No Limit on Terms Served? Explaining the Tenure of Incumbent Governors in Russia during Medvedev's Presidency

forthcoming in Communist and Post-Communist Studies

Ekaterina Paustyan

Online Appendix

Version 2

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Cases and Data

Table 1: Cases selected for analysis

No	Region	Region code	Governor	Case label	Year	Outcome
1	Udmurtia	UD	Aleksandr Volkov	Volkov_UD	2009	reappointment
2	Vladimir Oblast	VLA	Nikolay Vinogradov	Vinogradov_VLA	2009	reappointment
3	Kemerovo Oblast	KEM	Aman Tuleev	Tuleev_KEM	2010	reappointment
4	Mordovia	MO	Nikolay Merkushkin	Merkushkin_MO	2010	reappointment
5	Kursk Oblast	KRS	Aleksandr Mikhailov	Mikhailov_KRS	2010	reappointment
6	Marii El	ME	Leonid Markelov	Markelov_ME	2010	reappointment
7	Lipetsk Oblast	LIP	Oleg Korolev	Korolev_LIP	2010	reappointment
8	Kurgan Oblast	KGN	Oleg Bogomolov	Bogomolov_KGN	2010	reappointment
9	Penza Oblast	PNZ	Vasily Bochkarev	Bochkarev_PNZ	2010	reappointment
10	Tambov Oblast	TAM	Oleg Betin	Betin_TAM	2010	reappointment
11	Kaluga Oblast	KLU	Anatoly Artamonov	Artamonov_KLU	2010	reappointment
12	Krasnodar Krai	KDA	Aleksandr Tkachev	Tkachev_KDA	2012	reappointment
13	Primorsky Krai	PRI	Sergey Darkin	Darkin_PRI	2010	reappointment
14	Khakassia	KK	Aleksey Lebed	Lebed_KK	2008	dismissal
15	Sverdlovsk Oblast	SVE	Eduard Rossel	Rossel_SVE	2009	dismissal
16	Volgograd Oblast	VGG	Nikolay Maksyuta	Maksyuta_VGG	2009	dismissal
17	Murmansk Oblst	MUR	Yury Evdokimov	Evdokimov_MUR	2009	dismissal
18	Voronezh Oblast	VOR	Vladimir Kulakov	Kulakov_VOR	2009	dismissal
19	Chuvashia	CU	Nikolay Fedorov	Fedorov_CU	2010	dismissal
20	Rostov Oblast	ROS	Vladimir Chub	Chub_ROS	2010	dismissal
21	Jewish Autonomous Oblast	YEV	Nikolay Volkov	Volkov_YEV	2010	dismissal
22	Orenburg Oblast	ORE	Aleksey Chernyshev	Chernyshov_ORE	2010	dismissal
23	Bashkortostan	BA	Murtaza Rakhimov	Rakhimov_BA	2010	dismissal
24	Tatarstan	TAT	Mintimer Shaimiev	Shaimiev_TAT	2010	dismissal
25	Oryol Oblast	ORL	Egor Stroev	Stroev_ORL	2009	dismissal
26	Moscow (city)	MOW	Yury Luzhkov	Luzhkov_MOW	2010	dismissal
27	Khanty-Mansi Autonomous Okrug	KHM	Aleksandr Filipenko	Filipenko_KHM	2010	dismissal
28	Chelyabinsk Oblast	CHE	Petr Sumin	Sumin_CHE	2010	dismissal
29	Vologda Oblast	VLG	Vyacheslav Pozgalev	Pozgalev_VLG	2011	dismissal
30	Omsk Oblast	OMS	Leonid Polezhaev	Polezhaev_OMS	2012	dismissal
31	Tomsk Oblast	TOM	Viktor Kress	Kress_TOM	2012	dismissal
32	Moscow Oblast	MOS	Boris Gromov	Gromov_MOS	2012	dismissal

