Macrointerest Across Countries

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Authors

Frederick Solt, ORCID: https://orcid.org/0000-0002-3154-6132, Associate Professor, Department of Political Science, University of Iowa, frederick-solt@uiowa.edu

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Abstract

The extent to which the public takes an interest in politics has long been argued to be foundational to democracy, but the want of appropriate data has prevented cross-national and longitudinal analysis. This letter takes advantage of recent advances in latent-variable modeling of aggregate survey responses and a comprehensive collection of survey data to generate dynamic comparative estimates of macrointerest, that is, aggregate political interest, for over a hundred countries over the past four decades. These macrointerest scores are validated with other aggregate measures of political interest and of other types of political engagement. A cross-national and longitudinal analysis of macrointerest in advanced democracies reveals that along with election campaigns and inclusive institutions, it is good times, not bad, that spur publics to greater interest in politics.

Introduction

The public's interest in politics has long been argued to be fundamental to democracy, the foundation for the widespread civic engagement needed to hold elected officials accountable to citizen demands (see, e.g., Almond and Verba 1963). In light of the growing threats to democracy seen in many countries, measuring the levels and trends of aggregate political interest—macrointerest—and understanding their sources is therefore crucially important (Peterson et al. 2022). Data to allow such assessments, however, have been unavailable. Although many surveys ask respondents across countries how interested they are in politics, differences in question wording and in response categories have limited scholars' ability to pool the data together, and even in the absence of these issues, in most cases, the questions have not been asked sufficiently frequently to provide annual time series. This letter takes advantage of recent advances in latent-variable modeling of aggregate survey responses and a comprehensive collection of survey data to generate dynamic comparative estimates of aggregate political interest for over a hundred countries over the past four decades. It shows that these cross-national macrointerest scores perform impressively well in validation tests. Finally, as a demonstration of their utility, the letter presents a new test of theories on the circumstances that induce the publics of advanced democracies to take more interest in politics. The results support arguments that, in these countries, election campaigns, inclusive institutions, and good times, not bad ones, spur greater political interest.

Cross-National Macrointerest: The Source Data

National and cross-national surveys have asked questions on political interest often over the past four decades, but the resulting data are both sparse, that is, unavailable for many countries and years, and incomparable, generated by many different survey items. In all, 50 such survey items were asked in no fewer than five country-years in countries surveyed at least twice; these items were drawn from 359 different survey datasets.[1] In accordance

[1]The complete list of macrointerest survey items is included in online Appendix A.

with the advice offered by Hu, Tai, and Solt (2022) to avoid data-entry errors by automating data collection, the `DCPOtools` R package (Solt, Hu, and Tai 2019) was used to compile the responses to these questions.

Together, the survey items in the source data were asked in 128 different countries in at least three time points over the 40 years from 1982 to 2022, yielding a total of 2,681 country-year-item observations. Observations for every year in each country surveyed would number 5,120, and a complete set of country-year-items would encompass 256,000 observations. Compared to this hypothetical complete set of country-year-items, the available data are very, very sparse. More optimistically, there are 1,798 country-years in which there is at least *some* information about the public's interest in politics, that is, some 57% of the 3,151 country-years spanned by these data. But there can be no denying that the many different survey items employed renders these data incomparable and difficult to use together.

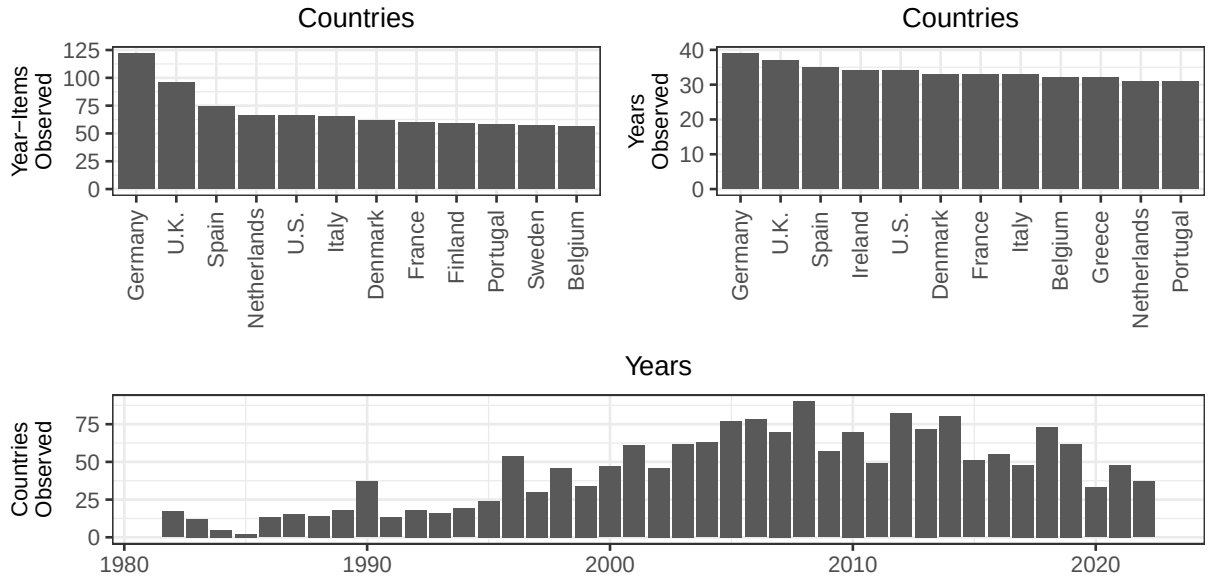


Figure 1: Countries and Years with the Most Observations in the Source Data

The upper left panel of Figure 1 shows the dozen countries with the highest count of country-year-item observations. Germany, with 122 observations, is far and away the best represented country in the source data, followed by the United Kingdom, Spain, the Netherlands, and the United States. At the other end of the spectrum, seven countries—Azerbaijan,

Cambodia, Kosovo, Kyrgyzstan, Liberia, Myanmar (Burma), and Puerto Rico—have only the minimum three observations required to be included in the source dataset at all. The upper right panel shows the twelve countries with the most years observed; this group is similar to that on the left, but with Ireland and Greece joining the list and Finland and Sweden dropping off. The bottom panel counts the countries observed in each year. Country coverage reached its peak in 2008, when respondents in 90 countries were asked items about their interest in politics. The next section describes how all of this sparse and incomparable survey data was used with a latent variable model to generate complete, comparable time-series macrointerest scores.

