The Motivational Basis of Constituency Work: How Intrinsic and Extrinsic Motivations Interact – APPENDIX

Nathalie Giger* Simon Lanz† Catherine de Vries‡

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Abstract: Behavioral economists and social psychologists have shown that extrinsic motivations can crowd out intrinsic motivations to act. This study examines this crowding out effect in the context of legislative behavior. By exploiting the federal nature of Swiss elections, we examine if response rates to requests of voters residing inside or outside a candidate's district vary based on the electoral competition candidate legislators face. We report two main findings. First, we find a high response rate among Swiss candidates (66 percent) which remains high for voters who reside outside a candidate's district (59 percent) suggesting that intrinsic motivations are a key driver of constituency effort. Second, the response to voters who reside inside a candidate's district is more pronounced for candidates confronted with a high degree of electoral competition. This suggests that extrinsic motivations are important for constituency work, but at the same time their presence might crowd out intrinsic motivations. This evidence suggests that the relationship between electoral competition and responsiveness might be less straightforward than assumed.

* University of Geneva. Email: nathalie.giger@unige.ch
† University of Geneva. Email: simon.lanz@unige.ch
‡ Vrije Universiteit Amsterdam. Email: c.e.de.vries@vu.nl

A1 Balance Tests

Table A4 summarizes the main variables by treatment (in-canton, out-canton). This analysis does not reveal significant differences in the characteristics of the candidates between the treatments.

Table A1: Candidate characteristics by treatment

	In-canton	Out-canton	Welch's t-test
Treatment			$p = 0.352$
Same party	52% (167)	48% (157)	
Other party	48% (161)	52% (175)	
Electoral safety			$p = 0.112$
Mean [Std. Dev.]	65[32]	60[34]	
Age			$p = 0.076$
Mean [Std. Dev.]	48[10]	47[11]	
Gender			$p = 0.952$
Female	40% (129)	60% (133)	
Male	40% (195)	60% (203)	
Party			
FDP	22% (72)	23% (78)	$p = 0.762$
CVP	16% (51)	20% (68)	$p = 0.133$
SP	26% (85)	23% (78)	$p = 0.370$
SVP	18% (59)	17% (58)	$p = 0.750$
GPS	18% (57)	16% (54)	$p = 0.602$
Language			$p = 0.974$
German	81% (261)	81% (271)	
French	19% (63)	19% (65)	
Nr. of seats			$p = 0.837$
Mean [Std. Dev.]	17[11]	17[11]	

Note: N in parentheses. *Reading example*: 22 percent of the candidates in the in-canton treatment are members of the FDP. In the out-canton treatment 23 percent of the candidates are member of the FDP.

We further run several random intercept logistic regressions with the treatment as outcome variable (Table A6). None of the variables in M_1, M_2, or M_3 has a significant impact on the treatment assignment. To test if the unrestricted models M_1, M_2, M_3 perform better than the restricted (empty) model M_0, we perform likelihood ratio tests. The results of these tests (Table A3) indicate that none of the unrestricted specifications fit the data significantly better than the empty model.

Table A2: RI logistic regression (outcome: treatment in-canton)

	M_0	M_1	M_2	M_3
Treatment: other party		0.189	0.181	0.178
		(0.160)	(0.162)	(0.162)
Age			−0.014	−0.014
			(0.008)	(0.008)
Sex: male			0.016	0.014
			(0.170)	(0.170)
Party of candidate: FDP			0.293	0.280
			(0.240)	(0.241)
Party of candidate: CVP			0.459	0.412
			(0.254)	(0.262)
Party of candidate: SVP			0.166	0.223
			(0.258)	(0.268)
Party of candidate: GPS			0.032	−0.022
			(0.255)	(0.266)
Language: French			0.077	0.084
			(0.316)	(0.312)
Electoral safety				−0.002
				(0.003)
Constant	−0.035	−0.132	0.249	0.371
	(0.138)	(0.163)	(0.567)	(0.586)
Variance: candidate	1.000	1.000	1.000	1.000
Variance: Canton	0.161	0.172	0.182	0.171
N	660	660	660	660
Group: Canton	22	22	22	22
$\ell\ell$	-454	-454	-450	-450
AIC	912	913	920	921

Note: Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).

Table A3: Likelihood ratio test (M_1, M_2, M_3 vs. M_0)

M_1 vs. M_0	$\chi^2(1) = 1.395$	$p = 0.238$
M_2 vs. M_0	$\chi^2(8) = 8.611$	$p = 0.376$
M_3 vs. M_0	$\chi^2(9) = 9.187$	$p = 0.420$

Note: Change in degree of freedom in parentheses. Models are reported in Table A6.

In a third step, we test if, for a set of covariates, the imbalance is greater than we would expect from chance. This is done in two steps (see Gerber and Green 2012: 107): (i) First, we simulate 5,000 random treatments and predict each treatment with the variables in M_3 (Table A6). We collect all log likelihood statistics, which represent "the exact sampling

distribution under the null hypothesis that no covariates have any effect on the assigned treatment" (Gerber and Green 2012: 107-108). In a second step, we take the log likelihood of the model fitting the actual treatment (-450, see M_3 in Table A6) and find the p-value by locating it in the sampling distribution. Figure A1 visualizes the density plot of the simulated log likelihoods and the position of the actual test statistic (purple line). The p-value of 0.09 indicates that the imbalance in our treatment is not larger than what we would expect from chance alone.