Table 2: The raw data

No	Case label	VOT_raw	STAB_raw	EFF_raw	POPUL_raw	ECON_raw	REAP_raw
1	Gromov_MOS	32.83	1.05	15	28.50	4	0
2	Pozgalev_VLG	33.40	0.36	67	42.50	3	0
3	Kress_TOM	37.51	0.83	10	36.75	4	0
4	Polezhaev_OMS	39.61	0.76	9	35.75	2	0
5	Luzhkov_MOW	54.13	1.33	5	58.00	4	0
6	Darkin_PRI	54.87	1.18	45	27.50	3	1
7	Evdokimov_MUR	55.11	2.18	42	43.50	4	0
8	Tkachev_KDA	56.15	0.44	4	44.50	2	1
9	Vinogradov_VLA	56.75	0.78	24	29.35	1	1
10	Kulakov_VOR	57.46	1.68	58	14.25	1	0
11	Maksyuta_VGG	57.74	8.38	54	34.50	2	0
12	Lebed_KK	59.53	2.56	16	36.25	1	0
13	Betin_TAM	59.79	1.22	36	23.00	1	1
14	Stroev_ORL	59.85	2.88	81	27.25	1	0
15	Chernyshov_ORE	60.31	1.05	22	37.50	3	0
16	Volkov_UD	60.57	2.91	72	29.00	2	1
17	Sumin_CHE	61.11	0.65	29	55.00	2	0
18	Artamonov_KLU	61.65	1.63	17	52.25	2	1
19	Rossel_SVE	62.04	0.60	22	52.25	3	0
20	Fedorov_CU	62.27	2.13	3	38.75	1	0
21	Korolev_LIP	62.30	1.23	57	50.75	2	1
22	Mikhailov_KRS	62.74	0.60	73	20.75	1	1
23	Bogomolov_KGN	64.43	0.75	61	21.00	1	1
24	Filipenko_KHM	65.96	0.05	19	55.75	4	0
25	Volkov_YEV	66.22	1.26	47	30.50	1	0
26	Markelov_ME	67.54	0.65	67	45.50	0	1
27	Bochkarev_PNZ	70.31	1.93	18	42.00	1	1
28	Chub_ROS	71.89	1.02	12	28.50	1	0
29	Tuleev_KEM	76.82	0.28	13	79.75	2	1
30	Shaimiev_TAT	81.07	0.29	10	71.25	3	0
31	Rakhimov_BA	83.12	0.50	9	49.75	2	0
32	Merkushkin_MO	93.41	1.87	26	46.50	1	1

Table 3: The calibrated dataset

No	Case label	VOT	STAB	EFF	POPUL	ECON	REAP
1	Gromov_MOS	0.13	0.93	0.98	0.03	0.95	0.05
2	Pozgalev_VLG	0.15	1.00	0.02	0.59	0.73	0.05
3	Kress_TOM	0.34	0.98	0.99	0.28	0.95	0.05
4	Polezhaev_OMS	0.47	0.99	0.99	0.22	0.36	0.05
5	Luzhkov_MOW	0.66	0.73	0.99	0.93	0.95	0.05
6	Darkin_PRI	0.69	0.87	0.32	0.02	0.73	0.95
7	Evdokimov_MUR	0.70	0.02	0.43	0.63	0.95	0.05
8	Tkachev_KDA	0.99	1.00	1.00	0.66	0.36	0.95
9	Vinogradov_VLA	0.77	0.99	0.91	0.04	0.15	0.95
10	Kulakov_VOR	0.80	0.26	0.07	0.00	0.15	0.05
11	Maksyuta_VGG	0.80	0.00	0.11	0.17	0.36	0.05
12	Lebed_KK	0.86	0.00	0.97	0.25	0.15	0.05
13	Betin_TAM	0.86	0.84	0.64	0.01	0.15	0.95
14	Stroev_ORL	0.87	0.00	0.00	0.02	0.15	0.05
15	Chernyshov_ORE	0.88	0.93	0.93	0.32	0.73	0.05
16	Volkov_UD	0.88	0.00	0.01	0.04	0.36	0.95
17	Sumin_CHE	0.89	0.99	0.83	0.90	0.36	0.05
18	Artamonov_KLU	0.90	0.32	0.97	0.86	0.36	0.95
19	Rossel_SVE	0.91	1.00	0.93	0.86	0.73	0.05
20	Fedorov_CU	0.91	0.02	1.00	0.41	0.15	0.05
21	Korolev_LIP	0.92	0.83	0.08	0.83	0.36	0.95
22	Mikhailov_KRS	0.92	1.00	0.01	0.00	0.15	0.95
23	Bogomolov_KGN	0.94	0.99	0.04	0.00	0.15	0.95
24	Filipenko_KHM	0.96	1.00	0.96	0.91	0.95	0.05
25	Volkov_YEV	0.96	0.80	0.26	0.06	0.15	0.05
26	Markelov_ME	0.97	0.99	0.02	0.69	0.05	0.95
27	Bochkarev_PNZ	0.98	0.07	0.96	0.57	0.15	0.95
28	Chub_ROS	0.99	0.94	0.98	0.03	0.15	0.05
29	Tuleev_KEM	1.00	1.00	0.98	1.00	0.36	0.95
30	Shaimiev_TAT	1.00	1.00	0.99	0.99	0.73	0.05
31	Rakhimov_BA	1.00	1.00	0.99	0.81	0.36	0.05
32	Merkushkin_MO	1.00	0.10	0.89	0.72	0.15	0.95

