

## Testing differences in contribution style on voting behavior

## Linear Probability Model without Fixed Effects

**all votes, without changes**

```
df_no_change_1 <- df_no_change %>% select(-c(state, seniority_114, seniority_115, seniority_116))  
no_change_ols_minus <- lm(all_votes_minus ~ . - all_votes_plus, data = df_no_change_1)  
summary(no_change_ols_minus)
```

Call:

```
lm(formula = all_votes_minus ~ . - all_votes_plus, data = df_no_change_1)
```

Residuals:

Min	1Q	Median	3Q	Max
-0.34085	-0.05971	-0.00743	0.02060	0.99061

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-6.869e-02	1.006e-01	-0.683	0.4958
district	-9.832e-04	1.983e-03	-0.496	0.6210
partyR	3.395e-03	4.304e-02	0.079	0.9373
Contribution_3_minus	-9.066e-07	1.249e-06	-0.726	0.4693
Contribution_3_plus	-1.388e-05	1.086e-05	-1.278	0.2036
Contribution_4_minus	-1.572e-06	1.535e-06	-1.024	0.3076
Contribution_4_plus	-1.868e-05	1.057e-05	-1.767	0.0796
Contribution_51_minus	6.700e-06	3.804e-06	1.761	0.0806
Contribution_51_plus	2.140e-05	1.880e-05	1.138	0.2572

Contribution_52_minus	-7.530e-07	3.337e-06	-0.226	0.8218
Contribution_52_plus	-1.480e-05	1.707e-05	-0.867	0.3878
Contribution_6_minus	1.885e-06	1.428e-06	1.320	0.1893
Contribution_6_plus	-1.408e-06	1.891e-05	-0.074	0.9408
Contribution_7_minus	-1.848e-06	1.230e-06	-1.503	0.1354
Contribution_7_plus	6.761e-06	1.549e-05	0.436	0.6634
GeographicalMW	8.865e-02	1.055e-01	0.840	0.4025
GeographicalNE	6.548e-02	1.076e-01	0.609	0.5439
GeographicalSO	5.521e-02	1.043e-01	0.529	0.5974
GeographicalWE	7.480e-02	1.067e-01	0.701	0.4846

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1924 on 125 degrees of freedom

(388 observations deleted due to missingness)

Multiple R-squared: 0.3053, Adjusted R-squared: 0.2053

F-statistic: 3.052 on 18 and 125 DF, p-value: 0.0001344

## each vote separately

```
# Vote 3 comparison
ols_3_1 <- lm(Vote3_minus ~ . - state - BioID - Vote3_plus - Vote3 - Vote_change_dummy - bir
summary(ols_3_1)
```

Call:

```
lm(formula = Vote3_minus ~ . - state - BioID - Vote3_plus - Vote3 -
    Vote_change_dummy - birthday - seniority_113 - nominate_dim1 -
    nominate_dim2, data = df_vote_3)
```

Residuals:

Min	1Q	Median	3Q	Max
-0.07385	-0.02860	-0.01397	0.00154	0.96310

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-4.817e-03	4.544e-02	-0.106	0.9156
partyR	9.470e-01	1.504e-02	62.982	<2e-16 ***
Contribution_3_minus	5.094e-07	2.513e-07	2.027	0.0434 *
Contribution_3_plus	-2.698e-06	3.117e-06	-0.866	0.3873

GeographicalMW	4.144e-02	4.793e-02	0.865	0.3878
GeographicalNE	1.866e-02	4.819e-02	0.387	0.6988
GeographicalSO	5.623e-02	4.720e-02	1.191	0.2344
GeographicalWE	2.944e-02	4.725e-02	0.623	0.5337

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1193 on 331 degrees of freedom

(20 observations deleted due to missingness)

Multiple R-squared: 0.9441, Adjusted R-squared: 0.9429

F-statistic: 798.8 on 7 and 331 DF, p-value: < 2.2e-16

```
# Vote 4 comparison
```

```
ols_4_1 <- lm(Vote4_minus ~ . - state - BioID - Vote4_plus - Vote4 - Vote_change_dummy - birth - seniority_114 - nominate_dim1 - nominate_dim2, data = df_vote_4)
summary(ols_4_1)
```