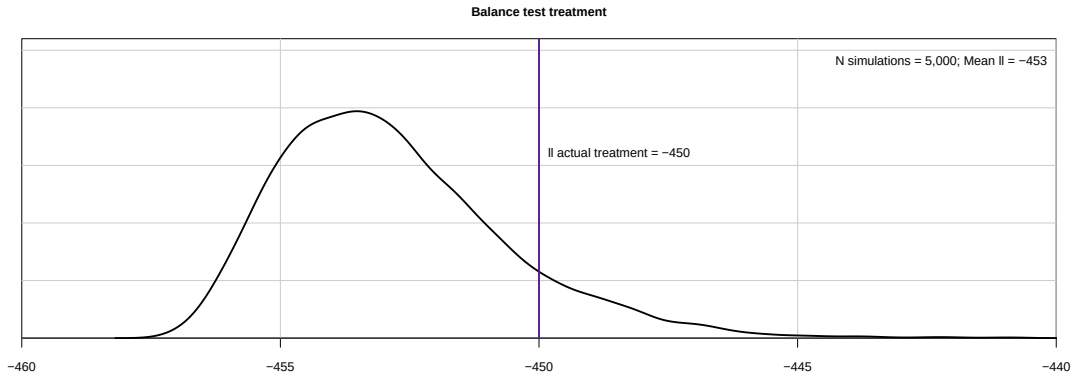


Figure A1: Density plot of simulated log likelihoods and the log likelihood of the actual treatment (M_3 in Table A6, purple line)

In sum, these tests show that there are no alarming differences in the distribution of the main variables between the in-canton and the out-canton treatment.

A2 Composition of the Sample

Table A4 shows the political and socio-demographic composition of the contacted candidates and the candidates we did not contact. There are various reasons why we where not able to contact all candidates from the five largest parties. Some of the volunteers dropped out during the study (they did non longer want to participate in the study). The most important reason however is that for many candidates no email address was found (we spend a maximum of five minutes on researching the email address of a specific candidate). Compared to the candidates we did not contact, the contacted candidates differ in terms of language (our sample contains more German-speaking candidates), gender (our sample contains more female candidates). If there should be concerns regarding this imbalances, let us mention once more that our findings are robust to the inclusion of covariates that take up exactly the variables mentioned above.

Table A4: Candidate characteristics by treatment

	Contacted	Not contacted	Welch's t-test
Age			$p = 0.721$
Mean [Std. Dev.]	47[11]	48[11]	
Gender			$p = 0.032$
Female	40% (262)	33% (118)	
Male	60% (398)	67% (240)	
Party			
FDP	22% (150)	19% (69)	$p = 0.193$
CVP	18% (191)	19% (67)	$p = 0.788$
SP	25% (163)	20% (72)	$p = 0.091$
SVP	18% (117)	22% (80)	$p = 0.083$
GPS	17% (110)	20% (70)	$p = 0.285$
Language			$p = 0.000$
German	81% (532)	60% (215)	
French	19% (128)	40% (143)	

Note: N in parentheses. *Reading example*: 22 percent of the contacted candidates where members of the FDP. 19 percent of the not-contacted candidates are member of the FDP.

A3 Descriptive Statistics: Electoral safety

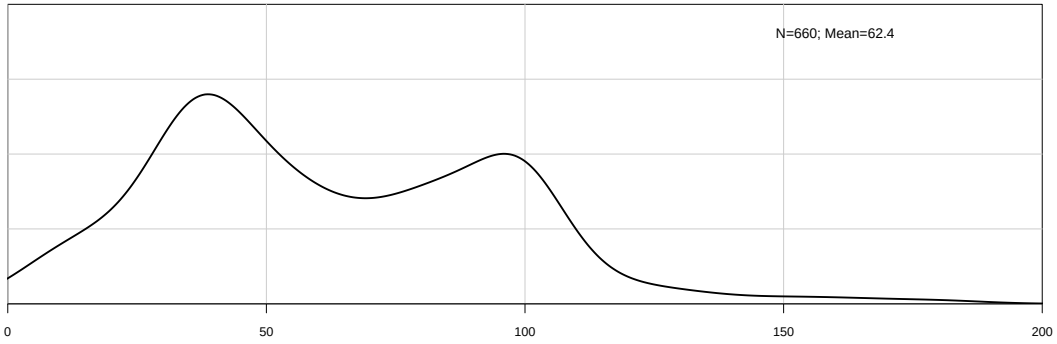


Figure A2: Density plot: electoral safety

A4 Descriptive Statistics: Reported Importance of Constituency Service

In this table we report information from the official Swiss Election Study (SELECTS) candidate survey, it reports the answers to the question "How important is the following for you: Openness to voters in constituency and communicating" and cross-tabs this with the answers to our field experiment email. As it becomes visible, there is a quite some overlap between answering positively to this survey item and answering the email request in the field experiment.

