Conquering the Land

Electoral Coalitions and Spatial Patterns of Vote in Brazilian Municipal Elections

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FGV-EESP

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Introduction

Basics

- Under Brazilian electoral legislation, political parties are allowed to form electoral coalitions within the same constituency.
- Electoral coalitions:
  1. have the prerogatives and obligations of a political party with regard to the electoral process; and
  2. must function as a single party before Electoral Justice and in the treatment of inter-party interests.
- Mayoral Electoral Coalitions are a recurrent phenomena in Brazilian local elections. Stats
  - They continue to exist even after the 2017 ban of coalition in proportional elections.
  - In 2020, 64% of mayoral candidacies across 98% of the municipalities.

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    - Literature's *blind spot*.

Reasoning

As shown in works such as Cox (1990); Myerson (1993); Ames (1995b); Latner and McGann (2005):

1. Mayoral Elections - Plurality rule in single-member districts incentives spatial vote dispersion:
    - Centripetal forces;
    - Small slices of the electorate may not ensure victory.
2. Council Elections - PR rule in multimember districts incentives spatial vote concentration:
    - Centrifugal forces;
    - Small slices of the electorate may ensure victory;
    - Cultivation of minorities: formation of *redutos*.

Reasoning

- Lopez (2004) and Nichter (2018) show that City Council candidates are typically closer to voters, and often secure their “redutos” with long-term clientelistic relationships .

Takeaway

Council candidates can be useful local brokers for the mayor candidate’s electoral interests (Frey, 2022).

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Takeaway

Council candidates can be useful local brokers for the mayor candidate’s electoral interests (Frey, 2022).

- But where do mayoral electoral coalitions fit?

Main Idea

- I propose to view mayoral electoral coalition as a *coordination device* between mayoral candidates and their potential local brokers, i.e. council candidates.
    - **A voter mobilization strategy.**

Hypotheses

Hypothesis I - ”Spatial Dependence”

Mayoral and council candidates’ spatial patterns of vote distribution become more positively dependent when their parties are allied in a mayoral electoral coalition.

Hypothesis II - ”Brokerage”

Council candidates act as local brokers for the mayoral candidate in their mayoral electoral coalition, causally impacting her spatial pattern of vote distribution.

Literature Review and Contribution

- Electoral Coalitions: Soares (1964); Limongi (2007); Limongi and Vasselai (2018); Machado (2018); Mizuca (2007); Silva (2022); Griebeler and Resende (2021)
- Spatial analysis of elections: Ames (1995a,b); Avelino et al. (2011, 2016); Silva and Davidian (2013); Silva and Silotto (2018); Guarnieri and da Silva (2022)
- Electoral strategies under alternative voting rules: Cox (1990); Myerson (1993); Dow (2001); Latner and McGann (2005); Samuels (1999)
- Coattail effects and Political Brokerage: Ferejohn and Calvert (1984); Ames (1994); Samuels (2000); Magar (2012); Rudolph and Leininger (2021); Gingerich and Medina (2013); Frey (2022)

Spatial Patterns of Vote

Spatial Vote Concentration at Polling Station

- All electoral data for 2020 Municipal Elections from TSE;
- To evaluate candidates' spatial vote concentration *at polling station level*, I propose an index in the spirit of Silva and Davidian (2013):

$$S_{ilm} := \frac{V_{ilm}}{V_{im}} - \frac{V_{lm}}{V_m} \tag{1}$$

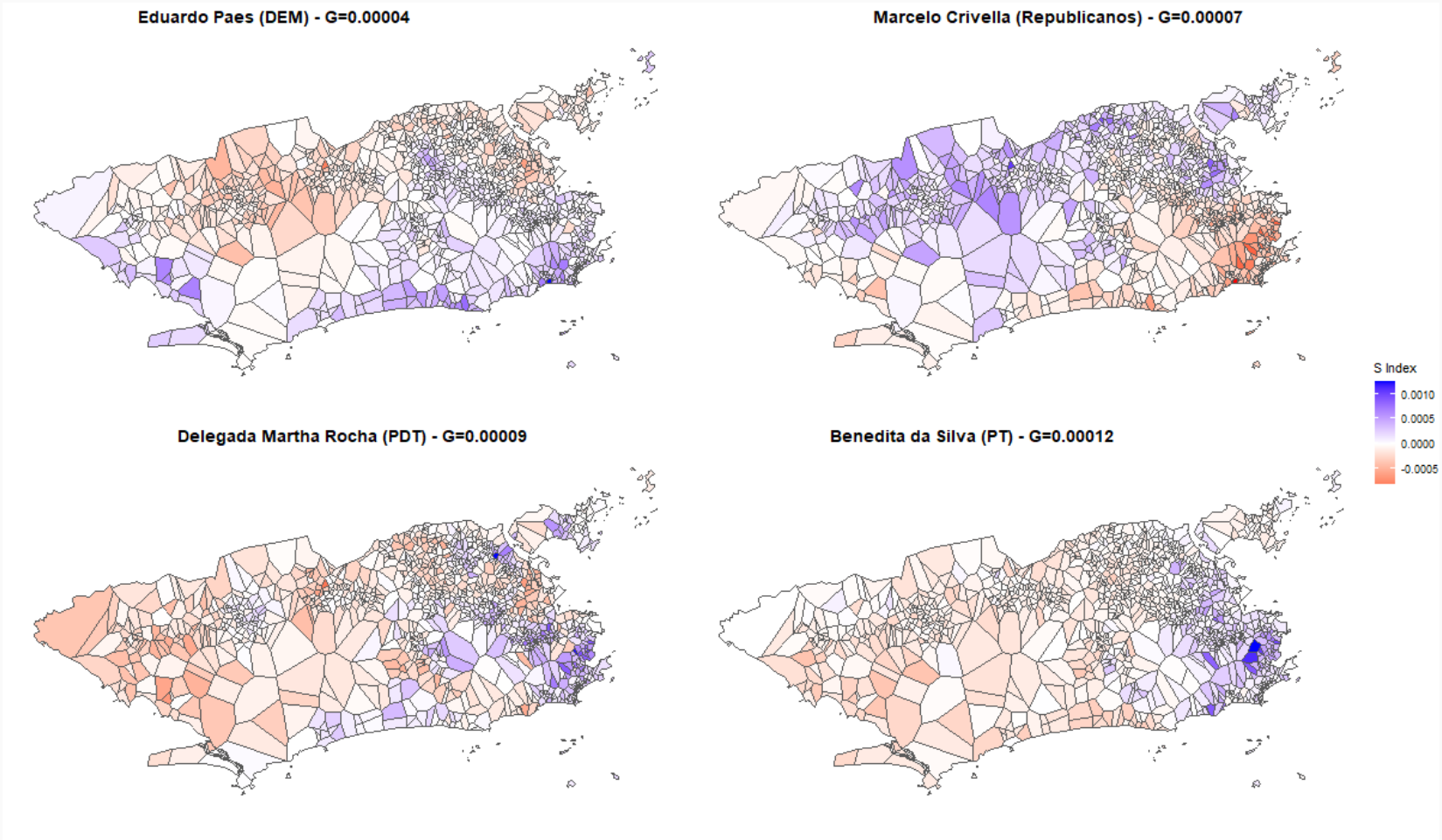
where:

- V_{lm} := turnout at **polling station** l in **municipality** m;
- $V_m := \sum_l V_{lm}$, turnout at **municipality** m;
- V_{ilm} := **candidate** i's votes at **polling station** l in **municipality** m;
- $V_{im} := \sum_l V_{ilm}$, **candidate** i's votes at **municipality** m.

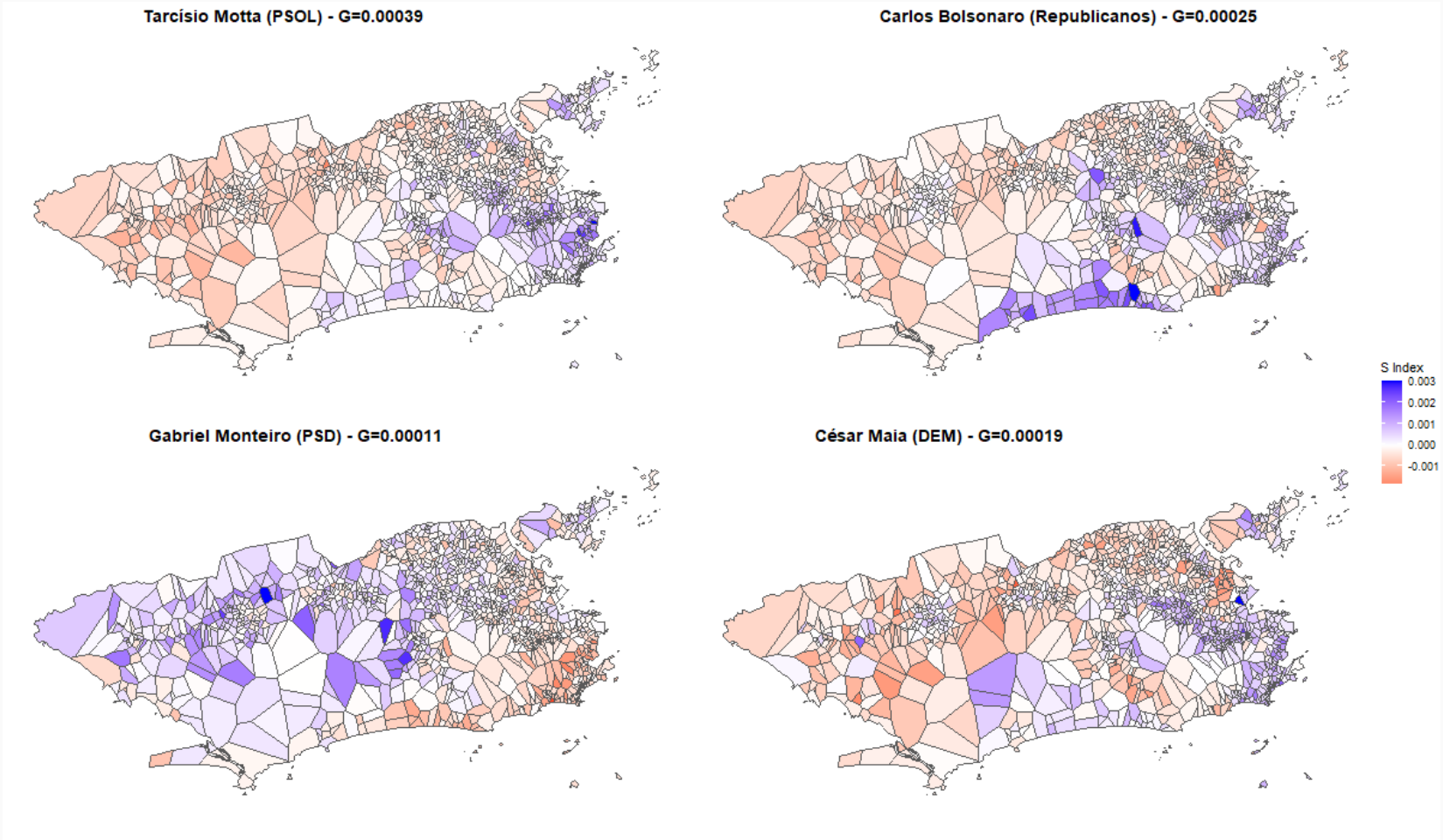
- **Intuition**: The index compares candidate i's actual vote proportion at polling station l to an "expected" vote proportion.

