Supporting Information:

The Comparative Meaning of Political Space: A Comprehensive Modeling Approach

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1. Chapel Hill Expert Survey (CHES)

The items included in the 2019 CHES are shown in Table 1. For each party, a mean number of 13 experts (sd = 4.15) indicates their position on the 21 political issues. This structure allows us to disentangle ideological and idiosyncratic components structuring parties' issue positions (via repeated observations of manifest behavior for the same units i); estimate expert-level error terms (via repeated observations of the same parties from different experts e); and observe country-level differences (via multiple units i within each country). The 15 Western-European countries we focus on are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Malta, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. For more on the CHES, see Jolly et al. 2022.

2. Additional Parameters

2.1 The Ideological Component

Figure 4 and Figure 5 show the estimated discrimination parameters of issues across countries by dimension (economic and GAL-TAN dimension, respectively). This allows a more detailed investigation of individual differences in issue politicization across Western Europe than the boxplot in Figure ??. For example, by focusing on estimates from the United Kingdom and issues associated with the EU, it becomes evident that these issues are comparatively less strongly determined by the economic dimension and more strongly determined by the GAL-TAN dimension there than elsewhere. Conversely, the issue position of less regional autonomy is associated with parties positioned on the authoritarian end of the GAL-TAN scale in countries such as Spain or the United Kingdom (where the estimated parameter is positive), while this is reversed in a country such as Belgium (where the parameter is negative). There, parties towards the GAL end of the dimension favor less autonomy.

2.2 The Idiosyncratic Component

Figure 6 displays party-level idiosyncratic shocks by party family. Looking first at the contrast between liberal and Christian democratic parties, we observe markedly different shocks for religious principles. In the liberal party family, the shocks imply preferences of less religiosity; the opposite is true in the Christian democratic party family. We also observe a strong positive shock for religious

Table 1. CHES items.

