

Diagnostics report

2026-06-15

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1 Purpose

The purpose of this report is to provide the appendix-style diagnostics that document how the released party-position estimates are constructed, checked, and validated. The main article reports the central validation evidence; this report keeps the larger technical tables with the release so readers can inspect item coverage, source coverage, coding orientation, harmonization, convergence, posterior uncertainty, and validation details in one reproducible place.

2 Overview

This report follows the structure of the technical appendix material: data and item coverage, coding and scale orientation, party-union harmonization, construct checks, model convergence, and validation. It is generated from the

model-ready inputs and completed model outputs; it is not part of the raw-data setup workflow.

3 Data and item coverage

The model combines text-coded item counts, dimension-specific expert placements, and general left-right expert placements. Text items enter as positive/sample counts, expert items enter as aggregated ratings with scale and expert-count information, and general left-right ratings anchor the relationship between the two dimensions.

source file	dimension	items
expert.csv	cultural	7
expert.csv	economic	5
lr_data.csv	general left-right	3
text_data.csv	cultural	11
text_data.csv	economic	6

3.1 Source coverage

file	source	items	obs	party years	parties	countries	years
expert	CHES	2	2639	1320	390	44	1999–2024
expert	GPS	2	538	271	271	62	2019–2019
expert	POPPA	1	413	413	225	31	2018–2023
expert	V-Party	7	21488	3076	589	65	1970–2019
general LR	CHES	1	1320	1320	390	44	1999–2024
general LR	Morgan	1	471	471	72	11	1945–1973
general LR	POPPA	1	416	416	225	31	2018–2023
text	Manifesto Project	8	36008	4501	713	65	1920–2025
text	PolDem	9	2194	406	93	15	1972–2017

Full item-level coverage and coding-orientation details are provided as generated CSV files listed at the end of this report.

4 Data coding and item orientation

All indicators are oriented toward the two reported dimensions: economic left-right and cultural cosmopolitan–traditionalist. For interpretability, generated diagnostics report whether higher observed values point toward the public high pole or are reversed for reporting. Original source variable names are preserved in the tables.

4.1 Reversed items

source	dimension	higher values indicate	items
Manifesto Project	cultural	cosmopolitan	2
Manifesto Project	economic	pro_welfare	2
PolDem	cultural	cosmopolitan	4
PolDem	economic	pro_welfare	1

5 Party unions and electoral coalitions

Alliance and union labels are handled through constituent mappings so the released party identifiers represent individual parties. Shared text evidence can inform constituent parties through the union mapping while expert data continue to constrain individual parties directly.

metric	category	value
constituent_mappings	all	106
unique_union_or_alliance_ids	all	76
unique_constituent_party_ids	all	100
mappings_by_country	AR	5
mappings_by_country	AU	2
mappings_by_country	BA	1
mappings_by_country	BE	4
mappings_by_country	BG	5
mappings_by_country	BR	6
mappings_by_country	CH	1
mappings_by_country	CL	8
mappings_by_country	CZ	4
mappings_by_country	DE	3
mappings_by_country	EC	1
mappings_by_country	EE	3
mappings_by_country	ES	3
mappings_by_country	FR	4
mappings_by_country	GR	3
mappings_by_country	HR	4
mappings_by_country	IE	1
mappings_by_country	IL	2
mappings_by_country	IT	8
mappings_by_country	LK	3
mappings_by_country	LT	4
mappings_by_country	LU	1
mappings_by_country	LV	6
mappings_by_country	MD	1
mappings_by_country	ME	1
mappings_by_country	MX	2
mappings_by_country	NL	1
mappings_by_country	NZ	1
mappings_by_country	PE	1
mappings_by_country	PL	3
mappings_by_country	RO	6
mappings_by_country	RS	3
mappings_by_country	SK	4
mappings_by_country	UY	1
mappings_by_relationship	Amaiur (2011) predecessor to EH Bildu; expert data 2014-2024 covers EH Bildu years	1
mappings_by_relationship	Arab party coalition (2015-2021); Balad is constituent	1
mappings_by_relationship	Arab party coalition (2015-2021); Hadash is core constituent	1

6 Party-family and construct coverage

Party-family classifications are used for construct-validity diagnostics and coverage summaries. The table below reports coverage in the completed model output by family code.

family	parties	party years	countries	years
soc	86	2892	37	1944–2025
con	82	2425	34	1944–2024
lib	81	2063	35	1944–2025
chr	41	1596	24	1945–2025
com	49	1241	27	1944–2025
right	50	975	26	1946–2025
eco	30	723	24	1960–2024
agr	12	592	10	1944–2024
spec	25	520	14	1949–2024
other	2	40	2	1992–2024

6.1 Construct-validity family means

Substantive party-family means provide a construct-validity check: families should follow the expected ordering on the economic left-right and cultural cosmopolitan–traditionalist dimensions.

family	parties	obs	econ mean	econ sd	cult mean	cult sd
Communist/Far Left	49	1241	0.12	0.09	0.383	0.18
Green/Ecological	30	723	0.267	0.115	0.251	0.092
Social Democratic	86	2892	0.331	0.124	0.378	0.138
Christian Democratic	41	1596	0.596	0.119	0.529	0.14
Radical Right	50	975	0.622	0.19	0.72	0.151
Conservative	82	2425	0.652	0.178	0.538	0.143
Liberal	81	2063	0.657	0.152	0.371	0.132

6.2 Temporal-stability flags

The model permits movement through random walks, but unusually large one-year changes are flagged for inspection rather than treated as automatic errors.

