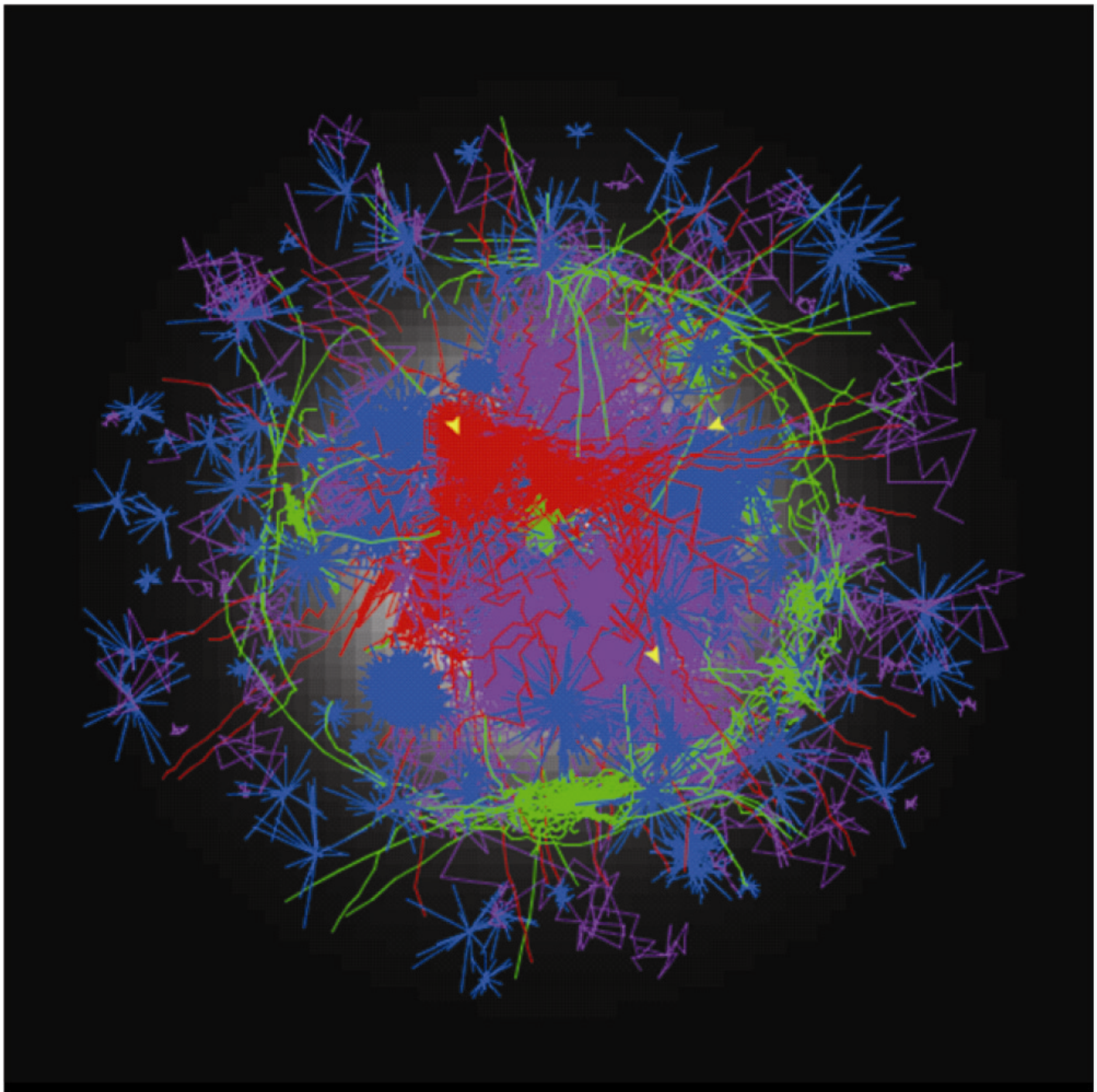


Party competition: an agent-based model

Michael Laver and Ernest Sergenti

Appendix: additional materials

Appendix E3

3.1 Components of the INES left-right economic policy scale

The additive economic left-right policy scale (econlr) plotted in Figure 2.4 is built from Irish National Election Study (INES) survey respondents' answers to seven attitude questions on the economy.

econlr = A11.3 + (8-A11.4) + (8-A11.5) + A11.6 + 7*(3+B44.1+B44.3+B44.4)/11

High scores imply a more right wing position. The wordings of the component questions, with their INES labels, were as follows:

A11: (Strongly agree = 1 → Strongly disagree = 7)
- 3: Ordinary working people get their fair share of the nation's wealth
- 4. Income tax should be increased for people on higher than average incomes
- 5. There is one law for the rich and one for the poor
- 6. There is nothing wrong with some people being a lot richer than others

B44.1: Business and industry should be:
- strictly regulated by the State (= 0)
- entirely free from regulation by the State (= 10)

B44.3: The best way to provide the services people need:
- public or semi-state companies (= 0)
- private enterprises (= 10)

B44.4. Most of business and industry should be:
- owned by the State (= 0)
- privately owned (= 10)

Variable	Obs	Mean	Std. Dev.	Min	Max
econlr	2605	26.95533	6.064803	5.909091	46.90909

Alternatives to Figure 3.1 could have been based on the following two scales.

3.2 Liberal-conservative social policy

soclibcon = A11.1 + A12.1 + A12.5 + (8 - A12.6) + 7*((11 –B44.5) +(1+ B44.7) + (11–C25.1))/11

A11: (Strongly agree = 1 → Strongly agree = 7)

1. It would be better if more people with strong religious beliefs held public office

A12: (Strongly agree = 1 → Strongly agree = 7)

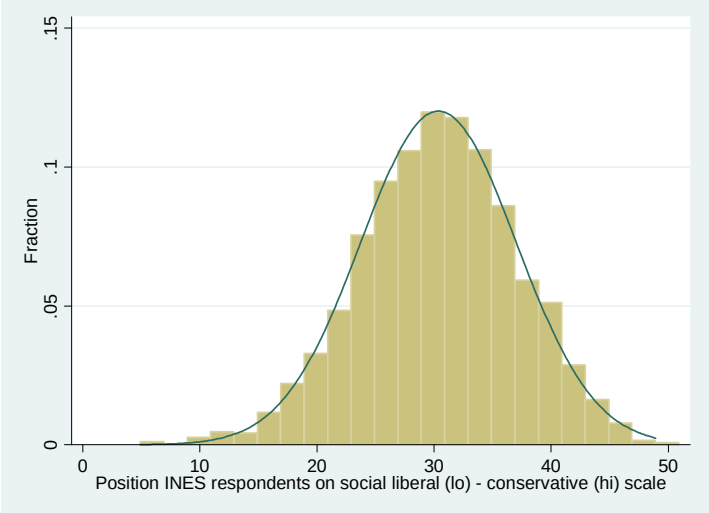
1. There should be very strict limits on the number of immigrants coming to live in Ireland
5. People should not have to put up with Travellers' halting sites in their neighbourhood
6. Asylum seekers should have the same rights to social services as Irish people

B44.5: Homosexuality is: never justified (= 0) → always justified (= 10)

B44.7: God definitely: does not exist (= 0) → does exist (= 10)

C25: There should be a total ban on abortion in Ireland (= 0)
Abortion should be freely available in Ireland to any woman who wants one (=10)

Variable	Obs	Mean	Std. Dev.	Min	Max
soclibcon	2580	30.37593	6.64137	5.909091	49



3.3 Environmental policy

envir = (8-A11.2) + A11.7 + A12.7 + (8-A12.8) + 7*(1+B44.8a)/11

A11: (Strongly agree = 1 → Strongly agree = 7)

1. I would be willing to accept a cut in my standard of living in order to protect the environment
7. Many of the claims about environmental threats are exaggerated

A12: (Strongly agree = 1 → Strongly agree = 7)

7. My first priority is to provide for myself and my family, even if this means doing things that harm the environment
8. I would be willing to pay much higher taxes in order to protect the environment

B44.8a We should protect the environment even if this damages economic growth (=0)
We should encourage economic growth even if this damages the environment (=10)

Variable	Obs	Mean	Std. Dev.	Min	Max
envir	2619	18.95935	5.39705	4.636364	35

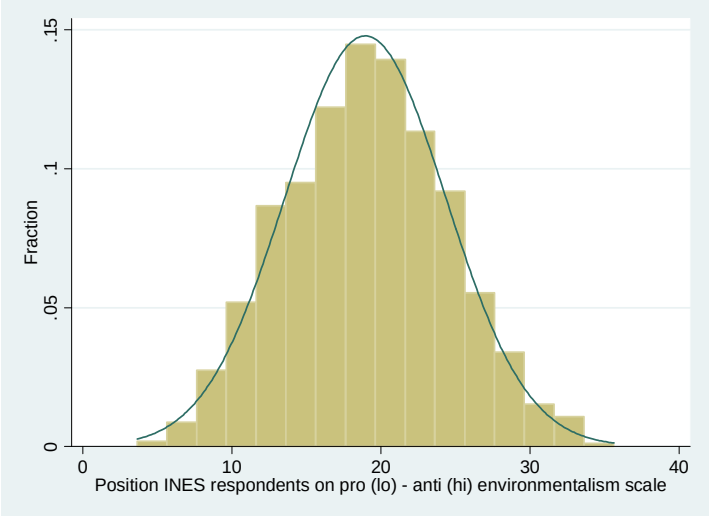
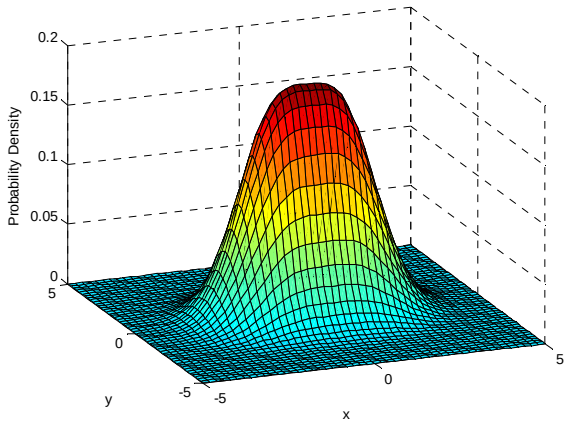
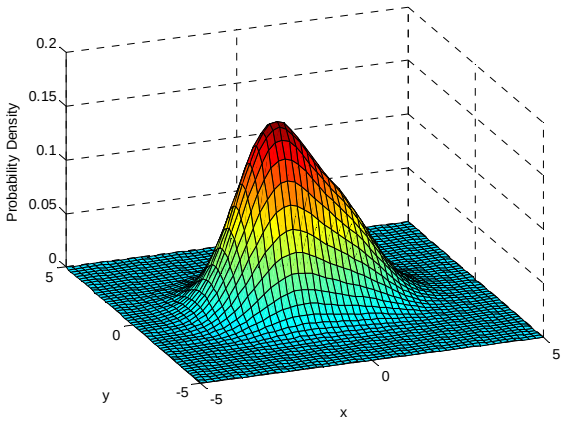


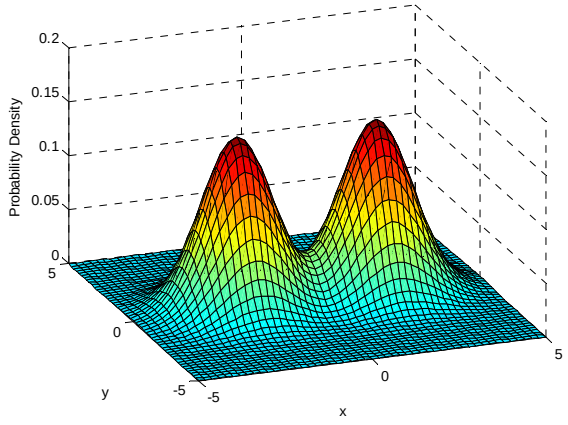
Figure A3.4: Ideal point densities for six populations aggregated from two bivariate normal subpopulations, as described in Table 3.1



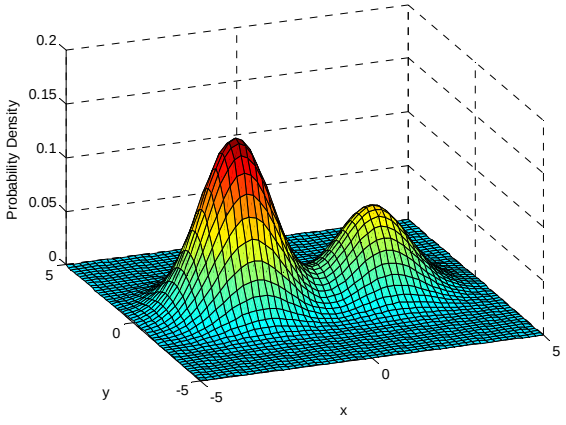
$\mu_r = -\mu_l = 0.5$; $n_l / n_r = 1.0$



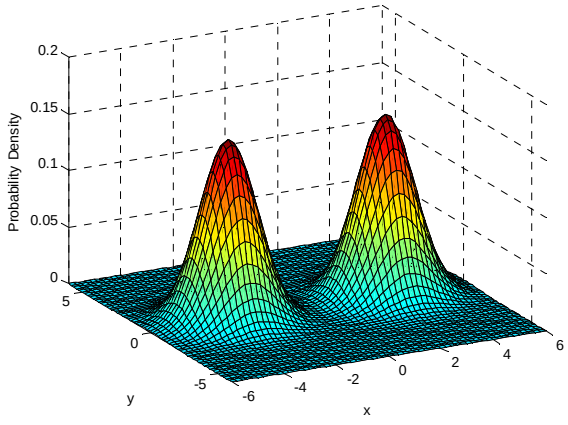
$\mu_r = -\mu_l = 0.5$; $n_l / n_r = 2.0$



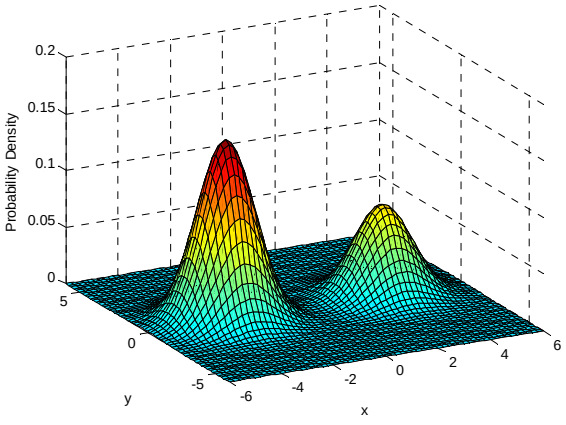
$\mu_r = -\mu_l = 1.0$; $n_l / n_r = 1.0$



$\mu_r = -\mu_l = 1.0$; $n_l / n_r = 2.0$



$\mu_r = -\mu_l = 1.5$; $n_l / n_r = 1.0$



$\mu_r = -\mu_l = 1.5$; $n_l / n_r = 2.0$

The top two panels in Figure A3.4 show plots of ideal point densities arising from the aggregation of two relatively unpolarized subpopulations (μ_r = 0.5). The left panel shows equal sized subpopulations (n_l/n_r = 1), and the right panel shows the left subpopulation twice the size of the right (n_l/n_r = 2). In each of these cases, the combined aggregate population has a *unimodal* distribution of ideal points, though the plots show these distributions are asymmetrical about the origin. They are "stretched" along the *x*-axis, the axis that distinguishes subpopulations. The two bottom panels in Figure A3.4 show the most polarized pairs of subpopulations we investigate (μ_r = 1.5). Subpopulation ideal point centroids are now so far apart, relative to the variances of these, that there is almost no overlap between subpopulations. Plots of aggregate population ideal point densities are, on these parameterizations, in effect plots of two distinct subpopulations. The middle panels of Figure A3.4 show intermediate examples (μ_r = 1.0), with two distinct but overlapping subpopulations, which aggregate to bimodal distributions.

Appendix E5

E5.1: Diagnostics for all-Sticker benchmark runs

Table E5.1 shows the results of the five sample size diagnostic checks for one representative output variable, mean party eccentricity, both with 100 repetitions and with 1,000 repetitions for each of the eleven all-Sticker runs. The results for the other output variables were similar.

