Institutions, Candidates, and the Rhetoric of Personalism: Evidence from Latin America

Abstract

Personalistic leadership has long shaped democratic competition, yet we know little about how institutional contexts condition candidates' reliance on personal appeals. We argue that institutionalization constrains personalism not only at the level of party systems but also at the party level, shaping candidates' rhetorical strategies. Strong parties and institutionalized systems limit leaders' ability to campaign through self-centered discourse, while weak parties and systems allow candidates to mobilize through personal visibility. To test this argument, we analyze over 30,000 X posts from 131 presidential candidates across 17 Latin American countries from 2010 to 2022, linking text-based measures of personalist rhetoric to V-Dem and V-Party indicators of institutionalization and party organizations. Candidates in more institutionalized systems and organized parties use significantly less personalist rhetoric, and such appeals enhance voter attention only where institutional constraints are weak. The study reconceptualizes personalism as an electoral strategy and provides new comparative evidence on how institutions shape leader-centered politics.

Supplementary Appendix for: "Institutions, Candidates, and the Rhetoric of Personalism: Evidence from Latin America"

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A1 GPT-Based Classification and Validation

To measure rhetorical personalism in campaign communication, we used a large-scale text classification procedure based on a supervised prompt implemented through the OpenAI API. The model (GPT-5-mini) was instructed to classify each X post posted by presidential candidates as personalist (1) or non-personalist (0). The prompt explicitly defined personalist rhetoric as discourse that centers on the candidate's personal attributes, leadership qualities, or individual merits as the basis for political support, while non-personalist rhetoric refers to messages emphasizing collective actors, proposals, or policy agendas.

X posts were grouped by candidate and processed in batches of up to 50 posts to ensure consistency. For each batch, the model received contextual information including the candidate's name, party, country, and election year, as well as a clear set of examples. The model was required to output only structured numeric labels corresponding to each post. Classification mismatches were automatically re-queried to maintain one-to-one correspondence between post and predicted labels. The entire procedure was fully automated in Python, producing a dataset where each post received a binary classification score (0 or 1) indicating whether it contained personalist content.

A1.1 Prompt Used for X posts Classification

"Devuelve 50 líneas, una por entrada, exactamente: id<TAB>y (y=0 o 1). " "No repitas post. No expliques."

"y=1 si el post es personalista porque el candidato aparece como VOZ o SUJETO del mensaje:"

"(i) auto-referencia en primera persona (singular o plural) + atribución de acción, decisión, logro, promesa o compromiso político al emisor, o"

"(ii) énfasis en cualidades/liderazgo/trayectoria/valores/logros del candidato, o"

"(iii) pedido de apoyo/voto por la persona."

"y=0 si el post no es personalista: menciona al partido/ equipo/ programa/ agenda/ agradecimientos/ saludos/ logística sin enfatizar al candidato."

"Si hay duda: y=0."

f"{post_text}"

A1.2 Examples of post classification

To illustrate the coding rule, Table A.1 reports examples of posts classified as non-personalisti (0) and personalist (1). Posts are coded as personalist when they foreground the candidate's personal traits, biography, or individual agency as the basis for political support, rather than emphasizing parties, teams, programs, or collective actors.

Table A.1: Illustrative examples of posts classified as non-personalistic (0) and personalistic (1).

Non-personalist (0)	**Post text**
Paco Moyano; Acuerdo Nacional por el Cambio; Ecuador (2017)	Hay que escoger con amor a la patria, con amor a la democracia y es claro que no es el camino del continuismo.
Eliécer Feinzaig; Partido Liberal Progresista; Costa Rica (2022)	Nuestro partido está opuesto a la exploración y explotación petrolera, así como la minería a cielo abierto.
Daniel Martínez; Frente Amplio; Uruguay (2019)	El `@Frente_Amplio` nació del sueño de hombres y mujeres que sintieron la necesidad de que juntos cambiábamos la historia. La política es para la gente y no la gente para los políticos.
Hernando de Soto; Avanza País; Peru (2021)	Somos un equipo serio, con propuestas serias, les pedimos votos serios.
Personalist (1)	**Post text**
Johnny Araya; Partido Liberación Nacional; Costa Rica (2014)	Tengo absoluta certeza de lo que yo he hecho en mi vida, y tengo una trayectoria limpia. #DebateFinal
Sandra Torres; Unidad Nacional de la Esperanza; Guatemala (2019)	El bienestar de las familias guatemaltecas siempre ha sido mi prioridad. Tengo la experiencia, al mejor equipo y un Plan de Gobierno que traerá paz y prosperidad. ¡Juntos tenemos la fuerza, y juntos lo vamos a lograr! Este 16 de junio #VotaUNE #PorTiYTuFamilia #GuateNosUNE
Rómulo Roux; Cambio Democrático; Panama (2019)	Hay muchas personas que quieren un cambio para los próximos 5 años, por eso sé que la participación en esta jornada electoral será alta. Levántense temprano para elegir a alguien con capacidad, carácter y la experiencia necesaria para la Presidencia de la República.
John Milton Rodríguez; Colombia Justa Libres; Colombia (2022)	Ni por un segundo se le ocurra a la casta política de este país, que John Milton Rodríguez y Sandra de las Lajas se les van a arrodillar por un puesto, una embajada o un ministerio. Vamos a llegar firmes a la primera vuelta.