Calibration

Figure 1: Distribution of the raw data

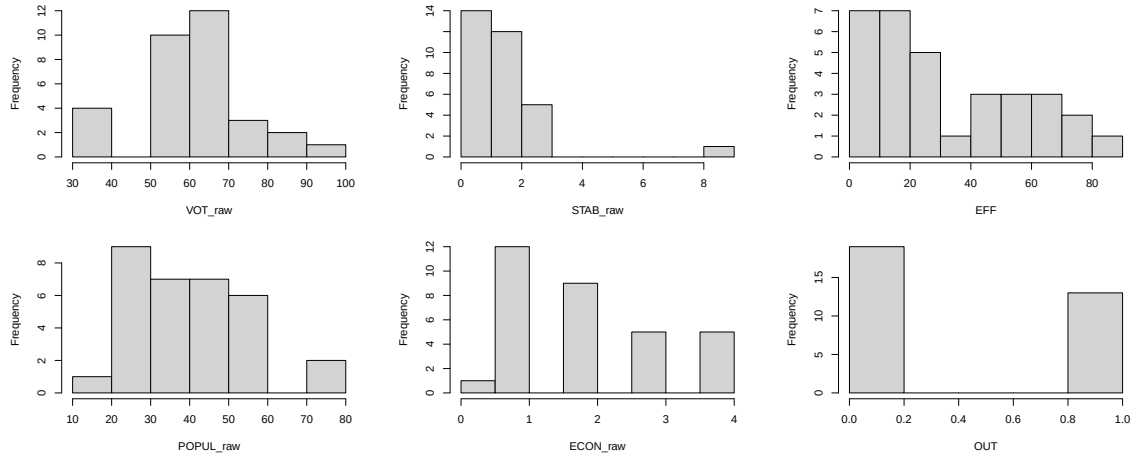


Figure 2: Distribution of the fuzzy set membership scores

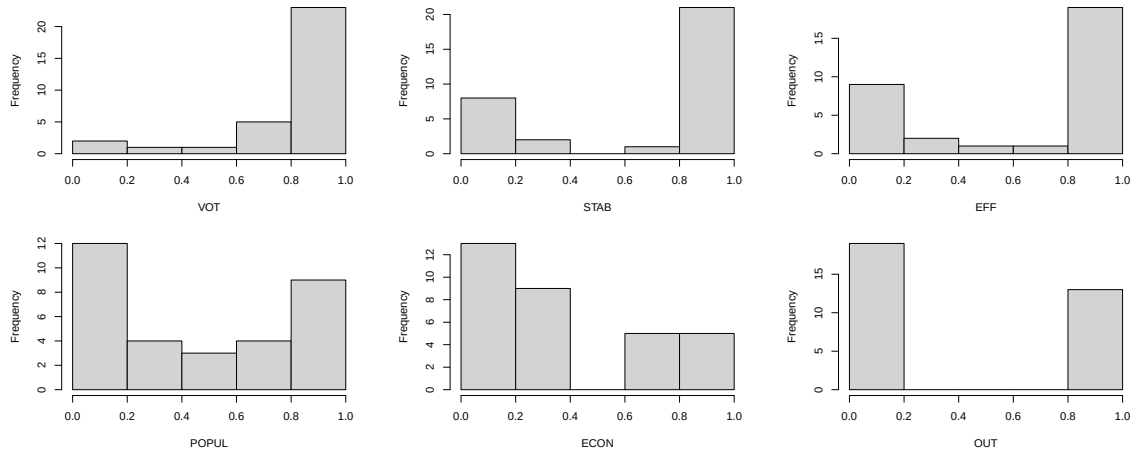
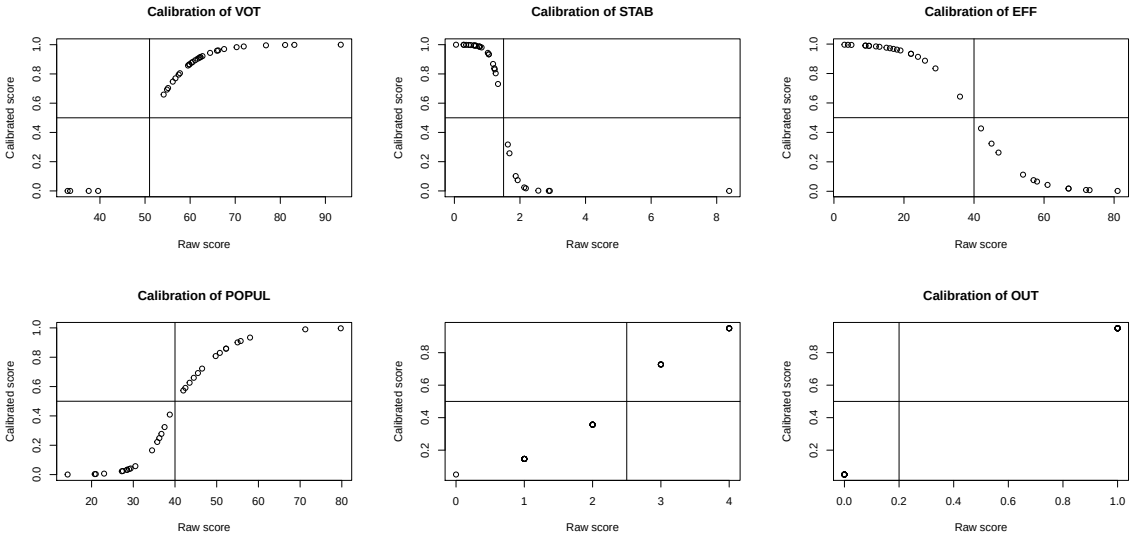