Polling Stations Info | Effective Candidates Definition | Alternative Measures

Visual Example - Rio de Janeiro (Mayoral Candidates)



Visual Example - Rio de Janeiro (City Council Candidates)



Some Empirical Facts

1. **Council candidates' votes are more concentrated than Mayoral candidates'.** Plot

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1. **Council candidates' votes are more concentrated than Mayoral candidates'.** Plot
2. **Higher ranked Mayoral candidates' votes are less concentrated.** Plot
3. **Higher ranked City Council candidates' votes are less concentrated, but still more than higher ranked Mayoral candidates.** Plot

Spatial Dependence Hypothesis

Measuring Candidates' Spatial Voting Dependence

- To measure the pairwise mayoral and council candidates' spatial voting dependence, I adapt Ellison et al. (2010)'s EG Index.
- Let *i* be a mayoral candidate and *j*, a council candidate in municipality *m*. Then:

$$SVD_{ijm} := 100 * \frac{\sum_l S_{ilm} * S_{jlm}}{1 - \sum_l (\frac{V_{lm}}{V_m})^2} \tag{2}$$

- **Intuition**: Re-scaled covariance to eliminate sensitivity to the fineness of the geographic breakdown - ↑ *# Effective Polling Stations* $\Rightarrow 1 - \sum_l (\frac{V_{lm}}{V_m})^2$ closer to 1.

Alternative Measure | Descriptive Summary | Pairs' Distribution (All) | Pairs' Distribution (Sample)

Testing Spatial Dependence Hypothesis

- My baseline fixed effects specification follows Ellison et al. (2010); Steijn et al. (2022):

$$SVD_{ijms} = \beta Allied_{ijms} + \mu_{ims} + \gamma_{jms} + \omega_{ijs} + \epsilon_{ijms} \tag{3}$$

  where μ_{ims} and γ_{jms} are individual candidates' fixed-effects, and ω_{ijs} is i and j's pair of parties fixed-effect in state s.

- As candidates from the same party are always allied, the estimation considers only council candidates from parties that do not launch a mayoral candidate in the municipality.

- Main endogeneity concern: **omitted confounders**, in particular the *natural Spatial Dependence* between i and j parties in municipality m.

Electoral Coalitions and Spatial Dependence

Dependent Variable:	SVD Index			
	OLS		FE	
Model:	(1)	(2)	(3)	(4)
Variables				
Allied	0.0759***	0.0974***	0.1346***	0.1444***
	(0.0051)	(0.0062)	(0.0066)	(0.0073)
Fixed-effects				
Party Pair & State		Yes		Yes
Mayoral Cand. i			Yes	Yes
City Council Cand. j			Yes	Yes
Fit statistics				
Observations	1,424,901	1,424,901	1,424,901	1,424,901

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Party Level | Effective Candidates | Same-Party Baseline | IV Analysis | IV Robustness

Locational Correlation | Donations | Heterogeneity | Placebo

Brokerage Hypothesis

Testing Brokerage Hypothesis

- Considering only mayoral candidates supported by a mayoral electoral coalition, I follow a fixed effects specification:

$$S_{ilm} = \beta S_{ilm}^{Coalition} + \alpha_{lm} + \epsilon_{ilm} \tag{4}$$

  where S is the measure of local vote concentration and α_{lm} is the polling place fixed-effect.

- β captures the *net effect* of a marginal change in $S_{ilm}^{Coalition}$ on S_{ilm}.
- Main endogeneity concerns: omitted confounders and **reverse causality**.
  - **IV analysis**: '*Friends-and-Neighbors*" Instrument (Meredith, 2013); i.e. the number of allied council candidates voting at the polling station.

Allied Council Candidates as Local Brokers

Dependent Variables:	M Cand. S		M Cand. HC		M Cand. LQ	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Allied CC Cand. S	0.1477***	0.1495***				
	(0.0077)	(0.0107)				
Allied CC Cand. HC			0.2682***	0.4816***		
			(0.0319)	(0.0218)		
Allied CC Cand. LQ					0.0903***	0.1387***
					(0.0220)	(0.0075)
Fixed-effects						
Polling Place	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	247,792	247,792	247,792	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

First-Stage | Same-Party Baseline | Normalized Variables | Inverse Direction | Heterogeneity | Placebo | Coattail Effects Analysis | Controlling for Mayor's PS

Conclusion

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- Mayoral Electoral Coalitions can be understood as a **voter mobilization strategy**.
  - Gains from candidates' coordination.

- Proposed methodology provides a **new approach** to assess the effects of these alliances on candidates' **spatial patterns of vote**:
  1. Mayoral and council candidates' spatial patterns of vote become more positively dependent when their parties are allied in a mayoral electoral coalition;
  2. Council candidates causally drive part of their supported mayoral candidate's spatial patterns of vote.

- Allied council candidates act as **local brokers** for the mayoral candidates' electoral interests.

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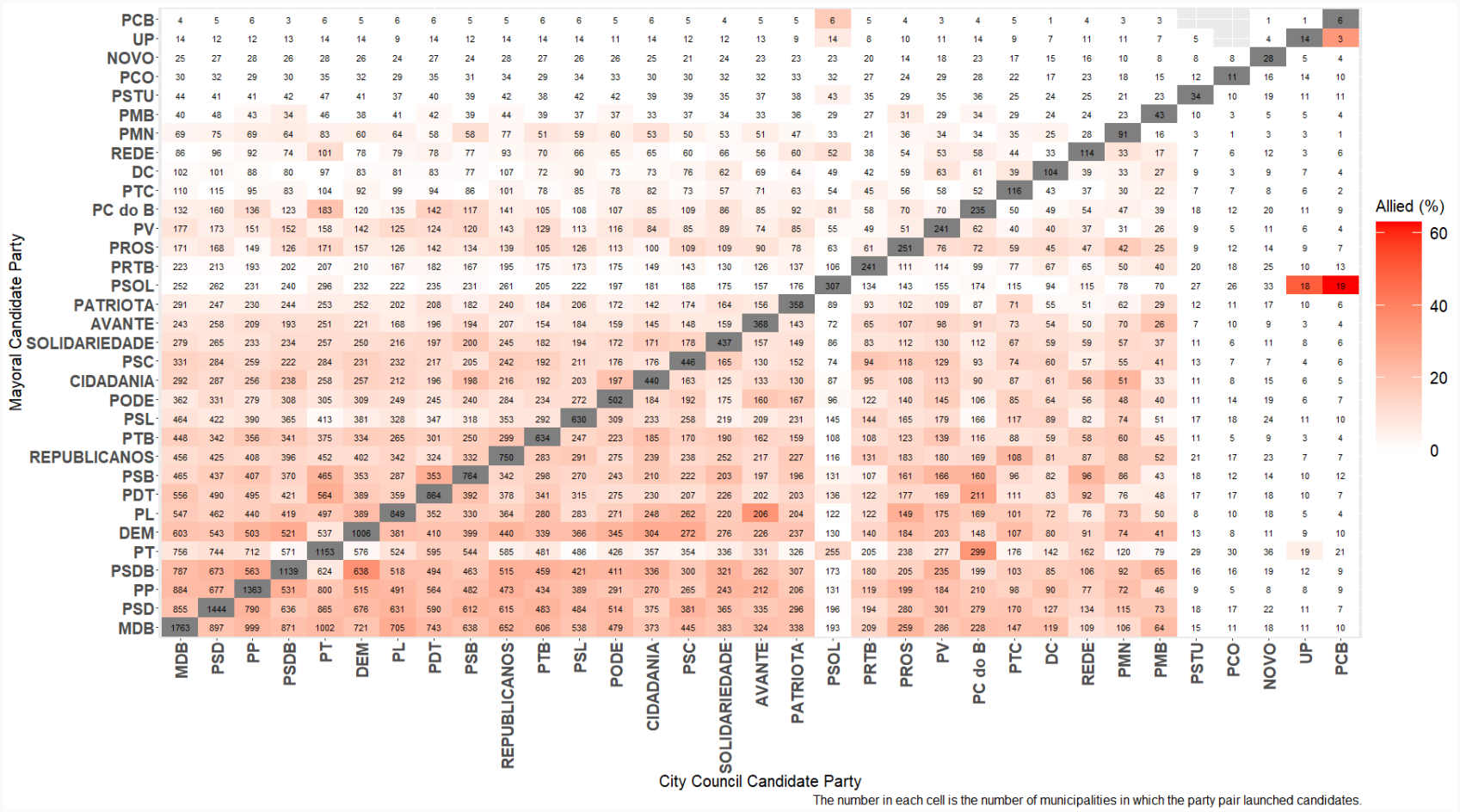
Appendix

Mayoral Coalitions in Brazilian Municipality Elections

Year	# Candidacies	Mean Candidacies by Municipality	% Candidacies with Coalition	% Municipalities with Coalition	Mean Allied Parties in Coalition
2000	15041	2.71	73.61	97.16	2.58
2004	15994	2.88	79.74	99.28	3.25
2008	15361	2.76	83.53	99.75	3.82
2012	15419	2.77	85.20	99.80	4.52
2016	16354	2.94	83.80	99.86	4.81
2020	18979	3.41	64.30	97.57	2.42

◂ Return

2020 Elections' Mayoral Coalitions



◂ Return

Building Blocks

# Pooling Stations	
Mean	17
Median	8
Max	2062

# Pooling Stations	N
1	213
2	489
3	416
4	413
5	364
6	364
7	301
8	255
9	224
10	205
11	162
12	164
13	154
14	130
15+	1715

◂ Return

Building Blocks

The number of effective candidates in a municipality m follows the classic definition of Laakso and Taagepera (1979):

$$EfCand_m = \frac{1}{\sum_i V_{im}^2} \tag{5}$$

Effective Candidate - Definition
A candidate i is an effective candidates when:

$$rank_m(i) \leq \lceil EfCand_m \rceil \tag{6}$$

where $rank_m(i) := \#\{s | V_{im} < V_{sm}\} + 1$.

◂ Return

Measuring Agglomeration at Candidate Level

- Horizontal Clustering:

$$\mathcal{HC}_{ilm} := V_{ilm} - V_{im} * \frac{V_{lm}}{V_m} \tag{7}$$

- Location Quotient:

$$\mathcal{LQ}_{ilm} := \frac{V_{ilm}}{V_{im}} / \frac{V_{lm}}{V_m} \tag{8}$$

- S^{Max}:

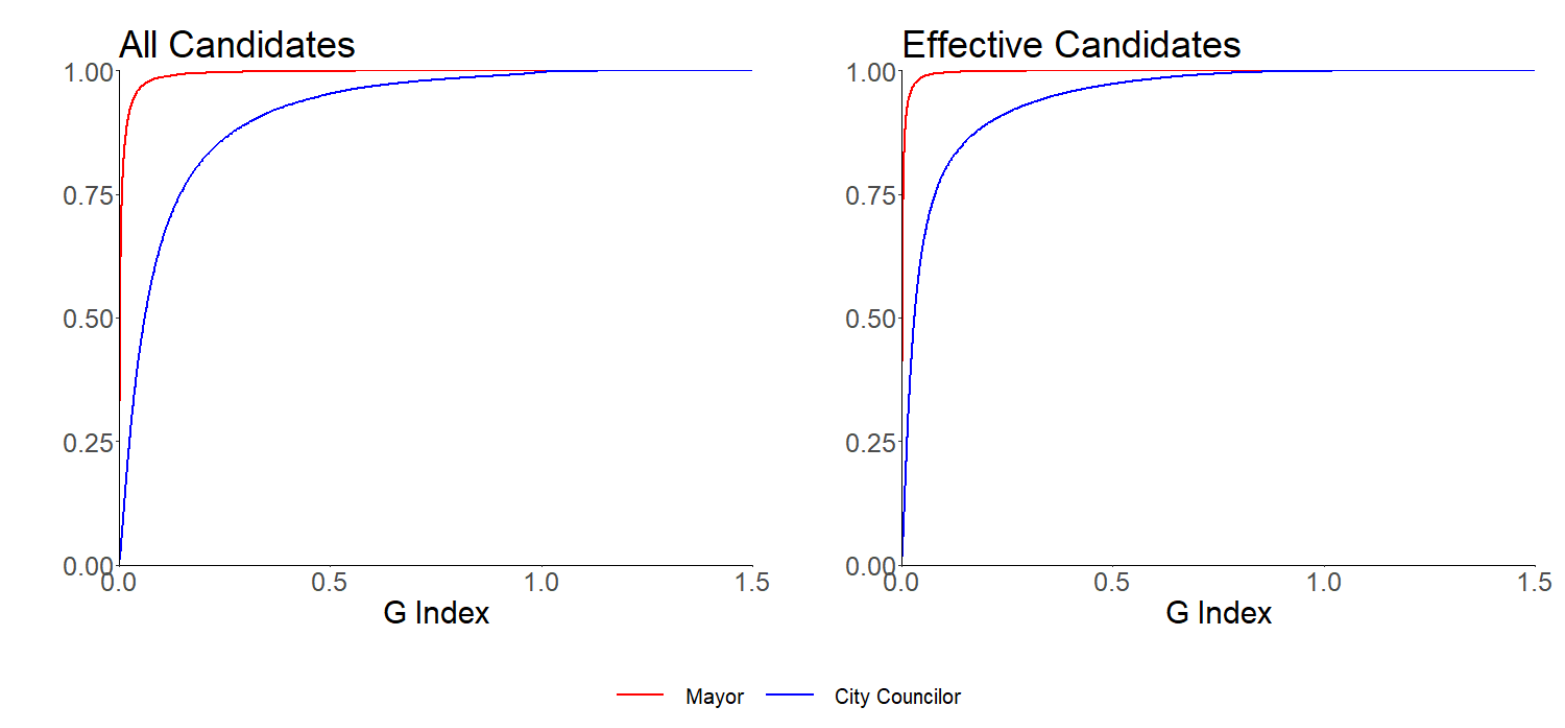
$$S_{im}^{Max} := \max_{l}\{S_{ilm}\} \tag{9}$$