| Item	Issue Group	Wording
civlib_laworder	social/cultural	position on civil liberties vs. law and order
deregulation	economic	position on deregulation of markets
econ_interven	economic	position on state intervention in the economy
environment	social/cultural	position towards environmental sustainability
ethnic_minorities	social/cultural	position towards ethnic minority rights
eu_asylum	EU	position on EU authority over asylum policy
eu_budgets	EU	position on EU authority over economic and budgetary policy
eu_cohesion	EU	position on EU cohesion or regional policy
eu_foreign	EU	position on EU foreign and security policy
eu_intmark	EU	position on the internal market
eu_position	EU	overall orientation towards European integration
immigrate_policy	social/cultural	position on immigration policy
multiculturalism	social/cultural	position on integration of immigrants and asylum seeker
nationalism	social/cultural	position towards cosmopolitanism vs. nationalism
protectionism	economic	position towards trade liberalization/protectionism
redistribution	economic	position on redistribution of wealth from the rich to the poo
regions	social/cultural	position on political decentralization to regions/localities
religious_principles	social/cultural	position on role of religious principles in politics
sociallifestyle	social/cultural	position on social lifestyle
spendvtax	economic	position on improving public services vs. reducing taxes
urbanrural	social/cultural	position on urban/rural interests
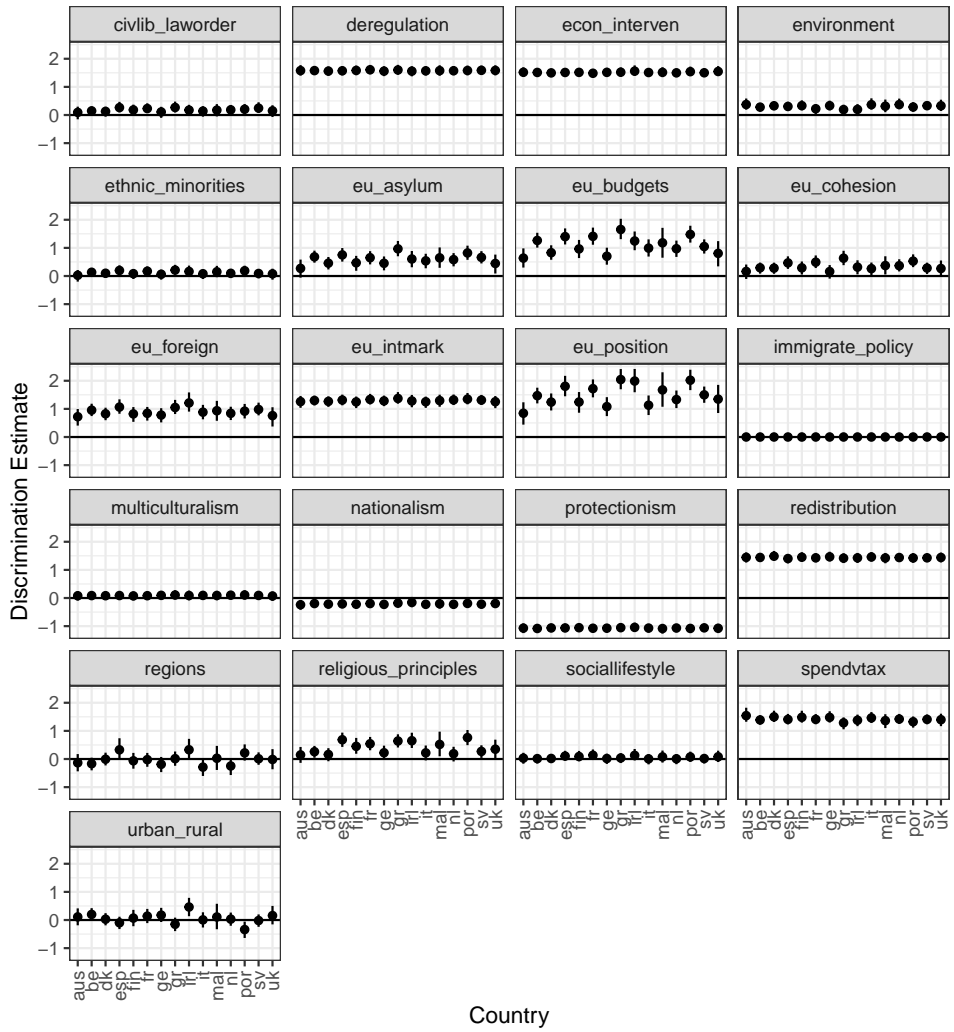
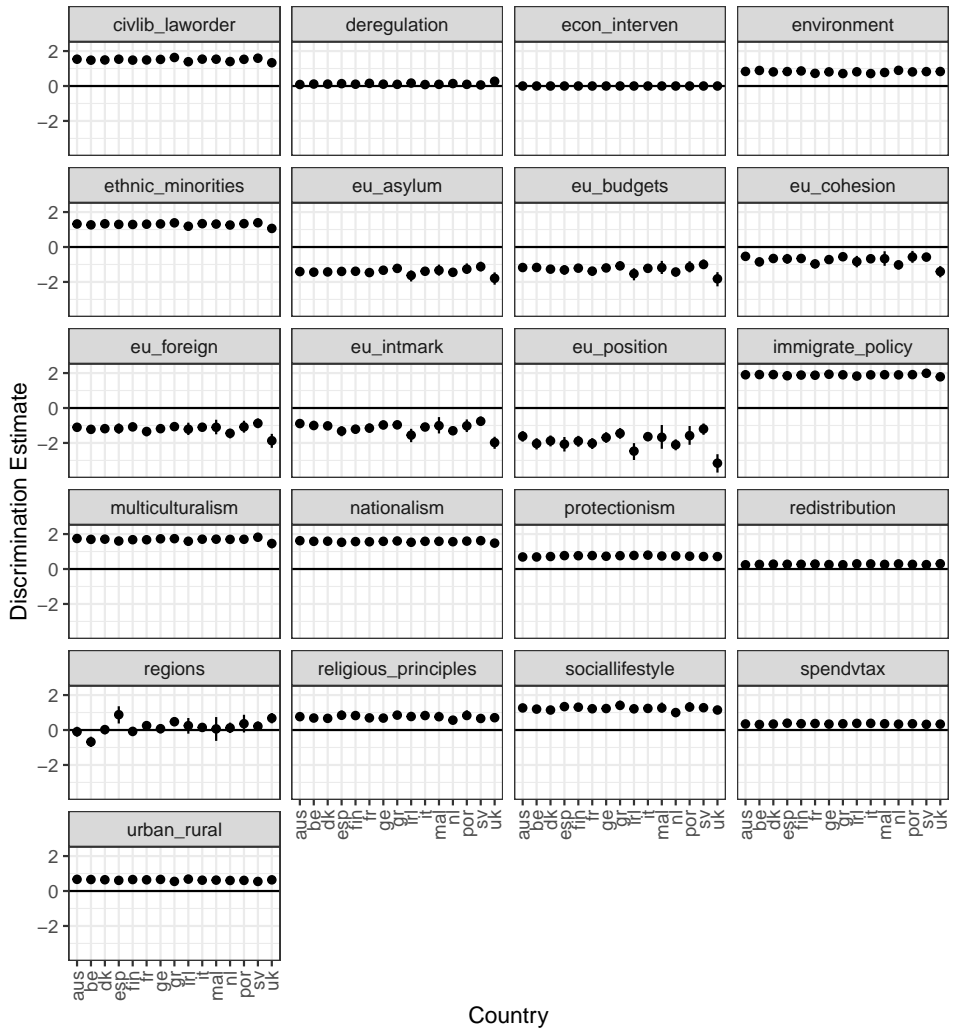**Figure 4.** Economic dimension—discrimination estimates by country and issue (mean and 95% c.i.).

