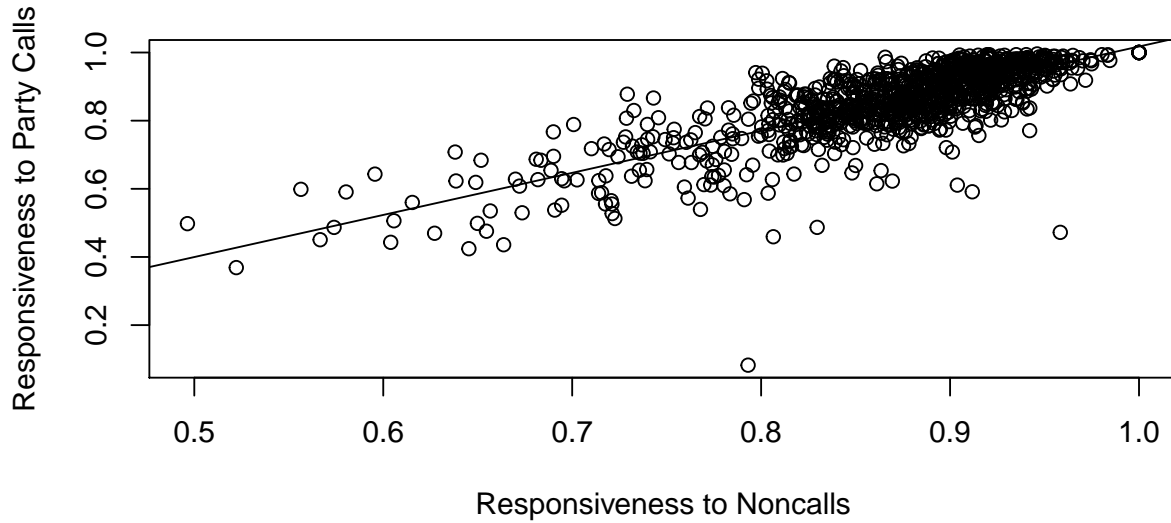Figure 1: Main DV and IV - Senate Democrats, Old Algorithm

Figure 2: Main DV and Ideological Extremism - Senate Democrats, Old Algorithm
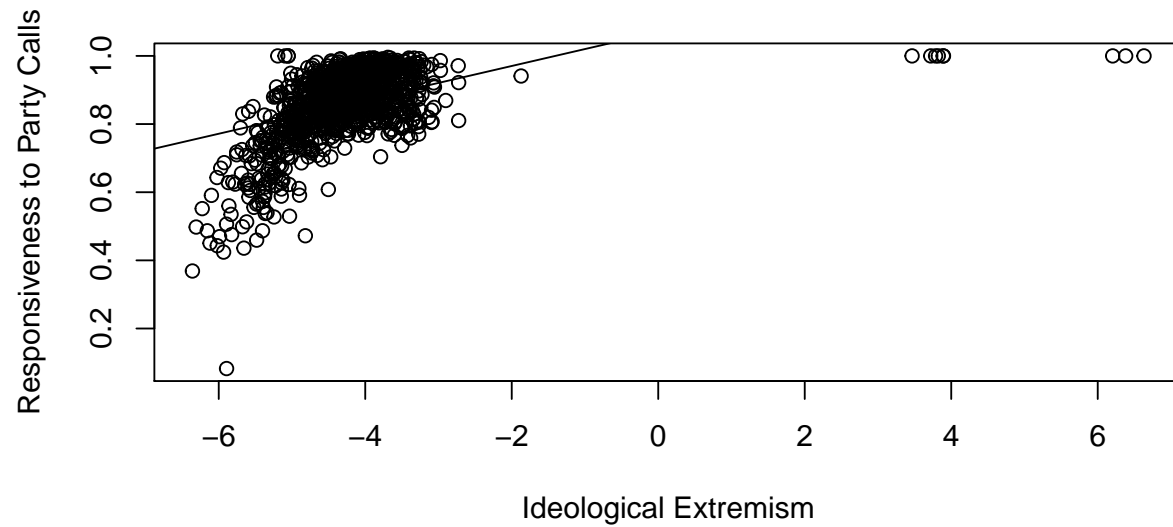