Estimating Cross-National Macrointerest

A number of recent studies have developed latent variable models of aggregate survey responses based on cross-national survey data (see Claassen 2019; Caughey, O'Grady, and Warshaw 2019; McGann, Dellepiane-Avellaneda, and Bartle 2019; Kolczynska et al. 2020). To estimate the public's interest in politics across countries and over time, I employ the latest of these methods that is appropriate for data that is not only incomparable but also sparse, the Dynamic Comparative Public Opinion (DCPO) model elaborated in Solt (2020b).[2] The DCPO model is a population-level two-parameter ordinal logistic item response theory (IRT) model with country-specific item-bias terms. For a detailed description of the DCPO model, see Appendix B and Solt (2020b, 3–8); the focus here is on how it deals with the principal issues raised by the source data, incomparability and sparsity.

The DCPO model accounts for the incomparability of different survey questions with two parameters. First, it incorporates the *difficulty* of each question's responses, that is, how much interest in politics is indicated by a given response. This is most evident with respect

[2]Solt (2020b) demonstrates that the DCPO model provides a better fit to survey data than the models put forward by Claassen (2019) or Caughey, O'Grady, and Warshaw (2019). The McGann, Dellepiane-Avellaneda, and Bartle (2019) model depends on dense survey data unlike the sparse data on interest in politics described in the preceding section. Kolczynska et al. (2020) is the very most recent of these five works and builds on each of the others, but the MRP approach developed in that piece is suitable not only when the available survey data are dense but also when ancillary data on population characteristics are available, so it is similarly inappropriate to this application.

to response categories: to say that one is "very interested" in politics, for example, is to exhibit more interest than to say that one is "somewhat interested" or "not very interested." Here, difficulty is permitted to vary with question wording and the survey project as well. Second, the DCPO model accounts for each question's *dispersion*, its noisiness with regard to our latent trait. The lower the dispersion, the better that changes in responses to the question map onto changes in macrointerest. Together, the model's difficulty and dispersion estimates work to generate comparable estimates of the latent variable of macrointerest from the available but incomparable source data.

To address the sparsity of the source data—the fact that there are gaps in the time series of each country, and that even many observed country-years have only one or two observed items—DCPO uses simple local-level dynamic linear models, i.e., random-walk priors, for each country. That is, within each country, each year's value of macrointerest is modeled as the previous year's estimate plus a random shock. These dynamic models smooth the estimates of macrointerest over time and allow estimation even in years for which little or no survey data is available, albeit at the expense of greater measurement uncertainty.

The model was estimated using the `DCPOtools` package for R (Solt, Hu, and Tai 2019), running four chains for 1,000 iterations each and discarding the first half as warmup, leaving 2,000 samples. The $\widehat{R}$ diagnostic had a maximum value of 1.01, indicating that the model converged. The dispersion parameters of the survey items indicate that all of them load well on the latent variable (see Appendix A). The result is estimates, in all 3,151 country-years spanned by the source data, of the mean political interest of the public, that is, macrointerest.

Validating Cross-National Macrointerest

That estimates can be generated for macrointerest or any other latent variable, however, does not automatically mean that they are suitable for analysis. As is the case for any new measure, validation tests of cross-national latent variables are crucially important (see, e.g., Hu et al. 2023). Figure 2 and Figure 3 provide evidence of this measure's validity with tests of convergent validation and construct validation. Convergent validation refers to

tests of whether a measure is empirically associated with alternative indicators of the same concept (Adcock and Collier 2001, 540). In Figure 2, the macrointerest scores are compared to responses to individual source-data survey items that were used to generate them; this provides an 'internal' convergent validation test (see, e.g., Caughey, O'Grady, and Warshaw 2019, 689; Solt 2020b, 10). In the left panel, macrointerest scores are plotted against the percentage of respondents offering the two most interested responses on the most common question in the source data across all country-years: the European Social Survey's four-point item, "How interested are you in politics?" The middle panel shows responses to the question with the most data-rich cross-section, "How interested would you say you personally are in politics?" in the International Social Survey Program's 2004 module on Citizenship. Finally, the right panel evaluates how well the macrointerest scores capture change over time by focusing on the item with the largest number of observations for a single country in the source data, which asked respondents to Germany's ALLBUS, "How interested in politics are you?" In all three cases, the correlations, estimated taking into account the uncertainty in the measures, are very strong.

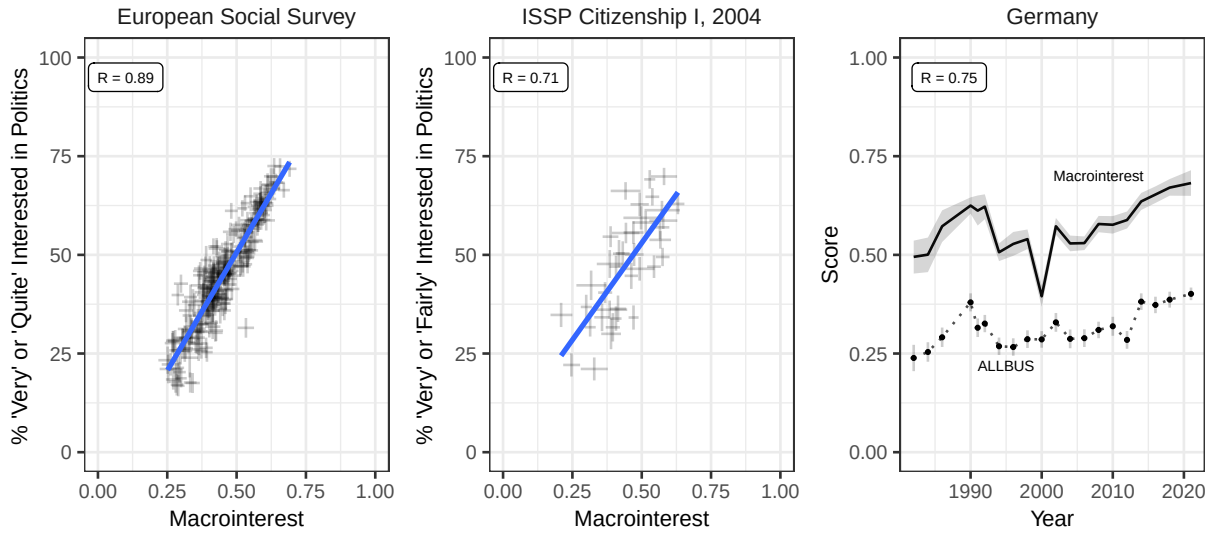


Figure 2: Internal Convergent Validation: Correlations Between Macrointerest and Individual Source-Data Survey Items