Figure 3: Plots of the raw data against the fuzzy set membership scores



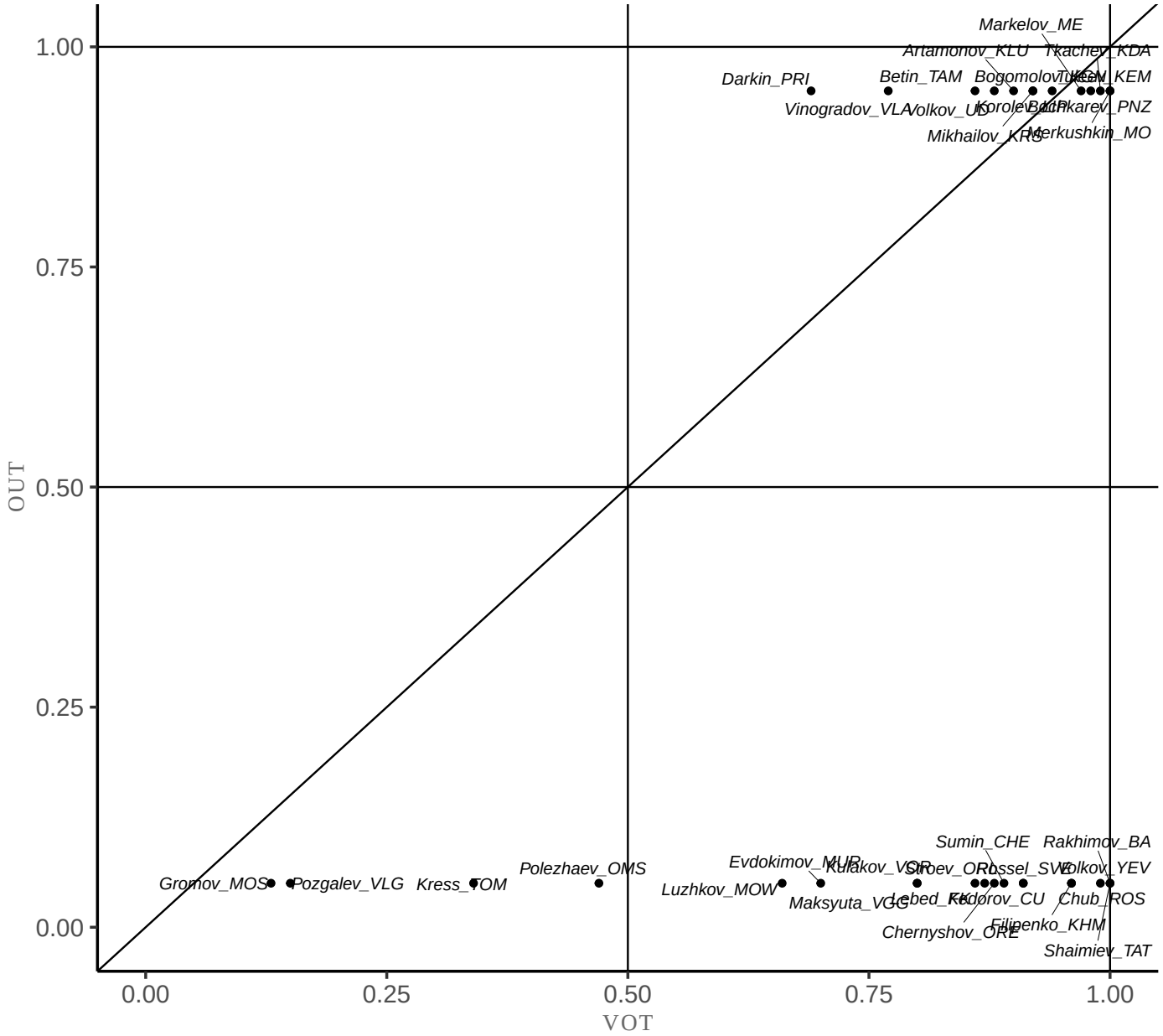
Analysis of necessity, outcome reappointment