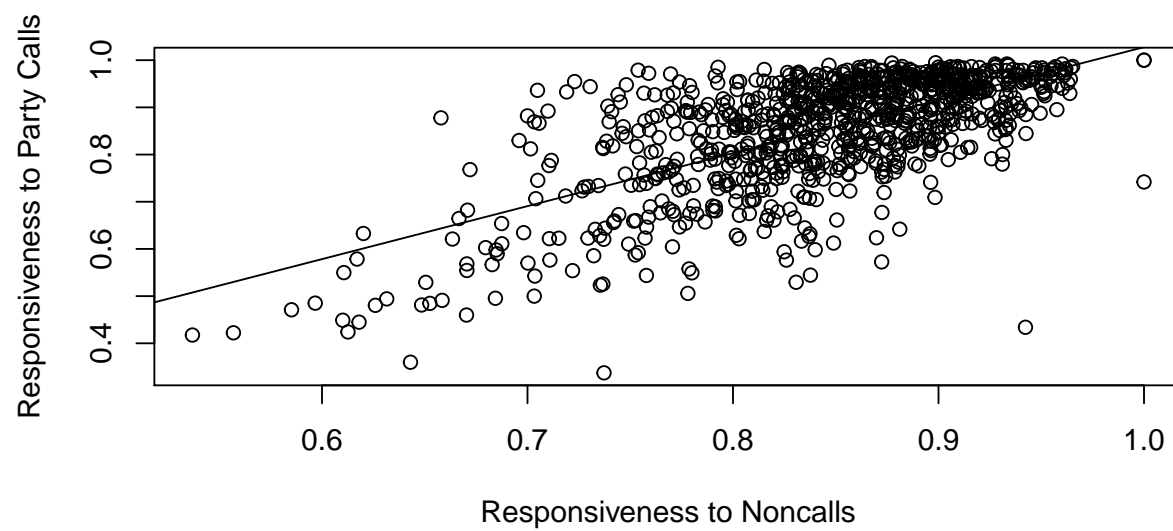Figure 3: Main DV and IV - Senate Republicans, Old Algorithm

Figure 4: Main DV and Ideological Extremism - Senate Republicans, Old Algorithm
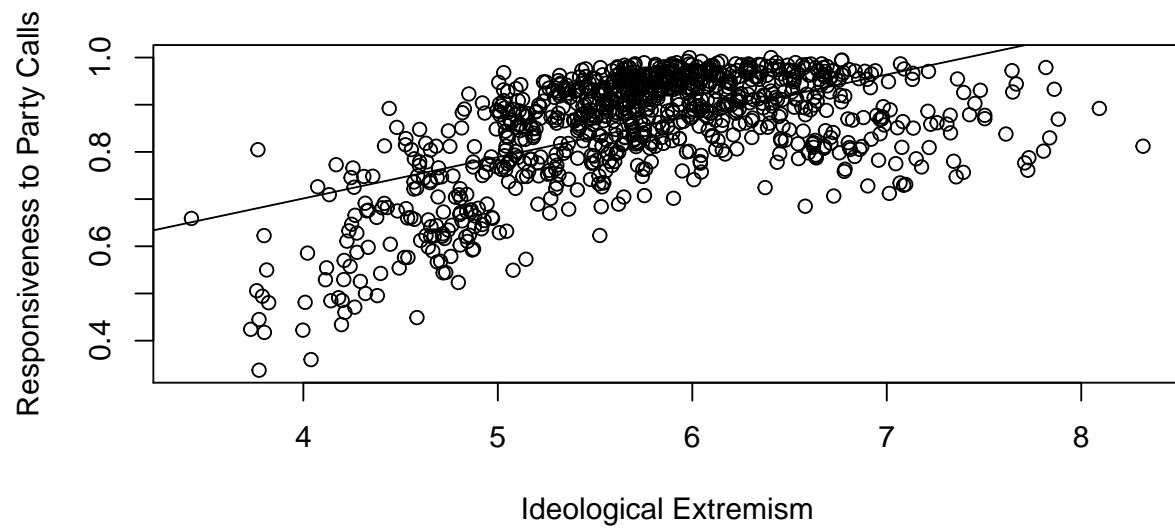
Table 4: Old Senate Regression Table