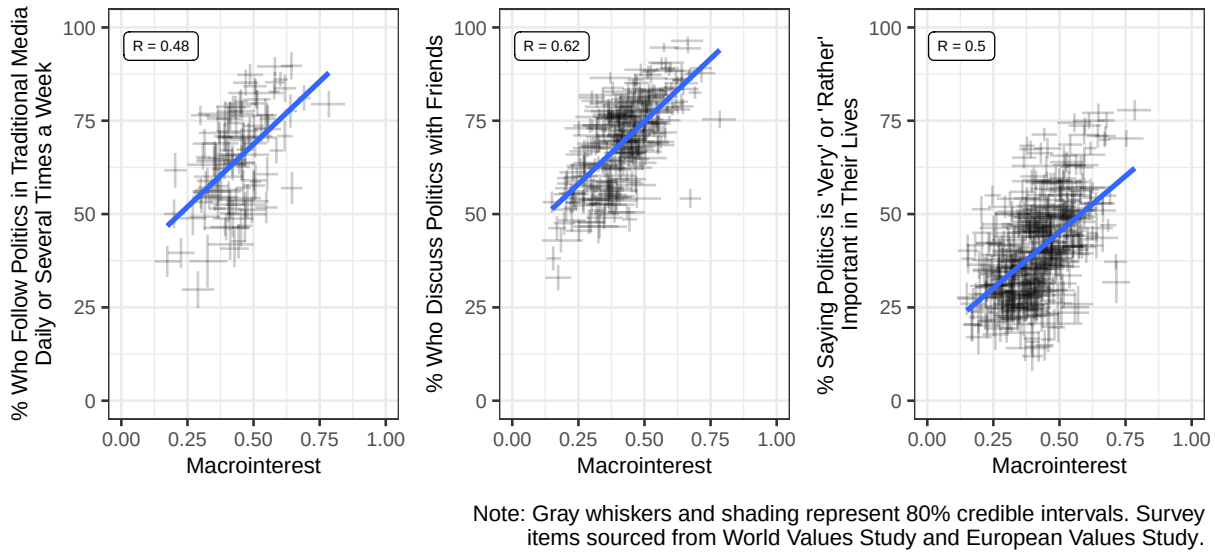


Figure 3: Construct Validation: Correlations Between Macrointerest and Other Aspects of Political Engagement

Construct validation, on the other hand, refers to demonstrating, for some *other* concept believed causally related to the concept a measure seeks to represent, that the measure is empirically associated with measures of that other concept (Adcock and Collier 2001, 542). Figure 3 depicts the relationships between macrointerest and three survey items from the World Values Survey and European Values Survey on other aspects of political engagement that are expected to have causal relationships with political interest (see Kittilson and Schwindt-Bayer 2010, 995): in the left panel, following political news on television, radio, and newspapers; in the center panel, discussing politics with friends; and on the right, feeling politics is important to one's life. These relationships are all positive and are moderate to strong. This cross-national latent variable of macrointerest performs impressively well in validation tests.

Testing Theories of Macrointerest Cross-Nationally

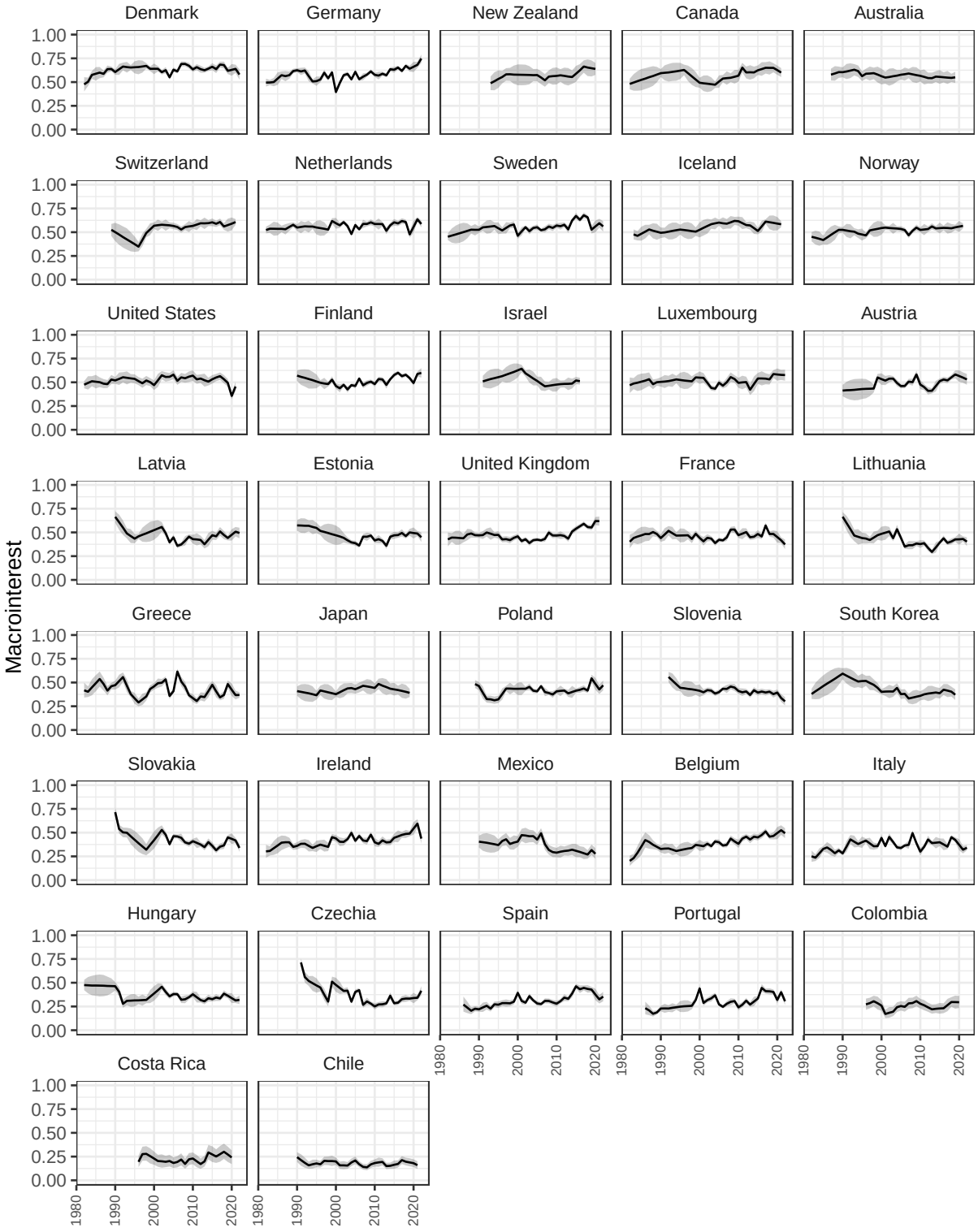
Macrointerest varies greatly around the world. Figure 4 examines levels and trends in macrointerest in advanced democratic countries by displaying the changes of the public's