- C Index:

$$C_{im} := \frac{\sum_l (\frac{V_{ilm}}{V_{im}})^2}{\sum_l (\frac{V_{lm}}{V_m})^2} \tag{10}$$

Placebo

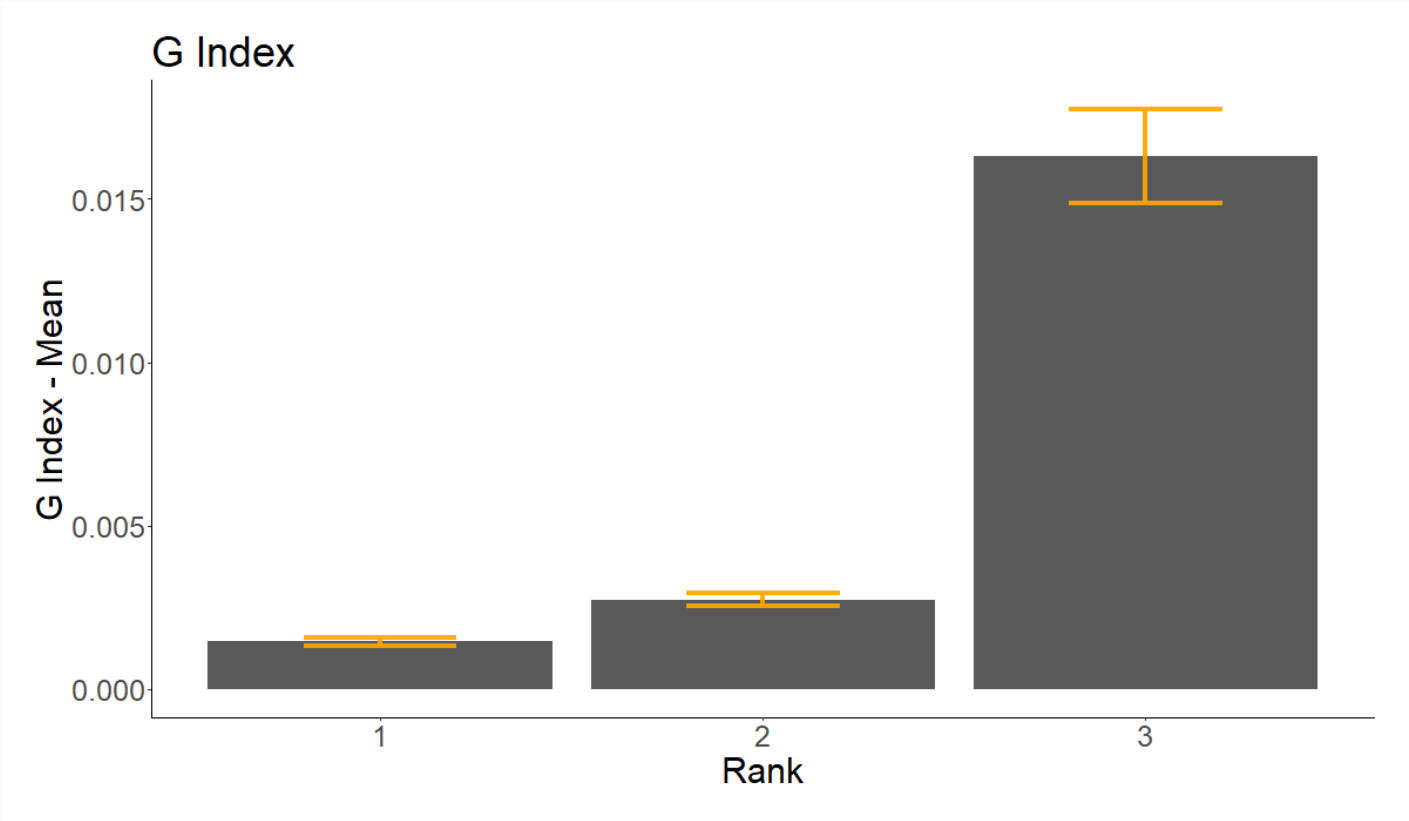
Mayoral X City Council Candidates Agglomeration



Empirical CDF - G Index

S^{Max} C Index Return

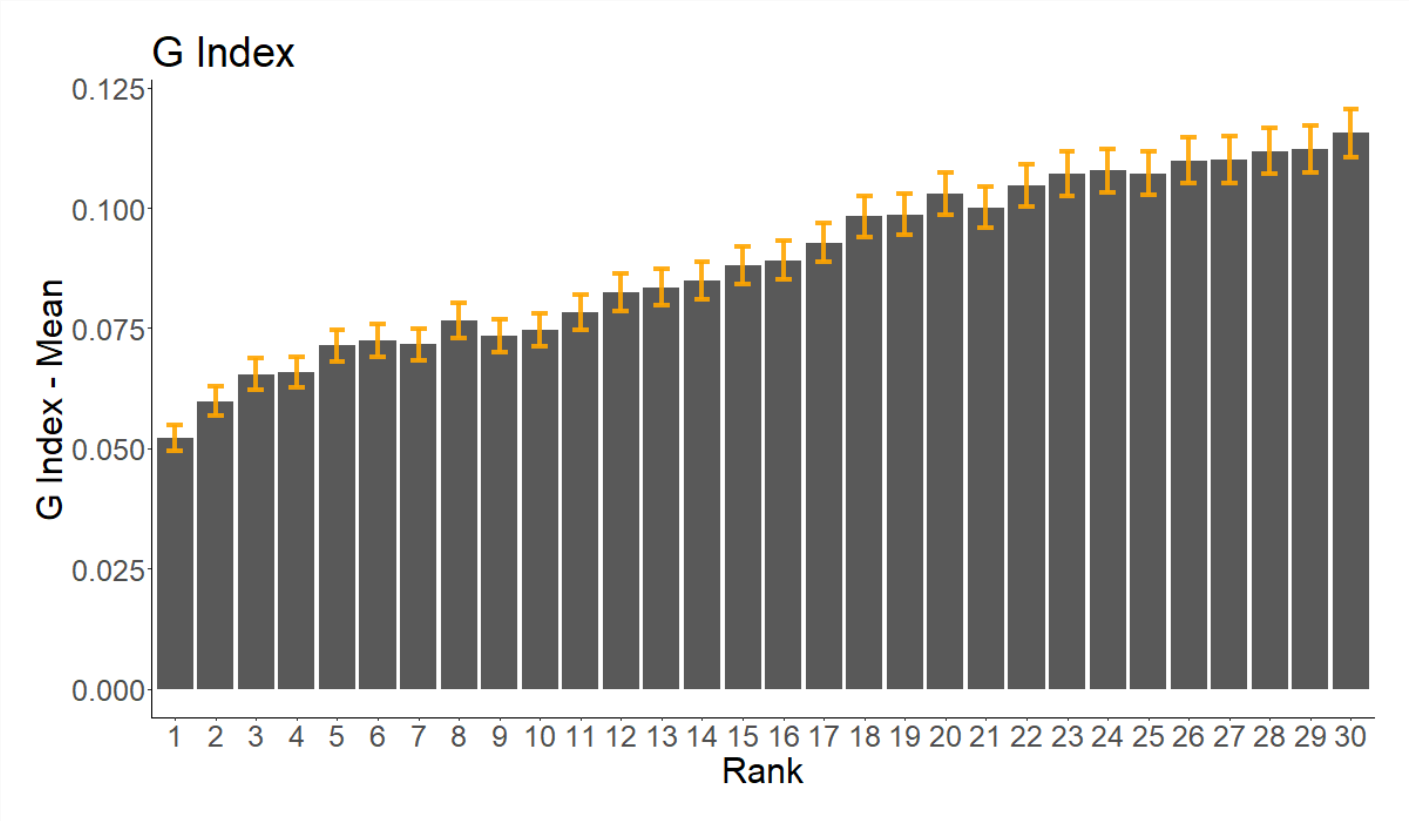
Higher ranked Mayoral Candidates Agglomeration



Mean Agglomeration by Voting Rank

R3 - S^{Max}/C Index | R2 - G Index | R2 - S^{Max}/C Index | Return

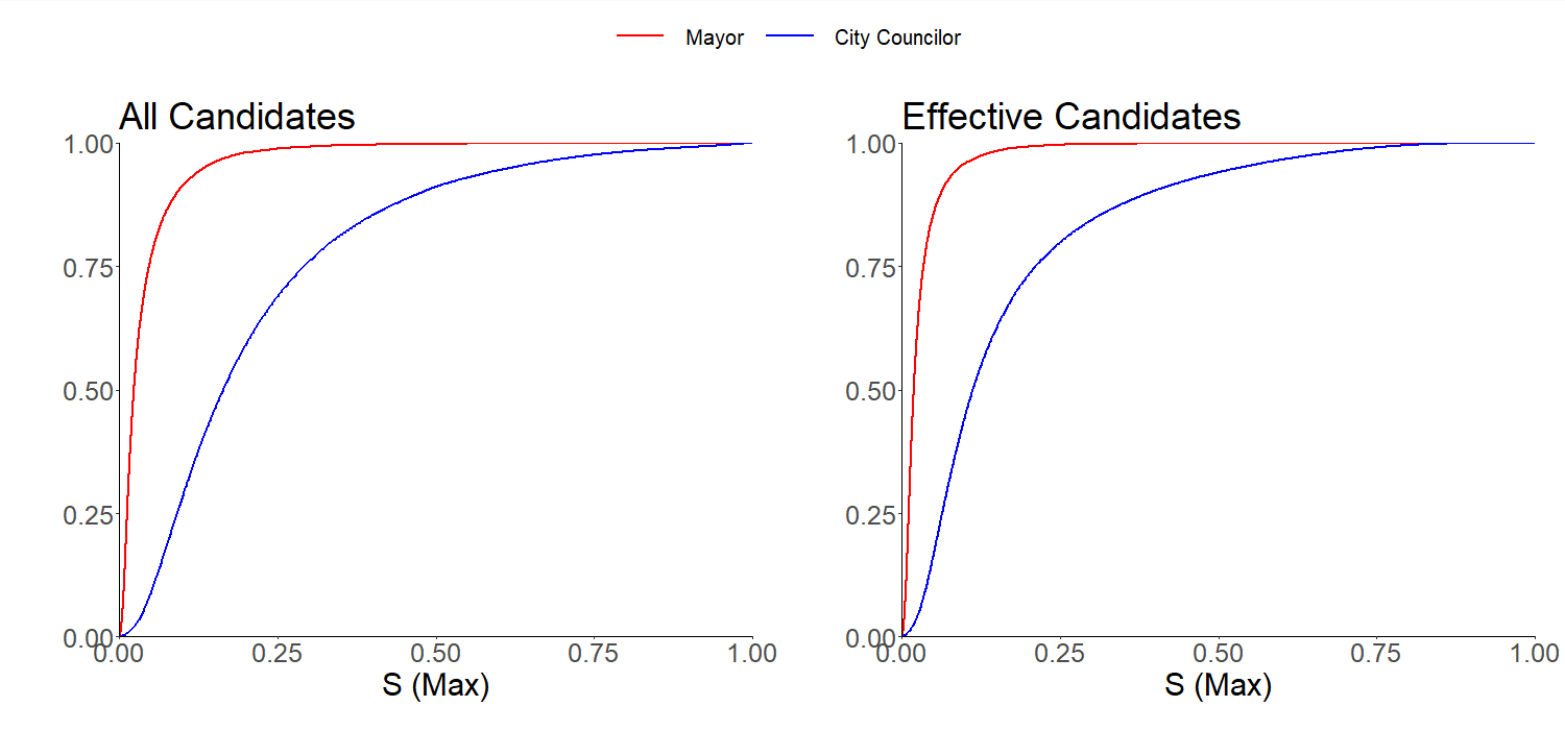
Higher ranked City Council Candidates Agglomeration