As we employ an ensemble average, check 1 (which tests whether the collected observations have mapped out the steady-state distribution), does not apply. For check 2, we have an analytical expectation that mean party eccentricity should be 1.5 for all runs.[1] When only 100 observations are used, we see a problem for runs with number of parties set at 9, 11, and 12. For each of these runs, the probability that the estimated mean is equal to the known value of 1.5 is less than 10 percent. When we increase the number of repetitions to 1,000, however, we pass check 2 for all runs. Checks 3 and 4 are easily satisfied with both 100 and 1,000 observations. With Check 4, given that we expect all of the values for mean eccentricity to be 1.5, we want the power difference, in this case, to be as *low* as possible, i.e. a *t*-test should show no difference between adjacent parameter settings. Last, check 5 gives the relative precision ratio that we use to compare precision across different runs. Given that we have decided on 1,000 observations on the basis of the previous checks, this implies a ratio of 3.2%. This will be important when we determine the number of iterations to collect with the all-Hunter benchmarks below.

[1] This expectation derives from the algorithm for the initial random scatter of party positions.

Table E5.1: Diagnostic Checks for all-Sticker runs

Num Parties	Mean Est	Std Dev	Std Error	*Check 1* R-hat statistic	*Check 2* *F*-test *p*-value	*Check 3* Power Zero	*Check 4* Power Differ	*Check 5* SE / SD Ratio
100 Repetitions								
2	1.554	0.649	0.0649	n / a	0.406	1	n / a	0.1
3	1.512	0.483	0.0483	n / a	0.811	1	0.082	0.1
4	1.483	0.384	0.0384	n / a	0.661	1	0.075	0.1
5	1.452	0.357	0.0357	n / a	0.177	1	0.093	0.1
6	1.482	0.350	0.0350	n / a	0.608	1	0.094	0.1
7	1.469	0.327	0.0327	n / a	0.351	1	0.058	0.1
8	1.528	0.289	0.0289	n / a	0.334	1	0.270	0.1
9	***1.443***	0.252	0.0252	n / a	***0.025***	1	0.605	0.1
10	1.482	0.280	0.0280	n / a	0.542	1	0.187	0.1
11	***1.441***	0.268	0.0268	n / a	***0.029***	1	0.192	0.1
12	***1.453***	0.248	0.0248	n / a	***0.062***	1	0.063	0.1
1,000 Repetitions								
2	1.514	0.622	0.0197	n / a	0.465	1	n / a	0.032
3	1.503	0.494	0.0156	n / a	0.832	1	0.073	0.032
4	1.519	0.433	0.0137	n / a	0.173	1	0.115	0.032
5	1.501	0.383	0.0121	n / a	0.961	1	0.167	0.032
6	1.511	0.357	0.0113	n / a	0.349	1	0.092	0.032
7	1.492	0.318	0.0100	n / a	0.416	1	0.236	0.032
8	1.514	0.307	0.0097	n / a	0.161	1	0.344	0.032
9	1.492	0.284	0.0090	n / a	0.361	1	0.378	0.032
10	1.493	0.272	0.0086	n / a	0.435	1	0.052	0.032
11	1.497	0.276	0.0087	n / a	0.748	1	0.062	0.032
12	1.503	0.251	0.0079	n / a	0.688	1	0.080	0.032

E5.2: Diagnostics for all-Aggregator benchmark runs

Table E5.2 shows results from the five diagnostic checks for mean party eccentricity for 1,000 observations. Checks 1 and 2 do not apply to the all-Aggregator runs, as we do not use a time average and we do not have any prior analytical expectations for any of the output variables. Checks 3 and 4 show each estimate is significantly different from zero, and significantly different from the previous estimate on the grid. Check 5 confirms as expected that the relative precision of the output variable for all runs is 3.2%, which is the same as the all-Sticker runs.

Table E5.2: Diagnostic Checks for all-Aggregator runs (1000 repetitions)

Num Parties	Mean Est	Std Dev	Std Error	*Check 1* R-hat statistic	*Check 2* *F*-test *p*-value	*Check 3* Power Zero	*Check 4* Power Differ	*Check 5* SE / SD Ratio
1,000 Repetitions								
2	0.797	$1.6e^{-04}$	$5.16e^{-06}$	n / a	n / a	1	n / a	0.032
3	1.035	$6.4e^{-05}$	$2.03e^{-06}$	n / a	n / a	1	1	0.032
4	1.128	0.008	0.0003	n / a	n / a	1	1	0.032
5	1.157	0.049	0.0015	n / a	n / a	1	1	0.032
6	1.180	0.015	0.0005	n / a	n / a	1	1	0.032
7	1.232	0.003	0.0001	n / a	n / a	1	1	0.032
8	1.277	0.005	0.0002	n / a	n / a	1	1	0.032
9	1.312	0.007	0.0002	n / a	n / a	1	1	0.032
10	1.338	0.006	0.0002	n / a	n / a	1	1	0.032
11	1.358	0.009	0.0003	n / a	n / a	1	1	0.032
12	1.377	0.011	0.0003	n / a	n / a	1	1	0.032

E5.3: Diagnostics for all-Hunter benchmark runs

Table E5.3 shows results for our diagnostic checks with 100 and 1000 iterations.

We use a time average so Check 1 is important. We see that 100 iterations are not enough to ensure we have mapped out the steady-state distribution vector. The Rhat statistic is above 1.05 for all runs except one and is above 1.10 with five of the 11 runs. Check 2 does not apply, as we do not have any prior expectations for mean-eccentricity with any of the runs in this experiment. Checks 3 and 4 are satisfied.

The situation is much improved with 1,000 post-burn-in iterations. We saw in Chapter 4 that 1,000 observations are enough to map out the entire steady-state distribution for all runs; now the Rhat statistic is less than 1.05 with all runs. Checks 3 and 4 continue to be satisfied. Finally, given that we have settled on 1,000 observations based on our analysis of the first four diagnostic checks, the relative precision (check 5) is 3.2%, which as we note above is consistent with both the all-Sticker and all-Aggregator runs.

Table E5.3 Diagnostic checks for all-Hunter runs

Num Parties	Mean Est	Std Dev	Std Error	*Check 1* R-hat statistic	*Check 2* *F*-test *p*-value	*Check 3* Power Zero	*Check 4* Power Differ	*Check 5* SE / SD Ratio
100 Repetitions								
2	0.167	0.087	0.0087	***1.257***	n / a	1	n / a	0.1
3	0.605	0.180	0.0180	***1.068***	n / a	1	1	0.1
4	0.697	0.079	0.0079	***1.127***	n / a	1	0.997	0.1
5	0.729	0.074	0.0074	***1.067***	n / a	1	0.834	0.1
6	0.792	0.066	0.0066	***1.108***	n / a	1	0.999	0.1
7	0.893	0.061	0.0061	***1.081***	n / a	1	1	0.1
8	0.850	0.073	0.0073	***1.528***	n / a	1	0.995	0.1
9	1.008	0.068	0.0068	1.049	n / a	1	1	0.1
10	0.956	0.057	0.0057	***1.133***	n / a	1	0.999	0.1
11	0.912	0.062	0.0062	***1.448***	n / a	1	0.999	0.1
12	1.004	0.044	0.0044	***1.094***	n / a	1	1	0.1
1,000 Repetitions								
2	0.192	0.095	0.0030	1.007	n / a	1	n / a	0.032
3	0.544	0.151	0.0048	1.014	n / a	1	1	0.032
4	0.707	0.133	0.0042	1.045	n / a	1	1	0.032
5	0.759	0.087	0.0027	1.009	n / a	1	1	0.032
6	0.795	0.087	0.0028	1.012	n / a	1	1	0.032
7	0.868	0.074	0.0023	1.012	n / a	1	1	0.032
8	0.887	0.085	0.0027	1.036	n / a	1	0.999	0.032
9	0.916	0.087	0.0027	1.038	n / a	1	1	0.032
10	0.962	0.074	0.0023	1.031	n / a	1	1	0.032
11	0.927	0.082	0.0026	1.029	n / a	1	1	0.032
12	0.978	0.069	0.0022	1.021	n / a	1	1	0.032

Table E5.4: Mean party policy eccentricity, by decision rule and number of parties, unimodal populations

Number of parties	***Hunters***	***Aggregators***
2	0.20	0.80
3	0.55	1.03
4	0.68	1.13
5	0.76	1.15
6	0.82	1.18
7	0.86	1.23
8	0.89	1.28
9	0.91	1.31
10	0.94	1.34
11	0.95	1.36
12	0.97	1.38

Standard errors of all estimates are less than 0.002.
Mean policy eccentricities of Sticker parties are always 1.50,
given the algorithm for the random initial scatter of party positions

Table E5.5: Effective Number of Parties (ENP) by decision rule and number of parties

Number of parties	***Stickers***	***Hunters***	***Aggregators***
2	1.60	1.98	2.00
3	2.16	2.73	3.00
4	2.77	3.67	3.98
5	3.38	4.56	4.85
6	4.03	5.46	5.72
7	4.70	6.37	6.50
8	5.36	7.28	7.38
9	6.02	8.20	8.22
10	6.66	9.10	9.04
11	7.29	10.00	9.84
12	7.99	10.90	10.62

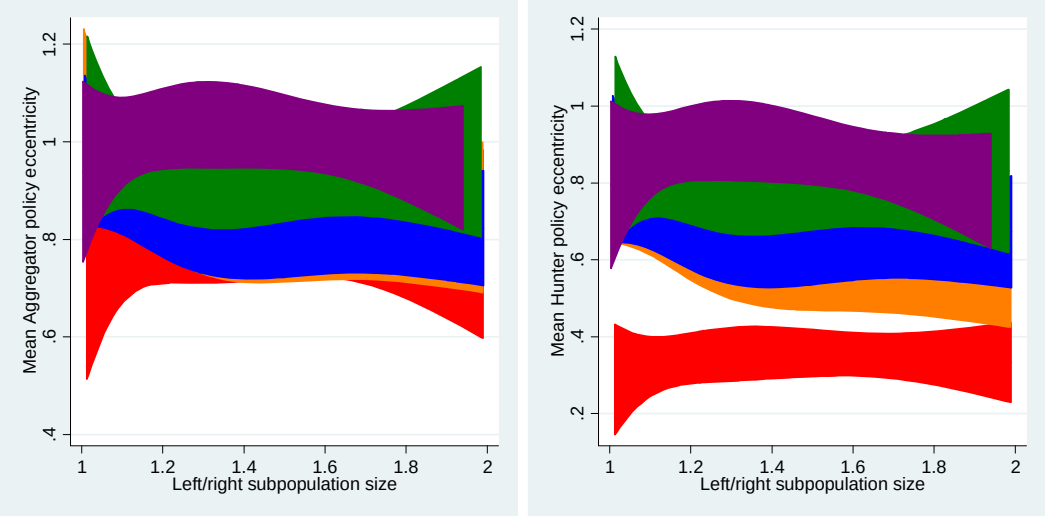
Standard errors of all estimates are less than 0.001 (Aggregators),
0.004 (Hunters) and 0.012 (Stickers)

Table E5.6: Mean representativeness of the configuration of party positions, by decision rule and number of parties

Number of parties	***Hunters***	***Aggregators***
2	-1.85	-1.36
3	-1.44	-0.92
4	-1.14	-0.72
5	-0.95	-0.61
6	-0.82	-0.50
7	-0.73	-0.45
8	-0.65	-0.40
9	-0.59	-0.36
10	-0.55	-0.33
11	-0.51	-0.30
12	-0.47	-0.28

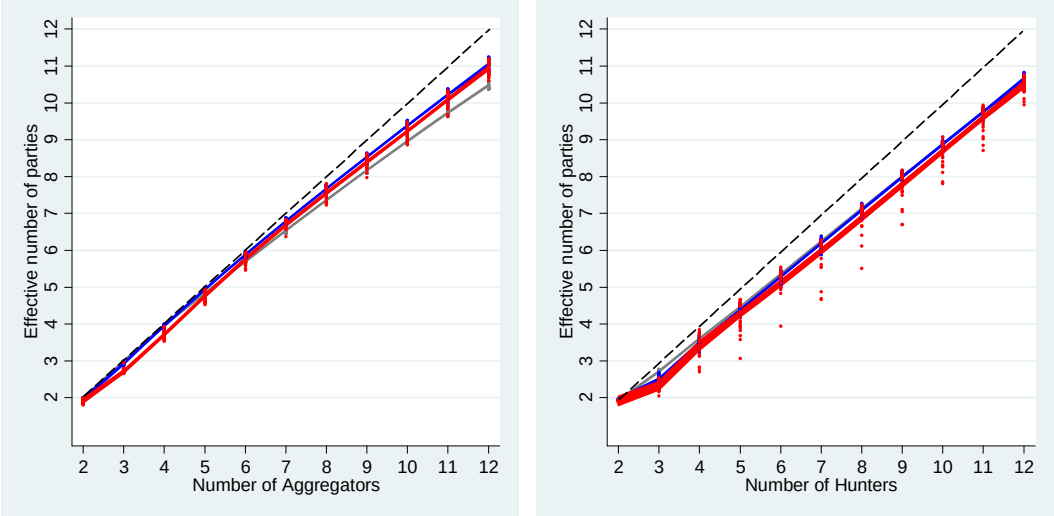
Standard errors of all estimates are less than 0.0001 (Aggregators), 0.002 (Hunters) and 0.005 (Stickers)

Figure E5.1: Mean party policy eccentricity, by decision rule, number of parties and subpopulation sizes



N of parties = 2 (red bands), 3 (orange), 4 (blue), 5 (green), 12 (purple)

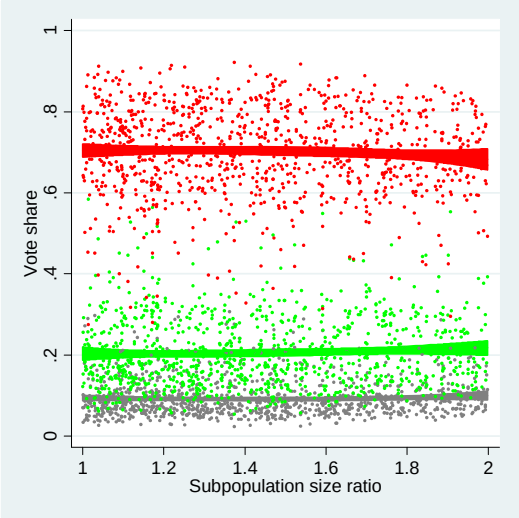
Figure E5.2: Mean effective number of parties, by decision rule, number of parties and subpopulation polarization



Red band: polarization > 1.0. Gray: polarization < 0.5. Else: blue band.