expressed interest in politics over time in the thirty-seven democracies of the OECD. While macrointerest scores approach and often exceed .6 in countries such as Denmark and Canada, in Chile they scarcely cross .25. And although the public's political interest has held fairly steady over decades in many countries, in Czechia it dropped nearly half of the variable's entire theoretical range over the 1990s and 2000s before rebounding slightly since 2010, and increases of roughly a quarter of that range can be seen in, among others, Germany. There are considerable differences in the extent to which the public professes interest in politics both across countries and over time.

What explains these differences? One straightforward explanation is that publics grow more interested in politics at election time. Campaigns and elections attract media coverage and increase the information available to the public on the issues being contested, leading to increased interest in politics (see, e.g., Beach, Hansen, and Larsen 2018; Larsen 2022). Macrointerest within each country should be expected to be higher, therefore, in years in which national elections take place than in years without elections.

A second argument is that political institutions that share power, rather than concentrate it, yield politics that are more interesting and engaging. Building on Lijphart (1999) and Powell (2000), Kittilson and Schwindt-Bayer (2010, 992) argues that power-sharing institutions—parliamentarism, federalism, and proportional electoral rules—"send signals of inclusiveness to citizens, generating greater political engagement" while power-concentrating institutions "may generate perceptions of exclusion and deter involvement." Macrointerest should be higher in countries with parliamentary and federal systems than in those without those features, and it should decline as the disproportionality between votes cast and seats won increases.

A third claim deals with the public's demand for accountability. Peterson et al. (2022, 203) advances this argument: "when there is information that something has gone wrong …then voters should be more likely to attend to the actions of elected officials," but when "there is evidence of success …voters should not waste their energies focusing on the activities of their representatives." If democracy is a principal-agent problem with elected officials



Note: Countries are ordered by their median macrointerest score; gray shading represents 80% credible intervals.

Figure 4: Macrointerest Scores Over Time Within OECD Democracies

acting as self-interested agents and the public as their lazy but vengeful principal, then macrointerest should rise when times are bad and decline as conditions improve.

A final set of theories—each well established—contradicts the third. Modernization theory holds that the public's interest in politics will increase as the national economy grows and household incomes expand (see, e.g., Inglehart and Welzel 2005). Unemployment has long been argued to not to motivate but rather to depress political interest; Rosenstone (1982, 26), for example, argued that "it causes a preoccupation with personal economic well-being, and as a result, the citizen withdraws from such external matters as politics." And the relative power theory holds that greater income inequality, by increasingly concentrating political power in the hands of the wealthy, allows them greater power to shape the political agenda in ways that discourage the broader public from taking interest (see, e.g., Solt 2008). In each of these circumstances, macrointerest is argued to grow in *good* times and wither as the context worsens.

Data to test these hypotheses regarding the causes of macrointerest are drawn from several sources. The Democratic Electoral Systems (DES) dataset updated in Bormann and Golder (2022) provides information about the timing of elections, yielding a dichotomous variable coded one in election years and zero when no election was held. The three institutional variables are measured as in Kittilson and Schwindt-Bayer (2010). Data on parliamentarism, a dichotomous variable coded one in pure parliamentary systems and zero otherwise, is also sourced from the DES. Federalism is a third dichotomous variable, coded one in countries with strong federal systems (see Lijphart 1999) and zero in all others. The proportionality of the electoral system is measured using the Gallagher least-squares index of disproportionality, which measures the disparity between parties' vote shares and their seat shares (Gallagher 1991, 40–41). The context of good times and bad was measured with data on GDP per capita, national GDP growth, and unemployment from OECD.Stat (OECD 2023) and on the Gini index of disposable income inequality from the Standardized World Income Inequality Database (Solt 2020a).

The resulting dataset comprises the thirty-seven OECD democracies, each observed in

twenty-one (Mexico) to forty (Ireland, Italy, the United Kingdom, and the United States) consecutive years (mean: 32.4 years, median: 31 years). Shor et al. (2007) demonstrates that such pooled time series are best analyzed using a Bayesian multilevel model including varying intercepts for each country and each year. The former help account for heteroskedasticity across space due to, e.g., omitted variable bias, while permitting the inclusion of time-invariant predictors such as, in this dataset, parliamentarism and federalism. The latter take into account 'time shocks' that operate on all countries simultaneously (Shor et al. 2007, 171–72). Further, the 'within-between random effects' specification is employed, meaning each of the time-varying predictors is decomposed into its time-invariant country mean and the difference between each country-year value and this country mean; this specification has been shown superior to fixed effects and other commonly used TSCS specifications for addressing omitted variable bias and endogeneity (see Bell and Jones 2015). The time-varying difference variables capture the short-term effects of the predictors, while the time-invariant country-mean variables reflect their—often different—long-run, "historical" effects (Bell and Jones 2015, 137). The measurement uncertainty in the data for both macrointerest and income inequality was incorporated into the analysis as well (see Tai, Hu, and Solt 2022). The model was estimated using the `bmrs` R package (Bürkner 2017).