Mean Agglomeration by Voting Rank

R30 - S^{Max}/C Index Return

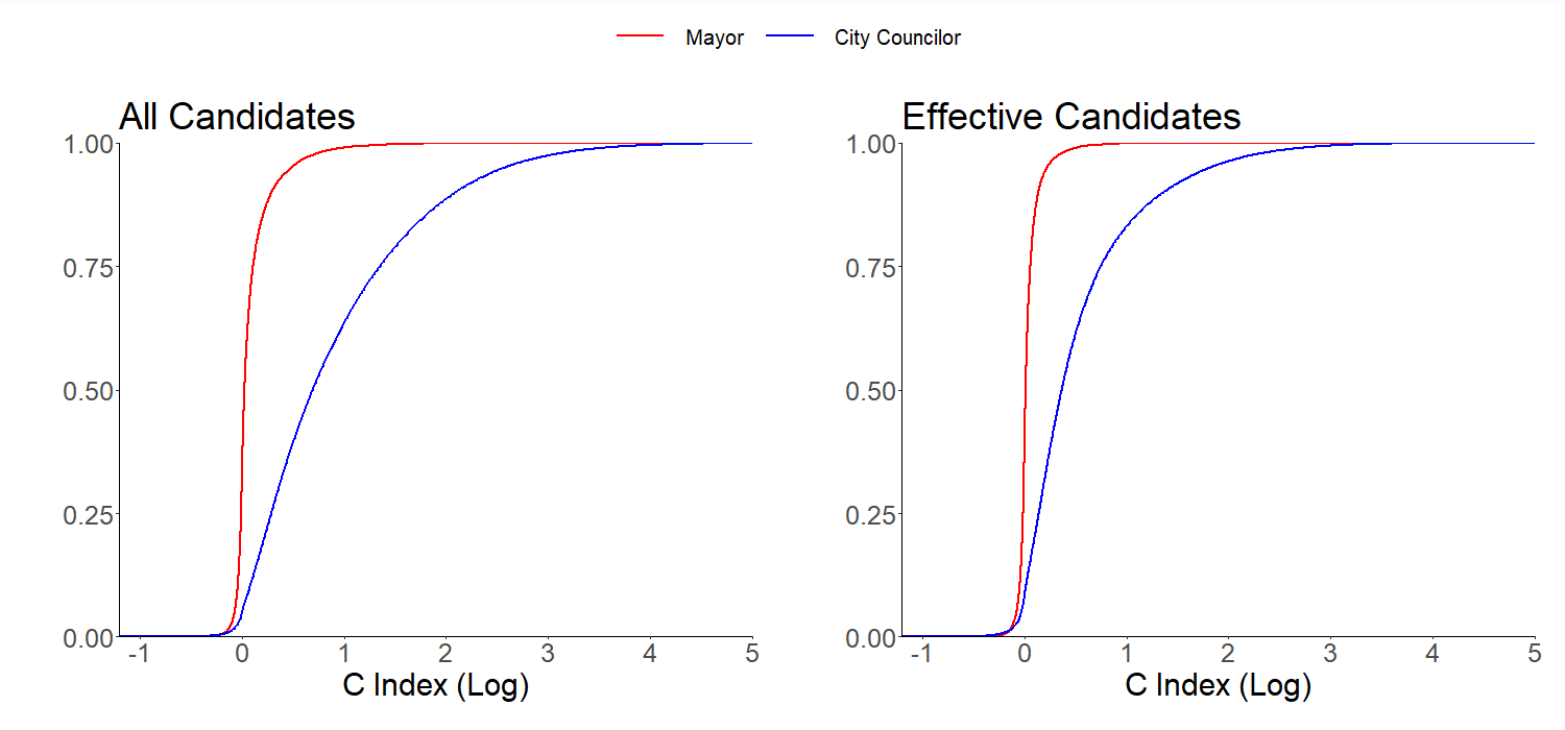
Mayoral X City Council Candidates Agglomeration



Empirical CDF - Max S

◂ Return

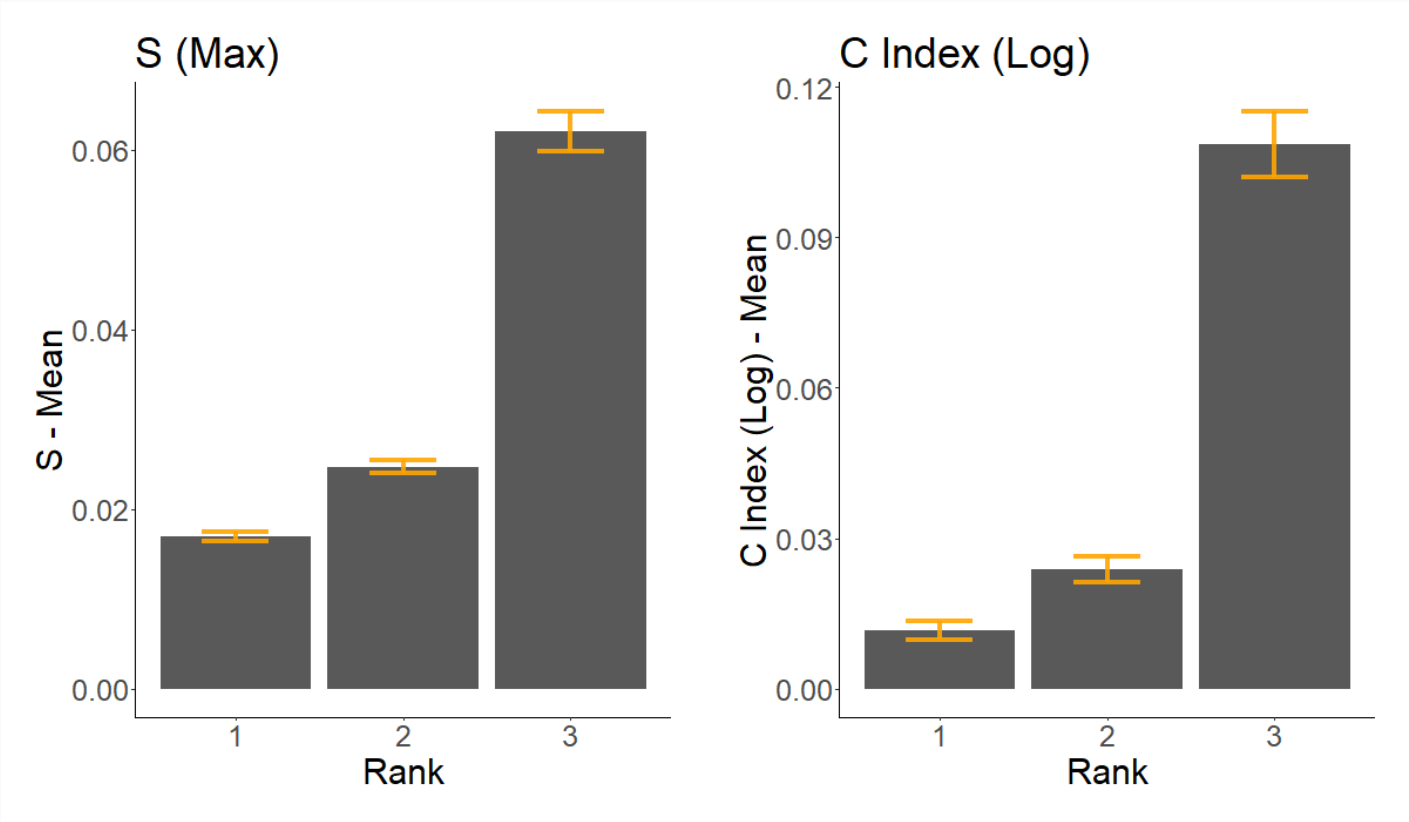
Mayoral X City Council Candidates Agglomeration



Empirical CDF - C Index

◂ Return

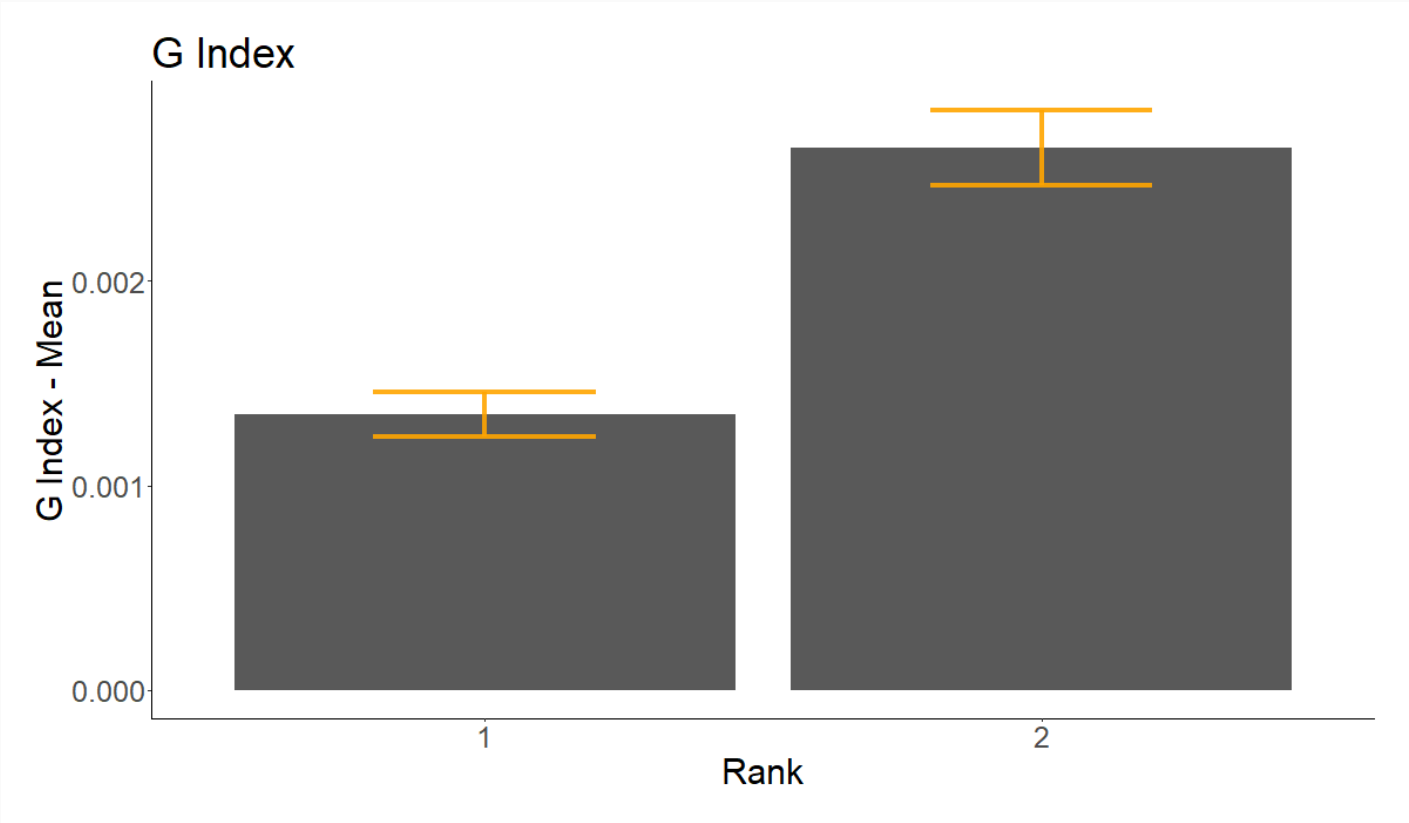
Higher ranked Mayoral Candidates Agglomeration