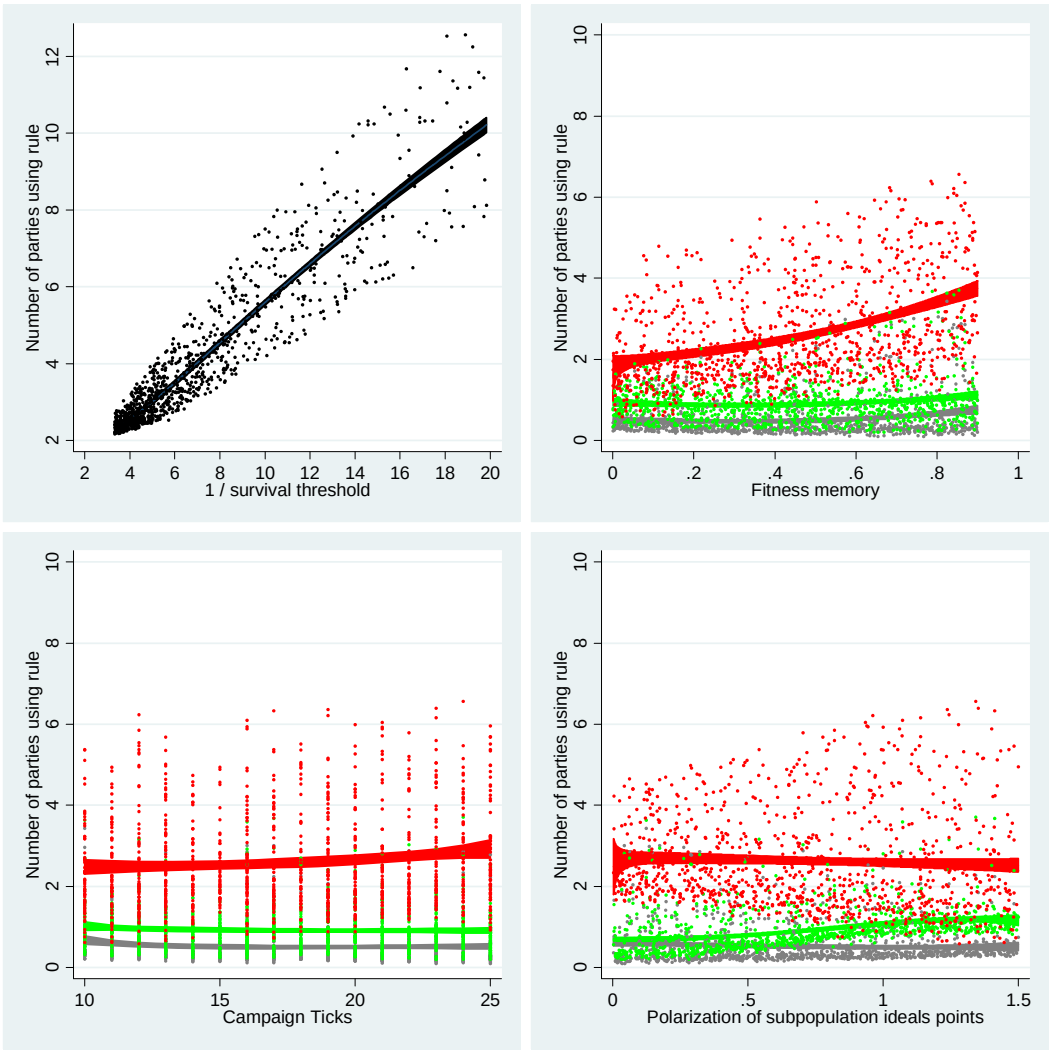
Appendix E6

Figure E6.1: Long run vote share, by rule and subpopulation size ratio (Hunter parties red, Aggregators green, Stickers gray) [2]



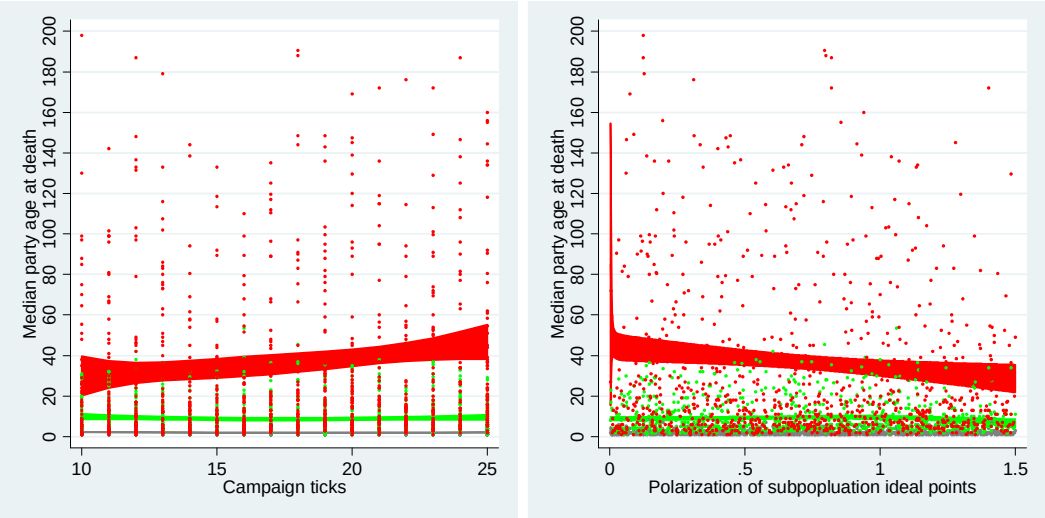
[2] See note to Table 5.1

Figure E6.2: Mean number of surviving parties, by decision rule, $1/\tau$, voter polarization, Ψ and α_f



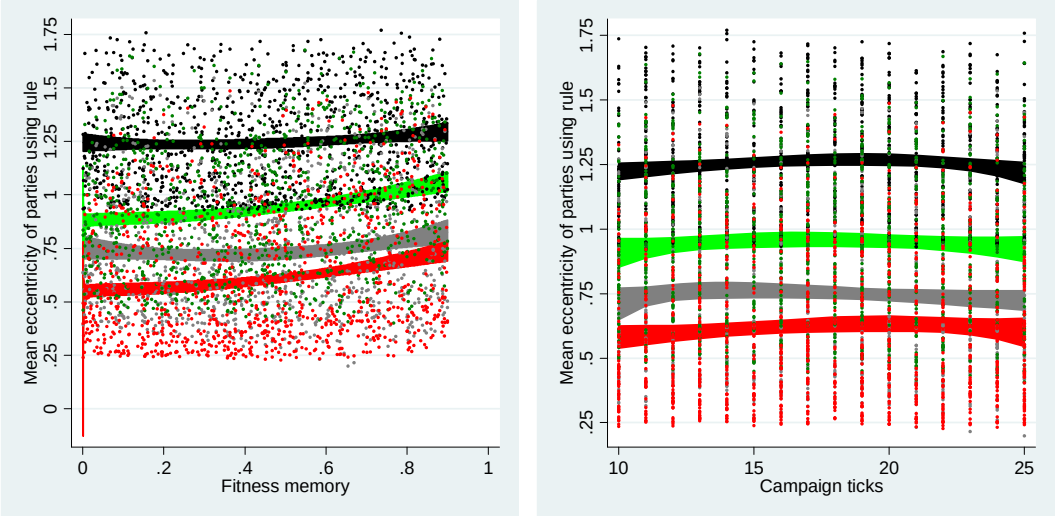
Hunter parties red, Aggregators green, Stickers gray

Figure E6.3: Median party age at death, by decision rule, Ψ and α_f; baseline symmetric population



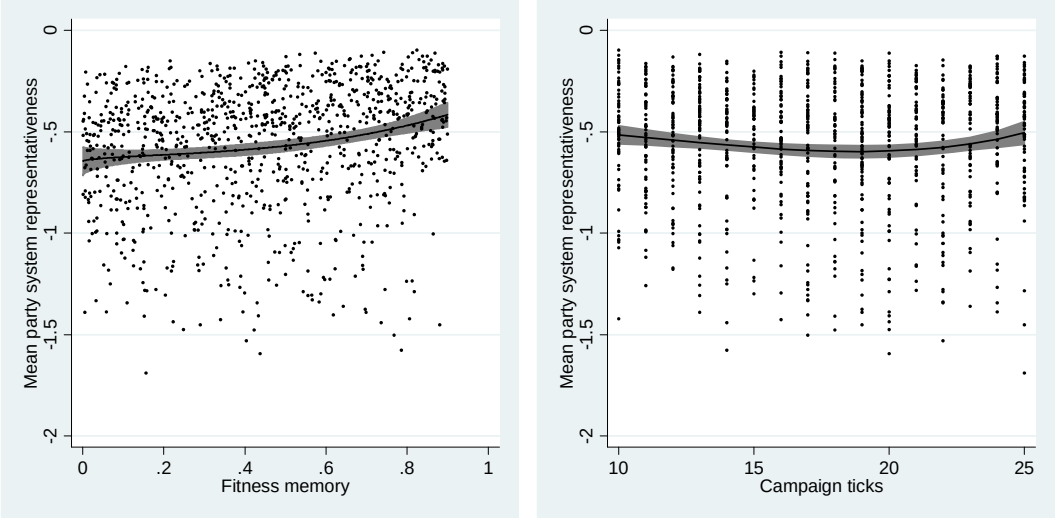
Hunter parties red, Aggregators green, Stickers gray

Figure E6.4: Mean party eccentricity, by decision rule, Ψ and α_f;



Hunter parties red, Aggregators green, Stickers gray, new parties black

Figure E6.5: Party system representativeness, by Ψ, α_f



Appendix E7

Table E7.1: NetLogo code for five species of decision rule

Rule species	***NetLogo code***[3]
Sticker	to stick end
Aggregator[4]	to aggregate if (mysize > 0) [let xbar (sum [votes * pxcor] of patches with [closest-party = myself] / mysize) let ybar (sum [votes * pycor] of patches with [closest-party = myself] / mysize) let dist distancexy xbar ybar facexy xbar ybar ifelse (dist >= speed) [jump speed] [setxy xbar ybar]] end
Hunter[5]	to sat-hunt ifelse (mysize / total-votes < comfort-kappa) [hunt] [stick] end to hunt ifelse (mysize > old-size) [jump speed] [set heading heading + 90 + random-float 180 jump speed] set old-size mysize end
Predator	to sat-predate ifelse (mysize / total-votes < comfort-kappa) [predate] [stick] end to predate let me mysize set prey min-one-of other parties with [mysize > me] [distance myself] if prey != nobody [face prey jump speed] end
Explorer	to sat-explore ifelse (mysize / total-votes < comfort-kappa) [explore] [stick] end to explore if (mysize > best-size) [set best-x xcor set best-y ycor set best-size mysize] ifelse (remainder cycle campaign-ticks != 0) [setxy old-x old-y set heading random-float 360 jump random-float neighborhood-eta] [if (best-size > old-size) [setxy best-x best-y] set best-size 0]

[3] NetLogo coordinates are 10*standard deviation units

[4] For the version of Aggregator used in Chapters 4 & 5, replace:
" ifelse (dist >= speed) [jump speed] [setxy xbar ybar]" with "[setxy xbar ybar]".

[5] For the version of Hunter used in Chapters 4 & 5, set comfort kappa=1.0 and speed = 1.0

Table E7.2: Mean long run vote share by rule species (SEs in parenthesis)

RULE SPECIES	*3-rule system*	*111-rule system*
Explorer		0.323 (0.002)
Predator		0.221 (0.003)
Hunter	0.719 (0.005)	0.194 (0.001)
Aggregator	0.200 (0.005)	0.172 (0.002)
Sticker	0.080 (0.002)	0.086 (0.001)

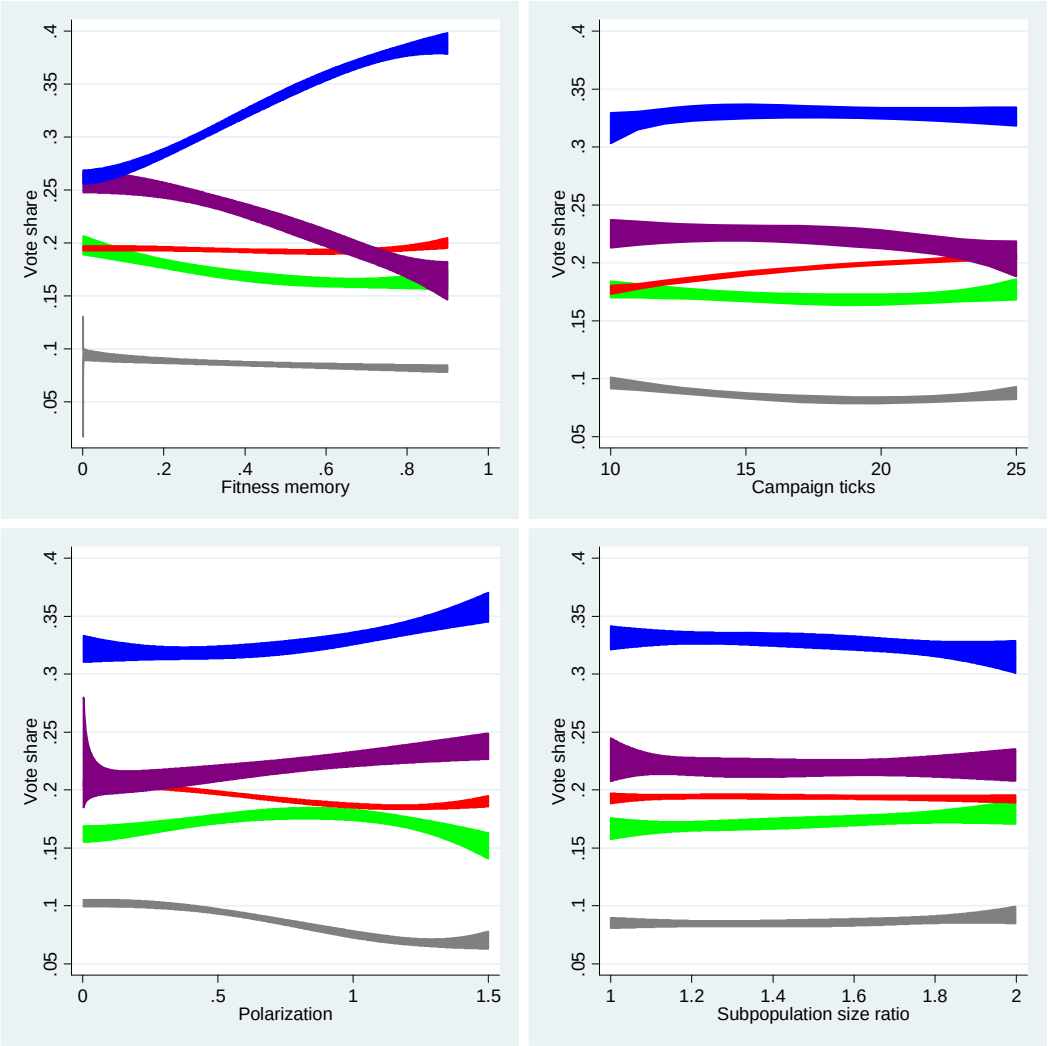
Standard errors for Explorer, Predator, Hunter, Aggregator, and Sticker vote shares in the 111-rule system are 0.003, 0.004, 0.001, 0.002, 0.001.

Table E7.3: Mean long run vote share by comfort threshold

Comfort threshold	*Long-run mean vote share**
0.06	0.057
0.11	0.076
0.16	0.095
0.21	0.122
0.26	0.141
0.31	0.143
1.00	0.101

**All standard errors are in the range 0.02 – 0.03*

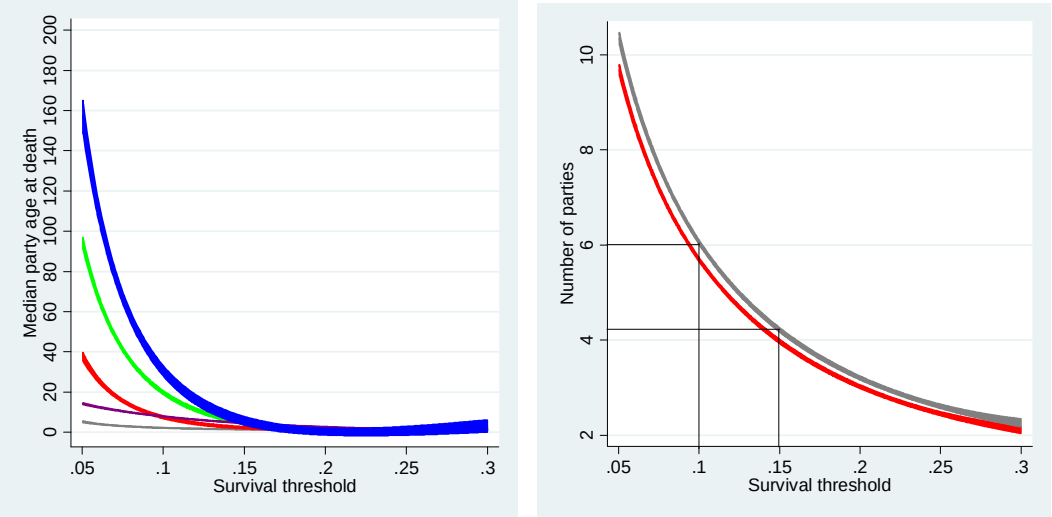
Figure E7.1: Mean rule fitness, by rule species, party system and population parameters



Stickers grey, Aggregators green, Hunters red, Predators purple, Explorers blue [6]