Figure 5 displays the results. Consistent with the argument that campaigns bring attention-grabbing information to the public, macrointerest in election years is found to be 0.8 points higher (95% credible interval: 0.1 to 1.4 points) than in years without elections. This is in line with previous research finding small but well-estimated increases in political interest in election years (see, e.g., Larsen 2022).

The hypothesis that power-sharing institutions yield more public interest in politics is also supported. Macrointerest is estimated to be 3.8 (95% c.i.: 1.5 to 6.1) points higher in countries with parliamentary systems. The difference between countries with and without federalism is estimated to be even larger, 6.4 points, though only its 90% credible interval (0.3 to 12.6) is bounded away from zero. And although disproportionality is not estimated to have long-run effects that consistently distinguish countries with more or less proportional

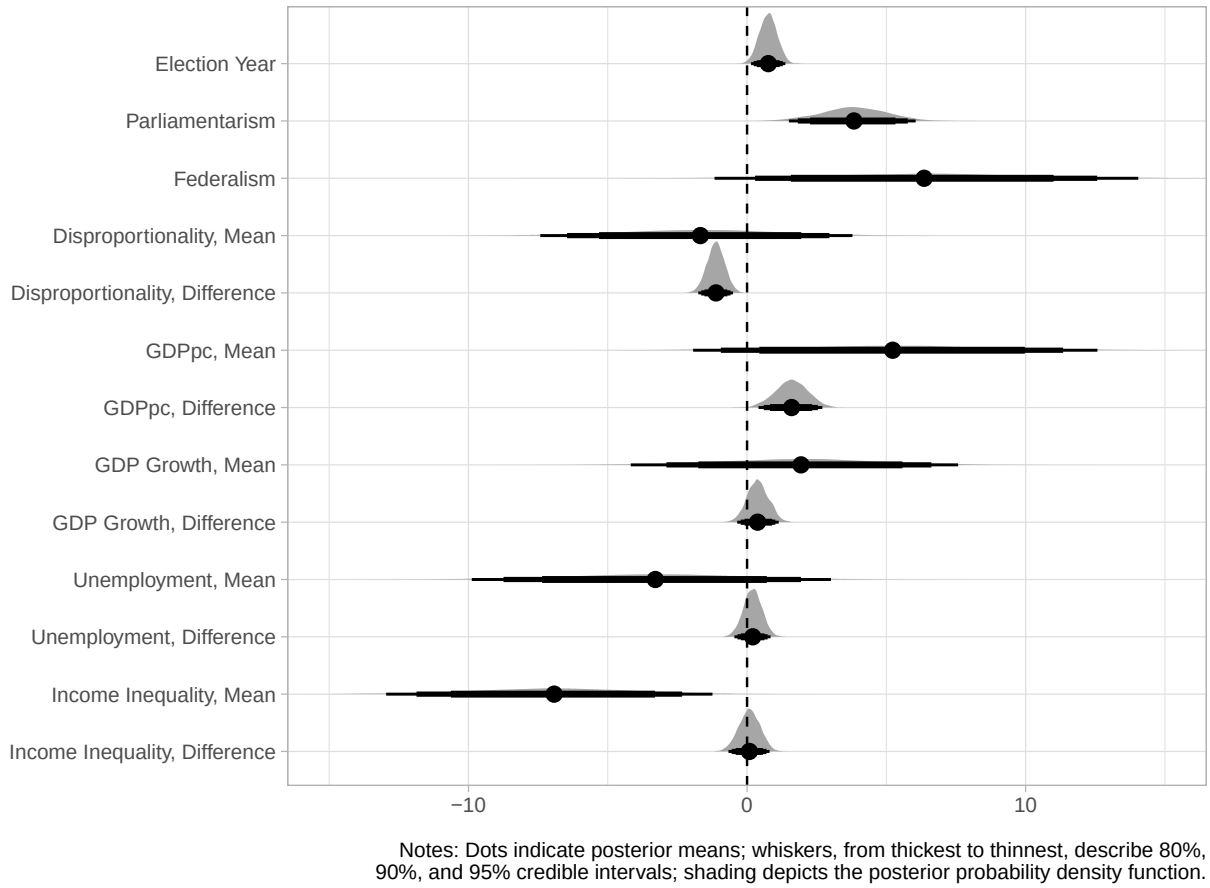


Figure 5: Predicting Macrointerest in OECD Democracies

electoral results, *changes* in disproportionality appear to have an immediate negative effect: a two-standard-deviation increase in the Gallagher index yields a -1.1 (95% c.i.: -1.8 to -0.5) point posterior mean.

On the debate on whether macrointerest is invigorated or instead discouraged by bad times, the evidence from this cross-national analysis falls heavily on the side of the latter. Supporting modernization theory, increases in per capita GDP have a well estimated positive short-term effect on aggregate political interest, with a two-standard-deviation increase associated with 1.6 (95% c.i.: 0.4 to 2.7) points more macrointerest. The long-term, historical effect evidenced by differences in mean levels across countries is found to be larger, 5.2 (95% c.i.: -1.9 to 12.6), but only its 80% credible interval excludes zero. The posterior means for growth in the national economy are positive as well, but despite this topic's frequent coverage

in media, the posterior distributions do not suggest relationships that are statistically defensible. The findings with regard to unemployment, another circumstance typically closely followed by the media, are similar. As predicted by relative power theory, the long-term effects of income inequality are strongly negative, with a two-standard-deviation difference across countries associated with 6.9 points less macrointerest (95% c.i.: -13 to -1.2 points). Year-to-year changes in income inequality are found to make little difference—the influence of the wealthy over the political agenda, it would seem, does not change on such a short time scale, from one perspective, and there is no evidence that the public reacts to worsening conditions in the distribution of income with greater interest in its agents' actions, from the other. Taken as a whole, this evidence indicates that it is good times, not bad ones, that yield higher macrointerest.