Note: Examples are reproduced verbatim from candidates' campaign posts on X and are in their original language.

A1.3 Validation measurements

To evaluate the reliability of the automated text classification used in the study we used two complementary procedures. First, we validated the GPT-based labeling against a manually coded benchmark of 2,000 X posts. Second, for the complete data, we applied a dictionary based procedure and compare it with the GPT-based classification.

A1.3.1 Validation against manual coding

We validate the GPT-based classification using a manually coded subset of 2,000 posts. Each post was labeled as personalist (1) or not (0) using the same coding rule as in the main analysis, and we then compare the GPT labels to the manual labels using standard agreement and classification metrics.

Table A.2: Validation metrics: GPT classification vs. manual coding (positive = 1).

Metric	Value
N	2000
Accuracy	0.864
Precision (1)	0.741
Recall (1)	0.778
F1 (1)	0.759
Specificity (0)	0.896
Balanced accuracy	0.837
Cohen's kappa	0.664

Table A.2 reports high agreement. Overall accuracy is 0.864, with balanced accuracy of 0.837. For the positive class (personalist = 1), precision is 0.741, recall is 0.778, and the F1 score is 0.759. Agreement beyond chance is good: Cohen's κ is 0.664. Using common interpretive benchmarks for κ, these values fall in the "substantial

agreement" range[1]. The confusion matrix indicates 1,297 true negatives and 430 true positives, with 150 false positives and 123 false negatives.

A possible concern for our measurement strategy is not only random error but also directional misclassification that could sistematically bias candidate-level averages. Here, the predicted positive rate is close to the manual prevalence (GPT positives = 0.290; manual positives = 0.277), suggesting limited directional bias in the aggregate. In other words, the classifier does not appear to systematically over-label or under-label personalism in a way that would mechanically inflate or deflate estimated levels of candidate personalism.

A1.3.2 Validation against dictionary classification

We also validate the GPT-based labels against a transparent rule-based dictionary applied to the full dataset (N = 43,991). The dictionary flags personalist rhetoric using Spanish and Portuguese patterns capturing first-person references paired with political agency (e.g., "yo/eu" + action/commitment verbs), direct leader–people linkages (e.g., "mi pueblo/meu povo"), and embodiment cues (e.g., "bajo mi liderazgo/sob minha liderança"). To reduce false positives, we include anti-patterns that downweight non-political greetings and routine posts (e.g., "feliz cumpleaños," "buenos días," "rumbo a").

[1]Following (Landis and Koch criteria, in: Landis, J., & Koch, G. (1977). The Measurement of Observer Agreement for Categorical Data. *Biometrics*, 33(1), 159–174.

Table A.3: Validation metrics: GPT vs. dictionary classification (positive = 1).

Metric	Value
N	43991
Accuracy	0.777
Precision (1)	0.399
Recall (1)	0.711
F1 (1)	0.511
Specificity (0)	0.790
Balanced accuracy	0.751
Cohen's kappa	0.381
Dictionary prevalence (1)	0.164
GPT predicted rate (1)	0.292

Table A.3 reports agreement between the dictionary and GPT labels. Relative to the dictionary, GPT attains accuracy of 0.777 and balanced accuracy of 0.751. For the positive class (personalist = 1), precision = 0.399, recall = 0.711, and F1 = 0.511, indicating that GPT captures most dictionary-flagged personalist posts but also labels many additional posts as personalist (TP = 5,131; TN = 29,055; FP = 7,719; FN = 2,086). Consistent with this pattern, the predicted positive rate under GPT (0.292) is substantially higher than the dictionary prevalence (0.164), suggesting that GPT is systematically more inclusive than the dictionary. Importantly, this discrepancy is expected given measurement scope: the dictionary targets a narrow set of explicit linguistic markers, whereas GPT can classify broader forms of self-centered rhetoric that do not rely on fixed lexical triggers.

A1.3.3 Dictionary-based classification. Main models

As an additional robustness check, we re-estimate the main post-level specifications using a dictionary-based indicator of personalist rhetoric in place of the GPT classification. As Table A.4 shows, the results are qualitatively unchanged. In the post-level

fixed-effects logit model, V-Dem party institutionalization remains negatively associated with personalist rhetoric under both measures (GPT: $\beta = -0.85, p = 0.039$; dictionary: $\beta = -0.73, p = 0.029$). Local organizational strength is positive in both cases (GPT: $\beta = 0.47, p = 0.001$; dictionary: $\beta = 0.90, p < 0.001$), while candidate nomination is negative under both measures (GPT: $\beta = -0.33, p = 0.007$; dictionary: $\beta = -0.53, p < 0.001$).