	Democrats	Republicans	Democrats	Republicans
Distance from Floor Median	0.040***	0.105***		
	(0.009)	(0.008)		
Ideological Extremism			0.056***	0.138***
			(0.007)	(0.007)
Baseline Rate of Voting with Party	0.993***	1.111***	0.907***	0.940***
	(0.032)	(0.040)	(0.033)	(0.036)
Vote Share	−0.212*	−0.216	−0.158	−0.233
	(0.096)	(0.204)	(0.094)	(0.185)
Presidential Vote Share	0.080	−0.347	0.120	−0.404*
	(0.125)	(0.209)	(0.122)	(0.190)
Vote Share × Presidential Vote Share	0.273	0.576	0.198	0.586
	(0.192)	(0.341)	(0.188)	(0.311)
Up for Election	−0.007	−0.024***	−0.006	−0.023***
	(0.004)	(0.006)	(0.004)	(0.005)
Freshman	−0.017**	0.025**	−0.016**	0.026***
	(0.006)	(0.008)	(0.006)	(0.008)
Retiree	0.001	0.048***	−0.000	0.042***
	(0.008)	(0.011)	(0.008)	(0.010)
Seniority	−0.001	−0.001	−0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Party Leader	0.019	0.019	0.018	0.021
	(0.010)	(0.013)	(0.010)	(0.012)
Committee Chair	0.012*	0.047***	0.010	0.048***
	(0.005)	(0.008)	(0.005)	(0.007)
Best Committee	−0.001	−0.001	−0.001	−0.001
	(0.001)	(0.002)	(0.001)	(0.002)
Power Committee	−0.001	−0.007	−0.003	−0.003
	(0.008)	(0.010)	(0.007)	(0.009)
South	−0.027***	0.021***	−0.020***	0.010
	(0.005)	(0.006)	(0.005)	(0.006)
African American	−0.000	−0.116*	−0.004	−0.041
	(0.028)	(0.046)	(0.027)	(0.042)
Female	0.008	−0.016	0.010	−0.006
	(0.007)	(0.012)	(0.007)	(0.011)
Latino	0.009	0.044	0.013	0.036
	(0.022)	(0.030)	(0.021)	(0.027)
Intercept	0.009	−0.004	0.048	0.176
	(0.069)	(0.129)	(0.068)	(0.118)
R^2	0.699	0.587	0.709	0.658
Adj. R^2	0.694	0.579	0.705	0.651
Num. obs.	1037	929	1037	929
RMSE	0.060	0.078	0.059	0.071

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

2.2 Senator Year Data Summary Statistics

Table 5: New Senator Year Data - Democrats

Statistic	N	Mean	St. Dev.	Min	Max
maj	1,039	0.632	0.473	0.000	1.000
pres_vote_share	1,039	0.484	0.093	0.201	0.730
pres_dem_vote_share	1,039	0.484	0.093	0.201	0.730
vote_share	1,039	0.619	0.102	0.500	1.000
south	1,039	0.237	0.425	0	1
south11	1,039	0.212	0.409	0	1
south13	1,039	0.237	0.425	0	1
south17	1,039	0.341	0.474	0	1
south_dem	1,039	0.237	0.425	0	1
leader	1,039	0.084	0.277	0	1
chair	1,039	0.208	0.406	0	1
best_committee	1,039	12.253	2.758	0	15
power_committee	1,037	0.728	0.445	0	1
up_for_reelection	1,039	0.334	0.472	0	1
freshman	1,039	0.328	0.470	0	1
superfreshman	1,039	0.011	0.102	0	1
seniority	1,039	6.770	4.916	1	26
senate_seniority	1,039	2.594	1.629	1	9
retiree	1,039	0.050	0.218	0	1
afam	1,039	0.005	0.069	0	1
female	1,039	0.084	0.277	0	1
latino	1,039	0.007	0.082	0	1
gingrich_senator	1,039	0.000	0.000	0	0
votes	1,039	742.239	204.558	28	1,311
drop	1,039	0.000	0.000	0	0
party_free_ideal_point $p < 0.01$	1,039	-0.793	0.520	-2.037	1.389
pirate100 $p < 0.01$	1,039	82.629	11.671	6.250	100.000
pfrate100 $p < 0.01$	1,039	84.053	10.057	19.095	100.000
ideological_extremism $p < 0.01$	1,039	0.793	0.520	-1.389	2.037
party_free_ideal_point $p < 0.05$	1,039	-0.786	0.529	-2.059	1.568
pirate100 $p < 0.05$	1,039	82.391	11.120	12.000	100.000
pfrate100 $p < 0.05$	1,039	84.214	9.973	20.000	100.000
ideological_extremism $p < 0.05$	1,039	0.786	0.529	-1.568	2.059

Table 6: New Senator Year Data - Republicans $p < 0.01$

Statistic	N	Mean	St. Dev.	Min	Max
maj	950	0.464	0.489	0.000	1.000
pres_vote_share	950	0.562	0.085	0.310	0.780
pres_dem_vote_share	950	0.438	0.085	0.220	0.690
vote_share	950	0.605	0.094	0.500	1.000
south	950	0.286	0.452	0	1
south11	950	0.229	0.421	0	1
south13	950	0.286	0.452	0	1
south17	950	0.338	0.473	0	1
south_dem	950	0.000	0.000	0	0
leader	950	0.117	0.321	0	1
chair	950	0.155	0.362	0	1
best_committee	950	12.327	2.621	0	15
power_committee	949	0.724	0.447	0	1
up_for_reelection	950	0.332	0.471	0	1
freshman	950	0.385	0.487	0	1
superfreshman	950	0.005	0.072	0	1
seniority	950	5.682	4.163	1	24
senate_seniority	950	2.236	1.373	1	8
retiree	950	0.067	0.251	0	1
afam	950	0.003	0.056	0	1
female	950	0.048	0.215	0	1
latino	950	0.007	0.086	0	1
gingrich_senator	950	0.197	0.398	0	1
votes	950	726.227	187.300	41	1,291
drop	950	0.000	0.000	0	0
party_free_ideal_point $p < 0.01$	950	0.872	0.590	-1.189	2.664
pirate100 $p < 0.01$	950	83.255	12.598	32.990	100.000
pfrate100 $p < 0.01$	950	81.881	10.173	41.923	100.000
ideological_extremism $p < 0.01$	950	0.872	0.590	-1.189	2.664