Table 4: Parameters of fit, necessity, outcome reappointment

Condition	Consistency of Necessity	Coverage of Necessity	Relevance of Necessity
VOT	0.946	0.482	0.304
STAB	0.712	0.439	0.462
EFF	0.571	0.375	0.481
POPUL	0.468	0.449	0.704
ECON	0.333	0.328	0.671
∼VOT	0.148	0.334	0.869
∼STAB	0.341	0.436	0.786
∼EFF	0.501	0.567	0.799
∼POPUL	0.623	0.456	0.584
∼ECON	0.787	0.566	0.627

∼ means absence

Figure 4: Necessity plot, VOT, outcome reappointment



Analysis of sufficiency, outcome reappointment

Figure 5: Plot of the conservative solution formula, outcome reappointment

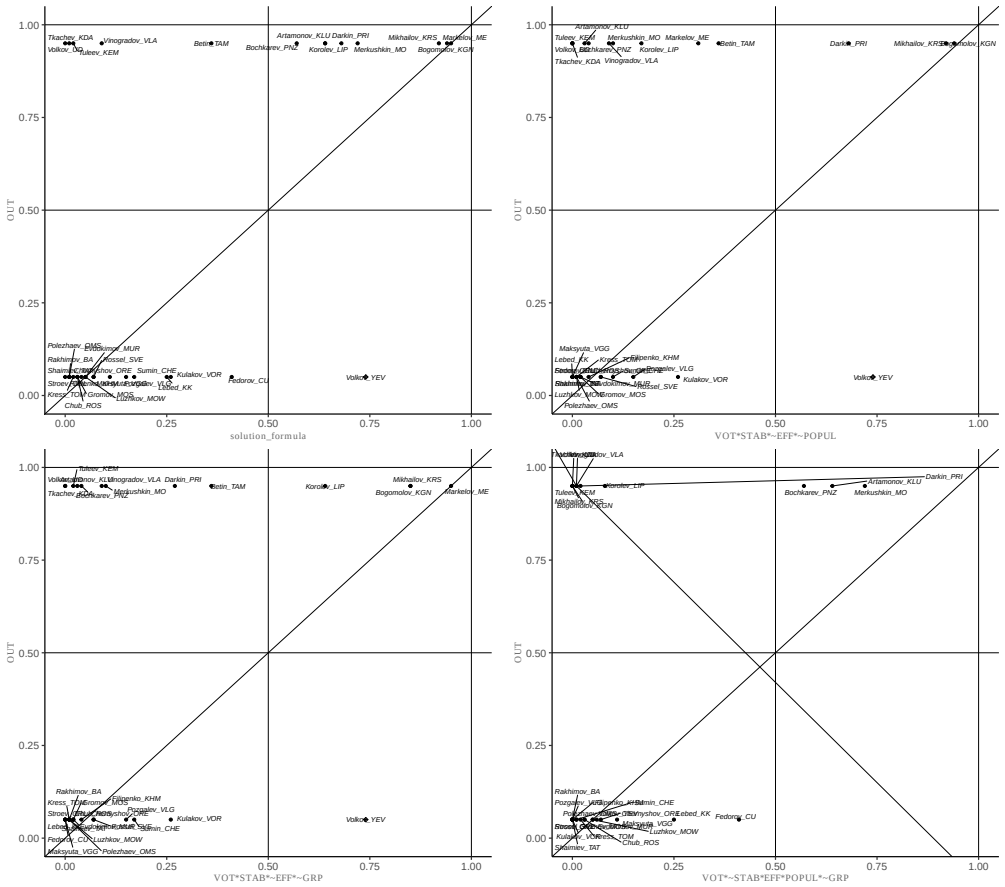


Table 5: Parsimonious solution formula, outcome reappointment, two models

	Cons.	PRI	Raw cov.	Uniq. cov.	(M1)	(M2)
VOT*STAB*∼EFF +	0.821	0.791	0.407	0.362	0.369	0.362
∼STAB*EFF*POPUL +	0.672	0.597	0.192	0.003	0.155	
∼STAB*POPUL* ∼ECON	0.789	0.728	0.200	0.004		0.156
M1	0.757	0.722	0.562			
M2	0.801	0.769	0.562			

∼ indicates absence, * stands for logical AND, + stands for logical OR.

Table 6: Intermediate solution formula, outcome reappointment

	Cons.	PRI	Raw cov.	Uniq. cov.
VOT*STAB*∼EFF +	0.821	0.791	0.407	0.369
VOT*∼STAB*EFF*POPUL*∼ECON	0.795	0.736	0.189	0.152
Overall solution	0.805	0.775	0.559	

∼ indicates absence, * stands for logical AND, + stands for logical OR. Directional expectations state that all conditions contribute to the outcome in their presence.

Analysis of necessity, outcome dismissal

Table 7: Parameters of fit, necessity, outcome dismissal

Condition	Consistency of Necessity	Coverage of Necessity	Relevance of Necessity
VOT	0.790	0.566	0.342
STAB	0.686	0.594	0.543
EFF	0.728	0.672	0.639
POPUL	0.472	0.638	0.783
ECON	0.570	0.790	0.867
∼VOT	0.277	0.878	0.973
∼STAB	0.352	0.632	0.849
∼EFF	0.323	0.514	0.780
∼POPUL	0.592	0.610	0.662
∼ECON	0.516	0.521	0.603