Table A.4: Robustness to alternative personalism classification (GPT vs. dictionary)

	Post-level logit		Multilevel logit	
	GPT DV	Dictionary DV	GPT DV	Dictionary DV
V-Dem party inst	-0.846*	-0.728*	-0.976**	-0.844*
	(0.410)	(0.334)	(0.341)	(0.368)
Local org strength	0.470**	0.902***	0.342†	0.742***
	(0.146)	(0.197)	(0.182)	(0.185)
Party continuity	0.020	0.176*	0.004	0.175**
	(0.055)	(0.073)	(0.051)	(0.058)
Candidate nomination	-0.326**	-0.533***	-0.312***	-0.527***
	(0.120)	(0.119)	(0.093)	(0.102)
Local party offices	-0.164	-0.643**	0.016	-0.460**
	(0.139)	(0.208)	(0.173)	(0.178)
Primaries	-0.962***	-1.663***	-0.916***	-1.585***
	(0.176)	(0.186)	(0.184)	(0.198)
Independent allowed	-1.072***	-1.336***	-1.238***	-1.401***
	(0.300)	(0.300)	(0.359)	(0.370)
Incumbent candidate	0.070	0.559**	0.036	0.592*
	(0.326)	(0.179)	(0.211)	(0.233)
Federal system	0.191	0.181	0.306	0.190
	(0.250)	(0.307)	(0.253)	(0.283)
Two-round system	$-0.652^{\dagger}$	-0.887**	-0.712*	-0.956**
	(0.367)	(0.343)	(0.327)	(0.336)
Open-list system	1.171***	2.475***	1.165***	2.369***
	(0.188)	(0.219)	(0.255)	(0.280)
Observations	15,264	15,264	15,264	15,264
Election-year FE	Yes	Yes	Yes	Yes
SEs clustered by cand	Yes	Yes	–	–
Random intercept (cand)	–	–	Yes	Yes
Random slope PI (cand)	–	–	Yes	Yes

Notes: Log-odds coefficients with standard errors in parentheses. Post-level models are estimated with election-year fixed effects and standard errors clustered by candidate×country. Multilevel models include election-year fixed effects, candidate-level random intercepts, and candidate-level random slopes for V-Dem party institutionalization. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

The multilevel models yield the same substantive pattern. Under the GPT outcome, V-Dem party institutionalization and candidate nomination are negative and statistically significant ($\beta = -0.98, p = 0.004$; $\beta = -0.31, p < 0.001$), while local organizational strength is positive and significant at the 90% level ($\beta = 0.34, p = 0.061$). Using the dictionary outcome produces negative coefficients for V-Dem party institutionalization and candidate nomination ($\beta = -0.84, p = 0.022$; $\beta = -0.53, p < 0.001$) and a positive coefficient for local organizational strength ($\beta = 0.74, p < 0.001$). Overall, the stability of signs and significance across the GPT and dictionary measures suggests that the main conclusions do not depend on the particular classification procedure.

A2 Main models. Results and Robustness

This appendix reports the full estimates underlying the main-text coefficient plot. We test H1 –that party-level organizational attributes are associated with candidates' use of personalist rhetoric– and H2 –that higher levels of party-system institutionalization will be associated with lower overall levels of personalist rhetoric across candidates and elections– using X post-level logistic regressions where the dependent variable indicates whether a post contains personalist rhetoric. Post-level models include election-year fixed effects and cluster standard errors by candidate×country. Model 1 estimates the association with the four V-Party indicators. Model 2 estimates the association with V-Dem party institutionalization using the larger V-Dem matched sample. Model 3 includes the V-Party indicators and V-Dem party institutionalization in the same specification. Finally, we estimate a multilevel logit model with posts nested within

candidates (random intercepts) and a random slope for V-Dem party institutionalization to account for candidate-level heterogeneity in this association.

Table A.5: H1–H2 full results: post-level and multilevel logit models

	(1) Party org	(2) V-Dem PI	(3) Joint	(4) Multilevel
V-Dem party inst		-0.825*	-0.846*	-0.976**
		(0.373)	(0.410)	(0.341)
Local org strength	0.507**		0.470**	0.342†
	(0.157)		(0.146)	(0.182)
Party continuity	0.025		0.020	0.004
	(0.055)		(0.055)	(0.051)
Candidate nomination	-0.415***		-0.326**	-0.312***
	(0.106)		(0.120)	(0.093)
Local party offices	$-0.256^{\dagger}$		-0.164	0.016
	(0.144)		(0.139)	(0.173)
Primaries	-0.982***	-0.577**	-0.962***	-0.916***
	(0.208)	(0.205)	(0.176)	(0.184)
Independent allowed	-1.176***	-0.253	-1.072***	-1.238***
	(0.347)	(0.277)	(0.300)	(0.359)
Incumbent candidate	0.233	0.371†	0.070	0.036
	(0.321)	(0.210)	(0.326)	(0.211)
Federal system	-0.126	0.474*	0.191	0.306
	(0.177)	(0.201)	(0.250)	(0.253)
Two-round system	-0.948*	-0.425*	$-0.652^{\dagger}$	-0.712*
	(0.369)	(0.186)	(0.367)	(0.327)
Open-list system	1.219***	0.660**	1.171***	1.165***
	(0.240)	(0.233)	(0.188)	(0.255)
Election-year FE	Yes	Yes	Yes	Yes
Obs	15,264	33,152	15,264	15,264
SEs clustered	Yes	Yes	Yes	–
Cand. random intercept	No	No	No	Yes
Cand. random slope (PI)	No	No	No	Yes