Table 7: New Senator Year Data - Republicans $p < 0.01$

Statistic	N	Mean	St. Dev.	Min	Max
maj	951	0.464	0.489	0.000	1.000
pres_vote_share	951	0.562	0.085	0.310	0.780
pres_dem_vote_share	951	0.438	0.085	0.220	0.690
vote_share	951	0.605	0.094	0.500	1.000
south	951	0.286	0.452	0	1
south11	951	0.229	0.421	0	1
south13	951	0.286	0.452	0	1
south17	951	0.338	0.473	0	1
south_dem	951	0.000	0.000	0	0
leader	951	0.117	0.321	0	1
chair	951	0.155	0.362	0	1
best_committee	951	12.314	2.650	0	15
power_committee	949	0.724	0.447	0	1
up_for_reelection	951	0.332	0.471	0	1
freshman	951	0.386	0.487	0	1
superfreshman	951	0.005	0.072	0	1
seniority	951	5.677	4.163	1	24
senate_seniority	951	2.234	1.373	1	8
retiree	951	0.067	0.251	0	1
afam	951	0.003	0.056	0	1
female	951	0.048	0.215	0	1
latino	951	0.007	0.086	0	1
gingrich_senator	951	0.198	0.398	0	1
votes	951	725.506	188.520	40	1,291
drop	951	0.000	0.000	0	0
party_free_ideal_point $p < 0.05$	951	0.863	0.604	-1.291	2.679
pirate100 $p < 0.05$	951	81.747	11.728	35.714	100.000
pfrate100 $p < 0.05$	951	81.940	10.277	41.515	100.000
ideological_extremism $p < 0.05$	951	0.863	0.604	-1.291	2.679

Table 8: New Senator Year Data - Majority Caucus

Statistic	N	Mean	St. Dev.	Min	Max
maj	1,049	1.000	0.000	1	1
pres_vote_share	1,049	0.506	0.101	0.201	0.780
pres_dem_vote_share	1,049	0.462	0.094	0.201	0.730
vote_share	1,049	0.613	0.100	0.500	1.000
south	1,049	0.268	0.443	0	1
south11	1,049	0.232	0.422	0	1
south13	1,049	0.268	0.443	0	1
south17	1,049	0.345	0.476	0	1
south_dem	1,049	0.148	0.355	0	1
leader	1,049	0.096	0.295	0	1
chair	1,049	0.329	0.470	0	1
best_committee	1,049	12.266	2.734	0	15
power_committee	1,047	0.719	0.450	0	1
up_for_reelection	1,049	0.323	0.468	0	1
freshman	1,049	0.391	0.488	0	1
superfreshman	1,049	0.006	0.075	0	1
seniority	1,049	6.076	4.591	1	26
senate_seniority	1,049	2.370	1.517	1	9
retiree	1,049	0.051	0.219	0	1
afam	1,049	0.002	0.044	0	1
female	1,049	0.064	0.245	0	1
latino	1,049	0.009	0.092	0	1
gingrich_senator	1,049	0.087	0.282	0	1
votes	1,049	748.442	201.319	28	1,311
drop	1,049	0.000	0.000	0	0
party_free_ideal_point $p < 0.01$	1,049	-0.064	0.905	-2.005	2.351
pirate100 $p < 0.01$	1,049	83.477	11.495	40.625	100.000
pfrate100 $p < 0.01$	1,049	84.420	9.743	36.663	100.000
ideological_extremism $p < 0.01$	1,049	0.741	0.523	-1.389	2.351
party_free_ideal_point $p < 0.05$	1,049	-0.060	0.904	-1.966	2.379
pirate100 $p < 0.05$	1,049	83.165	11.006	35.190	100.000
pfrate100 $p < 0.05$	1,049	84.553	9.649	38.983	100.000
ideological_extremism $p < 0.05$	1,049	0.733	0.531	-1.568	2.379