Figure 5. GAL-TAN dimension—discrimination estimates by country and issue (mean and 95% c.i.).
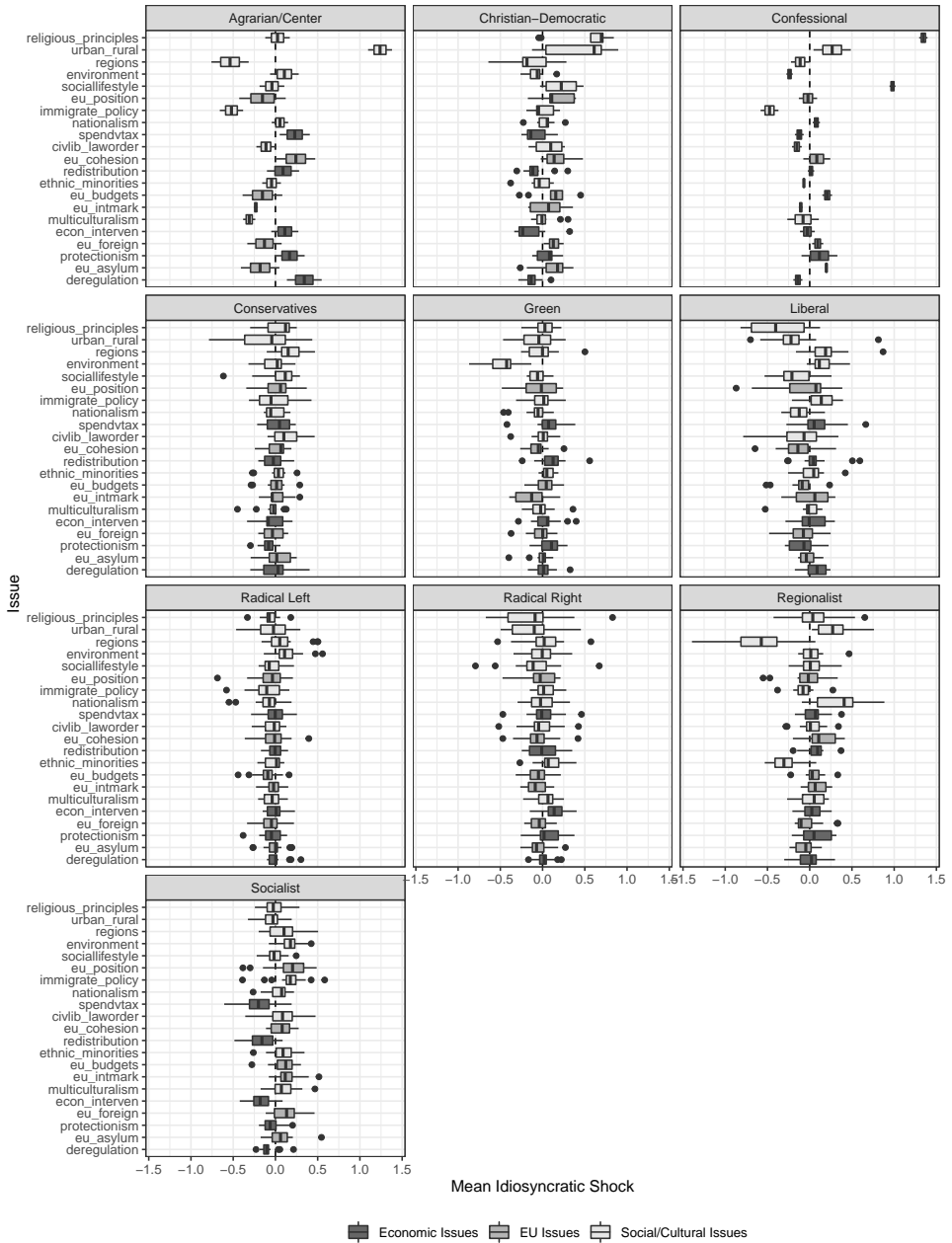
Figure 6. Mean idiosyncratic shocks by party family and issues.