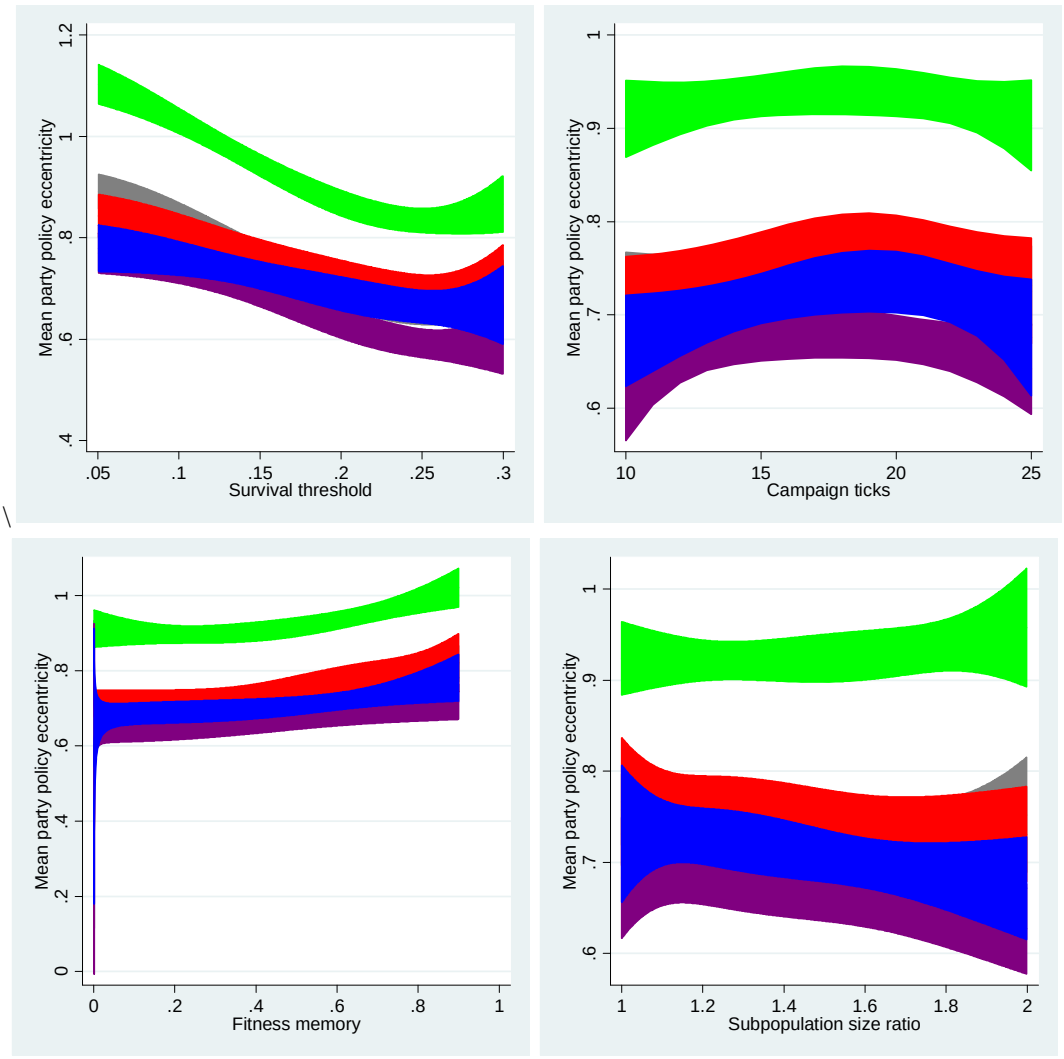
[6] See note to Figure 6.2

Figure E7.2: Longevity and number of parties, by rule species and τ[7]



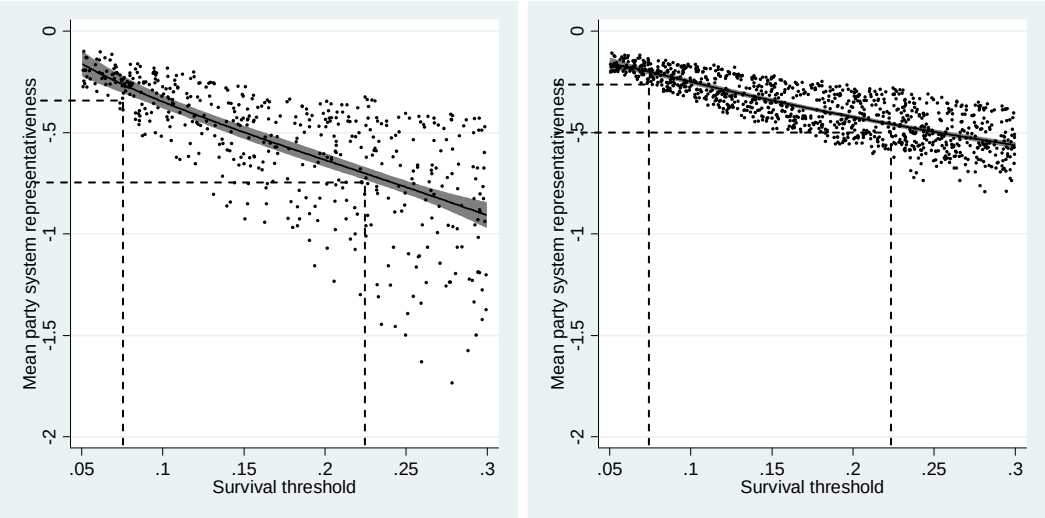
[7] Bottom panel: ENP is red and absolute number of parties is gray. The bands characterizing each set of results are 95 percent confidence intervals around fractional-polynomial prediction plots. Plots of rule species fitness against other party system and population parameters, including polarization, are shown in Figure E6.1 in the electronic appendix and did not reveal any other major pattern.

Figure E7.3: Mean party eccentricity, by rule species, party system and population parameters
Stickers grey, Aggregators green, Hunters red, Predators purple, Explorers blue [8]



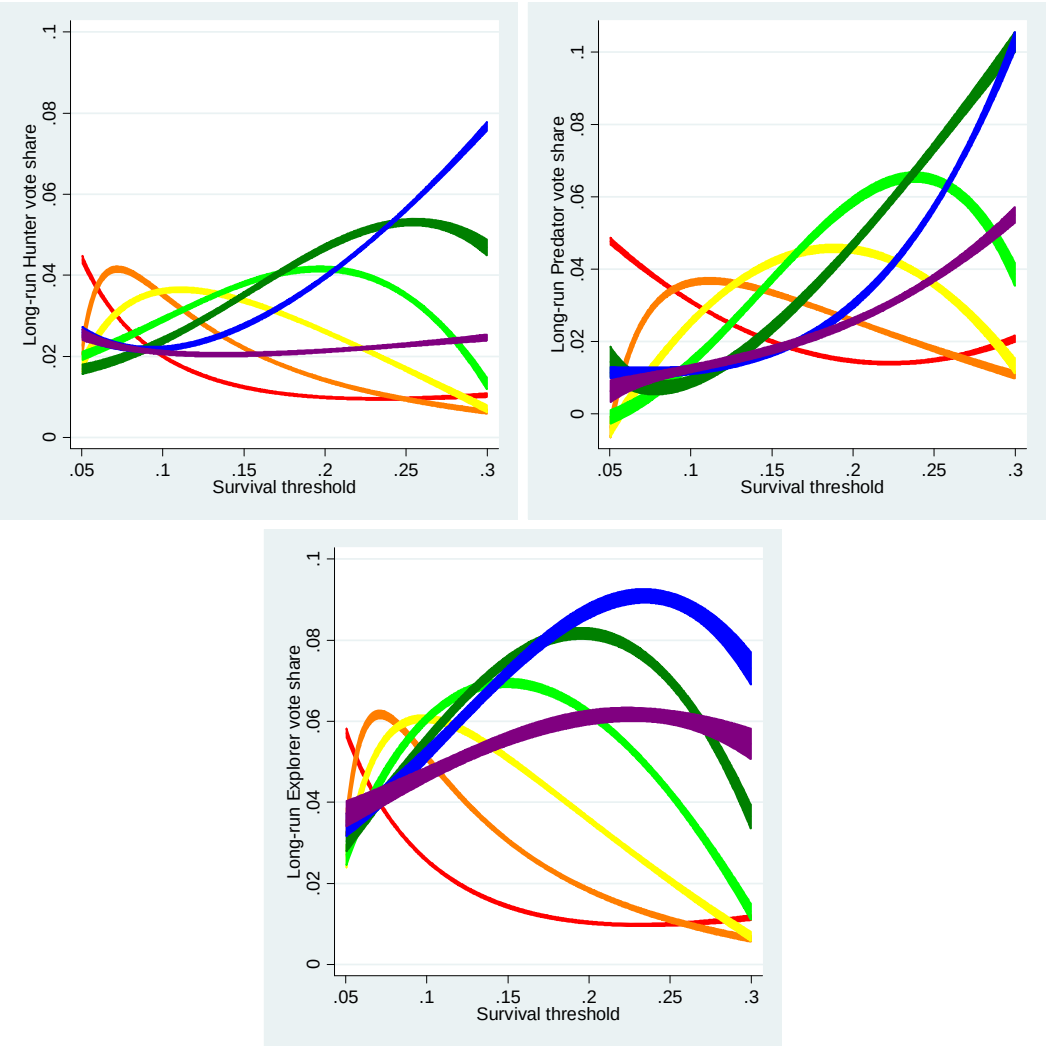
[8] See note to Figure 6.2

Figure E7.4: Party system unrepresentativeness, by survival threshold:



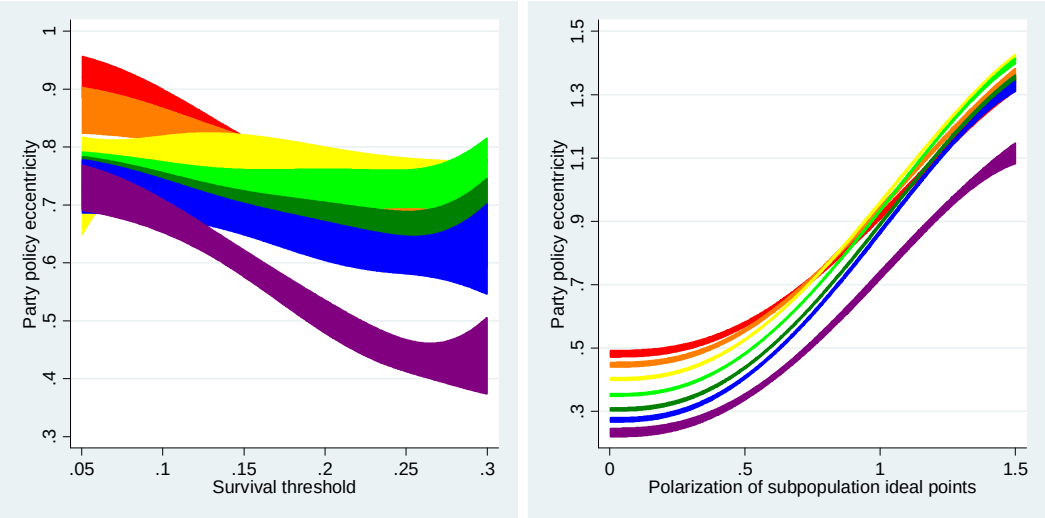
3-rule (left panel) and 111-rule (right panel) party systems

Figure E7.5: Long run vote share, by rule species and τ,



κ = (0.06, 0.11, 0.16, 0.21, 0.26, 0.31, 1.00)
color coded (red, orange, yellow, lime, green, blue, purple)

Figure E7.6: Party policy eccentricity by τ and subpopulation polarization,



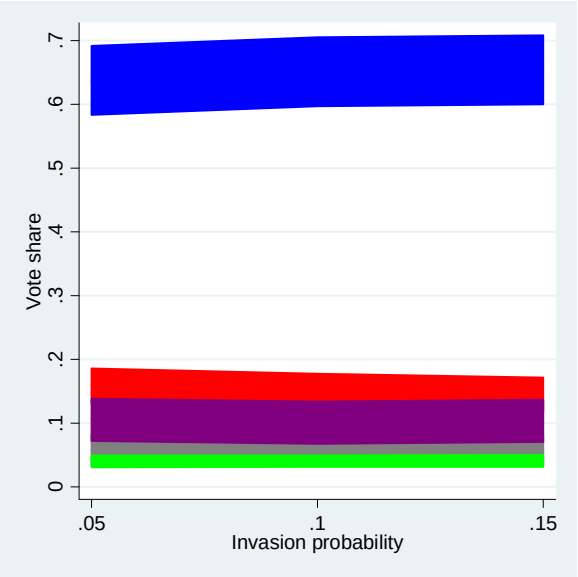
for κ = (0.06, 0.11, 0.16, 0.21, 0.26, 0.31, 1.00)
Color coded (red, orange, yellow, lime, green, blue, purple)

Appendix E8

Table E8.1: Means of long-run vote share and median age at party death, by rule species (SEs in parenthesis)

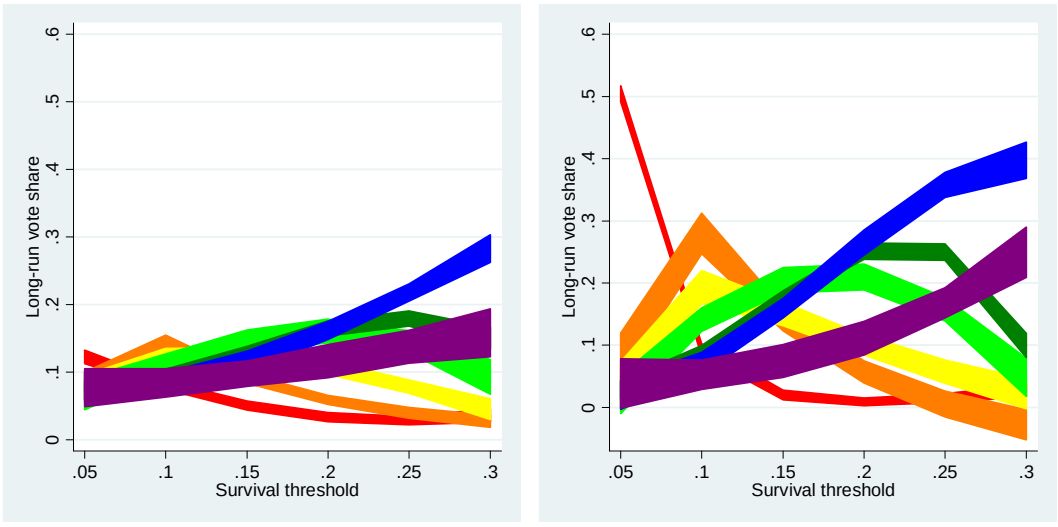
RULE SPECIES	*Random selection benchmark*		*Replicator-mutator system*	
	Vote share	*Death age*	*Vote share*	*Death age*
Explorer	0.360 (0.012)	49.60 (19.59)	0.648 (0.015)	33.90 (7.91)
Hunter	0.196 (0.004)	12.50 (5.33)	0.151 (0.008)	13.76 (4.56)
Predator	0.191 (0.017)	6.04 (1.16)	0.103 (0.009)	8.03 (2.36)
Aggregator	0.167 (0.011)	14.38 (4.18)	0.041 (0.003)	12.37 (3.92)
Sticker	0.086 (0.007)	3.29 (0.93)	0.058 (0.007)	3.23 (0.74)

Figure E8.1: Typical vote-share by rule species and invasion probability



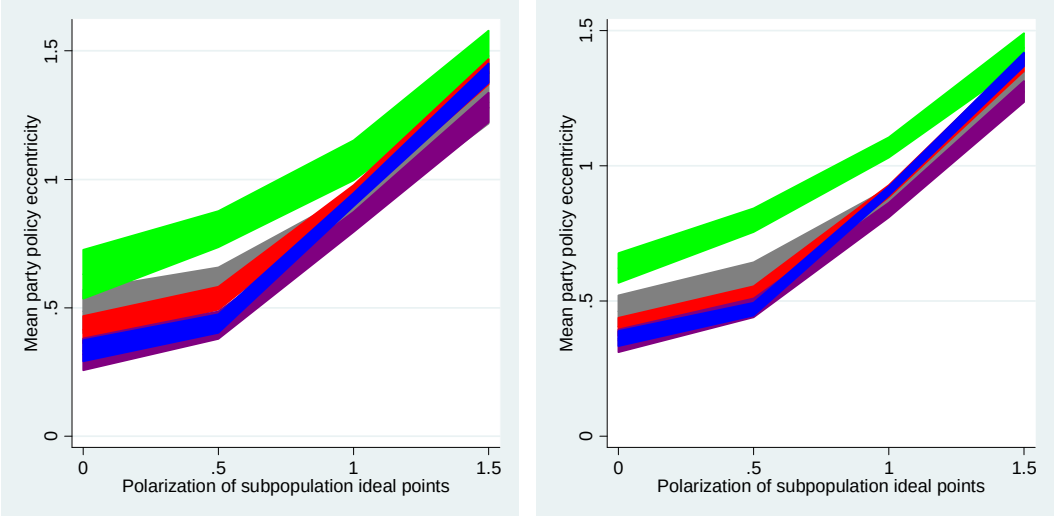
Stickers grey, Aggregators green, Hunters red, Predators purple, Explorers blue