Table A5: Importance of constituency service and responsiveness

	Answer no	Answer yes	Total
Constituency Service			
Very important	28% (42)	72% (108)	46% (150)
Important	35% (50)	65% (93)	44 % (143)
Neither nor	39% (9)	61% (14)	7% (23)
Not important (at all)	40% (4)	60% (6)	3 % (10)
Total	39% (105)	61% (221)	100% (326)

A5 Treatment Effect: Further Analyses

Table A6 summarizes the effect of the cantonal-treatment in three different models. In all specifications (M_1, M_2, M_3), the effect is positive and highly significant. This bolsters the findings from M_1 in Table 2

Table A6: RI logistic regression (outcome: answer)

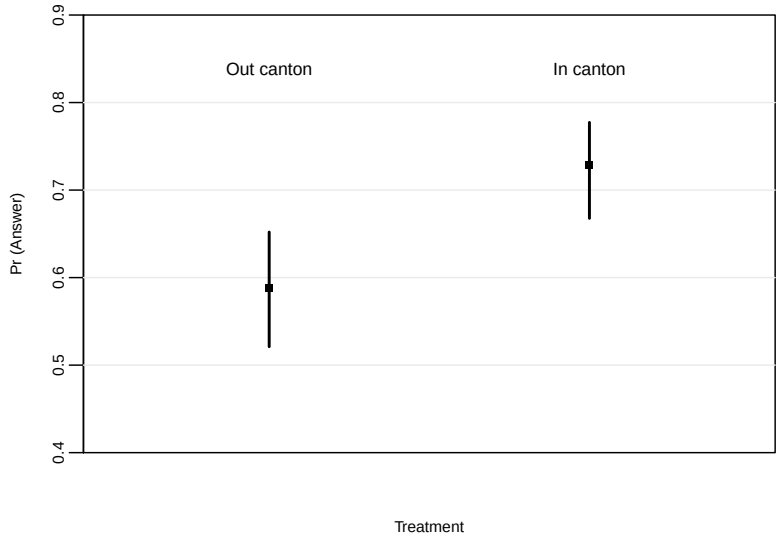
	M_1	M_2	M_3
Treatment: in-canton	0.627	0.681	0.714
	(0.169)	(0.171)	(0.173)
Treatment: other party	−0.008	0.003	0.004
	(0.168)	(0.169)	(0.170)
Electoral safety			0.007
			(0.003)
Age		0.006	0.005
		(0.008)	(0.008)
Sex: male		−0.006	−0.002
		(0.180)	(0.181)
Party of candidate: FDP		−0.506	−0.484
		(0.254)	(0.256)
Party of candidate: CVP		−0.577	−0.458
		(0.269)	(0.275)
Party of candidate: SVP		−0.625	−0.830
		(0.273)	(0.292)
Party of candidate: GPS		−0.131	0.039
		(0.280)	(0.292)
Language: French		−0.690	−0.718
		(0.206)	(0.217)
Constant	0.359	1.244	0.858
	(0.160)	(0.476)	(0.521)
Variance: candidate	1.000	1.000	1.000
Variance: Canton	0.081	0.000	0.007
N	660	660	660
Group: Canton	22	22	22
$\ell\ell$	-416	-406	-403
AIC	840	834	831

Note: Standard errors in parentheses. Reference categories: female (sex) , PS (party of candidate), German (language).

Figure A3 is based on M_1 Table 2 and visualizes the effect of the cantonal treatment. A candidate's probability to respond to a citizen's message is 0.140 (95-percent confidence interval: 0.052, 0.224) higher if the message was sent from within her district (compared

to an out-canton message). This difference in predicted probability (FD) is similar for all models in Table 2:

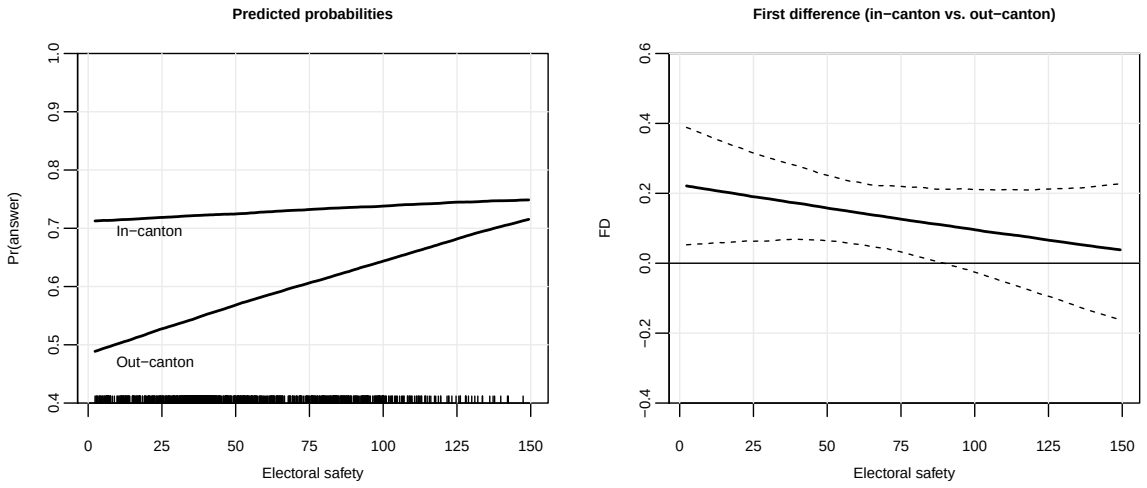
- M_1: FD = 0.14, CI = 0.04, 0.24
- M_2: FD = 0.12, CI = 0.03, 0.25
- M_3: FD = 0.13, CI = 0.01, 0.26