Table 9: New Senator Year Data - Minority Caucus, $p < 0.01$

Statistic	N	Mean	St. Dev.	Min	Max
maj	842	0.000	0.000	0	0
pres_vote_share	842	0.538	0.091	0.284	0.754
pres_dem_vote_share	842	0.461	0.090	0.246	0.690
vote_share	842	0.611	0.098	0.500	1.000
south	842	0.251	0.434	0	1
south11	842	0.205	0.404	0	1
south13	842	0.251	0.434	0	1
south17	842	0.333	0.471	0	1
south_dem	842	0.097	0.297	0	1
leader	842	0.102	0.303	0	1
chair	842	0.000	0.000	0	0
best_committee	842	12.315	2.626	0	15
power_committee	841	0.734	0.442	0	1
up_for_reelection	842	0.344	0.475	0	1
freshman	842	0.311	0.463	0	1
superfreshman	842	0.012	0.108	0	1
seniority	842	6.416	4.544	1	24
senate_seniority	842	2.474	1.506	1	8
retiree	842	0.070	0.255	0	1
afam	842	0.007	0.084	0	1
female	842	0.064	0.245	0	1
latino	842	0.006	0.077	0	1
gingrich_senator	842	0.093	0.290	0	1
votes	842	731.044	197.372	41	1,291
drop	842	0.000	0.000	0	0
party_free_ideal_point $p < 0.01$	842	0.082	1.100	-2.037	2.664
pirate100 $p < 0.01$	842	82.034	12.716	6.250	100.000
pfrate100 $p < 0.01$	842	80.797	10.469	19.095	100.000
ideological_extremism $p < 0.01$	842	0.930	0.593	-1.189	2.664

Table 10: New Senator Year Data - Minority Caucus, $p < 0.05$

Statistic	N	Mean	St. Dev.	Min	Max
congress	843	102.507	5.780	93	112
icpsrLegis	843	18,105.650	12,780.780	52	94,659
class	843	2.030	0.808	1	3
maj	843	0.000	0.000	0	0
pres_vote_share	843	0.538	0.091	0.284	0.754
pres_dem_vote_share	843	0.461	0.090	0.246	0.690
vote_share	843	0.611	0.098	0.500	1.000
south	843	0.250	0.433	0	1
south11	843	0.205	0.404	0	1
south13	843	0.250	0.433	0	1
south17	843	0.332	0.471	0	1
south_dem	843	0.097	0.297	0	1
leader	843	0.102	0.303	0	1
chair	843	0.000	0.000	0	0
best_committee	843	12.300	2.659	0	15
power_committee	841	0.734	0.442	0	1
up_for_reelection	843	0.345	0.476	0	1
freshman	843	0.312	0.464	0	1
superfreshman	843	0.012	0.108	0	1
seniority	843	6.409	4.545	1	24
senate_seniority	843	2.472	1.506	1	8
retiree	843	0.070	0.255	0	1
afam	843	0.007	0.084	0	1
female	843	0.064	0.245	0	1
latino	843	0.006	0.077	0	1
gingrich_senator	843	0.094	0.292	0	1
votes	843	730.224	198.685	40	1,291
drop	843	0.000	0.000	0	0
party_free_ideal_point $p < 0.05$	843	0.079	1.102	−2.059	2.679
pirate100 $p < 0.05$	843	80.443	11.709	12.000	100.000
pfrate100 $p < 0.05$	843	80.868	10.614	20.000	100.000
ideological_extremism $p < 0.05$	843	0.920	0.612	−1.291	2.679

2.3 Plots and Regressions of Main DV and IVs

Table 11: Senate $p < 0.01$ Algorithm

	Democrats	Democrats	Republicans	Republicans
pfrate100	0.87***		0.99***	
	(0.02)		(0.02)	
ideological_extremism		11.47***		11.58***
		(0.60)		(0.58)
(Intercept)	9.31***	73.53***	2.44	73.16***
	(2.01)	(0.57)	(2.00)	(0.61)
R^2	0.57	0.26	0.64	0.29
Adj. R^2	0.56	0.26	0.63	0.29
Num. obs.	1039	1039	950	950
RMSE	7.70	10.03	7.61	10.59