Figure E8.2: Typical vote share, by τ: equivalent parameterizations of random rule selection (left), replicator-mutator dynamics (right)



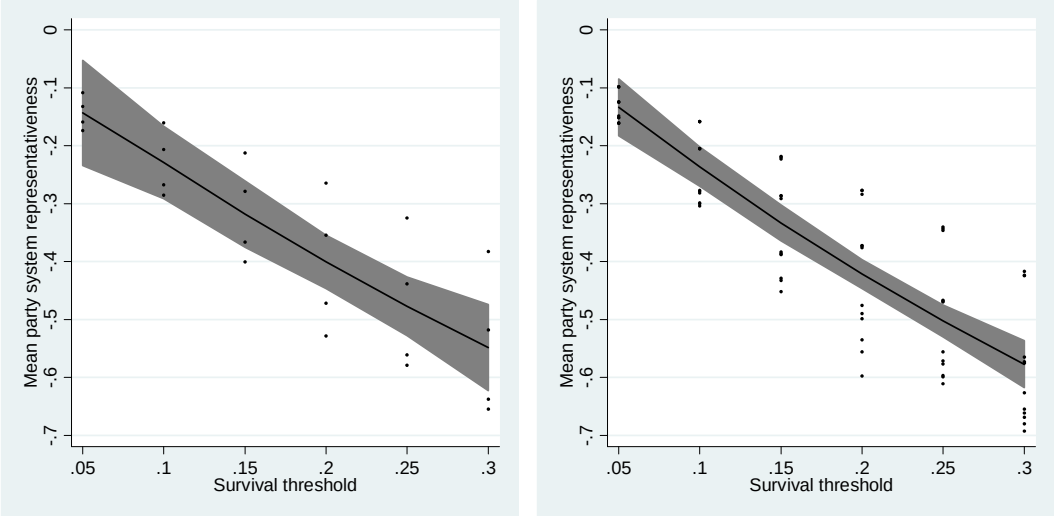
κ = (0.12, 0.16, 0.20, 0.28, 0.32, 1.00)
Color coded (red, orange, yellow, lime, green, blue, purple)

Figure E8.3: Typical party policy eccentricity by rule and voter polarization; random rule selection (left) and replicator-mutator system (right)



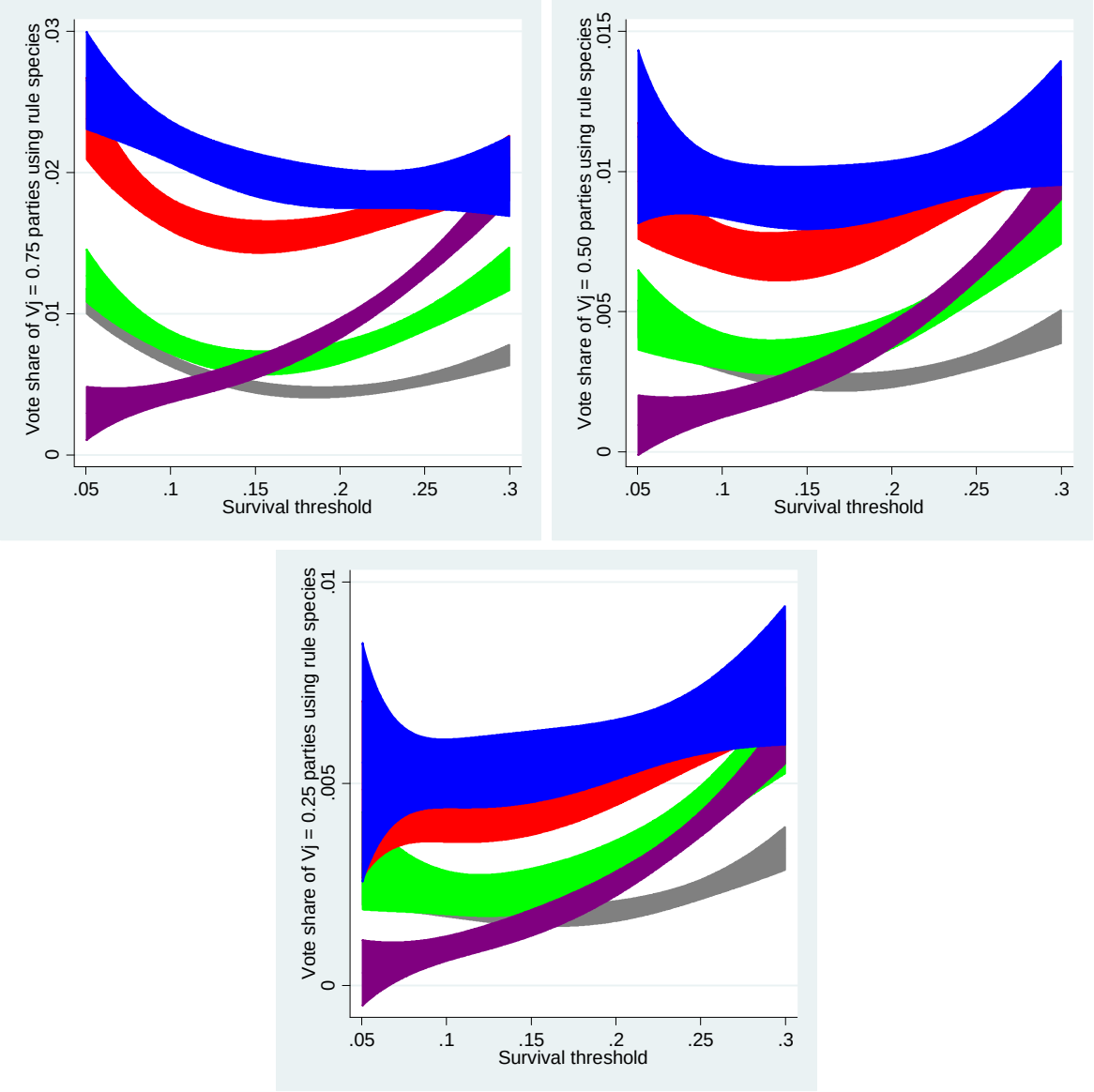
Stickers grey, Aggregators green, Hunters red, Predators purple, Explorers blue

Figure E8.4: Party system representativeness by τ; random rule selection (left) and replicator-mutator rule system (right)



Appendix E9

Figure E9.1: Typical party vote shares, by rule species and survival threshold
Top left panel: $V_J = 0.75$. Top right panel: $V_J = 0.50$.Bottom panel: $V_J = 0.25$



Stickers grey, Aggregators green, Hunters red, Predators purple, Explorers blue

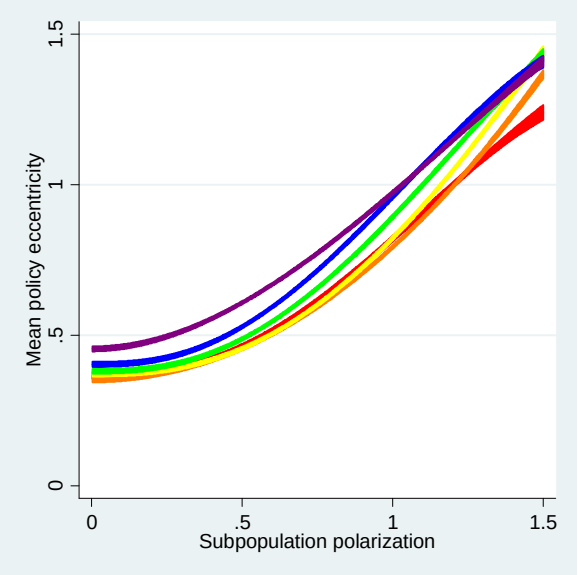
Appendix E10

Table E10.1: NetLogo code for five species of decision rule, incorporating the policy preferences of party leaders

Rule species	***NetLogo code***[9]
Sticker	to stick end
Aggregator	to aggregate if (mysize > 0) [let xbar (sum [votes * pxcor] of patches with [closest-party = myself] / mysize) let ybar (sum [votes * pycor] of patches with [closest-party = myself] / mysize) let xdest (phi * ideal-x) + (1-phi) * xbar let ydest (phi * ideal-y) + (1-phi) * ybar facexy xdest ydest let dist distancexy xdest ydest ifelse (dist >= speed) [jump speed] [setxy xdest ydest]] end
Hunter	to hunt ifelse (utiles > old-utiles) [jump speed] [set heading heading + 90 + random-float 180 jump speed] set old-utiles utiles end
Predator	to predate let xdest (phi * ideal-x) + (1 - phi) * [xcor] of largest-party let ydest (phi * ideal-y) + (1 - phi) * [ycor] of largest-party facexy xdest ydest let dist distancexy xdest ydest ifelse (dist >= speed) [jump speed] [setxy xdest ydest] end
Explorer	to explore if (utiles > best-utiles) [set best-x xcor set best-y ycor set best-utiles utiles] ifelse (remainder cycle campaign-ticks != 0) [setxy old-x old-y set heading random-float 360 jump random-float neighborhood-eta] [if (best-utiles > old-utiles) [setxy best-x best-y] set best-utiles 0] end
Utiles	to update-utility let scale 0.05 set mysize sum [votes] of patches with [closest-party = myself] let ideal-point-loss 0 - (distancexy ideal-x ideal-y ^ 2) / 100 set utiles 1 + (phi * scale * ideal-point-loss) + (1 - phi) * mysize / total-votes end

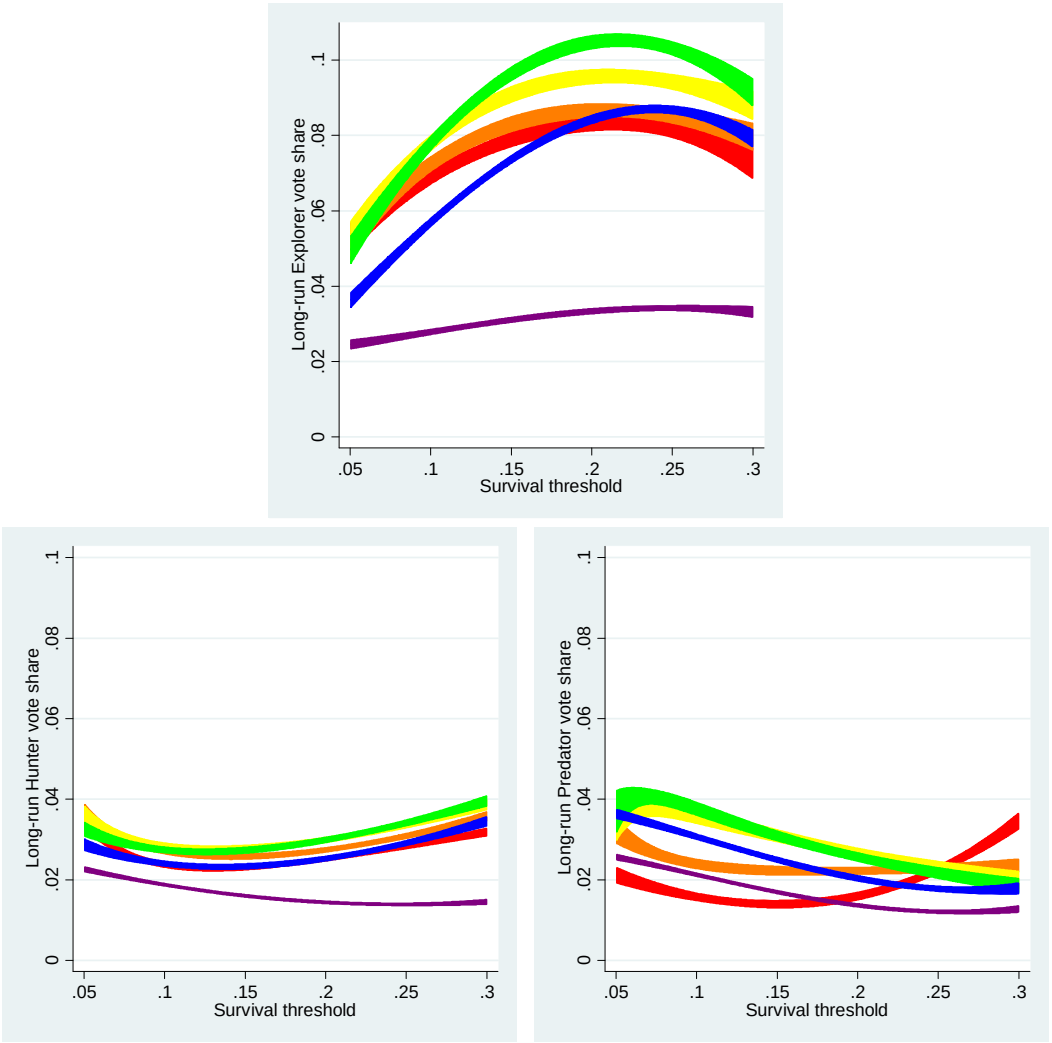
[9] NetLogo coordinates are 10*standard deviation units. See footnote 65 for NetLogo code generating “utiles”.

Figure E10.1: Mean party policy eccentricity by voter polarization and leader φ



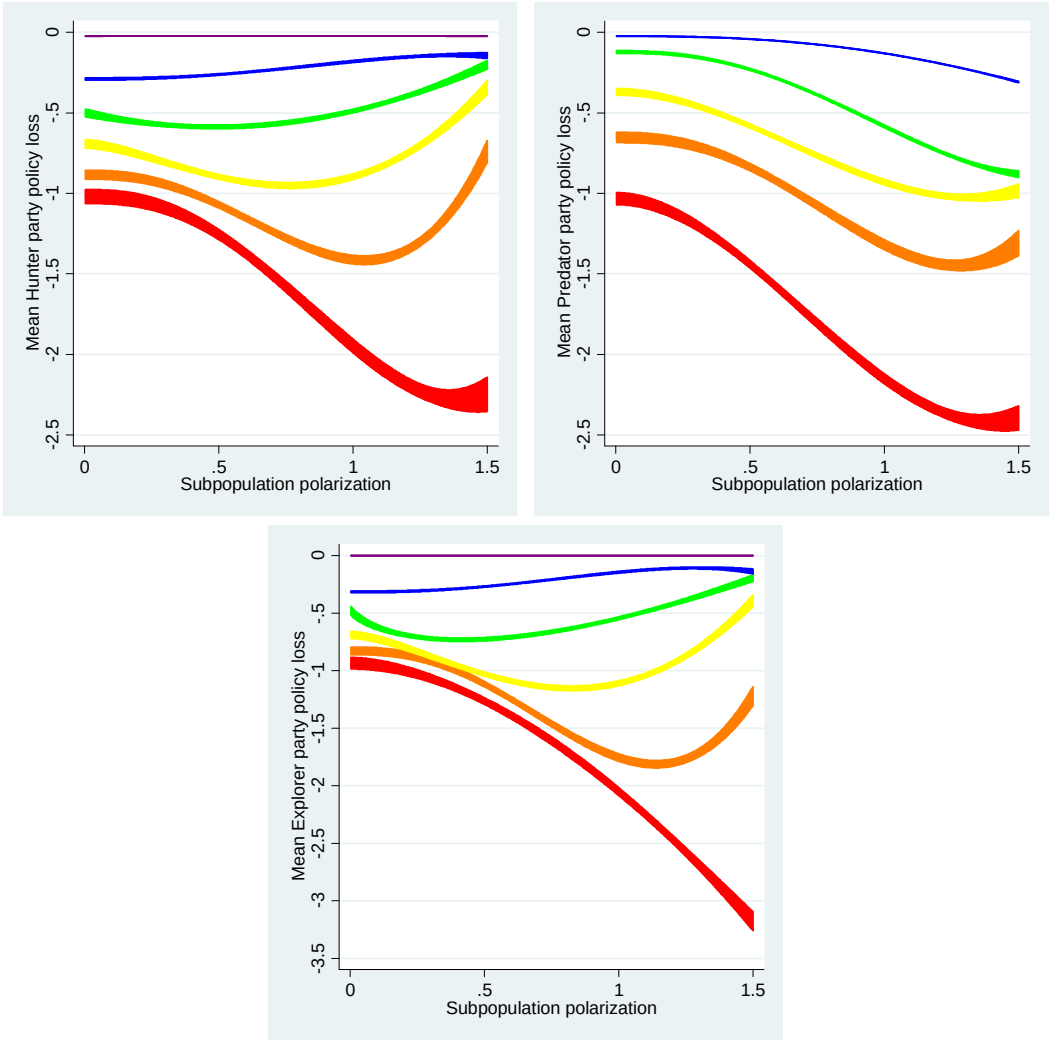
φ= 0.0 red; φ= 0.2 orange; φ= 0.4 yellow; φ= 0.6 green; φ= 0.8 blue; φ= 1.0 purple