Note: Whiskers = 95-percent confidence interval. Visualization based on M_1 in Table 2

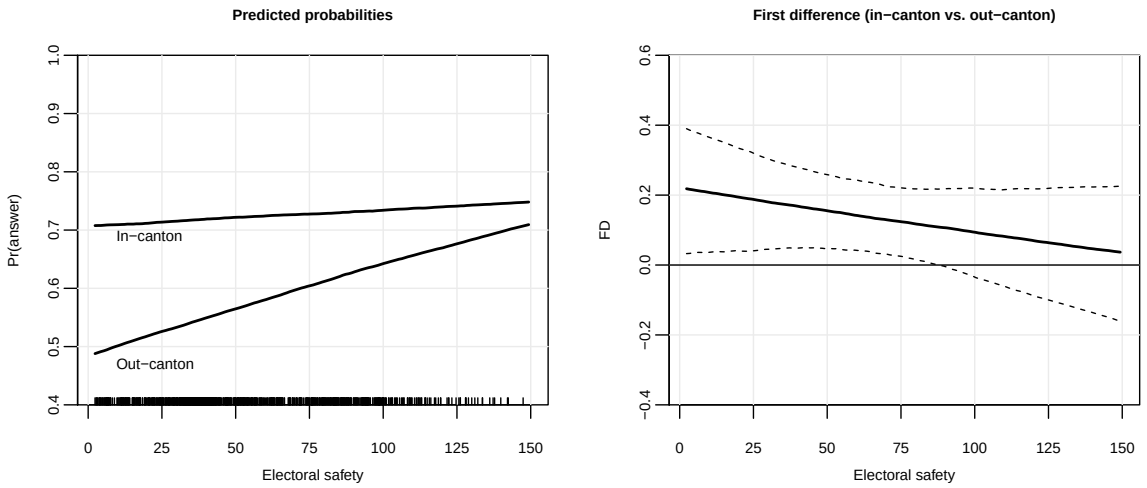
Figure A3: Responsiveness split by cantonal treatment

A6 Visualizations M_2, and M_3, Table 2



Note: Dotted lines = 95-percent confidence interval. Visualization based on M_2, Table 2.

Figure A4: Treatments and responsiveness



Note: Dotted lines = 95-percent confidence interval. Visualization based on M_3, Table 2.

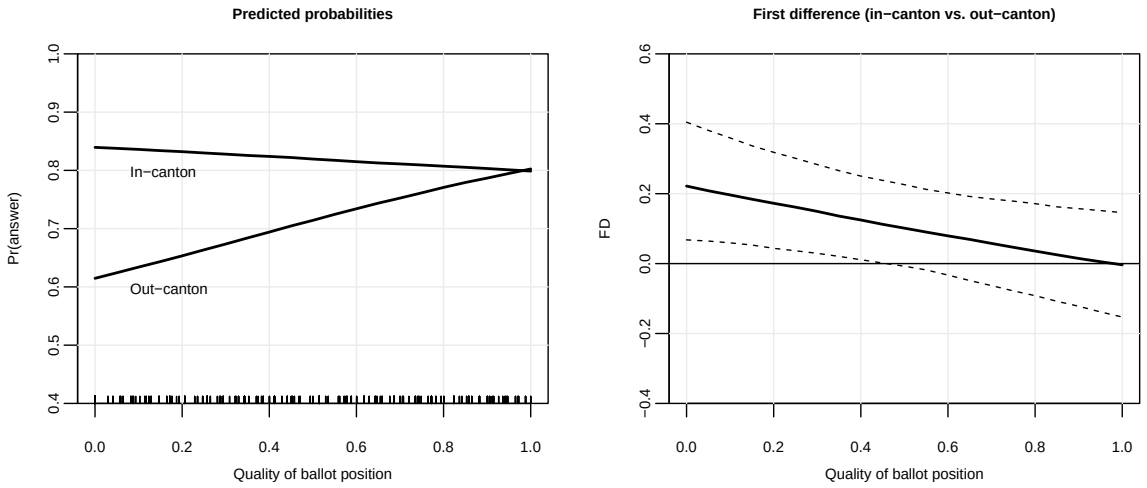
Figure A5: Treatments and responsiveness

A7 Robustness Check: List Position

Table A7: RI logistic regression (outcome: answer)

	M_1
Treatment: other party	−0.006
	(0.181)
Treatment: in-canton	1.195
	(0.346)
Ballot: quality of position	0.949
	(0.422)
Ballot: quality of position × in-canton	−1.233
	(0.610)
Age	0.01
	(0.01)
Sex: male	0.021
	(0.191)
Party of candidate: FDP	−0.483
	(0.271)
Party of candidate: CVP	−0.573
	(0.284)
Party of candidate: SVP	−0.712
	(0.291)
Party of candidate: GPS	−0.229
	(0.286)
Language: French	−0.707
	(0.232)
Constant	0.680
	(0.542)
Variance: candidates	1.000
Variance: Canton	0.000
N	591
Group: Canton	19
$\ell\ell$	-360
AIC	745

Note: Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).



Left: Probability to answer to citizens' requests with varying quality of ballot position and cantonal treatment assignment. *Right:* First difference between the treatments across different quality of ballot position. *Note:* Dotted lines = 95-percent confidence interval.