Notes: Dependent variable equals 1 if a post is classified as personalist. Columns (1)–(3) are post-level logit models with election-year fixed effects and standard errors clustered by candidate×country. Column (4) is a multilevel logit with candidate-level random intercepts and a random slope for V-Dem party institutionalization. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Across specifications, the results replicate the central pattern described in the main text. V-Dem party institutionalization is negatively associated with personalist rhetoric (Model 2: $\beta = -0.825, p = 0.027$; Model 3: $\beta = -0.846, p = 0.039$; multilevel: $\beta = -0.976, p = 0.004$). At the party level, local organizational strength is positive

(Model 1: $\beta = 0.507, p = 0.001$; Model 3: $\beta = 0.470, p = 0.001$; multilevel: $\beta = 0.342, p = 0.061$), while candidate nomination is consistently negative (Model 1: $\beta = -0.415, p < 0.001$; Model 3: $\beta = -0.326, p = 0.007$; multilevel: $\beta = -0.312, p < 0.001$). Party continuity and local party offices do not show consistent associations across specifications.

A2.1 Bayesian multilevel robustness

As a robustness check to distributional assumptions and reliance on asymptotic standard errors, we re-estimate the multilevel logit model in a Bayesian framework using Bayesian generalized (non-)linear multivariate multilevel models –using the `brms` package in `R`— with weakly informative priors. The model matches the main multilevel specification: posts are nested within candidates (random intercepts), and the effect of V-Dem party institutionalization is allowed to vary across candidates (random slope). We draw 8,000 post–warmup posterior samples (4 chains; 3,000 iterations each; 1,000 warmup).

Table A.6: Bayesian multilevel robustness: posterior summaries for key parameters.

Parameter	Posterior mean	90% CrI	95% CrI
V-Dem party institutionalization	-0.859	[-1.607, -0.095]	[-1.763, 0.052]
Local organizational strength	0.358	[-0.045, 0.761]	[-0.127, 0.840]
Party continuity	-0.002	[-0.128, 0.121]	[-0.155, 0.146]
Candidate nomination	-0.228	[-0.428, -0.024]	[-0.473, 0.009]
Local party offices	-0.031	[-0.406, 0.347]	[-0.487, 0.420]

Notes: Entries are posterior means and credible intervals from the Bayesian multilevel logit model estimated with weakly informative priors. The main text emphasizes the 90% CrIs for V-Dem party institutionalization and candidate nomination.

As Table A.6 shows, the posterior results recover the same directional pattern as the frequentist multilevel model. V-Dem party institutionalization is negative, with a 90% credible interval below zero [-1.607, -0.095], although the 95% credible interval includes zero [-1.763, 0.052]. Candidate nomination is also negative, with a 90% credible

interval below zero [-0.428, -0.024], while its 95% credible interval narrowly includes zero [-0.473, 0.009]. Local organizational strength is positively signed, while party continuity and local party offices remain close to zero. These estimates align with the frequentist multilevel model in sign, although the Bayesian intervals are more conservative.

The Bayesian model also supports meaningful cross-candidate heterogeneity. The posterior distribution of the candidate-level random intercept has an estimated standard deviation of 0.268 (90% CrI: [0.057, 0.448]), and the random-slope standard deviation for V-Dem party institutionalization is 0.391 (90% CrI: [0.039, 0.776]), indicating that the association of system-level institutionalization varies across candidates. Convergence diagnostics indicate satisfactory mixing (all $\hat{R} \approx 1.00$ and effective sample sizes are adequate).

A2.2 Robustness to excluding non-democratic elections

As an additional robustness check, we re-estimate the main joint post-level and multilevel models after excluding elections that could be considered outside regular democratic contestation. In practice, this excludes El Salvador and Venezuela from the analyzed sample; Nicaragua is not present in the data. The dependent variable equals 1 if a post is classified as personalist.

Table A.7: Robustness to excluding non-democratic elections.

	(1) Joint logit	(2) Multilevel logit
V-Dem party institutionalization	-0.846*	-0.976**
	(0.410)	(0.341)
Local organizational strength	0.470**	$0.342^{\dagger}$
	(0.146)	(0.182)
Party continuity	0.020	0.004
	(0.055)	(0.051)
Candidate nomination	-0.326**	-0.312***
	(0.120)	(0.093)
Local party offices	-0.164	0.016
	(0.139)	(0.173)
Primaries	-0.962***	-0.916***
	(0.176)	(0.184)
Independent allowed	-1.072***	-1.238***
	(0.300)	(0.359)
Incumbent candidate	0.070	0.036
	(0.326)	(0.211)
Federal system	0.191	0.306
	(0.250)	(0.253)
Two-round system	$-0.652^{\dagger}$	-0.712*
	(0.367)	(0.327)
Open-list system	1.171***	1.165***
	(0.188)	(0.255)
Election-year FE	Yes	Yes
Observations	15,264	15,264
SEs clustered by cand×country	Yes	–
Candidate random intercept	No	Yes
Candidate random slope (V-Dem PI)	No	Yes

Notes: Column (1) is a post-level logit model with election-year fixed effects and standard errors clustered by candidate×country. Column (2) is a multilevel logit with candidate-level random intercepts and a random slope for V-Dem party institutionalization. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Table A.7 shows that the results remain substantively unchanged. V-Dem party institutionalization remains negatively associated with personalist rhetoric in both the joint post-level model ($\beta = -0.846, p = 0.039$) and the multilevel model ($\beta = -0.976, p = 0.004$). At the party level, local organizational strength remains positive, candidate nomination remains negative, and party continuity and local party offices remain statistically indistinguishable from zero.