principle among confessional parties, as religion is a central part of their party identity. Additionally, we see that social lifestyle issues play a particularly powerful role among confessional parties. Indeed, in a country like the Netherlands, which accounts for two of the four parties in the sample, confessional parties are adamant in their opposition to homosexuality. Finally, consider the regional parties. Not surprisingly, these parties share a common shock regarding the issue of regional autonomy—they are more in favor of this issue than would be implied solely by their position on underlying core dimensions.

2.3   Country-issue-specific Distortions

In Figure 7, the country–issue-specific shift parameters α_{jc} are shown. These represent scenarios where all parties i in a country are on average positioned higher (or lower) on the underlying response scale for an issue j than elsewhere.
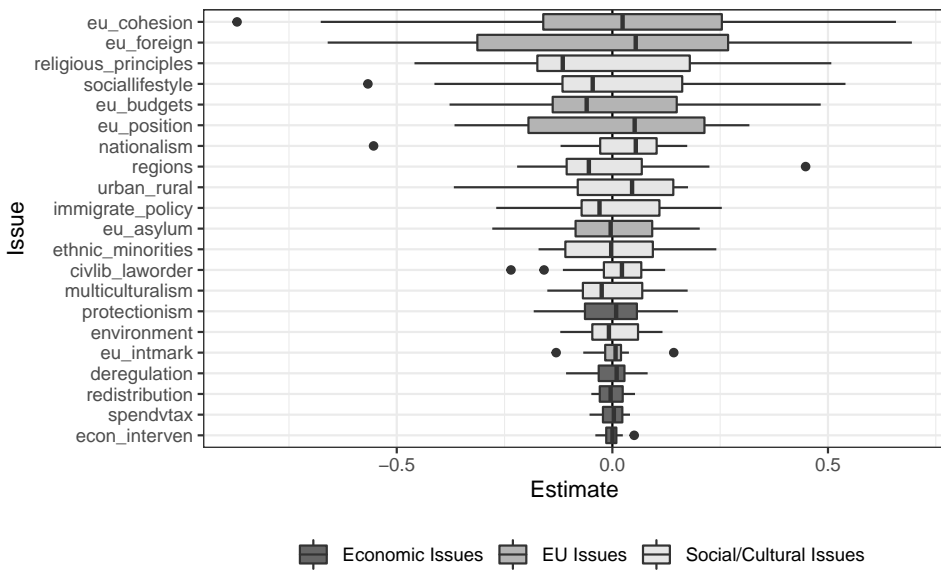

Figure 7. Mean shift parameter by issue and country.