Figure A6: Responsiveness spit by cantonal treatment and across ballot position

Table A8: RI logistic regression: only alphabetical lists (outcome: answer)

	M_1
Treatment: in-canton	1.831
	(1.140)
Ballot: quality of position	2.065
	(1.453)
Ballot: quality of position × in-canton	−1.034
	1.910
Constant	−1.326
	(0.895)
Variance: candidates	1.000
Variance: Canton	0.049
N	65
Group: Canton	7

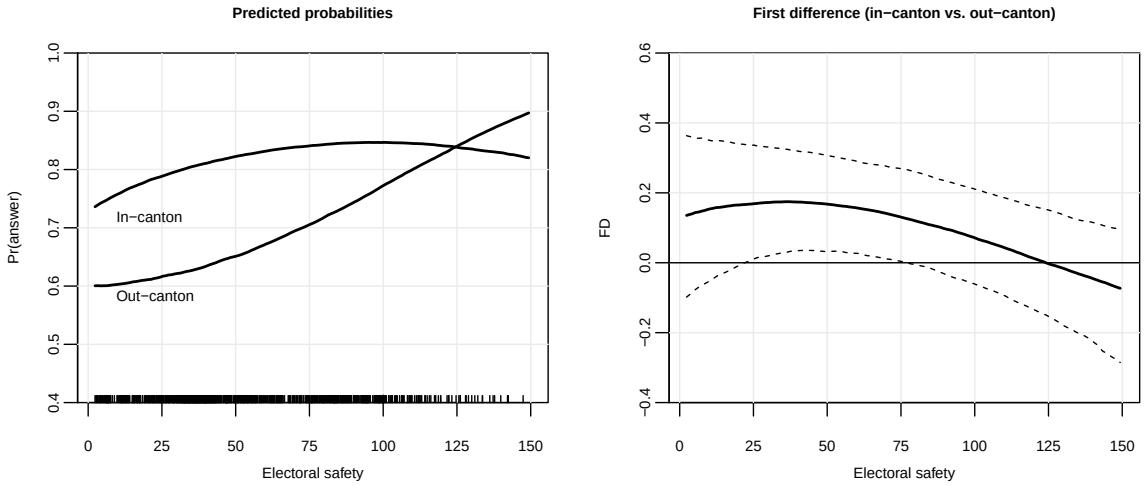
Note: Standard errors in parentheses. Only candidates candidates on alphabetical lists included.

A8 Robustness Check: Squared Electoral Safety

Table A9: RI logistic regression (outcome: answer)

	M_1
Treatment: other party	0.032
	(0.172)
Treatment: in-canton	0.601
	(0.391)
Electoral safety	0.001
	(0.008)
Electoral safety × electoral safety	1.0E-4
	(5.0E-5)
Electoral safety × in-canton	0.013
	(0.008)
Electoral safety × electoral safety × in-canton	−1.0E-4
	(4.0E-5)
Age	0.005
	(0.008)
Sex: male	−0.006
	(0.182)
Party of candidate: FDP	−0.498
	(0.257)
Party of candidate: CVP	−0.483
	(0.277)
Party of candidate: SVP	−0.859
	(0.295)
Party of candidate: GPS	0.058
	(0.295)
Language: French	−0.740
	(0.222)
Constant	0.926
	(0.554)
Variance: candidate	1.000
Variance: canton	0.006
N	660
Group: canton	22
$\ell\ell$	-402
AIC	834

Note: Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).



Left: Probability to answer to citizens' requests with varying levels of electoral safety and cantonal treatment assignment. *Right:* First difference between the treatments across different levels of electoral safety. *Note:* Dotted lines = 95-percent confidence interval.

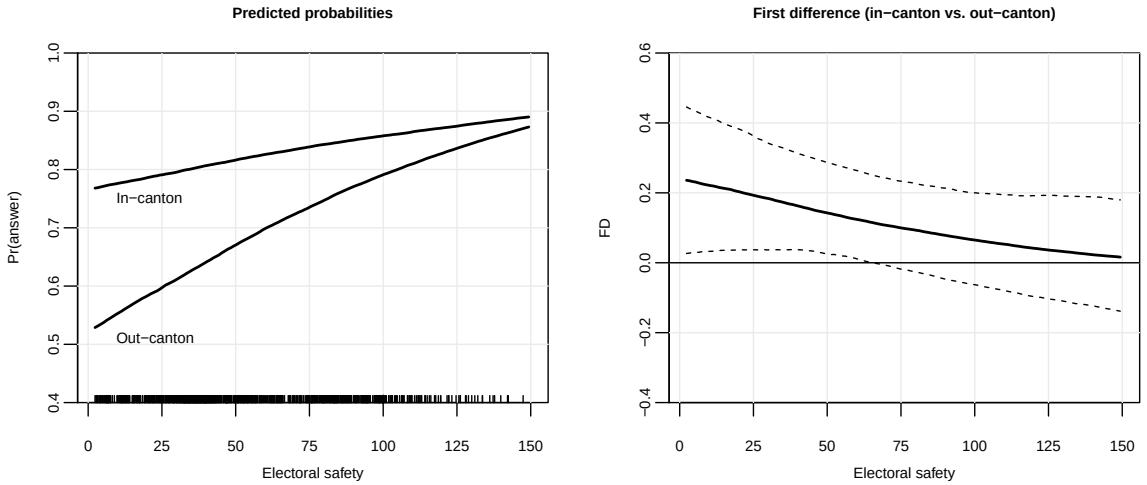
Figure A7: Responsiveness spit by cantonal treatment and across squared electoral safety