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

Figure 5: Main DV and IV - Senate Democrats, $p < 0.01$
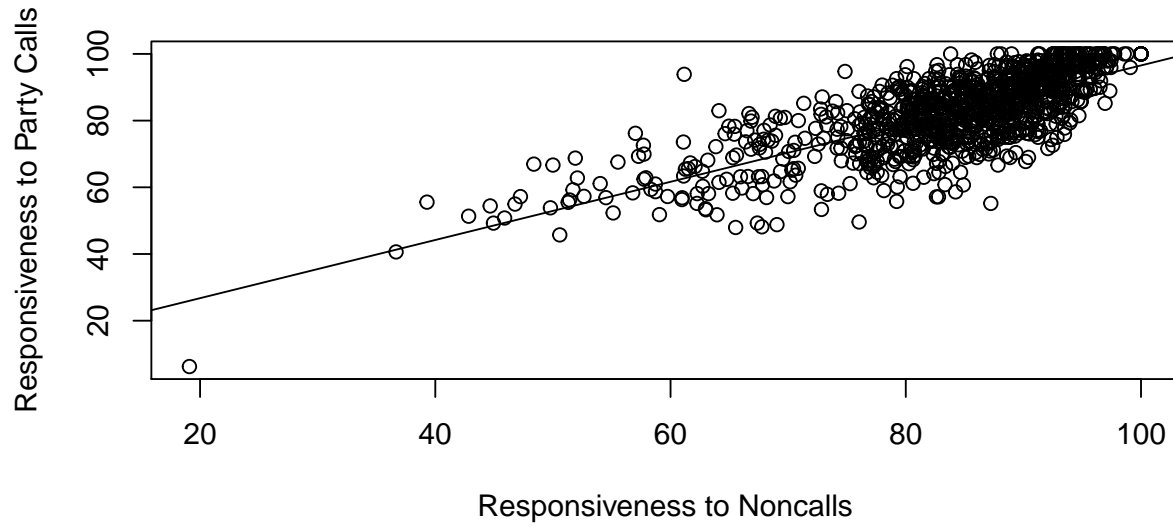
Figure 6: Main DV and Ideological Extremism - Democrats, $p < 0.01$

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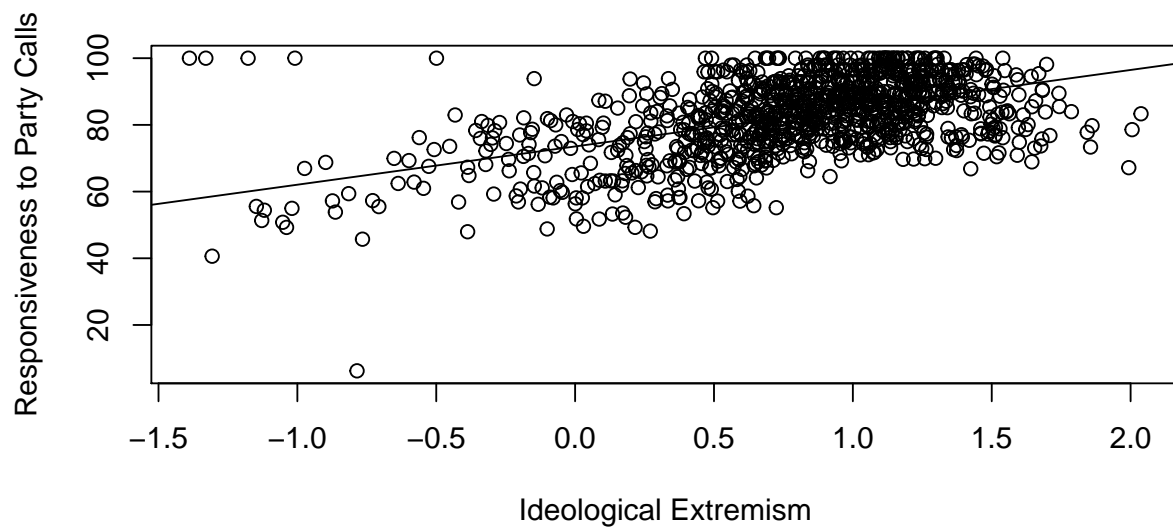
Figure 7: Main DV and IV - Senate Republicans, $p < 0.01$
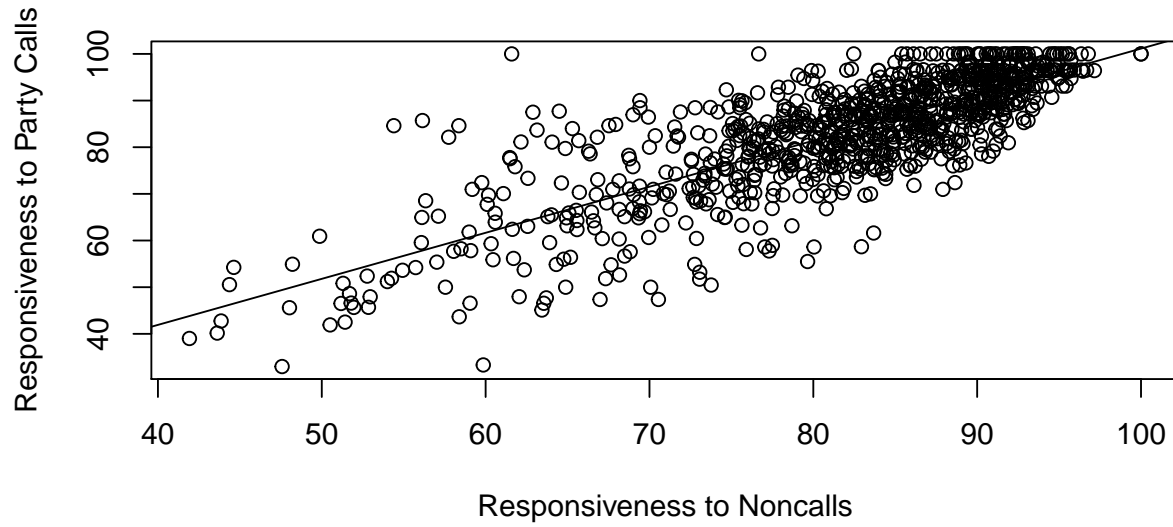
Figure 8: Main DV and Ideological Extremism - Senate Republicans, $p < 0.01$