Mean Agglomeration by Voting Rank

◂ Return

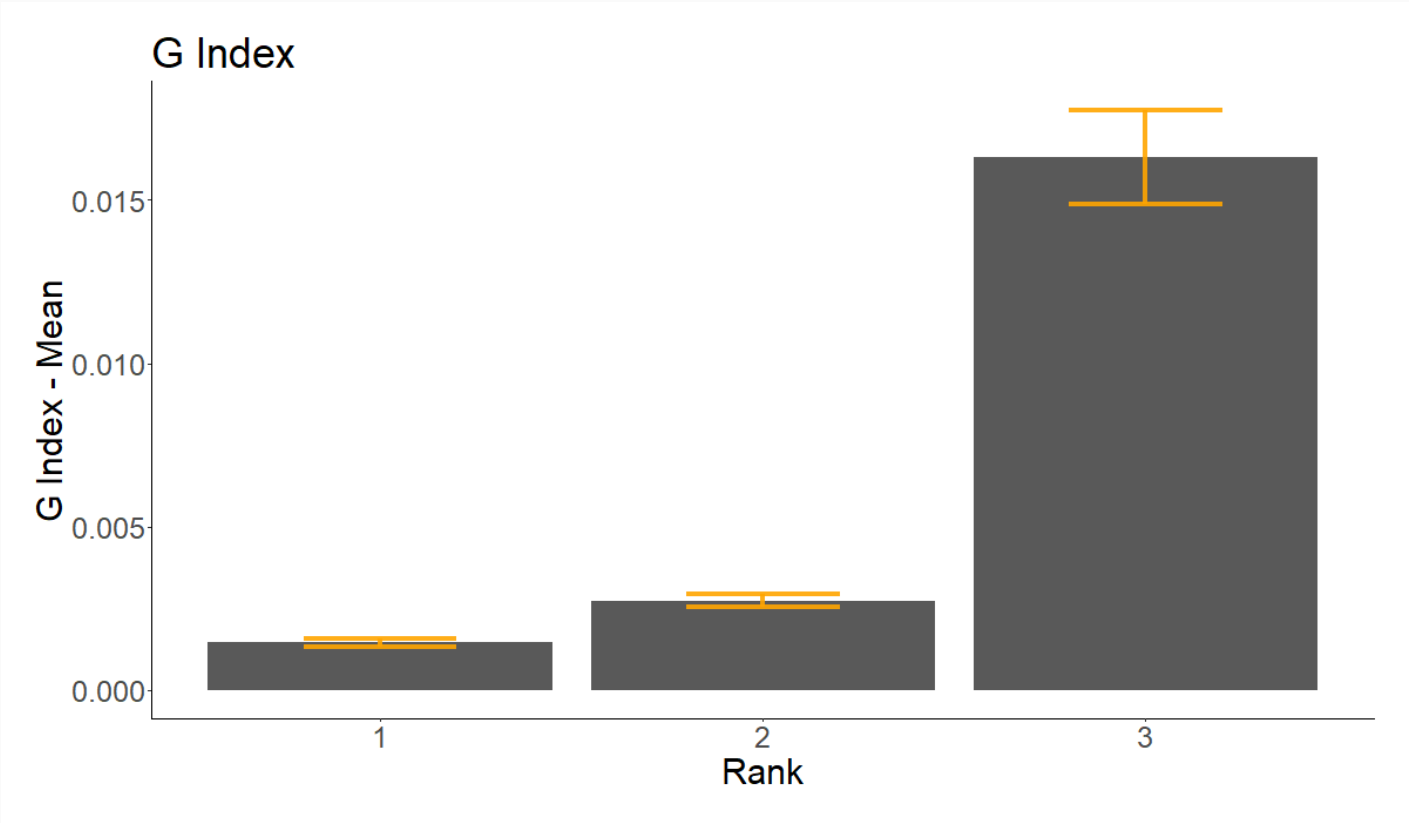
Higher ranked Mayoral Candidates Agglomeration



Mean Agglomeration by Voting Rank

◂ Return

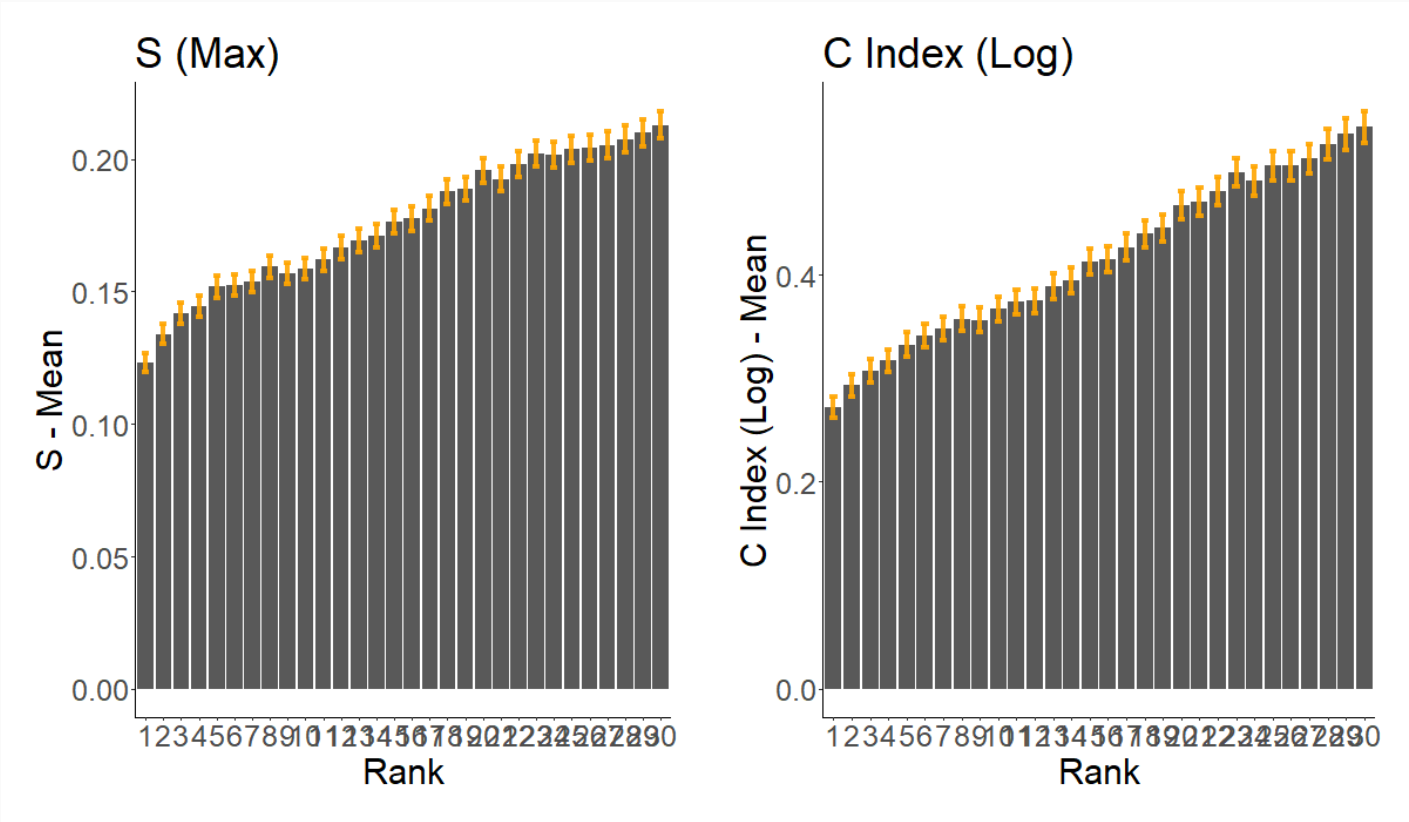
Higher ranked Mayoral Candidates Agglomeration



Mean Agglomeration by Voting Rank

◂ Return

Higher ranked City Council Candidates Agglomeration



Mean Agglomeration by Voting Rank

◂ Return

Measuring Mayoral and City Council Candidates' Spatial Dependence

- Adjusted Locational Correlation:

$$Corr^{L}_{ijm} := 100 * \frac{1 + corr(S_{ilm}, S_{jlm})}{2} \tag{11}$$

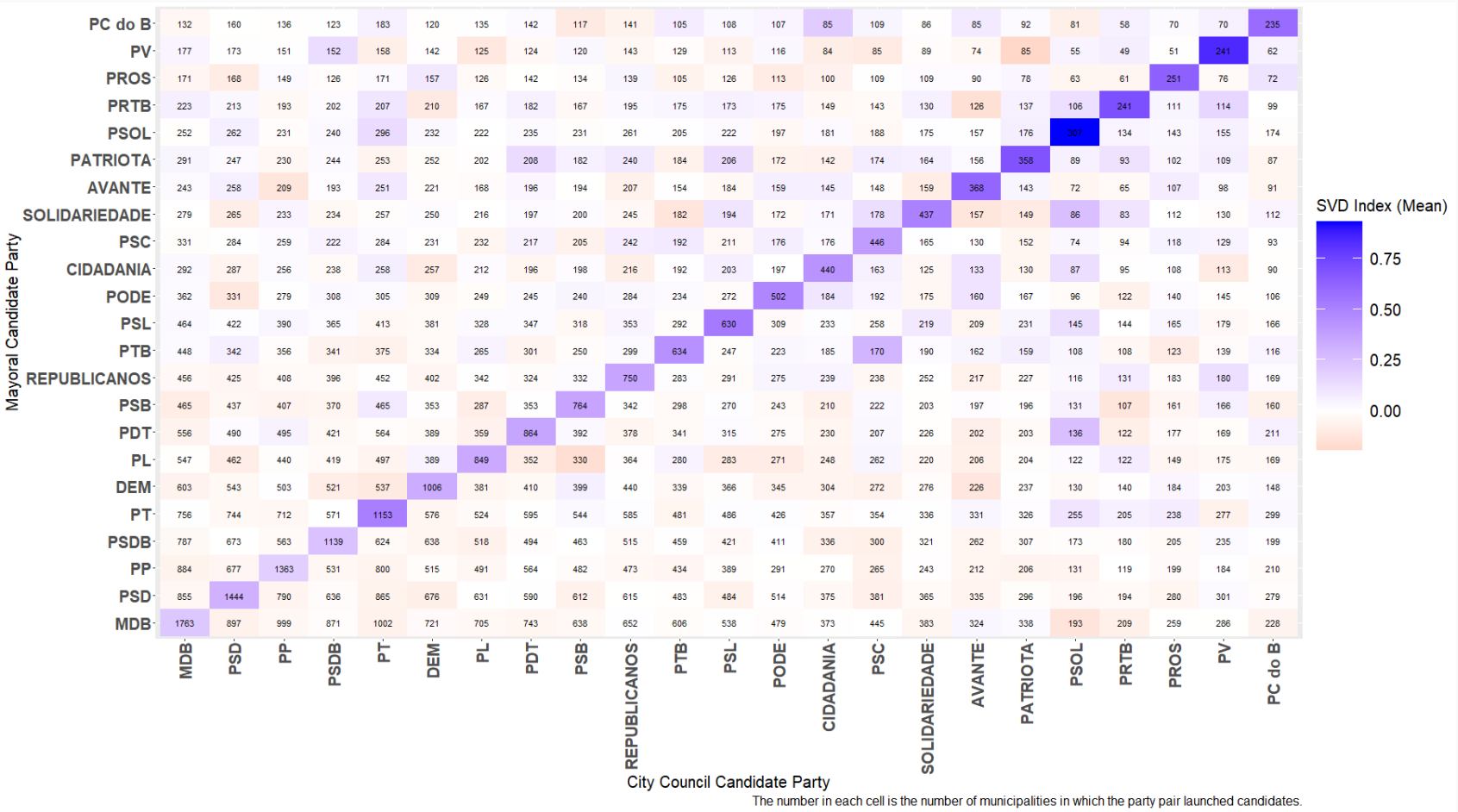
◂ Return

SVD - Summary

	Mean	Median	SD	#
All Pairs	0.0299	-0.0034	2.2427	2504382
Excluding Mayoral Parties' CC Cand	0.0122	-0.0050	1.9451	1424901
Effective Cand	0.0052	-0.0009	2.3647	604433
Excluding Mayoral Parties' CC Cand & Effective Cand	-0.0034	-0.0016	2.0504	309919

◂ Return

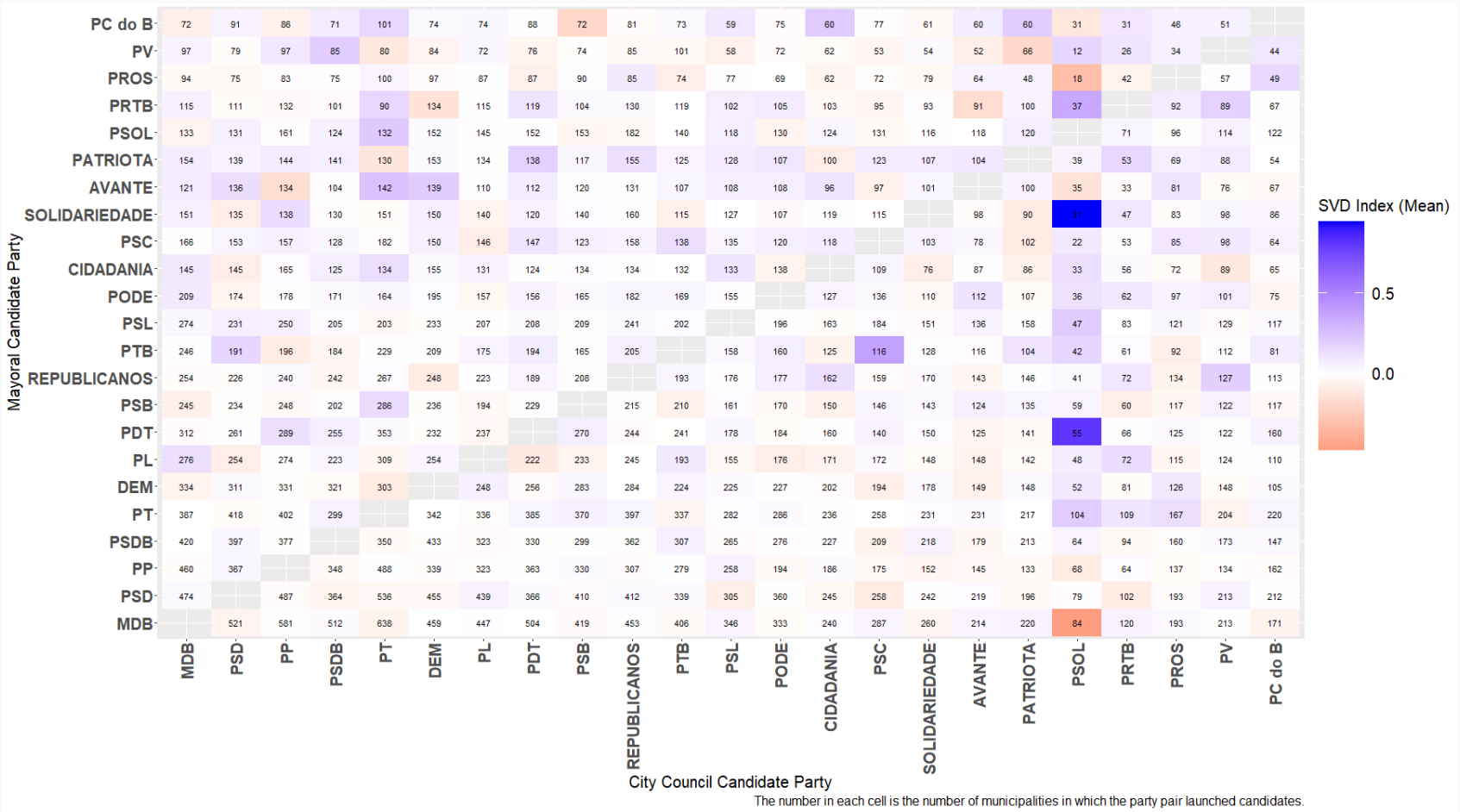
SVD - All Pairs



The number in each cell is the number of municipalities in which the party pair launched candidates.

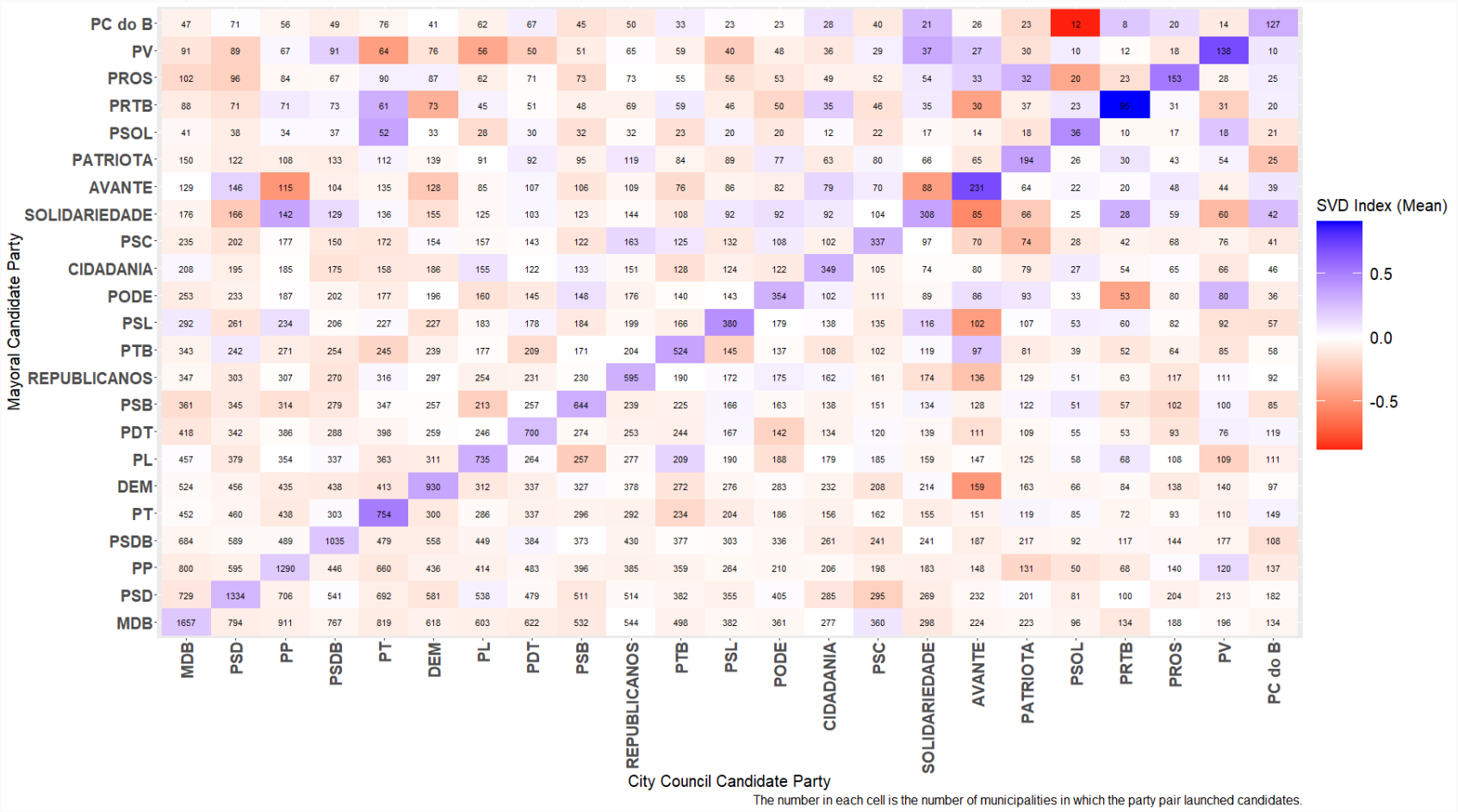
Effective Candidates ◂ Return

SVD - Excluding CC Parties with Mayoral Candidate



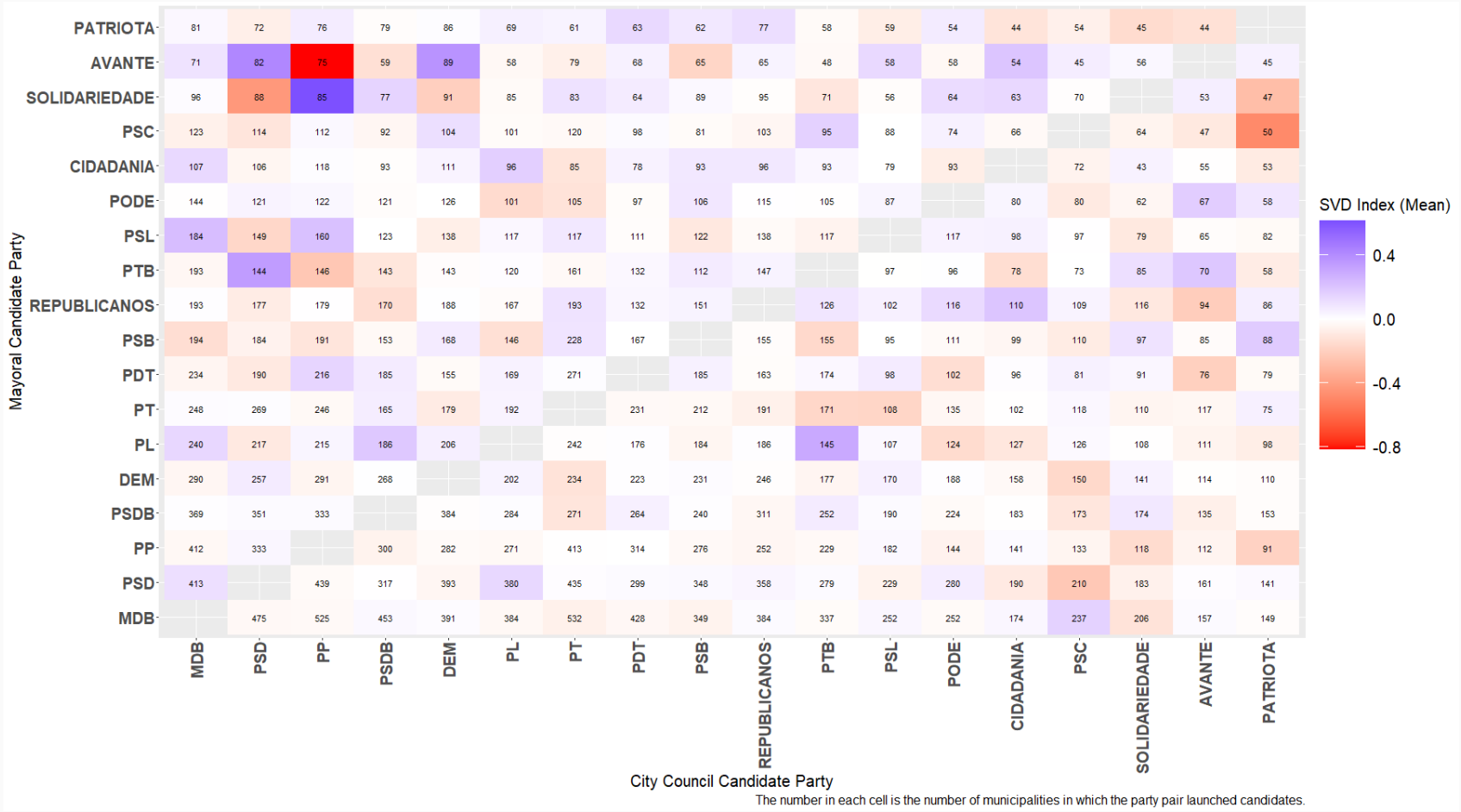
Effective Candidates ◂ Return

SVD - All Pairs (Effective Candidates)