2.4   Country-specific Distortions

Figures 8 and 9 display the country-specific scale (ζ_c) and shift (α_c) parameters that are included to allow for general response style differences across countries similar to an A–M approach. More variation is apparent in Figure 8 regarding ζ_c: in Ireland, Malta, Portugal or France, the translation of latent to manifest variables is less strong than elsewhere. Conversely, these associations are, on average, far stronger in Denmark, Spain, Germany, Italy or the Netherlands. This indicates that there are significant differences in response styles across countries: equal shifts in θ_i or γ_{ij} do not translate into equal shifts in observed preferences across countries.
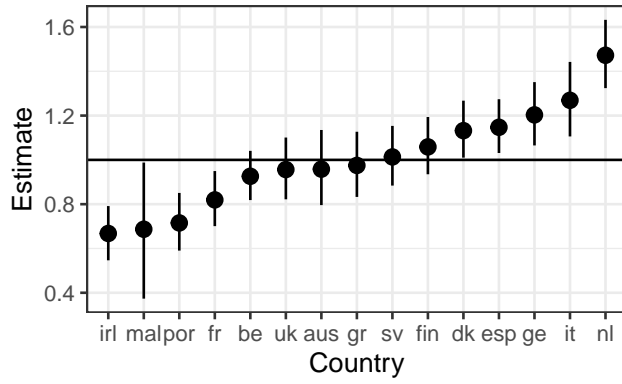
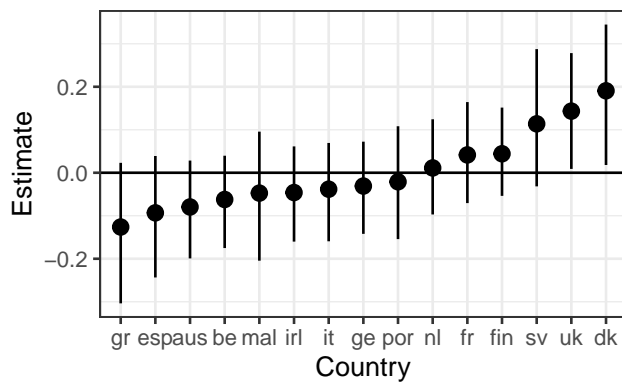**Figure 8.** Scale parameter by country (mean and 95% c.i.).

Figure 9. Shift parameter by country (mean and 95% c.i.).

Less large and meaningful differences are visible for α_c presented in Figure 9: while experts in the United Kingdom and Denmark tend to place parties slightly higher on the response scale across all issues, the absolute magnitude is small. Furthermore, the credible intervals include 0 for all other countries, which indicates that this possibility cannot be considered as very unlikely. Across countries, systematic distortions regarding the position of parties across issues on the response scale of the manifest variables are negligible.

2.5   Experts' Errors

Experts' error terms, σ_e, aggregated by country are shown in Figure 10. Higher values indicate more precision, while lower values indicate less precision. There is considerable variation across experts (evident by the range of values overall), but less so across countries (evident by the range of values per country).
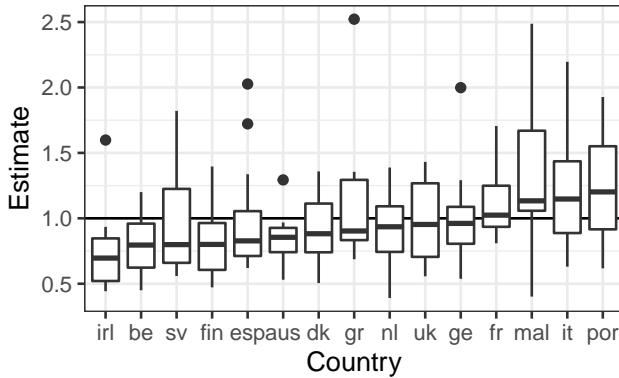

Figure 10. Experts' errors by country.