A2.3 Candidate-level aggregation robustness

As a robustness check, we re-estimate the main relationships using candidate-level aggregates rather than post-level outcomes. For each candidate–election, we compute the share of personalist posts and use this mean personalism score as the dependent variable. Because the precision of a candidate's mean personalism depends mechanically on the number of posts observed, we estimate weighted OLS models using the number of posts per candidate–election as analytic weights and cluster standard errors by country.

All specifications control for time using election year as a continuous covariate rather than year fixed effects. With a small and uneven candidate–election sample—especially in the V-Party matched subset (N = 42)—including a full set of year dummies substantially reduces degrees of freedom and absorbs much of the remaining variation, making estimates sensitive to a narrow set of within-year comparisons. A parametric time trend captures secular changes while preserving identifying variation.

Table A.8: Candidate-level robustness: OLS models of candidate personalism (share of personalist posts).

	(1) V-Dem PI only	(2) Party org only	(3) Joint
V-Dem party inst	$-0.112^{\dagger}$		-0.125
	(0.058)		(0.123)
Local org strength		$0.117^{\dagger}$	0.107*
		(0.058)	(0.045)
Party continuity		0.009	0.012
		(0.011)	(0.016)
Candidate nomination		-0.056*	-0.046*
		(0.021)	(0.018)
Local party offices		-0.041	-0.021
		(0.041)	(0.032)
Primaries	-0.070**	$-0.092^{\dagger}$	-0.095*
	(0.022)	(0.051)	(0.036)
Independent allowed	-0.101	-0.183***	-0.206***
	(0.062)	(0.041)	(0.043)
Incumbent candidate	0.054	-0.023	-0.038
	(0.033)	(0.045)	(0.042)
Federal system	0.103*	-0.036	0.014
	(0.037)	(0.065)	(0.055)
Two-round system	-0.095	-0.103	-0.092
	(0.066)	(0.067)	(0.072)
Open-list system	$0.114^{\dagger}$	0.190**	0.194***
	(0.057)	(0.057)	(0.041)
Election year (linear)	0.007*	$0.023^{\dagger}$	$0.024^{\dagger}$
	(0.003)	(0.011)	(0.012)
Constant	-13.933*	$-45.944^{\dagger}$	$-48.014^{\dagger}$
	(6.194)	(22.143)	(24.910)
Observations	110	42	42
Weights (number of post)	Yes	Yes	Yes
SEs clustered by country	Yes	Yes	Yes
Adj. R^2	0.114	0.349	0.349

Notes: Dependent variable is the share of posts classified as personalist for the candidate. Models are estimated by weighted OLS with weights equal to the number of posts. Standard errors are clustered by country. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Table A.8 reports three models. First, higher V-Dem party institutionalization is associated with lower candidate personalism ($\beta = -0.112, p = 0.075$). Second, in the V-Party matched sample (N = 42), local organizational strength is positively associated with candidate personalism ($\beta = 0.117, p = 0.066$), while candidate nomination is

negatively associated ($\beta = -0.056, p = 0.020$). Party continuity and local party offices are not statistically significant. Third, when both system- and party-level measures are included jointly (N = 42), the same party-level pattern holds: local organizational strength remains positive ($\beta = 0.107, p = 0.036$), candidate nomination remains negative ($\beta = -0.046, p = 0.028$), and party continuity and local party offices remain statistically insignificant. V-Dem party institutionalization remains negative, but does not reach conventional levels of statistical significance in the joint candidate-level specification ($\beta = -0.125, p = 0.330$). Overall, the candidate-level results replicate the direction of the main party-level findings and indicate that the baseline relationships are not driven by within-candidate post-level noise.

A2.4 Comparision using PIPS aggregate indicators

As an additional robustness check, we re-estimate the multilevel specification using the aggregate indicators developed by PIPS (Self, Franke, & Mitchell, 2024). PIPS distinguishes party strength from party institutionalization, allowing us to assess whether the main results are sensitive to an alternative operationalization of party organization. Because party strength and party institutionalization are highly correlated in our matched sample ($r = 0.72$), we estimate them in separate models rather than including both simultaneously. Both models include system-level party institutionalization, the same institutional and candidate-level controls, election-year fixed effects, candidate-level random intercepts, and a candidate-level random slope for system-level party institutionalization.

Table A.9: Robustness using PIPS aggregate indicators.