◂ Return

SVD - Excluding CC Parties with Mayoral Candidate (Effective Candidates)



The number in each cell is the number of municipalities in which the party pair launched candidates.

◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	SVD Index	
	OLS	FE
Model:	(1)	(2)
Variables		
Same Party	0.4099***	0.5095***
	(0.0139)	(0.0152)
Fixed-effects		
Mayoral Cand. i		Yes
City Council Cand. j		Yes
Fit statistics		
Observations	2,504,382	2,504,382

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	SVD Index				
	OLS		FE		2SLS
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
Allied	0.1492***	0.1625***	0.2230***	0.2365***	0.2447***
	(0.0087)	(0.0098)	(0.0129)	(0.0150)	(0.0276)
Fixed-effects					
Party Pair & State		Yes		Yes	Yes
Mayoral Cand. i			Yes	Yes	Yes
City Council Cand. j			Yes	Yes	Yes
Fit statistics					
Observations	309,919	309,919	309,919	309,919	309,919

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	SVD Index				
	OLS		FE		2SLS
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
Allied	0.1610***	0.1855***	0.2460***	0.2487***	0.2685***
	(0.0103)	(0.0123)	(0.0146)	(0.0152)	(0.0257)
Fixed-effects					
Party Pair & State		Yes		Yes	Yes
Mayoral Cand. i			Yes	Yes	Yes
City Council Cand. j			Yes	Yes	Yes
Fit statistics					
Observations	98,622	98,622	98,622	98,622	98,622

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	Spatial Adjusted Correlation (SAC)			
	OLS	FE		
Model:	(1)	(2)	(3)	(4)
Variables				
Allied	1.583***	2.031***	3.429***	3.537***
	(0.0813)	(0.0861)	(0.0838)	(0.0879)
Fixed-effects				
Party Pair & State		Yes		Yes
Mayoral Cand. i			Yes	Yes
City Council Cand. j			Yes	Yes
Fit statistics				
Observations	1,424,899	1,424,899	1,424,899	1,424,899

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	SVD Index	
	FE	2SLS
Model:	(1)	(2)
Variables		
Allied	0.1444***	0.1693***
	(0.0073)	(0.0160)
Fixed-effects		
Party Pair & State	Yes	Yes
Mayoral Cand. i	Yes	Yes
City Council Cand. j	Yes	Yes
Fit statistics		
Observations	1,424,901	1,424,901

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

First-Stage ◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	Allied
Model:	(1)
Variables	
d_coli_v1	-136.2***
	(4.429)
Fixed-effects	
Party Pair & State	Yes
Mayoral Cand. i	Yes
City Council Cand. j	Yes
Fit statistics	
Observations	1,424,901

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	SVD Index					
	2SLS (V0)	2SLS (V1)	2SLS (V2)	2SLS (V3)	2SLS (V4)	2SLS (V5)
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Allied	0.1542***	0.1693***	0.1618***	0.1839***	0.2442***	0.2566***
	(0.0090)	(0.0160)	(0.0302)	(0.0394)	(0.0564)	(0.0726)
Fixed-effects						
Party Pair & State	Yes	Yes	Yes	Yes	Yes	Yes
Mayoral Cand. i	Yes	Yes	Yes	Yes	Yes	Yes
City Council Cand. j	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	1,424,901	1,424,901	1,424,901	1,424,901	1,424,901	1,424,901

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

2SLS - First Stage ◂ Return

Electoral Coalitions and Spatial Dependence

Dependent Variable:	Allied					
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
d_coli_v0	-525.7***					
	(11.93)					
d_coli_v1		-136.2***				
		(4.429)				
d_coli_v2			-63.03***			
			(1.697)			
d_coli_v3				-37.31***		
				(1.030)		
d_coli_v4					-24.10***	
					(0.7916)	
d_coli_v5						-16.69***
						(0.6739)
Fixed-effects						
Party Pair & State	Yes	Yes	Yes	Yes	Yes	Yes
Mayoral Cand. i	Yes	Yes	Yes	Yes	Yes	Yes
City Council Cand. j	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	1,424,901	1,424,901	1,424,901	1,424,901	1,424,901	1,424,901

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence - Donations

- Could the effect be driven by inter-candidate campaign donations?

Dependent Variable:	SVD Index				
	OLS		FE		2SLS
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
Allied	0.0695***	0.0923***	0.1208***	0.1304***	0.1719***
	(0.0055)	(0.0065)	(0.0077)	(0.0087)	(0.0249)
Donation (i to j)	0.0159**	0.0124	0.0345***	0.0343**	-0.0064
	(0.0080)	(0.0086)	(0.0132)	(0.0140)	(0.0263)
Fixed-effects					
Party Pair & State		Yes		Yes	Yes
Mayoral Cand. i			Yes	Yes	Yes
City Council Cand. j			Yes	Yes	Yes
Fit statistics					
Observations	1,424,901	1,424,901	1,424,901	1,424,901	1,424,901

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence - Heterogeneity

- Is the effect heterogeneous in relation to the mayoral candidate's party?

Dependent Variables:	SVD Index	Spatial Adjusted Correlation (SAC)
Model:	(1)	(2)
Variables		
Allied	0.1581***	3.620***
	(0.0114)	(0.1186)
Allied*MDB	-0.0024	0.1458
	(0.0287)	(0.3166)
Allied*PSD	-0.0552**	-0.5512*
	(0.0262)	(0.3256)
Allied*PP	-0.0184	-0.4302
	(0.0307)	(0.3486)
Allied*PSDB	-0.0524**	0.0505
	(0.0232)	(0.3358)
Allied*PT	-0.0117	-0.1989
	(0.0468)	(0.4493)
Fixed-effects		
Party Pair & State	Yes	Yes
Mayoral Cand. i	Yes	Yes
City Council Cand. j	Yes	Yes
Fit statistics		
Observations	1,424,901	1,424,899

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

City Size Heterogeneity | Incumbent Mayoral Candidate Heterogeneity | ◂ Return

Electoral Coalitions and Spatial Dependence - Heterogeneity

- Is the effect heterogeneous in relation to the number of polling places a municipality?

Dependent Variables:	SVD Index	Spatial Adjusted Correlation (SAC)
Model:	(1)	(2)
Variables		
Allied	0.4158***	6.225***
	(0.0781)	(0.7546)
Allied*Q2_PS	-0.2045**	-1.368*
	(0.0837)	(0.8160)
Allied*Q3_PS	-0.2253***	-1.948**
	(0.0798)	(0.7766)
Allied*Q4_PS	-0.3239***	-3.437***
	(0.0780)	(0.7593)
Fixed-effects		
Party Pair & State	Yes	Yes
Mayoral Cand. i	Yes	Yes
City Council Cand. j	Yes	Yes
Fit statistics		
Observations	1,424,901	1,424,899

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Electoral Coalitions and Spatial Dependence - Heterogeneity

- Is the effect heterogeneous in relation to the incumbent mayoral candidate?

Dependent Variables:	SVD Index	Spatial Adjusted Correlation (SAC)
Model:	(1)	(2)
Variables		
Allied	0.1618***	3.635***
	(0.0106)	(0.1087)
Allied*Incumbent Mayor	-0.0510***	-0.2744
	(0.0195)	(0.2076)
Fixed-effects		
Party Pair & State	Yes	Yes
Mayoral Cand. i	Yes	Yes
City Council Cand. j	Yes	Yes
Fit statistics		
Observations	1,411,225	1,411,223

Clustered (Mayoral Cand. i & City Council Cand. j) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers

Dependent Variables:	Allied CC Cand. S	Allied CC Cand. HC	Allied CC Cand. LQ
Model:	(1)	(2)	(3)
Variables			
Allied CC Cand. voting at PS (%)	0.0020***	2.171***	0.0357***
	(6.14×10^{-5})	(0.0632)	(0.0014)
Fixed-effects			
Polling Place	Yes	Yes	Yes
Fit statistics			
Observations	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers

Dependent Variables:	M Cand. S		M Cand. HC		M Cand. LQ	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Same Party CC Cand. S	0.2609***	0.2839***				
	(0.0094)	(0.0128)				
Same Party CC Cand. HC			0.5271***	0.6192***		
			(0.0349)	(0.0210)		
Same Party CC Cand. LQ					0.2478***	0.2621***
					(0.0128)	(0.0094)
Fixed-effects						
Polling Place	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	239,695	239,695	239,695	239,695	239,695	239,695

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers

Dependent Variables:	M Cand. S	M Cand. HC	M Cand. LQ
		2SLS	
Model:	(1)	(2)	(3)
Variables			
Allied CC Cand. S	0.3275***		
	(0.0235)		
Allied CC Cand. HC		0.4428***	
		(0.0200)	
Allied CC Cand. LQ			0.2766***
			(0.0150)
Fixed-effects			
Polling Place	Yes	Yes	Yes
Fit statistics			
Observations	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers

Dependent Variables:	Allied CC Cand. S		Allied CC Cand. HC		Allied CC Cand. LQ	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
M Cand. S	0.5211***	0.2136***				
	(0.0230)	(0.0690)				
M Cand. HC			0.1897***	0.1256***		
			(0.0258)	(0.0226)		
M Cand. LQ					0.3219***	0.2165***
					(0.0333)	(0.0452)
Fixed-effects						
Polling Place	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	247,792	247,792	247,792	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

2SLS - First Stage | Normalized Variables | ◂ Return

Allied Council Candidates as Local Brokers

Dependent Variables:	M Cand. S	M Cand. HC	M Cand. LQ
Model:	(1)	(2)	(3)
Variables			
M Cand. voting at PS	0.0110***	48.79***	0.1982***
	(0.0006)	(2.298)	(0.0111)
Fixed-effects			
Polling Place	Yes	Yes	Yes
Fit statistics			
Observations	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers

Dependent Variables:	Allied CC Cand. S	Allied CC Cand. HC	Allied CC Cand. LQ
		2SLS	
Model:	(1)	(2)	(3)
Variables			
M Cand. S	0.0975***		
	(0.0315)		
M Cand. HC		0.1366***	
		(0.0246)	
M Cand. LQ			0.1086***
			(0.0227)
Fixed-effects			
Polling Place	Yes	Yes	Yes
Fit statistics			
Observations	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers - Heterogeneity