A9 Robustness Check: Controlling for Incumbency Status

Table A10: RI logistic regression (outcome: answer)

	M_1
Treatment: other party	0.027
	(0.172)
Treatment: in-canton	1.122
	(0.369)
Electoral safety	0.013
	(0.005)
Electoral safety × in-canton	−0.007
	(0.005)
Incumbency: incumbent	−0.320
	(0.327)
Age	0.006
	(0.008)
Sex: male	−0.009
	(0.182)
Party of candidate: FDP	−0.498
	(0.258)
Party of candidate: CVP	−0.483
	(0.278)
Party of candidate: SVP	−0.879
	(0.294)
Party of candidate: GPS	0.068
	(0.295)
Language: French	−0.730
	(0.226)
Constant	0.549
	(0.563)
Variance: candidates	1.000
Variance: Canton	0.016
N	660
Group: Canton	22
$\ell\ell$	-402
AIC	832

Note: Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).



Left: Probability to answer to citizens' requests with varying levels of electoral safety and cantonal treatment assignment. *Right:* First difference between the treatments across different levels of electoral safety. *Note:* Dotted lines = 95-percent confidence interval.

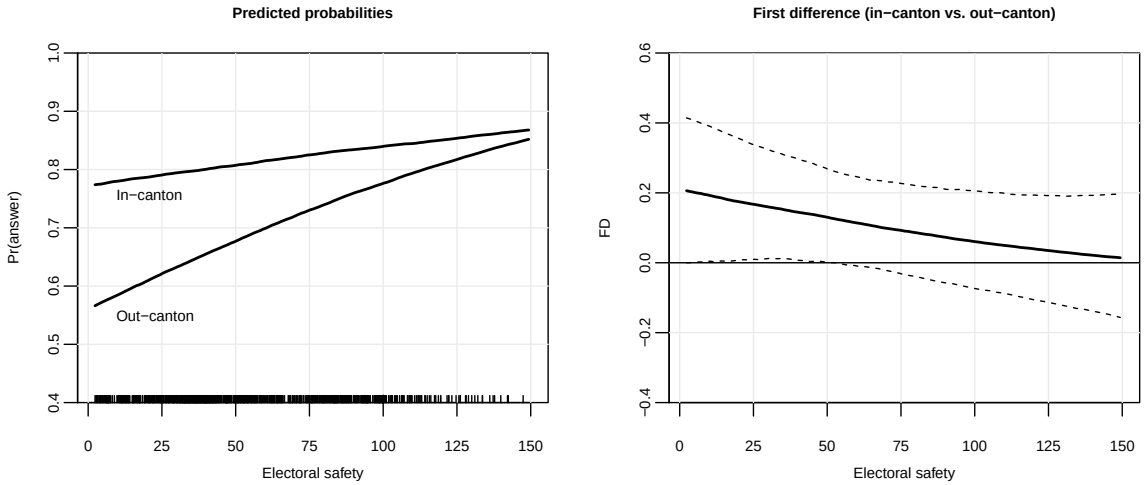
Figure A8: Responsiveness spit by cantonal treatment and across electoral safety (incumbency included)

A10 Robustness Check: Incumbents Excluded from Analysis

Table A11: RI logistic regression (outcome: answer)

	M_1
Treatment: other party	−0.024
	(0.185)
Treatment: in-canton	0.984
	(0.415)
Electoral safety	0.012
	(0.005)
Electoral safety × in-canton	−0.004
	(0.007)
Age	0.004
	(0.009)
Sex: male	0.119
	(0.194)
Party of candidate: FDP	−0.472
	(0.281)
Party of candidate: CVP	−0.546
	(0.297)
Party of candidate: SVP	−0.996
	(0.337)
Party of candidate: GPS	−0.014
	(0.312)
Language: French	−0.711
	(0.244)
Constant	0.634
	(0.604)
Variance: candidates	1.000
Variance: Canton	0.014
N	571
Group: Canton	20
$\ell\ell$	-350
AIC	725

Note: Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).



Left: Probability to answer to citizens' requests with varying levels of electoral safety and cantonal treatment assignment. *Right:* First difference between the treatments across different levels of electoral safety. *Note:* Dotted lines = 95-percent confidence interval.