∼ indicates absence

Analysis of sufficiency, outcome dismissal

Figure 6: Plot of the conservative solution formula, outcome dismissal

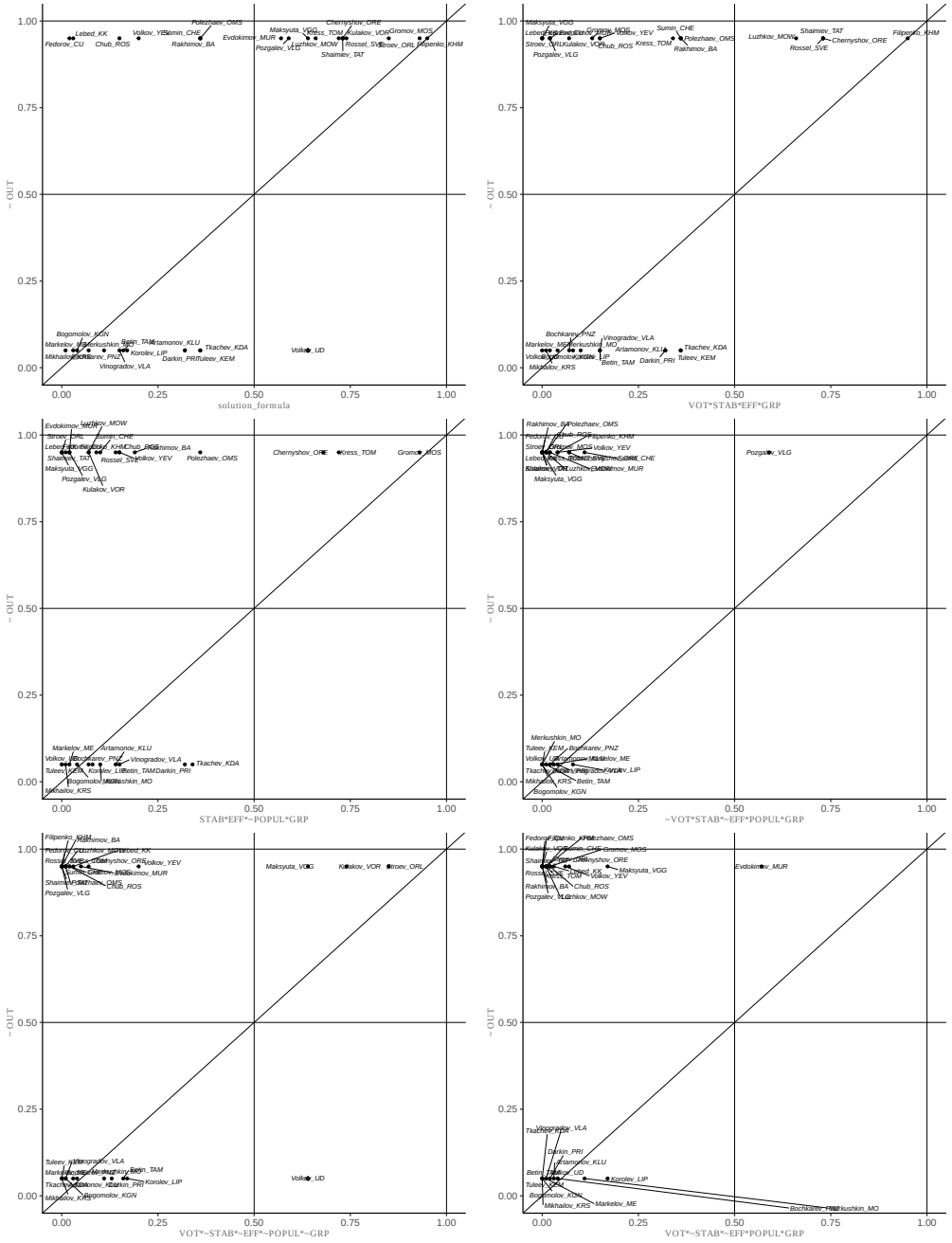


Table 8: Parsimonious solution formula, outcome dismissal

	Cons.	PRI	Raw cov.	Uniq. cov.
STAB*∼EFF*∼POPUL +	0.747	0.696	0.311	0.046
STAB*∼EFF*∼ECON +	0.784	0.743	0.350	0.085
∼STAB*POPUL*∼ECON	0.789	0.728	0.200	0.156
Overall solution	0.773	0.738	0.551	

∼ indicates absence, * stands for logical AND, + stands for logical OR.

Table 9: Intermediate solution formula, outcome dismissal, two models

	Cons.	PRI	Raw cov.	Uniq. cov.	(M1)	(M2)
∼STAB*POPUL*∼ECON +	0.789	0.728	0.200	0.142	0.156	0.142
VOT*STAB*∼EFF*∼POPUL +	0.790	0.744	0.308	0.043	0.043	0.223
VOT*STAB*∼EFF*∼ECON	0.800	0.762	0.350	0.020	0.085	
VOT*∼EFF*POPUL*∼ECON	0.848	0.768	0.163	0.000		0.065
M1	0.798	0.766	0.548			
M2	0.793	0.758	0.529			

∼ indicates absence, * stands for logical AND, + stands for logical OR. Directional expectations state that all conditions contribute to the outcome in their presence.

Robustness tests

Test 1: Crisp calibration

The first alternative analysis was performed with the data calibrated as crisp sets because the outcome represents a binary concept: gubernatorial reappointment or dismissal. Cases, assigned a crisp set score of either 1 or 0, represent either full members or full non-members of the set. To calibrate cases, I used crossover points from the main analysis. Table 10 and Table 11 below provide the alternative solution formulas for the analyses of reappointment and dismissal, respectively.

Table 10: Alternative conservative solution 1, outcome reappointment

	Cons.	PRI	Raw cov.	Uniq. cov.	Typical cases
VOT*STAB*∼EFF*POPUL*∼ECON +	1.000	1.000	0.154	0.154	Korolev_LIP Markelov_ME
VOT*STAB*∼EFF*∼POPUL*ECON +	1.000	1.000	0.077	0.077	Darkin_PRI
VOT*∼STAB*EFF*POPUL*∼ECON	1.000	1.000	0.231	0.231	Artamonov_KLU Bochkarev_PNZ Merkushkin_MO
Overall solution	1.000	1.000	0.462		

∼ denotes absence, * stands for logical AND, + stands for logical OR.