party	country	dim	from	to	start	end	annual change
556	LT	cultural	2019	2020	0.771	0.529	0.242
1663	IL	cultural	2021	2022	0.142	0.356	0.214
455	IL	cultural	1997	1998	0.457	0.643	0.186
455	IL	cultural	1996	1997	0.277	0.457	0.18
8393	LV	cultural	2018	2019	0.439	0.263	0.176
281	BE	cultural	1977	1978	0.671	0.843	0.173
556	LT	cultural	2001	2002	0.319	0.491	0.172
964	IS	economic	2016	2017	0.691	0.521	0.17
298	NL	cultural	2018	2019	0.761	0.593	0.168
901	FI	economic	1992	1993	0.486	0.647	0.161
467	SI	cultural	2018	2019	0.564	0.404	0.16
1221	IT	economic	2007	2008	0.56	0.4	0.159

7 Model convergence diagnostics

Convergence is assessed using split R-hat and effective sample size over monitored parameters.

metric	count	percentage
R-hat < 1.01	35258	100
R-hat 1.01-1.05	0	0
R-hat > 1.05	0	0
ESS > 1000	34853	98.85
ESS 400-1000	405	1.15
ESS < 400	0	0

7.1 Convergence by parameter group

dimension	parameters	mean rhat	max rhat	min ess bulk	mean ess bulk
cultural	17585	1.001	1.006	810.509	6889.246
economic	17585	1	1.004	670.708	5573.456
lr_country_offset	65	1.001	1.004	1078.198	5434.868
lr_decade_offset	8	1	1.001	2069.676	3372.016
lr_sigma	3	1.001	1.002	1956.611	2582.401
lr_source_offset	3	1	1	3477.519	3814.374
lr_weight	3	1.002	1.002	1540.806	1560.217
mean_sigma	6	1.005	1.009	534.811	918.502

8 Posterior uncertainty

The completed party-position output reports posterior standard errors and interval endpoints for both dimensions. These summaries describe the typical uncertainty in the release file used by the report.

rows	parties	countries	years	mean econ se	median econ se	mean cult se	median cult se
17585	708	65	1944–2025	0.065	0.063	0.058	0.055

9 Validation diagnostics

The validation diagnostics combine convergent and discriminant comparisons with expert surveys, posterior predictive coverage, construct checks, and out-of-sample validation when the corresponding outputs are available.

diagnostic	dimension	n	pearson r	spearman r	mae	coverage
convergent validity	economic	4637	0.904	0.901	0.076	
convergent validity	cultural	1425	0.96	0.967	0.079	
posterior predictive coverage	economic	7455				0.899
posterior predictive coverage	cultural	15539				0.848

9.1 Discriminant validity

type	model	expert	n	pearson	spearman
convergent	economic	economic	4637	0.904	0.901
discriminant	cultural	economic	4637	0.422	0.435
convergent	cultural	cultural cosmopolitan–traditionalist	1425	0.96	0.967
discriminant	economic	cultural cosmopolitan–traditionalist	1425	0.393	0.398

9.2 External validation correlations

item	dim	n	r	mae	coverage
culsup_vparty	cultural	536	0.812	0.128	0.384
galtan_ches	cultural	222	0.959	0.079	0.523
gender_vparty	cultural	545	0.563	0.169	0.29
immig_vparty	cultural	537	0.743	0.103	0.49
lgbt_vparty	cultural	541	0.794	0.094	0.551
relig_vparty	cultural	548	0.676	0.303	0.047
lrecon_ches	economic	223	0.974	0.055	0.812
lrecon_poppa	economic	74	0.98	0.066	0.662
lrecon_vparty	economic	534	0.866	0.088	0.674
welf_vparty	economic	534	0.682	0.176	0.363

10 Evidence-composition balance

Evidence-composition balance checks whether estimates informed by different nearby source combinations are systematically shifted relative to rows with both text and expert evidence. The reported differences are adjusted differences on the unit scale relative to the overlapping text-and-expert reference category.

dim	evidence	ref	n	adj diff
economic	text only	both	4916	0.014
economic	expert only	both	4916	-0.015
economic	temporal	both	4916	-0.046
cultural	text only	both	4916	0.017
cultural	expert only	both	4916	0.038
cultural	temporal	both	4916	-0.042

11 Robustness and sensitivity checks

Sensitivity checks compare the released election-year estimates with source-ablation, segmentation-threshold, and item-screening variants where available. Correlations near one and small absolute differences indicate that the released estimates are stable to the corresponding design choice.

spec	source	dim	n	r	mean abs	median abs	p95 abs
Source ablation	V Party	economic	4248	0.954	0.05	0.033	0.159
Source ablation	V Party	cultural	4248	0.898	0.08	0.062	0.228
Gap threshold 5 years		economic	4244	0.999	0.003	0.002	0.007
Gap threshold 5 years		cultural	4244	0.999	0.002	0.001	0.006
Gap threshold 10 years		economic	4265	0.999	0.006	0.006	0.011
Gap threshold 10 years		cultural	4265	1	0.003	0.002	0.006

12 Generated tables

- alliance_union_harmonization.csv
- construct_family_positions.csv
- construct_temporal_stability_flags.csv
- external_validation_correlations.csv
- item_coding_orientation.csv
- item_coverage.csv
- model_convergence_by_dimension.csv
- model_convergence_summary.csv
- party_family_coverage.csv
- party_year_source_coverage.csv
- posterior_uncertainty_summary.csv
- posterior_validation_convergent_summary.csv
- posterior_validation_discriminant_summary.csv
- posterior_validation_uncertainty_summary.csv
- reversed_items.csv
- robustness_sensitivity.csv
- source_composition_balance.csv
- source_coverage.csv