	(1) Party strength	(2) Party institutionalization
Party System Inst	-0.615***	-0.674***
	(0.122)	(0.154)
PIPS party strength	0.275**	
	(0.084)	
PIPS party inst		0.269*
		(0.117)
Primaries	-0.321*	-0.246
	(0.163)	(0.170)
Independent allowed	-0.009	-0.489
	(0.368)	(0.364)
Incumbent candidate	0.084	0.121
	(0.234)	(0.250)
Federal system	0.036	0.178
	(0.228)	(0.236)
Two-round system	-0.918**	-1.186***
	(0.301)	(0.301)
Open-list system	0.646*	0.815**
	(0.279)	(0.286)
Election-year FE	Yes	Yes
Observations	15,809	15,809
Candidates	43	43
Candidate random intercept	Yes	Yes
Candidate random slope (system PI)	Yes	Yes

Notes: Dependent variable equals 1 if a post is classified as personalist. Models are multilevel logits with candidate-level random intercepts and a random slope for system-level party institutionalization. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Table A.9 shows that the system-level result is unchanged: system-level party institutionalization is negatively associated with personalist rhetoric in both models. The PIPS party strength indicator is positively associated with personalist rhetoric ($\beta = 0.275, p = 0.001$), and the PIPS party institutionalization indicator is also positive ($\beta = 0.269, p = 0.022$). Substantively, these results are consistent with the main findings: system-level institutionalization constrains personalist rhetoric, while aggregate party organizational capacity is positively associated with it. This reinforces our decision to

disaggregate party-level organization in the main analysis, since the PIPS aggregates combine dimensions that operate differently in our results.

A2.5 Comparison using PIPS disaggregated indicators

We also re-estimate the main models using the disaggregated PIPS-coded party indicators. This specification is closest to the main V-Party analysis, but uses the PIPS recoding of the party components. The key difference concerns candidate nomination. In the main analysis, the V-Party nomination item is used in its original direction, where higher values indicate more inclusive and decentralized nomination procedures. PIPS recodes this item to align it with its party-institutionalization framework, treating more party-controlled and routinized nomination procedures as higher values rather than simply treating inclusiveness as institutionalization. This alternative coding is useful because it tests whether the nomination result depends on the original V-Party scale. Models 1–3 are post-level logits with election-year fixed effects and standard errors clustered by candidate×country. Model 4 is the corresponding multilevel logit with candidate-level random intercepts and a random slope for V-Dem party institutionalization.

Table A.10: Robustness using PIPS disaggregated indicators.

	(1) Party org	(2) V-Dem PI	(3) Joint	(4) Multilevel
V-Dem party inst		-0.825*	-0.861*	-0.993**
		(0.373)	(0.406)	(0.342)
PIPS nomination	-0.411***		-0.317*	-0.297**
	(0.107)		(0.123)	(0.094)
PIPS continuity	-0.003		0.009	0.034
	(0.058)		(0.055)	(0.050)
PIPS local offices	$-0.270^{\dagger}$		-0.170	-0.003
	(0.151)		(0.153)	(0.175)
PIPS local org strength	0.526***		0.493***	0.392*
	(0.156)		(0.149)	(0.187)
Primaries	-1.006***	-0.577**	-0.999***	-0.972***
	(0.215)	(0.205)	(0.191)	(0.190)
Independent allowed	-1.177**	-0.253	-1.088***	-1.235***
	(0.365)	(0.277)	(0.313)	(0.356)
Incumbent candidate	0.232	$0.371^{\dagger}$	0.069	0.042
	(0.317)	(0.210)	(0.318)	(0.209)
Federal system	-0.146	0.474*	0.172	0.274
	(0.170)	(0.201)	(0.234)	(0.248)
Two-round system	-0.934*	-0.425*	$-0.632^{\dagger}$	-0.657*
	(0.367)	(0.186)	(0.366)	(0.332)
Open-list system	1.238***	0.660**	1.201***	1.194***
	(0.245)	(0.233)	(0.196)	(0.254)
Election-year FE	Yes	Yes	Yes	Yes
Observations	15,809	33,152	15,809	15,809
SEs clustered	Yes	Yes	Yes	–
Random intercept (cand)	No	No	No	Yes
Cand random slope (PI)	No	No	No	Yes

Notes: Dependent variable equals 1 if a post is classified as personalist. Columns (1)–(3) are post-level logit models with election-year fixed effects and standard errors clustered by candidate×country. Column (4) is a multilevel logit with candidate-level random intercepts and a random slope for V-Dem party institutionalization. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Table A.10 shows that the results are substantively consistent with the main analysis. V-Dem party institutionalization remains negative in the post-level and multilevel specifications. PIPS local organizational strength is positive across models, while PIPS continuity and local offices do not show consistent associations. The nomination result also remains negative across specifications, despite the alternative PIPS recoding. Substantively, this indicates that candidate-selection procedures matter even

when nomination is operationalized as party-controlled and routinized selection rather than as inclusiveness and decentralization. The result therefore reinforces the main finding that nomination rules are one of the party-level dimensions most consistently associated with lower personalist rhetoric.