Conclusions

Macrointerest, despite its theoretical importance, has as yet drawn only limited empirical attention. This oversight largely reflects the paucity of available data to measure this important concept. "the electorate becomes more interested and attentive to government when times are bad" (Peterson et al. 2022, 219)

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Macrointerest Across Countries

May 04, 2023

Appendices

Appendix A: Survey Items Used to Estimate Macrointerest

National and cross-national surveys have often included questions tapping interest in politics over the past four decades, but the resulting data are both sparse, that is, unavailable for many countries and years, and incomparable, generated by many different survey items. In all, I identified 50 such survey items that were asked in no fewer than five country-years in countries surveyed at least twice; these items were drawn from 359 different survey datasets. These items are listed in the table below, along with the dispersion (α) and difficulty (β) scores estimated for each from the DCPO model. Lower values of dispersion indicate questions that better identify publics with a higher level of trust from those with lower. Items have one less difficulty score than the number of response categories. Survey dataset codes correspond to those used in the `DCPOtools` R package (Solt, Hu, and Tai 2019); they appear in decreasing order of country-years contributed.

Together, the survey items in the source data were asked in 128 different countries in at least two time points over 40 years, from 1982 to 2022, yielding a total of 2,681 country-year-item observations. The number of items observed in the source data for each country-year is plotted in Figure A1 below. The macrointerest scores of country-years with more observed items are likely to be estimated more precisely. The estimates for country-years with fewer (or no) observed items rely more heavily (or entirely) on the random-walk prior and are therefore less certain.

Table A1: Indicators Used in the Latent Variable Model of Macrointerest

Survey Item Code	Country-Years	Question Text	Response Categories	Dispersion	Difficulties	Survey Dataset Codes
int4_wvs	285	How interested would you say you are in politics?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.72	-0.63, 0.81, 2.68	wvs, bes
int4_ess	253	How interested are you in politics?	1 Very interested / 2 Quite interested / 3 Hardly interested / 4 Not at all interested	0.65	-0.42, 1.00, 2.65	ess, ress
int4_lb	246	How interested are you in politics?	1 Very interested / 2 Fairly interested / 3 A little interested / 4 Not at all interested	0.99	-0.74, 1.13, 3.09	lb
eu4_eb	168	Would you say that you are very interested, fairly interested, not very interested or not at all interested in European affairs?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.73	-0.85, 0.75, 2.90	eb
int4_amb	166	How interested are you in politics?	1 A lot / 2 Some / 3 Little / 4 None	1.05	-1.09, 0.90, 2.86	amb
int4_evs	136	How interested would you say you are in politics?	1 Very interested / 2 Somewhat interested / 3 Not very interested / 4 Not at all interested	1.01	-0.80, 0.93, 3.23	evs, ptvs
int3_eb	126	Let us talk about those issues in the news which interest you. For each issue I read out, tell me if you are very interested, moderately interested or not at all interested in it. Politics	1 Very interesting / 2 Moderately interesting / 3 Not at all interesting	0.83	-0.39, 2.01	eb
int4_ees	117	To what extent would you say you are interested in politics?	1 A great deal / 2 To some extent / 3 Not much / 4 Not at all	0.55	-0.46, 0.85, 2.32	ees
int5_issp	108	Some people are very interested in politics. Others are not interested at all. Are you very interested in politics, or are you not at all interested?	1 Very interested / 2 A lot / 3 More or less / 4 A little / 5 None	0.74	-0.99, 0.32, 1.64, 3.13	issp, bes, belgiumes
int4_issp	106	How interested would you say you personally are in politics?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.63	-0.57, 0.90, 2.67	issp
int4_afrob	100	How interested are you in politics and government?	1 Very interested / 2 Somewhat interested / 3 Now and then / 4 Not interested	0.58	-0.89, 0.33, 2.00	afrob
int4_eb	74	To what extent would you say you are interested in politics?	1 A great deal / 2 To some extent / 3 Not much / 4 Not at all	0.80	-0.65, 0.95, 2.82	eb
int4_asianb	63	How interested would you say you are in politics?	1 Not at all interested / 2 A little interested / 3 Somewhat interested / 4 Very interested	0.79	-0.63, 0.94, 2.98	asianb, sasianb
int2_eb	59	What sort of things in life interest you a lot? I am going to show you a list of things. which of these really interest you? Politics in [country]	1 Mentioned / 2 Not mentioned	1.34	2.49	eb

(continued)

Survey Item Code	Country-Years	Question Text	Response Categories	Dispersion	Difficulties	Survey Dataset Codes
int2c_eb	52	For each of the following propositions, please tell me if it rather corresponds or rather does not correspond to your attitude or your opinion. You are very interested in politics	1 Yes, rather / 2 No, rather does not	1.39	1.09	feb, eb
int4_cnep	49	Would you say that you are very, somewhat, not very or not at all interested in politics?	0 Not at all interested / 1 Not very interested / 2 Somewhat interested / 3 Very interested	0.58	-0.64, 0.75, 2.37	cnep
int4_arabb	35	Generally speaking, how interested would you say you are in politics?	1 Very interested / 2 Interested / 3 Little interested / 4 Not interested	0.59	-0.11, 1.29, 2.79	arabb
int5_polit	31	How interested are you in politics?	1 Very strong / 2 Strong / 3 Somewhat / 4 Hardly / 5 Not at all	1.14	-2.23, -0.83, 1.60, 3.85	politbarometer
int4_neb	31	How interested are you in politics?	1 Very interested / 2 Somewhat interested / 3 Not very interested / 4 Not at all interested	1.01	-0.53, 1.26, 3.58	neb
int4a_eb	30	How interested are you in politics?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.74	-1.16, 0.39, 2.17	eb, anes, cceb, autnes
int5_bsa	30	How much interest do you have in politics?	1 A great deal / 2 Quite a lot / 3 Some / 4 Not very much / 5 Not at all	1.19	-1.91, -0.04, 1.82, 3.79	bsa
dom4_eb	29	Would you say that you are very interested, fairly interested, not very interested or not at all interested in domestic affairs?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.49	-0.98, 0.24, 1.83	eb
int2a_eb	28	Please tell me if you are fairly interested or not in each of the following topics? Politics	1 Interested / 2 Not interested	0.93	0.90	eb, cceb
int2b_eb	27	In which of the following news related issues are you most interested in...? Politics	0 Not mentioned / 1 Mentioned	0.92	1.38	eb
eu4a_eb	27	Some people follow what's going on in European Union politics, whether there's an election going on or not. Others aren't that interested. Would you say you follow what's going on in European Union politics:	1 Most of the time / 2 From time to time / 3 Rarely / 4 Never or almost never	1.25	-1.96, 0.03, 2.74	eb
int4b_eb	25	For each of the following statements, please tell me if it applies to you often, sometimes, rarely or never. I am interested in what is going on in politics	1 Often / 2 Sometimes / 3 Rarely / 4 Never	0.66	-0.93, 0.15, 1.38	eb
int4a_arabb	23	Generally speaking, how interested would you say you are in politics?	1 Very interested / 2 Interested / 3 Uninterested / 4 Very uninterested	1.10	0.22, 1.97, 3.92	arabb