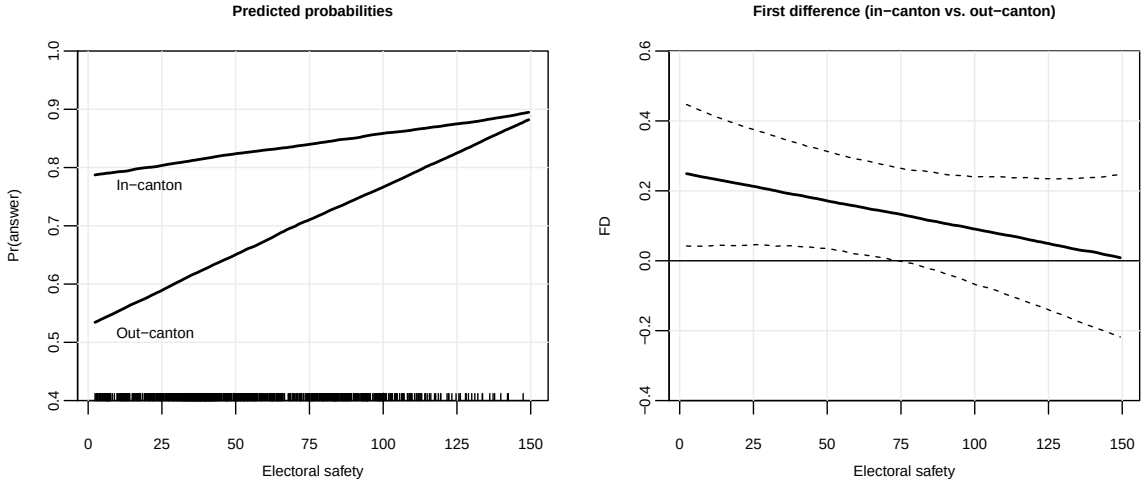
Figure A9: Responsiveness spit by cantonal treatment and across electoral safety (incumbents excluded)

A11 Robustness Check: Linear Probability Model

Table A12: RI linear regression (outcome: answer)

	M_1
Treatment: other party	0.006
	(0.036)
Treatment: in-canton	0.251
	(0.078)
Electoral safety	0.002
	(0.001)
Electoral safety × in-canton	−0.002
	(0.001)
Age	0.001
	(0.002)
Sex: male	−0.001
	(0.038)
Party of candidate: FDP	−0.099
	(0.053)
Party of candidate: CVP	−0.099
	(0.059)
Party of candidate: SVP	−0.175
	(0.060)
Party of candidate: GPS	0.012
	(0.060)
Language: French	−0.163
	(0.050)
Constant	0.659
	(0.118)
Variance: candidates	1.000
Variance: Canton	0.001
N	660
Group: Canton	22

Note: Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).



Left: Probability to answer to citizens' requests with varying levels of electoral safety and cantonal treatment assignment. *Right:* First difference between the treatments across different levels of electoral safety. *Note:* Dotted lines = 95-percent confidence interval.

Figure A10: Responsiveness spit by cantonal treatment and across electoral safety (linear probability model)

A12 Robustness Check: Volunteer Effects

Based on the email, candidates get information on the sex, the canton of residence, and the name of the sender. To test if these factors impact the likelihood to answer, we run logistic regressions with the sender characteristics as input variables. All models further control for the cantonal treatment. Model M_1 in Table A13 shows that the volunteer's gender has no impact on the probability to answer to the message. Model M_2 introduces dummies for the canton of residence. Compared to Aargau (reference category) emails from the canton of Valais were significantly less likely to be answered. To investigate this irregularity, we excluded emails sent from the canton of Valais from the analysis and run the full regression model M_3 in Table 2. The results depicted in Table A14 and Figure A11) show that all the effects remain robust. In a final step we introduced a dummy for each volunteer (table not reported). None of the volunteers was significantly more or less likely to get an answer to the request. Based on these tests we are confident, that the effects induced by the characteristics of the sender are negligible.

Table A13: RI logistic regression (outcome: answer)

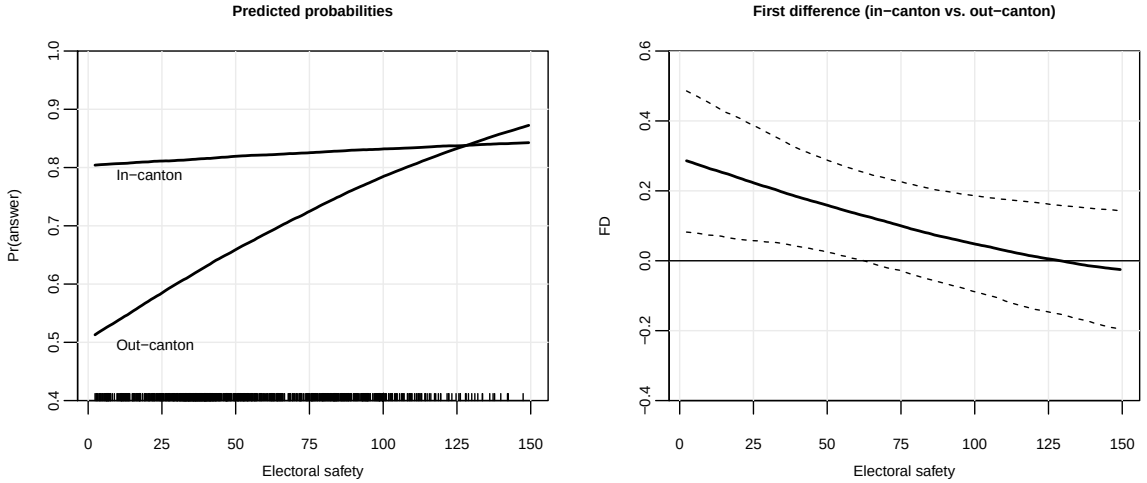
	M_1	M_2
Treatment: in-canton	0.626	0.790
	(0.169)	(0.184)
Sex: male	−0.026	
	(0.170)	
Basel-Landschaft		0.317
		(0.425)
Basel-Stadt		1.982
		(1.055)
Bern		−0.373
		(0.317)
Fribourg		−0.419
		(0.517)
Genève		−0.517
		(0.560)
Graubünden		−0.025
		(0.493)
Luzern		0.339
		(0.458)
Neuchâtel		−0.618
		(0.606)
Schaffhausen		0.186
		(0.566)
Solothurn		0.815
		(0.438)
St. Gallen		−0.050
		(0.418)
Thurgau		0.583
		(0.406)
Vaud		0.028
		(0.449)
Valais		−0.913
		(0.412)
Zug		0.782
		(0.618)
Zuerich		−0.276
		(0.315)
Constant	0.367	0.282
	0.157	(0.231)
Variance: candidates	1.000	1.000
Variance: Canton	0.088	0.000
N	660	660
Group: Canton	22	22
$\ell\ell$	-416	-401
AIC	840	839