A3 Linking supply and demand. Results and robustness

To test H3 –that as party strength and party-system institutionalization increase, voters become less responsive to personalist rhetoric–, we link candidates' rhetorical personalism to voter attention using the candidate-centered Google Trends salience measure developed by Luján and Acosta y Lara (2024). The unit of analysis is candidate–election. The dependent variable is the candidate's Google Trends score, and the key explanatory term is the interaction between candidates' average share of personalist posts and institutionalization. We estimate five specifications, each interacting candidate personalism with a different moderator: V-Dem party institutionalization, candidate nomination, party continuity, local organizational strength, and local party offices. Because the candidate–election sample is small and uneven across years, we control for time using a linear election-year trend rather than year fixed effects. Year fixed effects would absorb most cross-year variation with limited within-year leverage and materially reduce degrees of freedom, making the interaction estimates sensitive to a narrow subset of comparisons. The trend specification captures secular changes while preserving identifying variation.

Table A.11: H3 full results: candidate personalism and Google Trends salience (models 1–3).

	(1) PI	(2) Nomination	(3) Continuity
Candidate personalism (share)	-0.164	-0.210	-0.010
	(0.124)	(0.186)	(0.126)
V-Dem party inst	$0.540^{\dagger}$	-0.017	-0.001
	(0.268)	(0.111)	(0.170)
Candidate nomination	-0.041	0.053	-0.037
	(0.030)	(0.057)	(0.037)
Party continuity	-0.020	-0.000	-0.061
	(0.024)	(0.018)	(0.071)
Local org strength	$-0.197^{\dagger}$	$-0.164^{\dagger}$	$-0.188^{\dagger}$
	(0.093)	(0.091)	(0.092)
Local party offices	$0.126^{\dagger}$	0.095	$0.122^{\dagger}$
	(0.061)	(0.056)	(0.064)
Personalism × V-Dem PI	-1.860*		
	(0.673)		
Personalism × Nomination		-0.290*	
		(0.130)	
Personalism × Continuity			0.210
			(0.193)
Primaries	-0.003	-0.033	-0.000
	(0.058)	(0.063)	(0.067)
Independent allowed	-0.105	-0.117	-0.107
	(0.079)	(0.097)	(0.092)
Incumbent candidate	0.170*	0.186*	0.196*
	(0.068)	(0.075)	(0.074)
Federal system	0.029	0.020	-0.022
	(0.118)	(0.134)	(0.137)
Two-round system	$-0.196^{\dagger}$	-0.160	-0.159
	(0.104)	(0.104)	(0.118)
Open-list system	$0.178^{\dagger}$	0.223*	0.153
	(0.093)	(0.099)	(0.107)
Election year (linear)	0.010	0.012	0.013
	(0.007)	(0.008)	(0.009)
Constant	-19.954	-23.061	-26.111
	(13.867)	(16.353)	(18.573)
Observations	42	42	42
SEs clustered country	Yes	Yes	Yes
Adj. R^2	0.495	0.440	0.399
RMSE	0.083	0.087	0.090

Notes: Dependent variable is candidate-centered Google Trends salience. All models are estimated by OLS with standard errors clustered by country. V-Dem party institutionalization, candidate nomination, party continuity, local organizational strength, and local party offices are centered. Time is controlled using a linear election-year trend. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Table A.12: H3 full results: candidate personalism and Google Trends salience (models 4–5).

	(4) Org strength	(5) Offices
Candidate personalism (share)	-0.034	-0.065
	(0.138)	(0.157)
V-Dem party inst	-0.042	-0.038
	(0.115)	(0.122)
Candidate nomination	-0.031	-0.030
	(0.030)	(0.033)
Party continuity	-0.001	-0.003
	(0.017)	(0.018)
Local org strength	-0.043	$-0.182^{\dagger}$
	(0.104)	(0.084)
Local party offices	0.113*	0.189*
	(0.045)	(0.069)
Personalism × Org strength	$-0.502^{\dagger}$	
	(0.242)	
Personalism × Local offices		-0.269
		(0.180)
Primaries	-0.031	-0.021
	(0.057)	(0.061)
Independent allowed	-0.116	-0.114
	(0.099)	(0.099)
Incumbent candidate	0.173*	0.176*
	(0.071)	(0.074)
Federal system	0.053	0.029
	(0.137)	(0.137)
Two-round system	-0.166	-0.156
	(0.104)	(0.110)
Open-list system	$0.211^{\dagger}$	$0.196^{\dagger}$
	(0.097)	(0.104)
Election year (linear)	$0.013^{\dagger}$	0.013
	(0.007)	(0.009)
Constant	-26.075	-26.410
	(14.841)	(17.471)
Observations	42	42
SEs clustered country	Yes	Yes
Adj. R^2	0.456	0.414
RMSE	0.086	0.089

Notes: Dependent variable is candidate-centered Google Trends salience. All models are estimated by OLS with standard errors clustered by country. V-Dem party institutionalization, candidate nomination, party continuity, local organizational strength, and local party offices are centered. Time is controlled using a linear election-year trend. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Tables A.11 and A.12 report the full coefficients. The interaction between candidate personalism and V-Dem party institutionalization is negative and statistically significant ($\beta = -1.860, p = 0.017$). The interaction with candidate nomination is also negative and statistically significant ($\beta = -0.290, p = 0.045$). The interaction with local organizational strength is negative and significant at the 90% level ($\beta = -0.502, p = 0.060$). By contrast, the interactions with party continuity ($\beta = 0.210, p = 0.297$) and local party offices ($\beta = -0.269, p = 0.161$) are not statistically distinguishable from zero in this sample.