(continued)

Survey Item Code	Country-Years	Question Text	Response Categories	Dispersion	Difficulties	Survey Dataset Codes
int5_allbus	20	How interested in politics are you?	1 Very strongly / 2 Strongly / 3 Middling / 4 Very little / 5 Not at all	1.14	-1.83, -0.04, 2.27, 4.02	allbus
int4a_ases	18	How interested are you in politics?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.50	-0.73, 0.65, 1.67	ases
int4_uspew	18	Some people seem to follow what's going on in government and public affairs most of the time, whether there's an election or not. Others aren't that interested. Would you say you follow what's going on in government and public affairs	1 Most of the time / 2 Some of the time / 3 Only now and then / 4 Hardly at all	0.68	-1.46, -0.22, 1.21	uspew
int3a_eb	16	In everyday life, we have to deal with many different problems and situations, where we feel more or less interested and confident. I am going to read you a number of statements. I am interested in what is going on in politics	1 Most of the time / 2 Some of the time / 3 Hardly any of the time	0.75	0.02, 1.54	eb
int3_afrob	16	How interested are you in public affairs?	0 Not interested / 1 Somewhat interested / 2 Very interested	0.72	-0.84, 1.59	afrob
int5_fsdeva	15	I am interested in politics and follow it actively	1 Strongly agree / 2 Agree to some extent / 3 Difficult to say / 4 Disagree to some extent / 5 Strongly disagree	0.68	-0.34, 0.68, 1.00, 2.29	fsdeva
int4_aes	15	How much interest do you usually have in what's going on in politics?	1 A good deal / 2 Some / 3 Not much / 4 None	0.75	-1.63, 0.05, 1.91	aes, nsss
int4_anes	13	Some people seem to follow	1 Hardly at all / 2 Now and then / 3 Some of the time / 4 Most of the time	0.95	-1.11, 0.46, 2.33	anes
int4_cid	12	In general, how interested are you in politics?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.57	-0.21, 1.11, 2.48	cid
int4_cces	10	Some people seem to follow what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested. Would you say you follow what's going on in government and public affairs most of the time, some of the time, only now and then, or hardly at all?	1 Most of the time / 2 Some of the time / 3 Only now and then / 4 Hardly any of the time	1.24	-2.50, -0.95, 0.95	cces
int4_itanes	10	How interested are you in politics?	1 Very much / 2 Somewhat / 3 A little / 4 Not at all	0.09	-0.18, 0.74, 1.80	itanes
int5_pgss	10	How interested would you say you personally are in politics?	1 Extremely interested / 2 Very much interested / 3 Fairly interested / 4 A little interested / 5 Not at all interested	0.82	-0.98, 0.36, 2.35, 3.73	pgss

(continued)

Survey Item Code	Country-Years	Question Text	Response Categories	Dispersion	Difficulties	Survey Dataset Codes
int4_dkes	9	How interested are you in politics?	1 Very / 2 Somewhat / 3 Only a little / 4 Not at all	0.58	-0.58, 1.03, 2.49	dkes
int4_snes	9	How interested would you say you personally are in politics?	1 Very interested / 2 Fairly interested / 3 Not very interested / 4 Not at all interested	0.73	-0.78, 1.06, 2.97	snes
int5_icenes	9	Do you consider your interest in politics…	1 Very great / 2 Great / 3 Some / 4 Little / 5 None	0.76	-1.30, 0.40, 2.17, 3.47	icenes
int5_gles	8	Generally speaking, you are interested in politics	1 Yes, very strongly / 2 Yes, strongly / 3 Yes, not so strongly / 4 No, not especially / 5 No, not at all	0.47	-0.46, 0.53, 1.64, 2.75	ges, gles
int3_npes	8	How interested are you in politics?	1 Very interested / 2 Fairly interested / 3 Not interested	0.36	0.46, 2.11	npes
int4_nores	8	In general, how interested are you in politics?	1 Very interested / 2 Fairly interested / 3 A little interested / 4 Not at all interested	0.61	-0.92, 0.82, 2.57	nores
int4_nzes	8	How interested would you say you personally are in politics?	1 Very interested / 2 Somewhat interested / 3 Slightly / 4 Not at all	0.46	-0.94, 0.62, 1.99	nzes
int11_ces	7	How interested are you in politics generally?	0 No interest at all / 123456789 / 10 A great deal of interest	0.86	-1.62, -1.24, -0.72, -0.24, 0.16, 0.84, 1.35, 2.10, 3.10, 3.79	canadianes
int4_kobar	7	How interested are you in politics these days?	1 A lot / 2 Some / 3 Not much / 4 Not at all	0.71	-0.78, 0.68, 2.19	kobar
int4a_evs	6	How interested would you say you are in politics?	1 I take an active interest in politics / 2 I am interested in politics but don't t / 3 My interest in politics is not greater / 4 I'm not interested in politics at all	0.76	-0.54, 0.91, 3.05	evs
int4_vpcpce	5	How interested are you in politics?	1 Very interested / 2 Quite interested / 3 Only a little interested / 4 Not at all interested	0.68	-0.71, 1.17, 2.84	vpcpce