Table 11: Alternative conservative solution 1, outcome dismissal

	Cons.	PRI	Raw cov.	Uniq. cov.	Typical cases	Deviant cases
∼VOT*STAB*EFF*∼POPUL +	1.000	1.000	0.158	0.158	Polezhaev_OMS Gromov_MOS Kress_TOM	
VOT*STAB*EFF*ECON +	1.000	1.000	0.263	0.263	Chernyshov_ORE Luzhkov_MOW Rossel_SVE Filipenko_KHM Shaimiev_TAT	
VOT*∼STAB*∼POPUL*∼ECON +	0.833	0.833	0.263	0.263	Kulakov_VOR Maksyuta_VGG Stroev_ORL Lebed_KK Fedorov_CU	Volkov_UD
∼VOT*STAB*∼EFF*POPUL*ECON +	1.000	1.000	0.053	0.053	Pozgalev_VLG	
VOT*∼STAB*∼EFF*POPUL*ECON	1.000	1.000	0.053	0.053	Evdokimov_MUR	
Overall solution	0.938	0.938	0.789			

∼ denotes absence, * stands for logical AND, + stands for logical OR.

Test 2: Increasing consistency cut-off

For the second alternative analysis, I increased a consistency cut-off from 0.75 to 0.80. As Table 12 and Table 13 below show, the results again do not differ significantly from the solution formulas obtained in the main analysis. Therefore, the results are quite robust to the changes in both the calibration and the consistency cut-offs.

Table 12: Alternative conservative solution 2, outcome reappointment

	Cons.	PRI	Raw cov.	Uniq. cov.	Typical cases
VOT*STAB*∼EFF*POPUL*∼ECON +	0.881	0.826	0.150	0.085	Korolev_LIP Markelov_ME
VOT*STAB*∼EFF*∼POPUL*ECON	0.841	0.745	0.155	0.090	Darkin_PRI
Overall solution	0.874	0.830	0.240		

∼ denotes absence, * stands for logical AND, + for logical OR.

Table 13: Alternative conservative solution 2, outcome dismissal

	Cons.	PRI	Raw cov.	Uniq. cov.	Typical cases
∼VOT*STAB*∼EFF*POPUL*ECON +	0.976	0.955	0.064	0.031	Pozgalev_VLG
VOT*STAB*EFF*POPUL*ECON +	0.838	0.807	0.275	0.201	Luzhkov_MOW Rossel_SVE Filipenko_KHM Shaimiev_TAT
VOT*∼STAB*∼EFF*POPUL*ECON +	0.875	0.788	0.067	0.043	Evdokimov_MUR
∼VOT*STAB*EFF*∼POPUL*ECON	0.843	0.785	0.152	0.083	Gromov_MOS Kress_TOM
Overall solution	0.840	0.812	0.433		

∼ denotes absence, * stands for logical AND, + stands for logical OR.

Testing the sensitivity ranges of the calibration anchors

Oana and Schneider (2021) propose a detailed protocol for testing robustness of QCA results, checking the sensitivity ranges of the calibration anchors. Table 14 below shows the lower and the upper bound of each calibration anchor. It displays two sets, VOT_2007 and VOT_2011, as the results of the 2007 and 2011 State Duma elections were calibrated separately. Their anchors are quite robust as well as the anchors selected for calibrating sets EFF and POPUL. For each of these sets, there is a safe range of values for all three anchors. Two other sets, STAB and ECON, are the most sensitive to changes in their calibration anchors as selected cut-off points correspond to the lower bound of the sensitivity range. As a result, the initial solution formulas of these analyses are dependent on the changes in the calibration anchors of the sets STAB and ECON. Since during the calibration process of these two sets the anchors have been selected considering substantial gaps observable in the data, it should not be of any concern.

Table 14: Sensitivity ranges of the calibration anchors

Set label	Set type	Exclusion	Crossover	Inclusion*
VOT_2007	fuzzy	8 48 50	49 51 53	51 65 NA
VOT_2011	fuzzy	25 29 39	38 40 48	41 49 NA
STAB	fuzzy	2 2 2	1.5 1.5 1.5	1 1 1
EFF	fuzzy	40 60 NA	30 40 44	2 20 28
POPUL	fuzzy	24 30 38	38 40 50	50 60 NA
ECON	fuzzy	NA 0 2	2.5 2.5 2.5	4 4 4

* Calibration anchors are indicated in the following order: lower bound, threshold, upper bound. Threshold indicated the values used in the calibration process.

Bibliography

Oana, I.-E. and C. Q. Schneider (2021). A Robustness Test Protocol for Applied QCA: Theory and R Software Application. *Sociological Methods & Research*, 1–32.