Figure E10.2: Mean vote shares of parties by rule species and leader φ



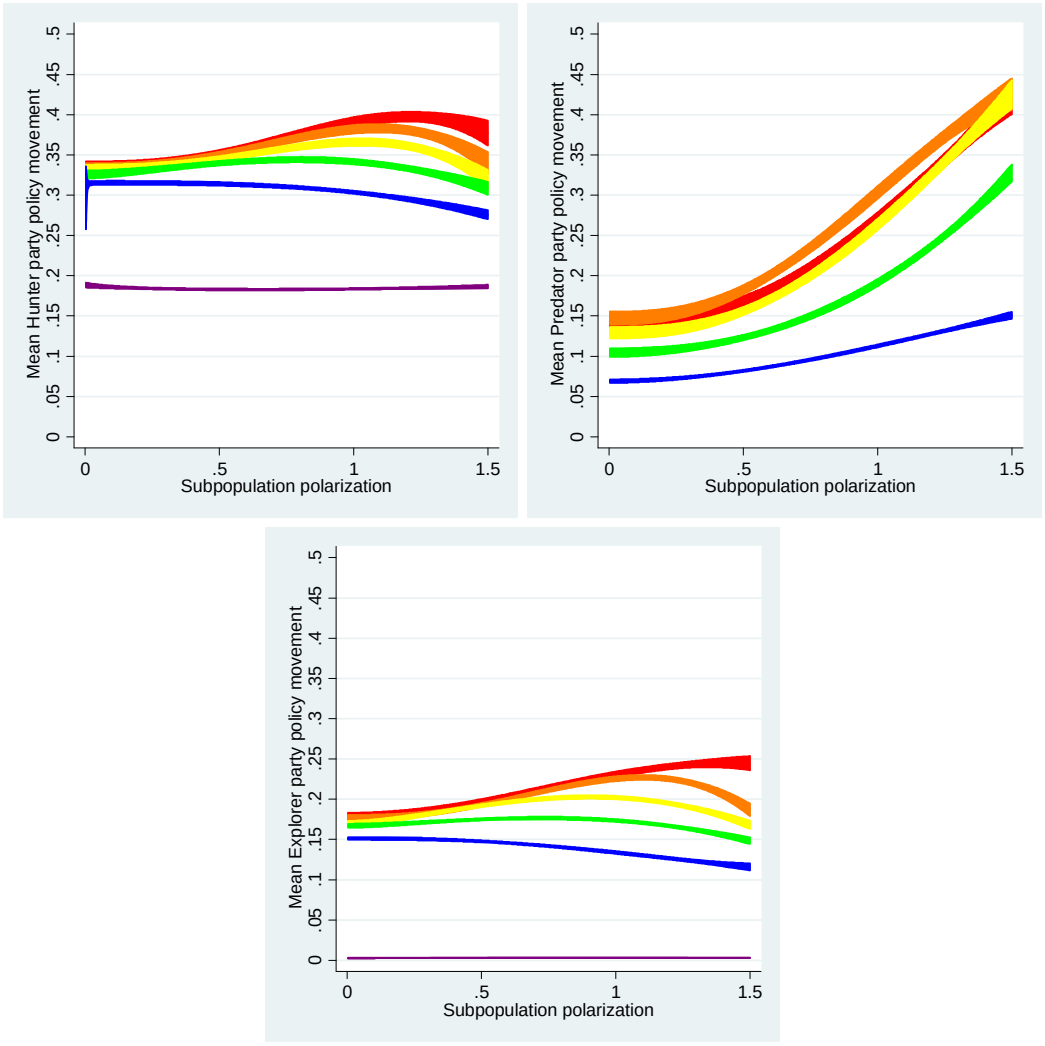
φ= 0.0 red; φ= 0.2 orange; φ= 0.4 yellow; φ= 0.6 green; φ= 0.8 blue; φ= 1.0 purple

Figure E10.3: Mean policy loss by rule species and leader φ



φ= 0.0 red; φ= 0.2 orange; φ= 0.4 yellow; φ= 0.6 green; φ= 0.8 blue; φ= 1.0 purple

Figure E10.4: Mean policy movement by rule species and leader φ



φ= 0.0 red; φ= 0.2 orange; φ= 0.4 yellow; φ= 0.6 green; φ= 0.8 blue; φ= 1.0 purple

Appendix E11

Table E11.1: Party support shares and policy positions, c1989 and 2003[10]

Party		*Support share 1989*	*Support share 2002*	*Raw econ policy 1989*	*Raw soc policy 1989*	*Raw econ policy 2002*	*Raw soc policy 2002*	*Std econ policy 1989*	*Std soc policy 1989*	*Std econ policy 2002*	*Std soc policy 2002*
Denmark											
Socialdemokratiet i Danmark	SD	0.26	0.25	9.10	7.00	7.40	7.80	-6.29	-3.17	-8.89	-2.55
Konservative Folkeparti	KF	0.19	0.10	16.00	11.56	15.32	12.48	7.51	5.95	6.95	6.81
Socialistisk Folkeparti	SF	0.17	0.11	6.70	2.40	4.84	4.25	-11.09	-12.37	-14.01	-9.65
Venstre, Danmarks liberale parti	V	0.14	0.30	17.40	12.30	14.84	9.84	10.31	7.43	5.99	1.53
Progress Party	FP	0.08	0.12	19.40	14.00	17.76	11.83	14.31	10.83	11.84	5.51
Radikale Venstre	RV	0.05	0.06	12.50	5.60	10.36	4.08	0.51	-5.97	-2.97	-9.99
Centrumdemokraterne	CD	0.04	0.02	11.78	11.22	9.21	7.96	-0.93	5.27	-5.27	-2.24
Greens	G	0.02		7.17	6.83			-10.15	-3.51		
Kristeligt Folkeparti	KrF	0.01	0.02	12.70	18.30	9.48	17.52	0.91	19.43	-4.73	16.89
Danish Communist Party	DKP	0.01		3.57	7.33			-17.35	-2.51		
Retsforbund	RF	0.01		15.20	9.67			5.91	2.17		
Left Socialists	VS	0.01		3.38	1.38			-17.73	-14.41		
Enhedslisten	Enh		0.03			3.80	3.46			-16.09	-11.24
France											
Parti Socialiste		0.43	0.36	6.73	3.87	7.10	5.10	-4.92	-7.77	-3.72	-6.03
Rassemblement pour la Republique		0.17	0.17	14.00	14.47	14.35	14.44	9.62	13.43	10.77	12.65
Union pour la Democratie Francaise		0.13	0.09	13.57	11.53	14.02	12.00	8.76	7.55	10.12	7.76
Les Verts		0.11	0.12	7.50	4.15	4.57	2.48	-3.38	-7.21	-8.78	-11.28
Parti Communiste Francais		0.07	0.06	2.13	7.60	2.40	7.92	-14.12	-0.31	-13.12	-0.40
Front National		0.04	0.04	18.00	19.36	16.69	18.86	17.62	23.21	15.46	21.48
Left Radicals	MRG	0.01	0.01	8.87	5.92			-0.64	-3.67		
Germany											
Social Democratic Party	SPD	0.46	0.38	6.53	6.68	9.32	7.26	-6.32	-6.05	-3.23	-5.27
Christian Democratic Union/Christian Social Union	CDU/ CSU	0.35	0.35	13.53	14.42	14.40	15.91	7.68	9.43	6.93	12.04
Green Party	GR	0.09	0.06	5.21	2.90	11.02	2.37	-8.96	-13.61	0.17	-15.06
National Democratic Party/Rep	NPD/ REP	0.06	0.02	13.25	18.00	9.00	18.90	7.12	16.59	-3.87	18.01
Free Democratic Party	FDP	0.05	0.05	15.68	6.84	18.71	5.29	11.98	-5.73	15.55	-9.21
Party of Democratic Socialism	PDS		0.12			2.99	4.87			-15.90	-10.06

[10] Standardized policy position scores are multiplied by 10 in order to transform these into NetLogo coordinates

Party		Support share 1989	Support share 2002	Raw econ policy 1989	Raw soc policy 1989	Raw econ policy 2002	Raw soc policy 2002	Std econ policy 1989	Std soc policy 1989	Std econ policy 2002	Std soc policy 2002
Great Britain[11]											
Conservative Party	Con	0.48	0.26	17.21	15.34	15.32	15.26	11.59	9.07	11.40	13.19
Labour Party	Lab	0.39	0.59	5.35	6.53	8.09	6.91	-12.13	-8.55	-3.07	-3.51
Liberal Democrats	LD	0.13	0.15	8.21	6.87	5.79	4.14	-6.41	-7.87	-7.67	-9.05
Greece											
Panellinio Sosialistiko Kinima	PASOK	0.43	0.48	7.33	7.00	10.94	7.81	-6.34	-5.78	-1.88	-5.17
Nea Dimokratia	ND	0.42	0.43	15.67	13.75	14.80	14.00	10.34	7.72	5.84	7.20
Kommunistiko Koma Ellados	KKE	0.14	0.06	5.00	7.75	4.43	10.47	-11.00	-4.28	-14.90	0.14
Communist Party of the Interior	KKEes	0.01	0	6.67	2.00			-7.66	-15.78		
Synaspismos	SYN		0.03			6.53	4.81			-10.69	-11.17
Ireland											
Fianna Fail	FF	0.54	0.51	13.82	16.15	13.75	14.81	1.29	5.49	3.86	5.77
Fine Gael	FG	0.26	0.22	14.68	11.59	12.45	11.47	3.01	-3.63	1.26	-0.91
Labour	LB	0.09	0.12	6.53	7.50	6.60	5.98	-13.29	-11.81	-10.46	-11.89
Progressive Democrats	PD	0.06	0.04	17.12	10.12	17.42	6.98	7.89	-6.57	11.20	-9.90
Workers Party	WP	0.05		4.35	5.79			-17.65	-15.23		
Greens	GR		0.05			5.78	5.62	0.00	0.00	-12.08	-12.62
Sinn Fein	SF	0.01	0.06	6.31	9.78	4.86	9.55	-13.73	-7.25	-13.93	-4.76
Luxembourg											
Christian Social People's Party	CSV	0.37	0.30	9.20	18.20	13.75	15.25	0.49	16.74	5.44	14.59
Luxembourg Socialist Workers' Party	LSAP	0.29	0.31	7.00	4.80	8.50	3.50	-3.91	-10.06	-5.06	-8.92
Democratic Party	DP	0.20	0.21	14.20	6.40	15.00	6.25	10.49	-6.86	7.94	-3.42
The Green	G	0.13	0.15	4.80	2.40	4.00	2.50	-8.31	-14.86	-14.06	-10.92
Communist Party	KPL	0.02		2.80	5.60			-12.31	-8.46		
Action Comity for Democracy and Pensions Justice			0.04			13.00	15.25			3.94	14.59

[11] NB all regional parties are excluded.

Party		Support share 1989	Support share 2002	Raw econ policy 1989	Raw soc policy 1989	Raw econ policy 2002	Raw soc policy 2002	Std econ policy 1989	Std soc policy 1989	Std econ policy 2002	Std soc policy 2002
Netherlands											
Partij van de Arbeid	PvdA	0.35	0.29	5.79	4.00	8.09	5.23	-9.42	-7.99	-3.41	-0.31
Christen Democratisch Appe`l	CDA	0.31	0.17	13.57	14.80	13.27	13.23	6.14	13.61	6.96	15.69
Volkspartij voor Vrijheid en Democratie	VVD	0.14	0.26	17.36	6.13	16.77	4.77	13.72	-3.73	13.96	-1.22
Democraten 66	D66	0.12	0.07	10.36	3.93	10.00	2.59	-0.28	-8.13	0.41	-5.58
Radical Political Party	PPR	0.02		3.00	2.08			-15.00	-11.83		
Pacifist Socialist Party	PSP	0.02		2.23	1.39			-16.54	-13.21		
Communist Party of Netherlands	CPN	0.01		1.85	2.69			-17.30	-10.61		
Reformed Political Union	GPV	0.01	0.01	14.83	19.15			8.66	22.31		
Reformed Political Federation	RPF	0.01	0.01	16.17	19.31			11.34	22.63		
Staatkundig Gereformeerde Partij	SGP	0.01	0.01	16.00	19.39	13.06	19.57	11.00	22.79	6.54	28.38
Groen Links	GL		0.17			5.09	2.57			-9.41	-5.62
Spain[12]											
Partido Socialista Obrero Espanol	PSOE	0.55	0.41	6.60	6.00	7.36	5.57	-2.88	-3.63	-7.81	-10.14
Partido Popular	PP	0.19	0.47	14.60	17.20	16.66	17.16	13.12	18.77	10.79	13.04
Democratic and Social Centre	CDS	0.13		9.40	7.20			2.72	-1.23	0.00	0.00
Izquerda Unida	IU	0.13	0.11	3.20	2.40	3.79	2.63	-9.68	-10.83	-14.95	-16.01

[12] NB Regional parties are excluded

Table E11.2: Calibration of survival threshold, τ, to observed maximum and minimum of observed ENP, and onserved minimum mean long run party vote shares, for Eurobarometer polls, 1974-2002

Country	*Dates (EB)*	*Observed max, min ENP*	*Implied min, max τ*[13]	*Observed minimum mean long run party size*
Austria	1996-2002	3.22, 4.08	0.12, 0.21	0.044
Belgium[14]	1974-2002	4.09, 10.53	0.05, 0.17	0.016
Denmark	1974-2002	3.93, 7.52	0.06, 0.18	0.021
Finland	1993-2002	4.38, 5.87	0.08, 0.16	0.018
France	1974-2002	3.79, 7.01	0.06, 0.18	0.023
Germany	1974-2002	2.34, 4.65	0.11, 0.29	0.040
Great Britain	1974-2002	2.31, 3.98	0.13, 0.30	0.020
Greece	1980-2002	2.28, 4.04	0.13, 0.30	0.028
Ireland	1974-2002	2.24, 4.14	0.12, 0.30	0.022
Italy	1974-2002	3.51, 9.78	0.05, 0.20	0.024
Luxembourg	1974-2002	2.98, 4.89	0.10, 0.24	0.017
Netherlands	1974-2002	3.60, 6.24	0.08, 0.20	0.011
Portugal	1985-2002	2.23, 4.68	0.11, 0.30	0.019
Spain	1985-2002	2.93, 4.96	0.10, 0.27	0.014
Sweden	1995-2002	3.98, 5.55	0.09, 0.18	0.052

[13] Simulation results from the experiment reported in Chapter 6, showing maximum and minimum values of τ for runs in which model ENP was within the range of values observed in the target party system.
[14] Combining language wings of main party groupings, which split during the EB series.