A3.1 Robustness to non-linear time trends

As an additional robustness check for H3, we re-estimate the candidate–election OLS models allowing for non-linear temporal trends by including a centered election-year term and its square. This specification captures smooth changes over time in information environments and platform use without absorbing the limited cross-year leverage available in the small and uneven candidate–election sample (N = 42). Standard errors are clustered by country.

Table A.13: H3 robustness: quadratic time trend, models 1–3 (candidate–election OLS) (interactions).

	(1) PI int.	(2) Nomination	(3) Continuity
Candidate personalism (share)	-0.166	-0.218	-0.021
	(0.127)	(0.197)	(0.129)
V-Dem PI	0.523†	-0.024	-0.008
	(0.293)	(0.113)	(0.173)
Candidate nomination	-0.041	0.051	-0.038
	(0.031)	(0.060)	(0.039)
Party continuity	-0.020	-0.003	-0.064
	(0.024)	(0.018)	(0.070)
Local organizational strength	$-0.191^{\dagger}$	-0.155	$-0.178^{\dagger}$
	(0.102)	(0.098)	(0.097)
Local party offices	0.123†	0.092	0.119†
	(0.062)	(0.055)	(0.061)
Personalism × V-Dem PI	-1.818*		
	(0.719)		
Personalism × Nomination		$-0.288^{\dagger}$	
		(0.138)	
Personalism × Continuity			0.213
			(0.195)
Primaries	-0.006	-0.037	-0.004
	(0.061)	(0.066)	(0.071)
Independent allowed	-0.104	-0.116	-0.105
	(0.082)	(0.100)	(0.095)
Incumbent candidate	0.172*	0.190*	0.200*
	(0.073)	(0.077)	(0.079)
Federal system	0.031	0.024	-0.018
	(0.121)	(0.136)	(0.140)
Two-round system	-0.191	-0.153	-0.151
	(0.115)	(0.113)	(0.128)
Open-list system	0.177†	0.220†	0.151
	(0.096)	(0.102)	(0.112)
Election year	0.013	0.016	0.018
	(0.010)	(0.011)	(0.013)
Election year^2	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)
Constant	0.664***	0.652***	0.605**
	(0.120)	(0.120)	(0.142)
Observations	42	42	42
SEs clustered-country	Yes	Yes	Yes
Adj. R^2	0.479	0.428	0.387
RMSE	0.082	0.086	0.089

Notes: Unit of analysis is candidate–election. Dependent variable is candidate-centered Google Trends salience. Models are estimated by OLS with standard errors clustered by country. V-Dem party institutionalization, candidate nomination, party continuity, local organizational strength, local party offices, and election year are centered. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Table A.14: H3 robustness: quadratic time trend, models 4–5 (candidate–election OLS).

	(4) Org strength int.	(5) Offices int.
Candidate personalism (share)	-0.042	-0.075
	(0.146)	(0.168)
V-Dem party institutionalization	-0.048	-0.045
	(0.118)	(0.123)
Candidate nomination	-0.032	-0.031
	(0.031)	(0.035)
Party continuity	-0.003	-0.005
	(0.017)	(0.018)
Local organizational strength	-0.037	$-0.172^{\dagger}$
	(0.110)	(0.092)
Local party offices	0.110*	0.186*
	(0.045)	(0.070)
Personalism × Org strength	$-0.493^{\dagger}$	
	(0.248)	
Personalism × Local offices		-0.271
		(0.195)
Primaries	-0.035	-0.025
	(0.060)	(0.063)
Independent allowed	-0.115	-0.112
	(0.102)	(0.103)
Incumbent candidate	0.176*	0.180*
	(0.074)	(0.079)
Federal system	0.056	0.034
	(0.139)	(0.139)
Two-round system	-0.159	-0.149
	(0.113)	(0.120)
Open-list system	$0.208^{\dagger}$	$0.194^{\dagger}$
	(0.100)	(0.108)
Election year	0.017	0.018
	(0.011)	(0.012)
Election year^2	0.001	0.001
	(0.002)	(0.002)
Constant	0.621***	0.617***
	(0.118)	(0.129)
Observations	42	42
SEs clustered by country	Yes	Yes
Adj. R^2	0.442	0.402
RMSE	0.085	0.088

Notes: Unit of analysis is candidate–election. Dependent variable is candidate-centered Google Trends salience. Models are estimated by OLS with standard errors clustered by country. V-Dem party institutionalization, candidate nomination, party continuity, local organizational strength, local party offices, and election year are centered. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.10$.

Tables A.13 and A.14 report the results. The core pattern is unchanged. The interaction between candidate personalism and V-Dem party institutionalization remains negative and statistically significant ($\beta = -1.818, p = 0.027$). The interaction with candidate nomination is also negative and significant at the 90% level ($\beta = -0.288, p = 0.058$). The interaction with local organizational strength remains negative and significant at the 90% level ($\beta = -0.493, p = 0.070$). By contrast, the interactions with party continuity ($\beta = 0.213, p = 0.296$) and local party offices ($\beta = -0.271, p = 0.191$) are not statistically distinguishable from zero in this sample. Overall, the main H3 inference does not depend on the functional form used to control for time.

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