

## 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
-0.34452	-0.05879	-0.00604	0.01942	0.99266

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	1.820e-02	4.552e-02	0.400	0.6899
district	-8.384e-04	1.959e-03	-0.428	0.6694
partyR	7.169e-03	4.232e-02	0.169	0.8658
Contribution_3_minus	-9.390e-07	1.244e-06	-0.755	0.4518
Contribution_3_plus	-1.355e-05	1.081e-05	-1.254	0.2122
Contribution_4_minus	-1.577e-06	1.531e-06	-1.030	0.3048
Contribution_4_plus	-1.918e-05	1.050e-05	-1.827	0.0700
Contribution_51_minus	6.795e-06	3.788e-06	1.794	0.0753
Contribution_51_plus	2.126e-05	1.875e-05	1.134	0.2589

Contribution_52_minus	-8.208e-07	3.325e-06	-0.247	0.8054
Contribution_52_plus	-1.429e-05	1.700e-05	-0.841	0.4021
Contribution_6_minus	1.867e-06	1.423e-06	1.312	0.1919
Contribution_6_plus	-2.198e-06	1.880e-05	-0.117	0.9071
Contribution_7_minus	-1.880e-06	1.225e-06	-1.535	0.1273
Contribution_7_plus	7.027e-06	1.544e-05	0.455	0.6499
GeographicalNE	-2.184e-02	5.626e-02	-0.388	0.6985
GeographicalSO	-3.818e-02	4.518e-02	-0.845	0.3996
GeographicalWE	-1.404e-02	5.161e-02	-0.272	0.7860

---

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

Residual standard error: 0.1918 on 126 degrees of freedom

(386 observations deleted due to missingness)

Multiple R-squared: 0.3038, Adjusted R-squared: 0.2098

F-statistic: 3.234 on 17 and 126 DF, p-value: 7.933e-05

### each vote separately

```
# Vote 3 comparison
ols_3_1 <- lm(Vote3_minus ~ . - state - BioID - Vote3_plus - Vote3 - Vote_change_dummy - birthday - seniority_113 - nominate_dim1 - nominate_dim2, data = df_vote_3)
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
-0.08307	-0.02849	-0.01307	0.00197	0.96453

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	3.508e-02	1.683e-02	2.085	0.0379 *
partyR	9.502e-01	1.480e-02	64.201	<2e-16 ***
Contribution_3_minus	4.863e-07	2.507e-07	1.940	0.0533 .
Contribution_3_plus	-2.572e-06	3.117e-06	-0.825	0.4099
GeographicalNE	-2.213e-02	2.141e-02	-1.034	0.3020

GeographicalSO	1.152e-02	1.791e-02	0.643	0.5205
GeographicalWE	-1.133e-02	1.948e-02	-0.582	0.5611

---

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

Residual standard error: 0.1194 on 332 degrees of freedom

(20 observations deleted due to missingness)

Multiple R-squared: 0.9439, Adjusted R-squared: 0.9429

F-statistic: 930.5 on 6 and 332 DF, p-value: < 2.2e-16