Table E11.3: Calibration of party decision rules species, 1989 - 2002

Country	Decision rule species randomly selected from the following set[15]
Denmark	
SD	S, A, H, P, E
KF	S, A, H, P, E
SF	S, A, H, P, E
V	S, A, H, P, E
FP	S, A, H, P, E
RV	S, A
CD	S, A
Green	S, A
KrF	S, A
DKP	S, A
RF	S, A
VS	S, A
France	
PS	S, A, H, P, E
RPR	S, A, H, P, E
UDF16	S, A, H, P, E
Green	S, A, H, P, E
PCF	S, A, H, P, E
FN	S, A
MRG	S, A
Germany	
SPD	S, A, H, P, E
CDU/CSU	S, A, H, P, E
Green	S, A, H, P, E
Republikaner/NPD	S, A
FDP	S, A
Great Britain[17]	
Conservative	S, A, H, P, E
Labour	S, A, H, P, E
Liberal Dems	S, A, H, P, E
Greece	
PASOK	S, A, H, P, E
ND	S, A, H, P, E
KKE	S, A, H, P, E
KKEes	S, A

[15] S=Sticker; A=Aggregator; H=Hunter; P=Predator; E=Explorer
[16] Combines three factions of the UDF reported separately in the Eurobarometer but treated as one in Laver-Hunt
[17] Vote shares are party shares of the vote won by the top three parties

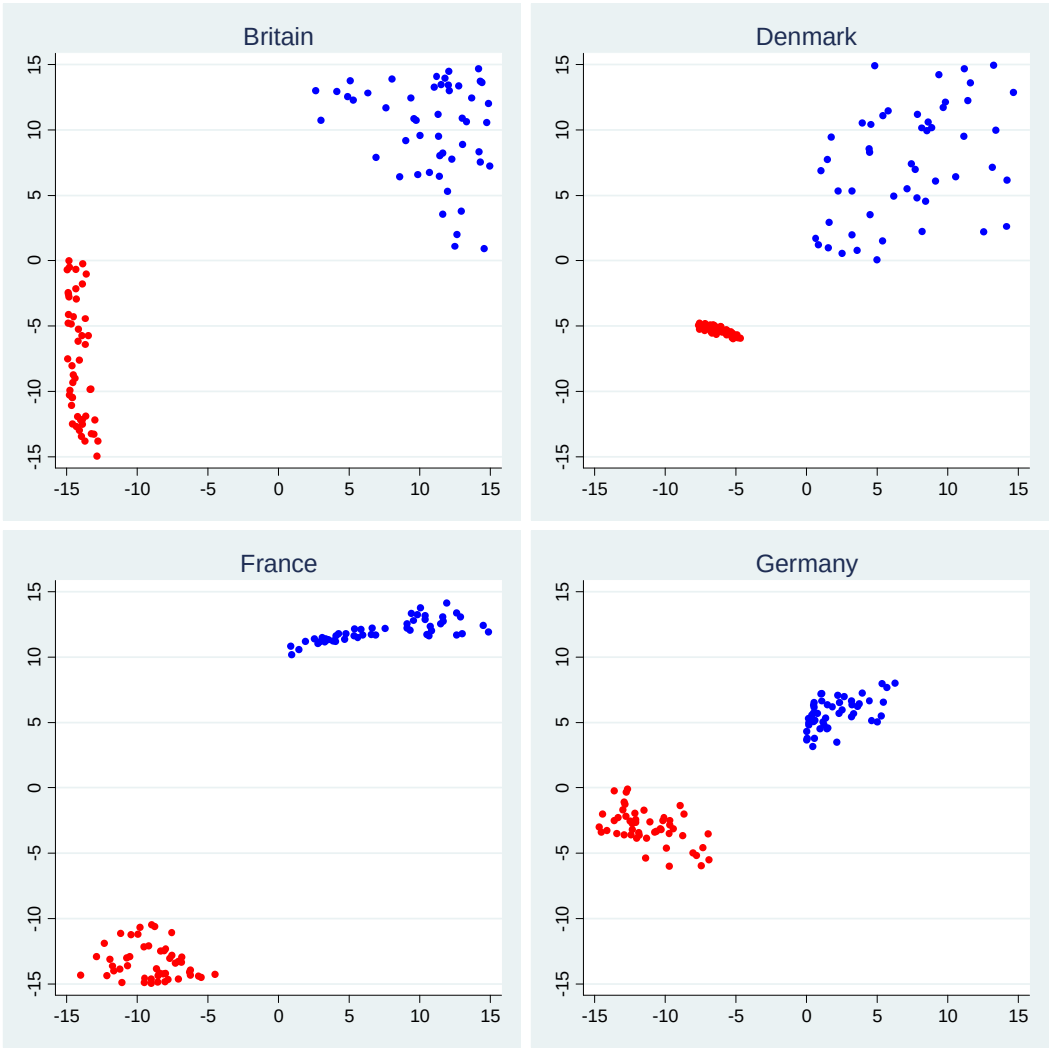
	Decision rule species randomly selected from the following set
Ireland	
Fianna Fáil	S, A, H, P, E
Fine Gael	S, A, H, P, E
Labour	S, A, H, P, E
Prog. Dems	S, A, H, P, E
Workers Pty	S, A
Sinn Féin	S, A
Luxembourg	
CSV	S, A, H, P, E
LSAP	S, A, H, P, E
DP	S, A, H, P, E
Green	S, A, H, P, E
KPL	S, A
Netherlands	
PvdA	S, A, H, P, E
CDA	S, A, H, P, E
VVD	S, A, H, P, E
D66	S, A, H, P, E
PPR	S, A
PSP	S, A
CPN	S, A
GPV	S, A
RPF	S, A
SGP	S, A
Spain	
PSOE	S, A, H, P, E
PP	S, A, H, P, E
CDS	S, A, H, P, E
IU	S, A, H, P, E

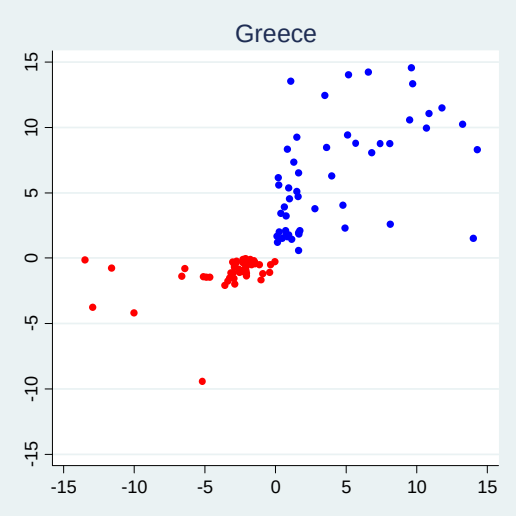
Table E11.4: Parameterization of rule features in real party systems[18]

Species	γ	η	V
Sticker	n/a	n/a	0.25, 0.50 0.75, 1.00, 1.25
Aggregator	0.025, 0.050, 0.075, 0.100	n/a	0.25, 0.50 0.75, 1.00, 1.25
Hunter	0.025, 0.050, 0.075, 0.100	n/a	0.25, 0.50 0.75, 1.00, 1.25
Predator	0.025, 0.050, 0.075, 0.100	n/a	0.25, 0.50 0.75, 1.00, 1.25
Explorer	n/a	0.25, 0.50, 0.75 1.0	0.25, 0.50 0.75, 1.00, 1.25

[18] Investigated values of γ and η are at the lower end of the ranges we investigate in earlier chapters, set out in the analogous Table 6.3. This is because, in exploratory work, it became clear that, given a setting of $\psi = 15$, the high end of the range for γ and η were predicting significantly too much movement between elections.

Figure E 11.1: Plots of subpopulation ideal point centoids of 50 best tolerated population calibrations

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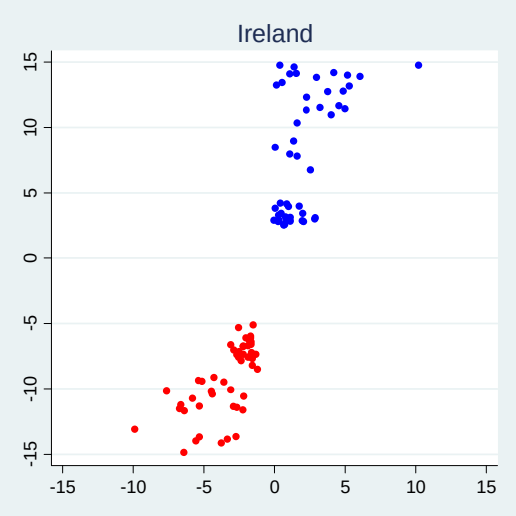
-15
-10
-5
0
5
10
15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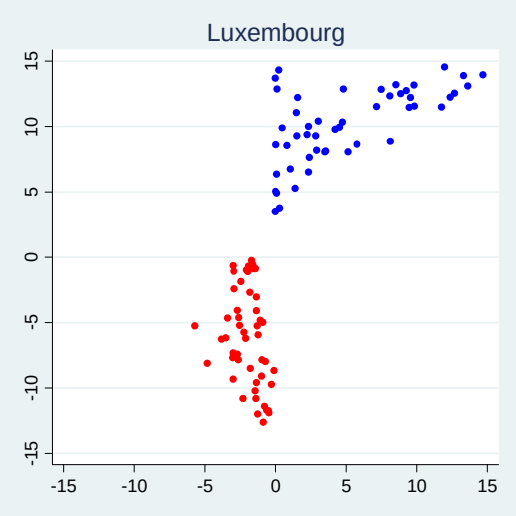
0
5
10
15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-5
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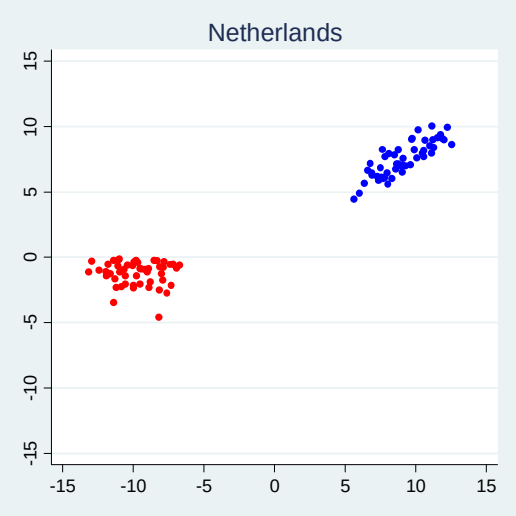
-15
-15
-10
-5
0
5
10
15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-15
-15
-10
-5
0
5
10
15

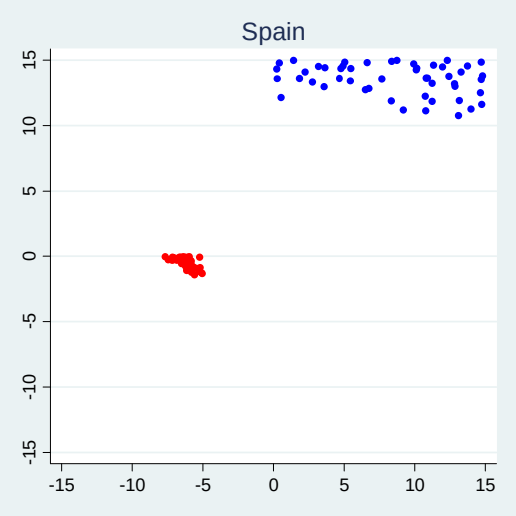

Spain
15
10
5
0
-5
-10
-15
-15
-10
-5
0
5
10
15

Table E11.5: Descriptive statistics for subpopulation ideal point centroids of 50 best tolerated population calibrations

Britain

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.0016498	.0005123	.000433	.0023369
attempts	50	1070.86	1021.478	1	4498
rl_ratio	50	1.01132	.0895843	.8209649	1.228971
votes1	50	626011.4	190894.1	82302	941337
x_mean1	50	10.80252	3.236886	2.641317	14.97211
y_mean1	50	10.03359	3.663081	.9113634	14.67356
sd_1	50	6.991495	1.401455	5.035019	9.569665
votes2	50	623280.1	195349.2	74534	962738
x_mean2	50	-14.1713	.6042952	-14.96317	-12.79921
y_mean2	50	-7.707901	4.554527	-14.97763	-.0158342
sd_2	50	6.280504	.9895774	5.001511	8.415133

Denmark

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.0670112	.0013662	.0632253	.068523
attempts	50	2954.74	2580.708	17	11485
rl_ratio	50	.039687	.0274465	.001609	.1142353
votes1	50	29014.9	22643.83	982	112600
x_mean1	50	7.125903	4.05137	.6398115	14.65497
y_mean1	50	7.407625	4.355844	.0715626	14.9503
sd_1	50	7.097623	1.428464	5.044359	9.796227
votes2	50	719045.8	232915.1	203876	996279
x_mean2	50	-6.136398	.7712714	-7.651925	-4.697824
y_mean2	50	-5.352825	.3105567	-5.970424	-4.773848
sd_2	50	5.1508	.0946227	5.001632	5.349184

France

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	49	.0027274	.000628	.00156	.0036398
attempts	49	8408.612	8275.823	23	34428
rl_ratio	49	.6774503	.1330175	.4644563	1.029234
votes1	49	446136.1	187496.6	74939	921374
x_mean1	49	7.454907	3.945335	.86614	14.88403
y_mean1	49	12.00376	.8355938	10.18828	14.14338
sd_1	49	7.178171	1.372878	5.002085	9.980336
votes2	49	662646.9	243074.6	131856	984400
x_mean2	49	-8.964697	2.093852	-14.01184	-4.491283
y_mean2	49	-13.34732	1.295228	-14.96631	-10.48395
sd_2	49	5.739704	.6394658	5.007272	7.822883

Germany

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.0050223	.0014181	.0008309	.0065926
attempts	50	6703.62	7774.762	46	36758
rl_ratio	50	1.344348	.441827	.838667	2.636352
votes1	50	610041.6	253187.1	159860	989968
x_mean1	50	2.028154	1.801829	.0057969	6.276814
y_mean1	50	5.697282	1.159093	3.162265	7.999212
sd_1	50	5.185471	.1407958	5.001476	5.549867
votes2	50	492705.8	243260	67832	979111
x_mean2	50	-11.20965	2.095379	-14.69955	-6.92507
y_mean2	50	-3.028834	1.358478	-6.013891	-.1087211
sd_2	50	6.267919	.9507099	5.002504	9.303892

Greece

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.0032934	.0008275	.0011094	.0042602
attempts	50	6624.36	8829.089	369	45144
rl_ratio	50	6.601968	31.09548	.2933942	220.7782
votes1	50	474384.7	213527.6	119949	954559
x_mean1	50	4.118794	4.20722	.0914394	14.30229
y_mean1	50	6.231497	4.182673	.5941572	14.5441
sd_1	50	6.732824	1.410322	5.002401	9.932268
votes2	50	554366.6	328146.1	3976	994215
x_mean2	50	-3.338008	2.944182	-13.51341	-.0592946
y_mean2	50	-1.136272	1.448521	-9.437243	-.0244073
sd_2	50	5.700123	.8756501	5.003515	8.776663

Ireland

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.0123488	.0014949	.0075237	.013879
attempts	50	9931.56	9948.13	154	43112
rl_ratio	50	2.703842	1.903155	.9158748	6.866896
votes1	50	623737.2	224277.6	202311	956624
x_mean1	50	2.041197	1.994665	-.03761	10.19517
y_mean1	50	7.784614	4.800987	2.540187	14.76513
sd_1	50	5.3339	.2926378	5.003375	6.688873
votes2	50	374320.6	264685.3	47905	889604
x_mean2	50	-3.374946	1.95617	-9.896803	-1.217233
y_mean2	50	-9.144472	2.669582	-14.88084	-5.109519
sd_2	50	5.31798	.4107456	5.002443	6.813428

Luxembourg

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	49	.0025497	.0007569	.0005842	.0034471
attempts	49	2914.816	2663.858	3	9570
rl_ratio	49	1.043313	.6784918	.3641096	4.118152
votes1	49	583915.9	225335.6	63205	982724
x_mean1	49	5.100853	4.507517	-.019929	14.68197
y_mean1	49	10.15782	2.913886	3.501709	14.55912
sd_1	49	7.113747	1.344883	5.074903	9.453138
votes2	49	632657.6	238336.6	173349	995495
x_mean2	49	-1.96686	1.152135	-5.728189	-.1088923
y_mean2	49	-6.175149	3.725786	-12.63421	-.2448679
sd_2	49	5.904443	.4267606	5.079723	6.73165

Netherlands

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.0097476	.002313	.0037922	.0124648
attempts	50	3152.02	2942.612	53	14435
rl_ratio	50	.908596	.1275048	.6373053	1.174604
votes1	50	614813.7	216467.2	78429	997636
x_mean1	50	9.12658	1.800161	5.640633	12.56123
y_mean1	50	7.511496	1.334749	4.432085	10.03459
sd_1	50	5.793756	.7471341	5.026597	7.793643
votes2	50	675084.3	220940.2	96454	992407
x_mean2	50	-9.745158	1.656873	-13.16172	-6.716516
y_mean2	50	-1.243524	.9290218	-4.581676	-.1333411
sd_2	50	5.39178	.3217734	5.015048	6.227162

Portugal

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.034544	.0024726	.028042	.0372163
attempts	50	5411.16	5202.416	90	19679
rl_ratio	50	.9291251	.1230678	.6862776	1.19947
votes1	50	657357.9	232718.1	134185	999607
x_mean1	50	12.27451	1.886966	7.613894	14.96744
y_mean1	50	1.457497	1.196194	.0392744	5.907824
sd_1	50	5.365074	.3078888	5.002648	6.050278
votes2	50	703874.8	232166.5	153602	992684
x_mean2	50	-10.00882	1.614288	-12.51316	-7.04993
y_mean2	50	-2.969572	1.87507	-6.688907	-.0947711
sd_2	50	5.207748	.1903421	5.001858	5.730172