Dependent Variable:	M Cand. S				
	MDB	PSD	PP	PSDB	PT
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
Allied CC Cand. S	0.1126***	0.0891***	0.1005***	0.1835***	0.0219
	(0.0294)	(0.0254)	(0.0261)	(0.0416)	(0.0331)
Fit statistics					
Observations	23,136	21,313	18,372	19,501	16,774

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Inverse Direction | City Size Heterogeneity | Incumbent Heterogeneity | ◂ Return

Allied Council Candidates as Local Brokers - Heterogeneity

Dependent Variable:	Allied CC Cand. S				
	MDB	PSD	PP	PSDB	PT
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
M Cand. S	-0.1427	0.2055	0.3894	-0.3933	0.8165**
	(0.2417)	(0.3427)	(0.3522)	(0.5205)	(0.3427)
Fit statistics					
Observations	23,136	21,313	18,372	19,501	16,774

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers - Heterogeneity

Dependent Variable:	M Cand. S			
	#PS - Q1	#PS - Q2	#PS - Q3	#PS - Q4
Model:	(1)	(2)	(3)	(4)
Variables				
Allied CC Cand. S	0.1857***	0.1226***	0.1594***	0.1488***
	(0.0581)	(0.0244)	(0.0170)	(0.0149)
Fixed-effects				
Polling Place	Yes	Yes	Yes	Yes
Fit statistics				
Observations	3,167	12,852	31,861	199,912

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Inverse Direction ◂ Return

Allied Council Candidates as Local Brokers - Heterogeneity

Dependent Variable:	Allied CC Cand. S			
	#PS - Q1	#PS - Q2	#PS - Q3	#PS - Q4
Model:	(1)	(2)	(3)	(4)
Variables				
M Cand. S	0.7094***	-0.2165	0.2751**	0.2600***
	(0.2281)	(0.2473)	(0.1310)	(0.0675)
Fixed-effects				
Polling Place	Yes	Yes	Yes	Yes
Fit statistics				
Observations	3,167	12,852	31,861	199,912

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers - Heterogeneity

Dependent Variable:	M Cand. S	
	Incumbent Mayor (Cand|Part)	Opponents
Model:	(1)	(2)
Variables		
Allied CC Cand. S	0.0645***	0.1271***
	(0.0193)	(0.0106)
Fit statistics		
Observations	69,487	176,884

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Inverse Direction ◂ Return

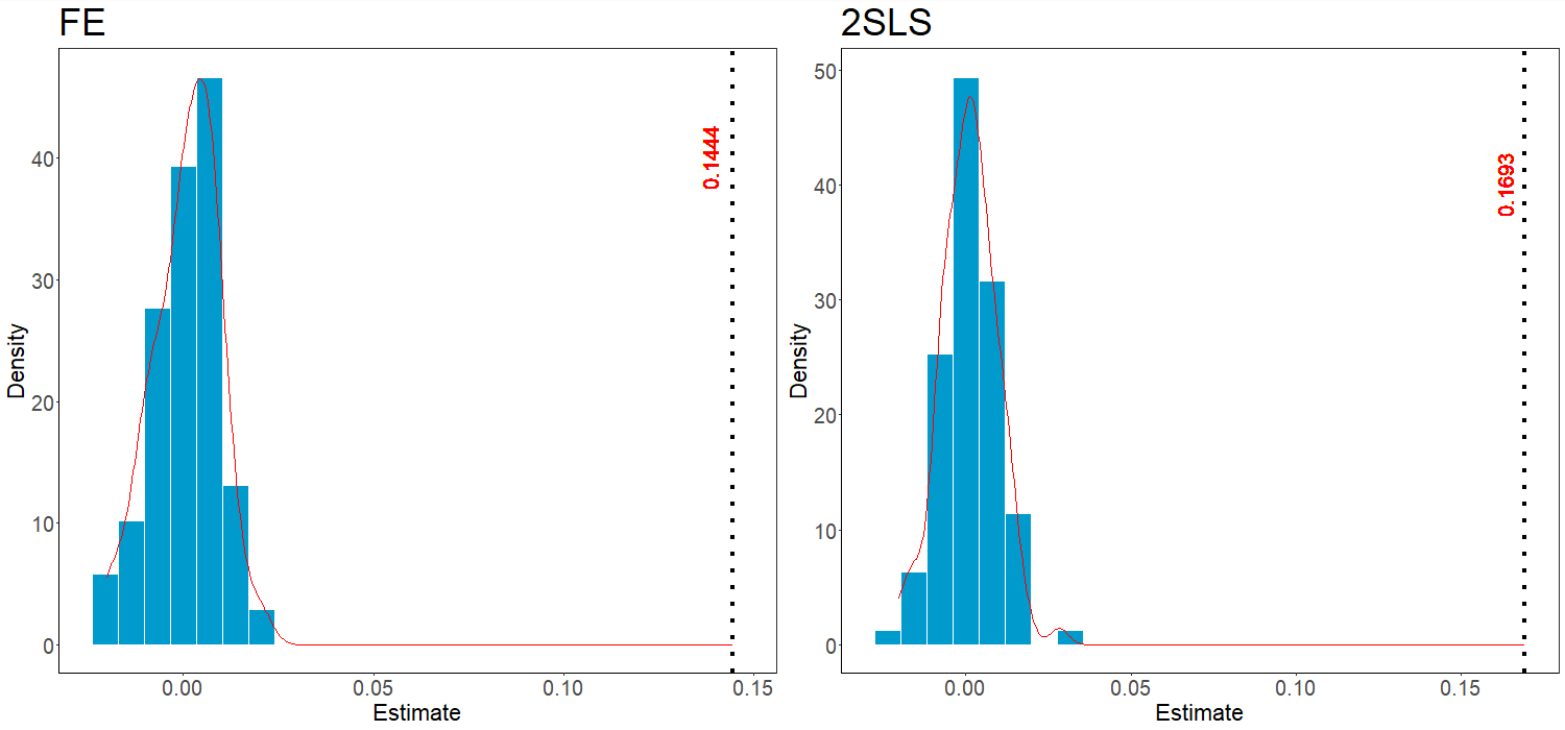
Allied Council Candidates as Local Brokers - Heterogeneity

Dependent Variable:	Allied CC Cand. S	
	Incumbent Mayor (Cand|Part)	Opponents
Model:	(1)	(2)
Variables		
M Cand. S	-0.3337*	0.2641***
	(0.1929)	(0.0920)
Fit statistics		
Observations	69,487	176,884

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

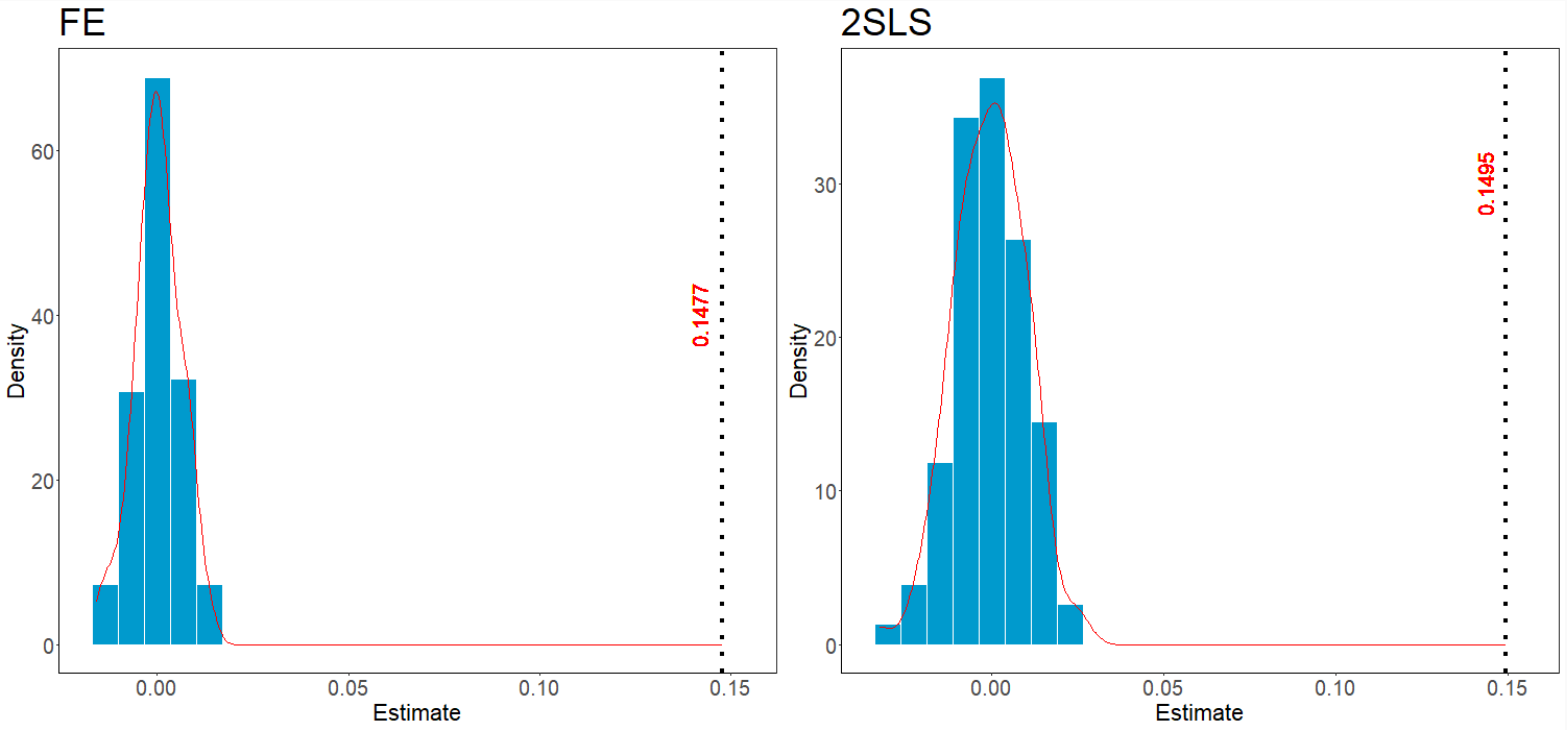
Placebo Exercise - Spatial Dependence Hypothesis



Placebo Coalitions - Estimates Histograms

◂ Return

Placebo Exercise - Brokerage Hypothesis



Placebo Coalitions - Estimates Histograms

◂ Return

Allied Council Candidates as Local Brokers - Coattail Effects' Analysis

Dependent Variables:	M Cand. Vote Share (%)		Allied Vote Share (%)	
	OLS	2SLS	OLS	2SLS
Model:	(1)	(2)	(3)	(4)
Variables				
Allied Vote Share (%)	0.7534***	0.4303***		
	(0.0201)	(0.0209)		
M Cand. Vote Share (%)			0.5070***	0.1654***
			(0.0132)	(0.0297)
Fixed-effects				
Polling Place	Yes	Yes	Yes	Yes
Fit statistics				
Observations	247,792	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return

Allied Council Candidates as Local Brokers - IV Robustness

Dependent Variables:	M Cand. S		M Cand. HC		M Cand. LQ	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Allied CC Cand. S	0.1466***	0.1482***				
	(0.0076)	(0.0105)				
M Cand. voting at PS	0.0107***	0.0107***	47.15***	45.87***	0.1944***	0.1923***
	(0.0005)	(0.0005)	(2.236)	(2.187)	(0.0110)	(0.0109)
Allied CC Cand. HC			0.2672***	0.4764***		
			(0.0318)	(0.0215)		
Allied CC Cand. LQ					0.0901***	0.1374***
					(0.0220)	(0.0074)
Fixed-effects						
Polling Place	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
Observations	247,792	247,792	247,792	247,792	247,792	247,792

Clustered (Municipality) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

◂ Return