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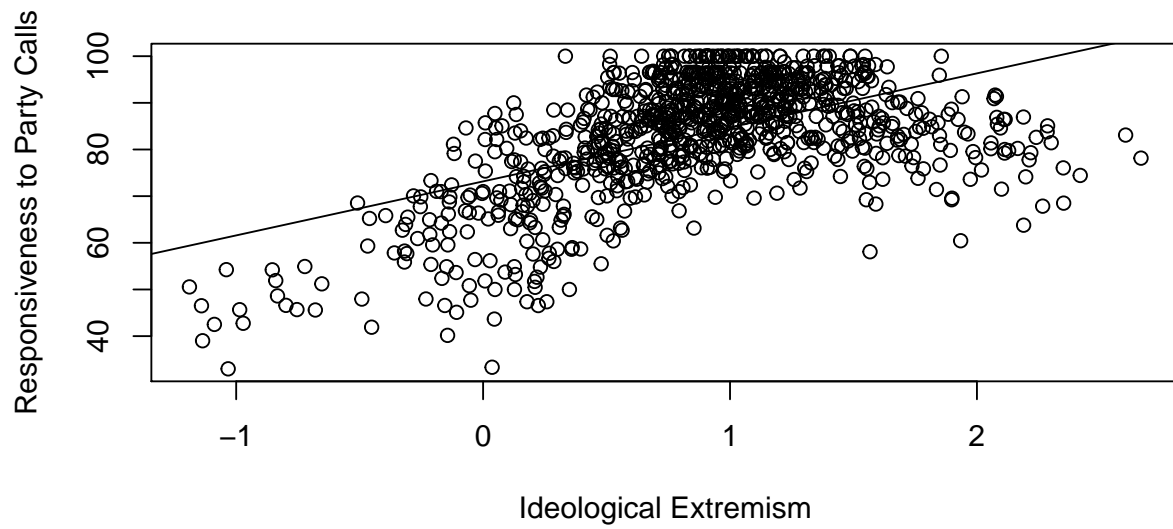Table 12: Senate $p < 0.05$ Algorithm

	Democrats	Democrats	Republicans	Republicans
pfrate100	0.91***		0.93***	
	(0.02)		(0.02)	
ideological_extremism		12.39***		10.64***
		(0.53)		(0.53)
(Intercept)	5.80***	72.66***	5.85**	72.56***
	(1.70)	(0.50)	(1.79)	(0.56)
R^2	0.67	0.35	0.66	0.30
Adj. R^2	0.66	0.35	0.66	0.30
Num. obs.	1039	1039	951	951
RMSE	6.44	8.99	6.85	9.81

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

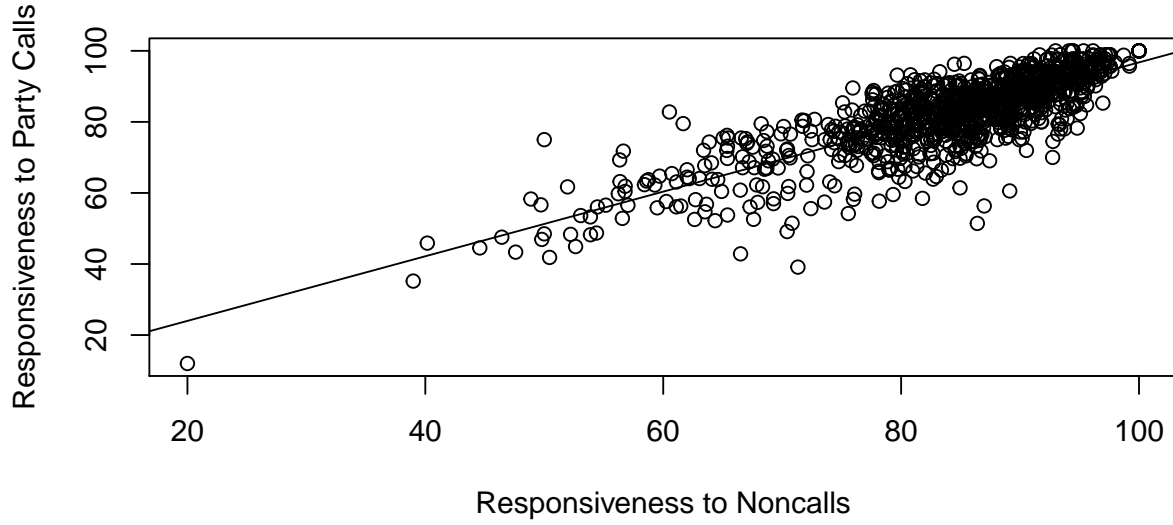Figure 9: Main DV and IV - Senate Democrats, $p < 0.05$