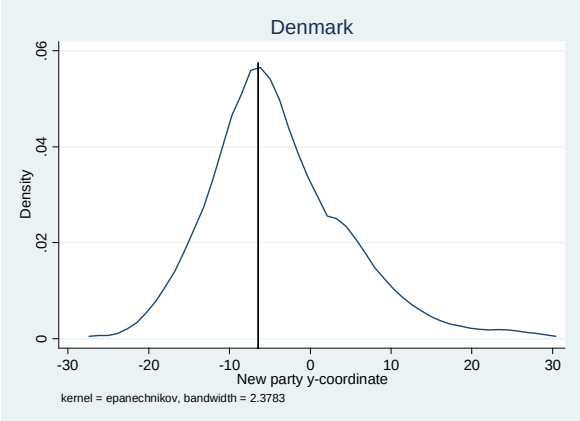
Spain

Variable	Obs	Mean	Std. Dev.	Min	Max
pred_error	50	.0214	.0028092	.0107435	.0249413
attempts	50	7171.76	7678.032	8	39815
rl_ratio	50	.3027606	.0776263	.1860189	.6715612
votes1	50	210663.8	104851.1	49236	656985
x_mean1	50	8.465509	4.60783	.2344168	14.82654
y_mean1	50	13.54208	1.187006	10.76507	15.00131
sd_1	50	7.548571	1.521546	5.119944	9.963243
votes2	50	684579.8	225834.4	152812	995033
x_mean2	50	-6.238507	.5825399	-7.668647	-5.055235
y_mean2	50	-.476639	.3806835	-1.434912	-.0338979
sd_2	50	5.11821	.0988419	5.000549	5.455606

Table E11.6: Prediction run results for Denmark 1989-2002

Party	*Proportion (SE) of parties using rule species*				
	Sticker	Aggregator	Hunter	Predator	Explorer
Soc Dem.	0.151 (0.010)	0.008 (0.003)	0.129 (0.010)	0.426 (0.014)	0.287 (0.013)
Conservative	0.788 (0.012)	0.002 (0.001)	0.058 (0.007)	0.005 (0.002)	0.147 (0.010)
SF	0.582 (0.014)	0.010 (0.003)	0.157 (0.011)	0	0.251 (0.013)
Venstre	0.212 (0.012)	0.180 (0.011)	0.153 (0.010)	0.209 (0.012)	0.245 (0.012)
Progress Party	0.222 (0.012)	0.188 (0.011)	0.171 (0.011)	0.197 (0.012)	0.222 (0.012)
RV	0.400 (0.014)	0.600 (0.014)			
CD	0.778 (0.012)	0.222 (0.012)			
Greens	0.426 (0.014)	0.574 (0.014)			
KrF	0.582 (0.014)	0.418 (0.014)			
DKP	0.548 (0.014)	0.452 (0.014)			
Retsforbund	0.563 (0.014)	0.437 (0.014)			
VS	0.597 (0.014)	0.403 (0.014)			

Party	*Mean (SE) value of leader-rule parameter*		
	Valence, V_p	Speed, γ	Neighborhood size, η
Soc Dem.	0.838 (0.010)	0.605 (0.011)	3.79 (0.087)
Conservative	0.766 (0.010)	0.351 (0.025)	2.39 (0.072)
SF	0.735 (0.010)	0.363 (0.015)	2.96 (0.011)
Venstre	0.728 (0.010)	0.613 (0.011)	0.080 (0.010)
Progress Party	0.725 (0.010)	0.599 (0.011)	4.21 (0.095)
RV	0.728 (0.010)	0.646 (0.010)	
CD	0.744 (0.010)	0.608 (0.017)	
Greens	0.704 (0.010)	0.664 (0.010)	
KrF	0.754 (0.010)	0.613 (0.013)	
DKP	0.746 (0.010)	0.635 (0.012)	
Retsforbund	0.733 (0.010)	0.616 (0.012)	
VS	0.740 (0.010)	0.641 (0.012)	


Denmark
Density
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.06
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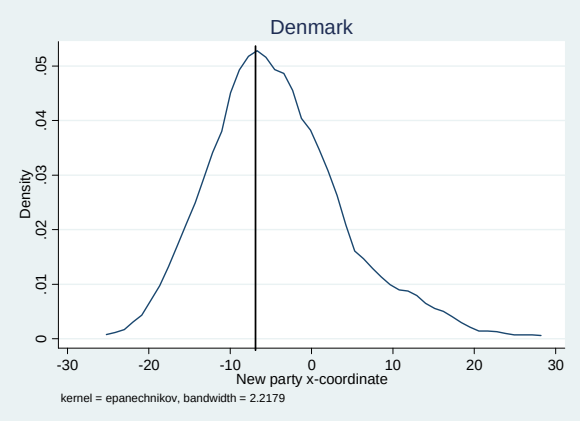
-20
-10
0
10
20
30
New party y-coordinate
kernel = epanechnikov, bandwidth = 2.3783


Denmark
Density
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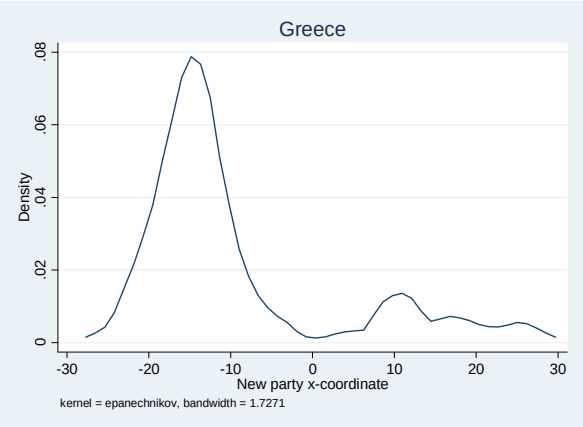
10
20
30
New party x-coordinate
kernel = epanechnikov, bandwidth = 2.2179

Table E11.7: Prediction run results for the Greece 1989-2002

Party	*Proportion (SE) of parties using rule species*				
	Sticker	Aggregator	Hunter	Predator	Explorer
PASOK	0.131 (0.007)	0.000 (0.000)	0.040 (0.004)	0.588 (0.011)	0.240 (0.009)
ND	0.370 (0.011)	0.027 (0.004)	0.034 (0.004)	0.149 (0.008)	0.421 (0.011)
KKE	0.830 (0.008)	0.003 (0.001)	0.104 (0.007)	0.000 (0.000)	0.063 (0.007)
KKEes	0.999 (0.000)	0.001 (0.000)	n/a	n/a	n/a

Party	*Mean (SE) value of leader-rule parameter*		
	Valence, V_p	Speed, γ	Neighborhood size, η
PASOK	0.792 (0.008)	0.611 (0.008)	2.87 (0.059)
ND	0.749 (0.008)	0.492 (0.012)	2.39 (0.031)
KKE	0.698 (0.008)	0.464 (0.017)	2.42 (0.087)
KKEes	0.743 (0.008)	0.625 (0.375)	n/a


Greece
Density
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.02
.04
.06
.08
-30
-20
-10
0
10
20
30
New party x-coordinate
kernel = epanechnikov, bandwidth = 1.7271

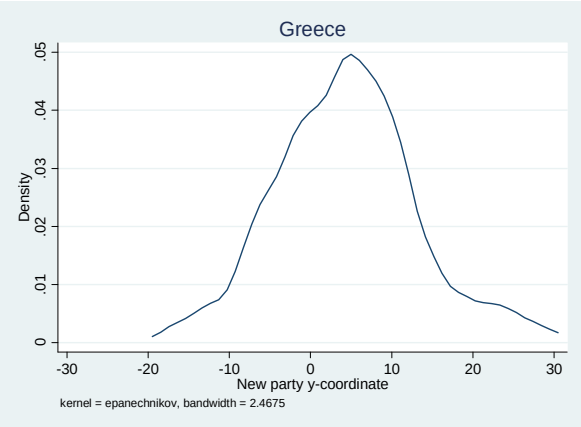
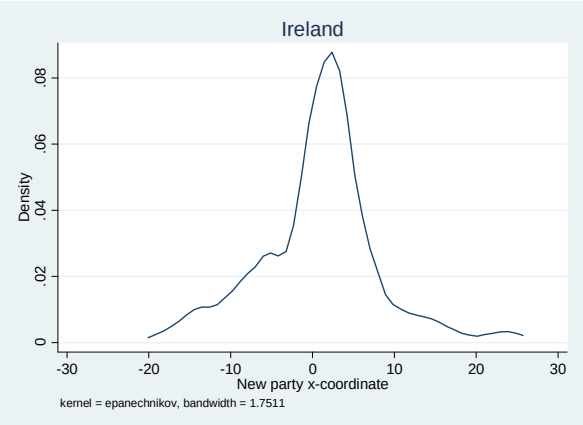

Greece
Density
0
.01
.02
.03
.04
.05
-30
-20
-10
0
10
20
30
New party y-coordinate
kernel = epanechnikov, bandwidth = 2.4675

Table E11.8: Prediction run results for the Ireland 1989-2002

Party	*Proportion (SE) of parties using rule species*				
	Sticker	Aggregator	Hunter	Predator	Explorer
Fianna Fáil	0.416 (0.010)	0.036 (0.004)	0.067 (0.005)	0.380 (0.010)	0.100 (0.006)
Fine Gael	0.082 (0.005)	0.041 (0.003)	0.261 (0.009)	0.023 (0.003)	0.594 (0.10)
Labour	0.337 (0.009)	0.000 (0.000)	0.164 (0.007)	0.001 (0.001)	0.497 (0.010)
Prog. Dems	0.181 (0.008)	0.024 (0.003)	0.133 (0.007)	0.196 (0.080)	0.467 (0.10)
Workers Pty	0.930 (0.005)	0.070 (0.005)	n/a	n/a	n/a
Sinn Féin	0.956 (0.004)	0.044 (0.004)	n/a	n/a	n/a

Party	*Mean (SE) value of leader-rule parameter*		
	Valence, V_p	Speed, γ	Neighborhood size, η
Fianna Fáil	0.767 (0.007)	0.607 (0.008)	3.01 (0.099)
Fine Gael	0.748 (0.007)	0.513 (0.010)	3.45 (0.040)
Labour	0.754 (0.007)	0.363 (0.009)	3.34 (0.042)
Prog. Dems	0.724 (0.007)	0.609 (0.009)	4.10 (0.046)
Workers Pty	0.748 (0.007)	0.541 ((0.021)	n/a
Sinn Féin	0.744 (0.007)	0.634 (0.026)	n/a


Ireland
Density
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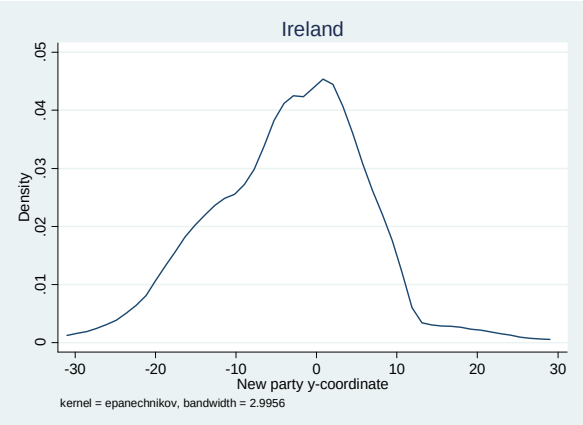
.02
.04
.06
.08
-30
-20
-10
0
10
20
30
New party x-coordinate
kernel = epanechnikov, bandwidth = 1.7511


Ireland
Density
0
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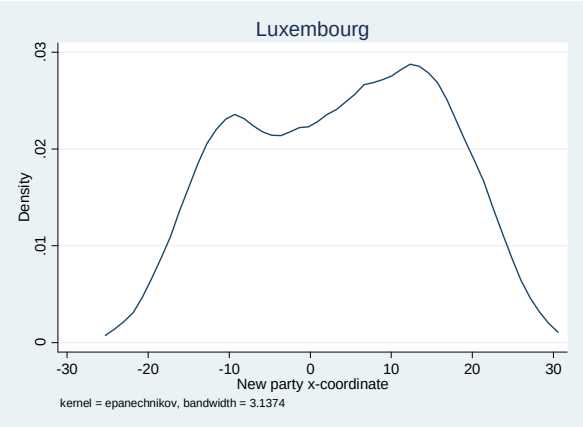
.02
.03
.04
.05
-30
-20
-10
0
10
20
30
New party y-coordinate
kernel = epanechnikov, bandwidth = 2.9956

Table E11.9: Prediction run results for the Luxembourg 1989-2002

Party	*Proportion (SE) of parties using rule species*				
	Sticker	Aggregator	Hunter	Predator	Explorer
CSV	0.312 (0.009)	0.060 (0.005)	0.128 (0.007)	0.258 (0.009)	0.242 (0.009)
LSAP	0.179 (0.008)	0.004 (0.001)	0.168 (0.007)	0.174 (0.008)	0.474 (0.010)
DP	0.059 (0.005)	0.082 (0.005)	0.202 (0.008)	0.020 (0.002)	0.636 (0.010)
Green	0.369 (0.010)	0.077 (0.005)	0.152 (0.007)	0.174 (0.008)	0.229 (0.008)
KPL	0.825 ((0.008)	0.175 (0.008)	n/a	n/a	n/a

Party	*Mean (SE) value of leader-rule parameter*		
	Valence, V_p	Speed, γ	Neighborhood size, η
CSV	0.751 (0.007)	0.556 (0.008)	3.30 (0.059)
LSAP	0.794 (0.007)	0.555 (0.009)	3.72 (0.046)
DP	0.736 (0.007)	0.518 (0.010)	3.90 (0.038)
Green	0.728 (0.007)	0.559 (0.009)	3.61 (0.068)
KPL	0.748 (0.007)	0.535 (0.014)	n/a


Luxembourg
Density
0
.01
.02
.03
-30
-20
-10
0
10
20
30
New party x-coordinate
kernel = epanechnikov, bandwidth = 3.1374

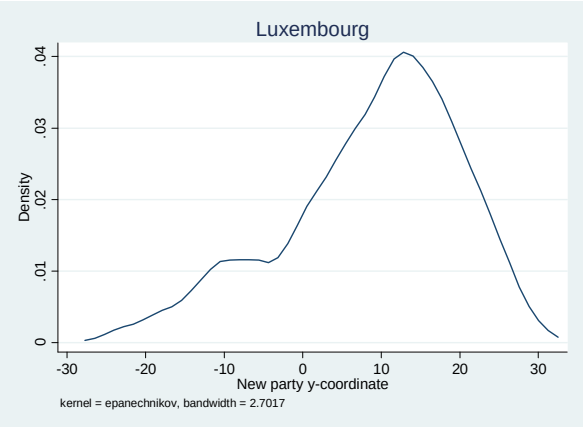

Luxembourg
Density
0
.01
.02
.03
.04
-30
-20
-10
0
10
20
30
New party y-coordinate
kernel = epanechnikov, bandwidth = 2.7017

Table E11.10: Prediction run results for the Netherlands 1989-2002

Party	*Proportion (SE) of parties using rule species*				
	Sticker	Aggregator	Hunter	Predator	Explorer
PvdA	0.004 (0.001)	0.176 (0.008)	0.212 (0.008)	0.545 (0.010)	0.067 (0.005)
CDA	0.373 (0.010)	0.076 (0.005)	0.156 (0.007)	0.059 (0.005)	0.336 (0.009)
VVD	0.278 (0.009)	0.178 (0.008)	0.151 (0.007)	0.040 (0.004)	0.364 (0.010)
D66	0.272 (0.010)	0.221 (0.008)	0.169 (0.007)	0.126 (0.007)	0.212 (0.008)
PPR	0.616 (0.010)	0.384 (0.010)			
PSP	0.610 (0.010)	0.390 (0.010)			
CPN	0.520 (0.010)	0.480 (0.010)			
GPV	0.681 (0.009)	0.319 (0.009)			
RPF	0.748 (0.009)	0.252 (0.009)			
SGP	0.694 (0.009)	0.306 (0.009)			

Party	*Mean (SE) value of leader-rule parameter*		
	Valence, V_p	Speed, γ	Neighborhood size, η
PvdA	0.783 (0.007)	0.640 (0.006)	4.86 (0.113)
CDA	0.748 (0.007)	0.522 (0.105)	3.41 (0.054)
VVD	0.747 (0.007)	0.543 (0.009)	3.99 (0.053)
D66	0.727 (0.007)	0.632 (0.008)	3.80 (0.070)