```
# Vote 4 comparison
```

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

Call:

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

Residuals:

	Min	1Q	Median	3Q	Max
	-0.98909	-0.02161	0.01124	0.02036	0.94581

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	5.108e-02	1.986e-02	2.572	0.01048 *
partyR	9.315e-01	1.720e-02	54.159	< 2e-16 ***
Contribution_4_minus	4.019e-07	2.842e-07	1.414	0.15816
Contribution_4_plus	-2.701e-06	3.733e-06	-0.724	0.46977
GeographicalNE	-7.245e-02	2.462e-02	-2.943	0.00345 **
GeographicalSO	-3.915e-03	2.097e-02	-0.187	0.85198
GeographicalWE	-3.188e-02	2.319e-02	-1.374	0.17012

---

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

Residual standard error: 0.1494 on 380 degrees of freedom

(28 observations deleted due to missingness)

Multiple R-squared: 0.9114, Adjusted R-squared: 0.91

F-statistic: 651.3 on 6 and 380 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
	-0.95446	-0.01809	0.02543	0.05785	0.95182

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.679e-02	2.376e-02	3.232	0.00134 **
partyR	8.936e-01	2.078e-02	43.012	< 2e-16 ***
Contribution_51_minus	7.455e-07	3.866e-07	1.928	0.05456 .
Contribution_51_plus	-5.654e-06	3.075e-06	-1.839	0.06673 .
GeographicalNE	-1.384e-01	2.942e-02	-4.704	3.59e-06 ***
GeographicalSO	-1.564e-02	2.540e-02	-0.616	0.53846
GeographicalWE	-6.622e-02	2.777e-02	-2.385	0.01758 *

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

Residual standard error: 0.1802 on 379 degrees of freedom

(25 observations deleted due to missingness)

Multiple R-squared: 0.8724, Adjusted R-squared: 0.8704

F-statistic: 431.9 on 6 and 379 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
	-1.00960	-0.03810	0.03824	0.05694	0.93527

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	5.913e-02	2.508e-02	2.357	0.018926 *
partyR	8.988e-01	2.221e-02	40.464	< 2e-16 ***
Contribution_52_minus	5.452e-07	3.232e-07	1.687	0.092455 .
Contribution_52_plus	-1.050e-05	2.138e-06	-4.910	1.36e-06 ***
GeographicalNE	-1.169e-01	3.171e-02	-3.685	0.000262 ***
GeographicalSO	-4.208e-03	2.635e-02	-0.160	0.873225
GeographicalWE	-2.377e-02	2.972e-02	-0.800	0.424249

---

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

Residual standard error: 0.1898 on 373 degrees of freedom

(25 observations deleted due to missingness)

Multiple R-squared: 0.8585, Adjusted R-squared: 0.8562

F-statistic: 377.2 on 6 and 373 DF, p-value: < 2.2e-16

```
# Vote 6 comparison
```

```
ols_6_1 <- lm(Vote6_minus ~ . - state - BioID - Vote6_plus - Vote6 - Vote_change_dummy - birthday - seniority_116 - nominate_dim1 - nominate_dim2, data = df_vote_6)
```

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
	-0.96664	-0.02620	0.03885	0.04917	0.96582

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	2.531e-02	1.968e-02	1.286	0.199
partyR	9.280e-01	1.783e-02	52.035	<2e-16 ***
Contribution_6_minus	2.566e-07	2.943e-07	0.872	0.384
Contribution_6_plus	-2.424e-06	7.543e-06	-0.321	0.748
GeographicalNE	-7.885e-02	2.534e-02	-3.112	0.002 **

GeographicalSO	-4.850e-03	2.127e-02	-0.228	0.820
GeographicalWE	1.808e-03	2.428e-02	0.074	0.941

---

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

Residual standard error: 0.1552 on 381 degrees of freedom

(15 observations deleted due to missingness)

Multiple R-squared: 0.9042, Adjusted R-squared: 0.9027

F-statistic: 599.6 on 6 and 381 DF, p-value: < 2.2e-16

```
# Vote 7 comparison
```

```
ols_7_1 <- lm(Vote7_minus ~ . - state - BioID - Vote7_plus - Vote7 - Vote_change_dummy - bir
summary(ols_7_1)
```

Call:

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

Residuals:

	Min	1Q	Median	3Q	Max
	-0.96421	-0.01143	0.03479	0.03735	0.08459

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	1.408e-02	1.779e-02	0.791	0.4293
partyR	9.510e-01	1.565e-02	60.766	<2e-16 ***
Contribution_7_minus	-2.710e-08	2.849e-07	-0.095	0.9243
Contribution_7_plus	3.183e-06	6.158e-06	0.517	0.6055
GeographicalNE	-4.887e-02	2.264e-02	-2.159	0.0316 *
GeographicalSO	-2.450e-03	1.936e-02	-0.127	0.8994
GeographicalWE	-4.099e-03	2.184e-02	-0.188	0.8512

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

Residual standard error: 0.1307 on 330 degrees of freedom

(13 observations deleted due to missingness)

Multiple R-squared: 0.931, Adjusted R-squared: 0.9297

F-statistic: 741.9 on 6 and 330 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