Call:

```
lm(formula = Vote4_minus ~ . - state - BioID - Vote4_plus - Vote4 -
    Vote_change_dummy - birth - seniority_114 - nominate_dim1 -
    nominate_dim2, data = df_vote_4)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-0.99109	-0.02125	0.01043	0.01943	0.94195

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	4.340e-03	5.676e-02	0.076	0.939
partyR	9.291e-01	1.746e-02	53.222	<2e-16 ***
Contribution_4_minus	4.097e-07	2.845e-07	1.440	0.151
Contribution_4_plus	-2.605e-06	3.737e-06	-0.697	0.486
GeographicalMW	4.792e-02	5.946e-02	0.806	0.421
GeographicalNE	-2.505e-02	5.944e-02	-0.421	0.674
GeographicalSO	4.654e-02	5.884e-02	0.791	0.429
GeographicalWE	1.547e-02	5.879e-02	0.263	0.793

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1495 on 379 degrees of freedom

(28 observations deleted due to missingness)

Multiple R-squared: 0.9115, Adjusted R-squared: 0.9099

F-statistic: 557.8 on 7 and 379 DF, p-value: < 2.2e-16

```
# Vote 51 comparison
ols_51_1 <- lm(Vote51_minus ~ . - state - BioID - Vote51_plus - Vote51 - Vote_change_dummy -
summary(ols_51_1)
```

Call:

```
lm(formula = Vote51_minus ~ . - state - BioID - Vote51_plus -
    Vote51 - Vote_change_dummy - birthday - seniority_115 - nominate_dim1 -
    nominate_dim2, data = df_vote_51)
```

Residuals:

Min	1Q	Median	3Q	Max
-0.95718	-0.01693	0.02436	0.05679	0.94989

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.189e-03	6.391e-02	0.112	0.9105
partyR	8.905e-01	2.108e-02	42.241	<2e-16 ***
Contribution_51_minus	7.542e-07	3.868e-07	1.950	0.0520 .
Contribution_51_plus	-5.655e-06	3.076e-06	-1.839	0.0668 .
GeographicalMW	7.138e-02	6.754e-02	1.057	0.2912
GeographicalNE	-6.775e-02	6.739e-02	-1.005	0.3154
GeographicalSO	5.942e-02	6.670e-02	0.891	0.3736
GeographicalWE	4.398e-03	6.659e-02	0.066	0.9474
---				

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1802 on 378 degrees of freedom  
(25 observations deleted due to missingness)

Multiple R-squared: 0.8727, Adjusted R-squared: 0.8703

F-statistic: 370.1 on 7 and 378 DF, p-value: < 2.2e-16

```
# Vote 52 comparison
ols_52_1 <- lm(Vote52_minus ~ . - state - BioID - Vote52_plus - Vote52 - Vote_change_dummy -
summary(ols_52_1)
```

Call:

```
lm(formula = Vote52_minus ~ . - state - BioID - Vote52_plus -
```

```
Vote52 - Vote_change_dummy - birthday - seniority_115 - nominate_dim1 -
nominate_dim2, data = df_vote_52)
```

Residuals:

Min	1Q	Median	3Q	Max
-1.00873	-0.03781	0.03722	0.05653	0.93227

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	1.930e-02	7.188e-02	0.269	0.7884
partyR	8.972e-01	2.245e-02	39.968	< 2e-16 ***
Contribution_52_minus	5.412e-07	3.236e-07	1.672	0.0953 .
Contribution_52_plus	-1.048e-05	2.140e-06	-4.899	1.44e-06 ***
GeographicalMW	4.094e-02	7.557e-02	0.542	0.5883
GeographicalNE	-7.648e-02	7.556e-02	-1.012	0.3121
GeographicalSO	3.869e-02	7.459e-02	0.519	0.6043
GeographicalWE	1.673e-02	7.494e-02	0.223	0.8234

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.19 on 372 degrees of freedom

(27 observations deleted due to missingness)

Multiple R-squared: 0.8586, Adjusted R-squared: 0.8559

F-statistic: 322.7 on 7 and 372 DF, p-value: < 2.2e-16

```
# Vote 6 comparison
```

```
ols_6_1 <- lm(Vote6_minus ~ . - state - BioID - Vote6_plus - Vote6 - Vote_change_dummy - bir
summary(ols_6_1)
```

Call:

```
lm(formula = Vote6_minus ~ . - state - BioID - Vote6_plus - Vote6 -
Vote_change_dummy - birthday - seniority_116 - nominate_dim1 -
nominate_dim2, data = df_vote_6)
```

Residuals:

Min	1Q	Median	3Q	Max
-0.96645	-0.02661	0.03873	0.04869	0.96559

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	5.834e-03	5.905e-02	0.099	0.921

partyR	9.273e-01	1.808e-02	51.302	<2e-16 ***
Contribution_6_minus	2.602e-07	2.950e-07	0.882	0.378
Contribution_6_plus	-2.442e-06	7.552e-06	-0.323	0.747
GeographicalMW	1.983e-02	6.160e-02	0.322	0.748
GeographicalNE	-5.925e-02	6.155e-02	-0.963	0.336
GeographicalSO	1.580e-02	6.098e-02	0.259	0.796
GeographicalWE	2.142e-02	6.114e-02	0.350	0.726

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1554 on 380 degrees of freedom

(17 observations deleted due to missingness)

Multiple R-squared: 0.9043, Adjusted R-squared: 0.9025

F-statistic: 512.7 on 7 and 380 DF, p-value: < 2.2e-16

```
# Vote 7 comparison
```

```
ols_7_1 <- lm(Vote7_minus ~ . - state - BioID - Vote7_plus - Vote7 - Vote_change_dummy - birth - seniority_117 - nominate_dim1 - nominate_dim2, data = df_vote_7)
summary(ols_7_1)
```

Call:

```
lm(formula = Vote7_minus ~ . - state - BioID - Vote7_plus - Vote7 -
    Vote_change_dummy - birth - seniority_117 - nominate_dim1 -
    nominate_dim2, data = df_vote_7)
```

Residuals:

Min	1Q	Median	3Q	Max
-0.96418	-0.01129	0.03477	0.03725	0.08467

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	8.631e-03	5.368e-02	0.161	0.872
partyR	9.509e-01	1.581e-02	60.144	<2e-16 ***
Contribution_7_minus	-2.648e-08	2.855e-07	-0.093	0.926
Contribution_7_plus	3.172e-06	6.171e-06	0.514	0.608
GeographicalMW	5.511e-03	5.598e-02	0.098	0.922
GeographicalNE	-4.340e-02	5.592e-02	-0.776	0.438
GeographicalSO	3.227e-03	5.535e-02	0.058	0.954
GeographicalWE	1.372e-03	5.557e-02	0.025	0.980

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1309 on 329 degrees of freedom  
 (15 observations deleted due to missingness)  
 Multiple R-squared: 0.931, Adjusted R-squared: 0.9295  
 F-statistic: 634 on 7 and 329 DF, p-value: < 2.2e-16

## subsample analysis, only those who changed votes

```
df_subsample_1 <- df_subsample %>% select(party, vote_change_to_anti, year, Contribution_3_m
ols_subsample_2 <- lm(vote_change_to_anti ~ . - year, data = df_subsample_1)
summary(ols_subsample_2)
```

Call:

```
lm(formula = vote_change_to_anti ~ . - year, data = df_subsample_1)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-0.5000	-0.3333	0.0000	0.5000	0.6667

Coefficients: (10 not defined because of singularities)

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.275e-01	1.018e+00	0.715	0.502
partyR	1.175e+00	2.122e+01	0.055	0.958
Contribution_3_minus	-4.008e-06	1.081e-04	-0.037	0.972
Contribution_3_plus	-5.570e-04	2.320e-03	-0.240	0.818
Contribution_4_minus	-4.672e-06	7.240e-05	-0.065	0.951
Contribution_4_plus	7.601e-05	2.981e-04	0.255	0.807
Contribution_51_minus	-4.861e-06	1.722e-04	-0.028	0.978
Contribution_51_plus	NA	NA	NA	NA
Contribution_52_minus	NA	NA	NA	NA
Contribution_52_plus	NA	NA	NA	NA
Contribution_6_minus	NA	NA	NA	NA
Contribution_6_plus	NA	NA	NA	NA
Contribution_7_minus	NA	NA	NA	NA
Contribution_7_plus	NA	NA	NA	NA
GeographicalNE	NA	NA	NA	NA
GeographicalSO	NA	NA	NA	NA
GeographicalWE	NA	NA	NA	NA

Residual standard error: 0.6009 on 6 degrees of freedom  
(18 observations deleted due to missingness)  
Multiple R-squared: 0.2176, Adjusted R-squared: -0.5648  
F-statistic: 0.2781 on 6 and 6 DF, p-value: 0.9277