Note: Standard errors in parentheses. Reference category: Aarau (canton)

Table A14: RI logistic regression (outcome: answer)

	M_1
Treatment: other party	0.015
	(0.178)
Treatment: in-canton	1.381
	(0.389)
Electoral safety	0.013
	(0.004)
Electoral safety × in-canton	−0.011
	(0.006)
Age	0.006
	(0.008)
Sex: male	0.008
	(0.187)
Party of candidate: FDP	−0.529
	(0.264)
Party of candidate: CVP	−0.443
	(0.290)
Party of candidate: SVP	−0.849
	(0.297)
Party of candidate: GPS	0.072
	(0.309)
Language: French	−0.590
	(0.249)
Constant	0.352
	(0.581)
Variance: candidates	1.000
Variance: Canton	0.009
N	625
Group: Canton	21
$\ell\ell$	-377
AIC	780

Note: Candidates from the Canton of Valais excluded. Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).



Left: Probability to answer to citizens' requests with varying levels of electoral safety and cantonal treatment assignment. *Right:* First difference between the treatments across different levels of electoral safety. *Note:* Dotted lines = 95-percent confidence interval.

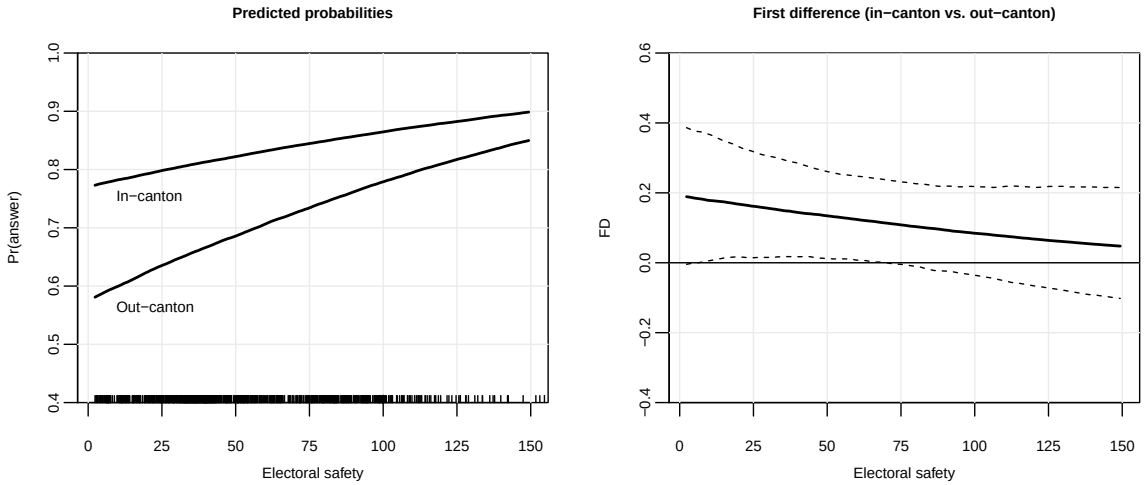
Figure A11: Responsiveness spit by cantonal treatment and across electoral safety (Valais excluded)

A13 Robustness Check: Candidates with Staff Excluded from Analysis

Table A15: RI logistic regression (outcome: answer)

	M_1
Treatment: other party	−0.043
	(0.180)
Treatment: in-canton	0.903
	(0.381)
Electoral safety	0.010
	(0.004)
Electoral safety × in-canton	−0.003
	(0.006)
Age	0.006
	(0.008)
Sex: male	−0.011
	(0.190)
Party of candidate: FDP	−0.496
	(0.272)
Party of candidate: CVP	−0.561
	(0.291)
Party of candidate: SVP	−0.931
	(0.306)
Party of candidate: GPS	−0.017
	(0.309)
Language: French	−0.740
	(0.215)
Constant	0.791
	(0.547)
Variance: candidates	1.000
Variance: Canton	0.000
N	600
Group: Canton	22
$\ell\ell$	-365
AIC	756

Note: Standard errors in parentheses. Reference categories: female (sex), PS (party of candidate), German (language).



Left: Probability to answer to citizens' requests with varying levels of electoral safety and cantonal treatment assignment. *Right:* First difference between the treatments across different levels of electoral safety. *Note:* Dotted lines = 95-percent confidence interval.

Figure A12: Responsiveness spit by cantonal treatment and across electoral safety (incumbents excluded)

References

Gerber, Alan S and Donald P Green. 2012. *Field experiments: Design, analysis, and interpretation*. New York: WW Norton.