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Figure 10: Main DV and Ideological Extremism - Senate Democrats, $p < 0.05$
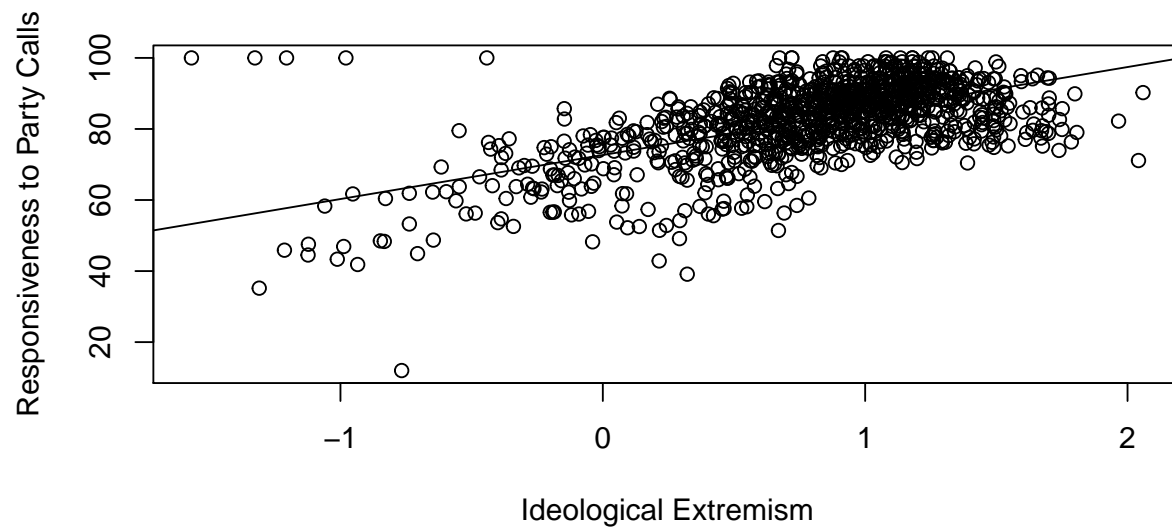

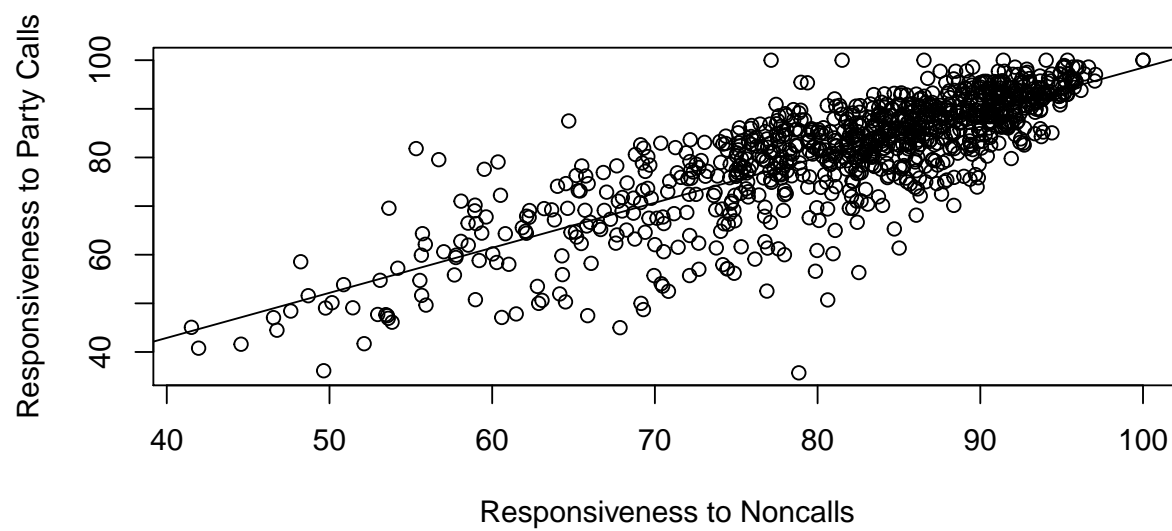
Figure 11: Main DV and IV - Senate Republicans, $p < 0.5$

Figure 12: Main DV and Ideological Extremism - Senate Republicans, $p < 0.05$