3.   Model Comparison

In this section we present results from model comparisons. We compare a total of six models, all of which contain the basic components of a conventional two-dimensional IRT model. We compare four model specifications that include additional sources of variation one at a time to this first baseline model. Table 2 provides an overview of the compared models. The sixth and final model including all party–issue-specific, country-specific, country–issue-specific, and expert-specific sources of variation is the source of the results discussed in the main article.

We base our comparison on two metrics: (i) in-sample predictive accuracy, which assesses how often a model's predicted issue positions $\hat{y}_{ijce}$ are in line with the observed issue positions y_{ijce}, and (ii) out-of-sample predictive accuracy approximated by the expected log pointwise predictive density (ELPD) using the leave-one-out cross-validation approach (LOO; Vehtari, Gelman, and Gabry 2017). For both metrics, higher values indicate a better model performance.

The results of these model comparisons are presented in Figure 11 (predictive accuracy in the left figure, ELPD-LOO in the right figure). Performance increases relative to the baseline model 1 as

additional sources of variation are accounted for, and the final model including all sources of variation outperforms all other specifications. The single factor that increases model performance most is the inclusion of idiosyncratic preferences of parties (model 5), while including country–specific scale and shift parameters increases performance least (model 2). Country-issue-specific distortions in difficulty and discrimination (model 3) as well as allowing for heteroskedasticity in experts' error terms (model 4) have a roughly similar impact on model comparison overall.

Table 2. Model comparison.

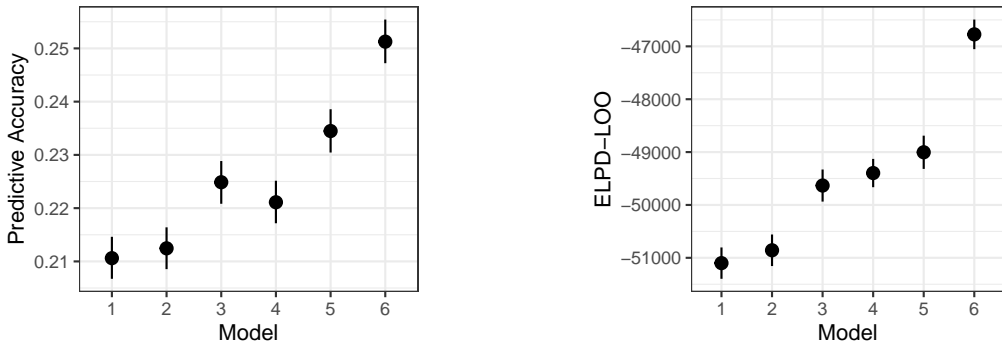| Model	Baseline IRT	Country Distortions	Country-issue Distortions	Heteroskedastic Experts	Idiosyncrasy
	-	ζ_c, α_c	$\beta_{jcd1}, \alpha_{jc1}$	σ_e	γ_{ij}
Model 1	✓				
Model 2	✓	✓			
Model 3	✓		✓		
Model 4	✓			✓	
Model 5	✓				✓
Model 6	✓	✓	✓	✓	✓

Figure 11. Model comparison results. For predictive accuracy, mean and 95% c.i. are shown. For ELPD-LOO, mean and mean $\pm$ 1.96 s.e. are shown.

References

Jolly, Seth, Ryan Bakker, Liesbet Hooghe, Gary Marks, Jonathan Polk, Jan Rovny, Marco Steenbergen, and Milada Anna Vachudova. 2022. Chapel Hill Expert Survey trend file, 1999–2019. *Electoral Studies* 75:102420.

Vehtari, Aki, Andrew Gelman, and Jonah Gabry. 2017. Practical Bayesian Model Evaluation Using Leave-One-Out Cross-Validation and Waic. *Statistics and Computing* 27 (5): 1413–1432.