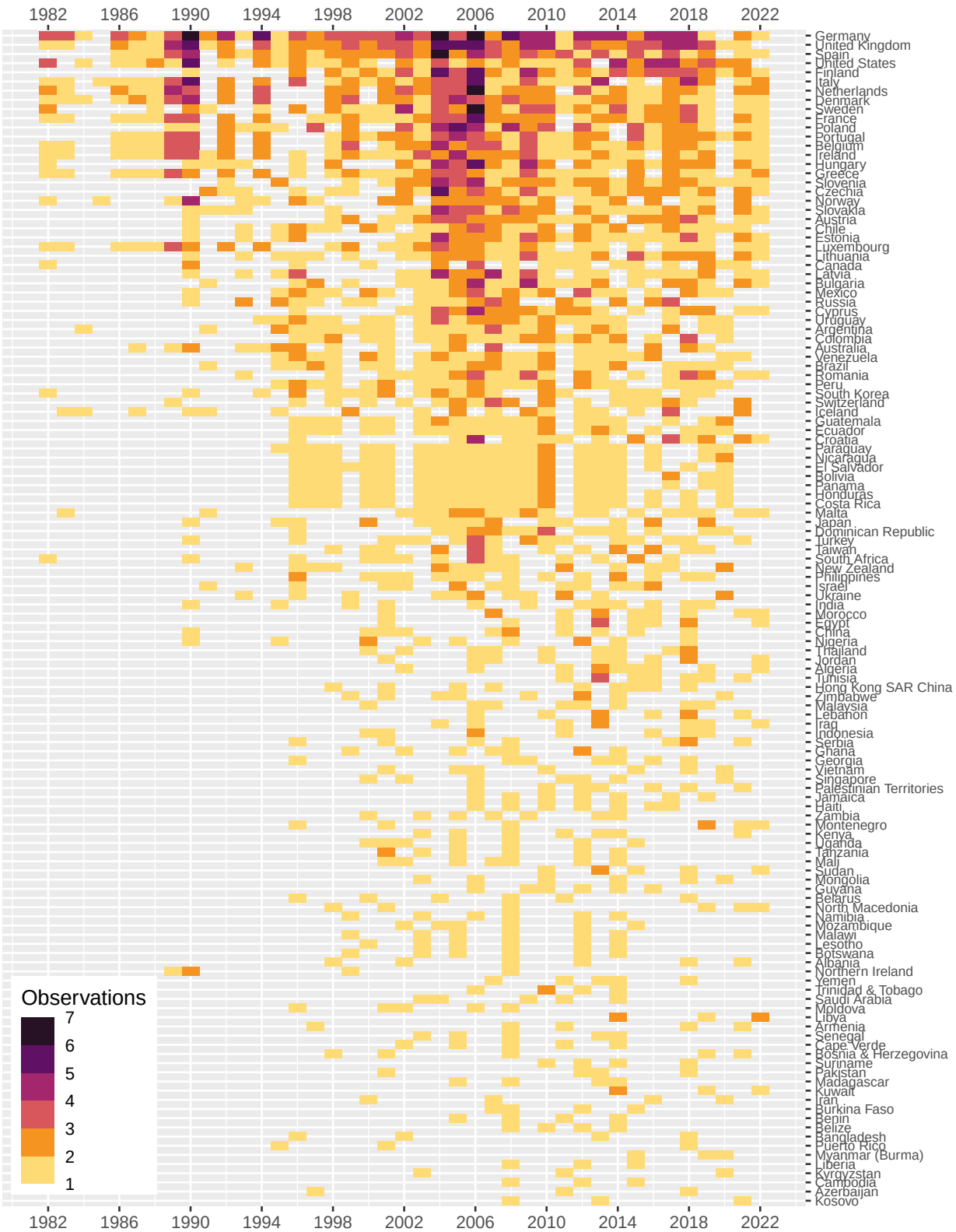

Figure A1: Source Data Observations by Country and Year

Appendix B: The DCPO Model

A number of recent studies have developed latent variable models of aggregate survey responses based on cross-national survey data (see Claassen 2019; Caughey, O'Grady, and Warshaw 2019; McGann, Dellepiane-Avellaneda, and Bartle 2019; Kolczynska et al. 2020). To estimate macrointerest across countries and over time, we employ the latest of these methods that is appropriate for data that is not only incomparable but also sparse, the Dynamic Comparative Public Opinion (DCPO) model elaborated in Solt (2020b).[1] The DCPO model is a population-level two-parameter ordinal logistic item response theory (IRT) model with country-specific item-bias terms.

DCPO models the total number of survey responses expressing at least as much trust in civil servants as response category r to each question q in country k at time t, y_{ktqr}, out of the total number of respondents surveyed, n_{ktqr}, using the beta-binomial distribution:

$$a_{ktqr} = \phi\eta_{ktqr} \tag{1}$$

$$b_{ktqr} = \phi(1 - \eta_{ktqr}) \tag{2}$$

$$y_{ktqr} \sim \text{BetaBinomial}(n_{ktqr}, a_{ktqr}, b_{ktqr}) \tag{3}$$

where ϕ represents an overall dispersion parameter to account for additional sources of survey error beyond sampling error and η_{ktqr} is the expected probability that a random person in country k at time t answers question q with a response at least as interested as response r.[2]

This expected probability, η_{ktqr}, is in turn estimated as follows:

$$\eta_{ktqr} = \text{logit}^{-1}\left(\frac{\bar{\theta'}_{kt} - (\beta_{qr} + \delta_{kq})}{\sqrt{\alpha_q^2 + (1.7 * \sigma_{kt})^2}}\right) \tag{4}$$

In this equation, β_{qr} represents the difficulty of response r to question q, that is, the degree of political the response expresses. The δ_{kq} term represents country-specific item bias: the extent to which all responses to a particular question q may be more (or less) difficult in a given country k due to translation issues, cultural differences in response styles, or other idiosyncrasies that render the same survey item not equivalent across countries.[3]

[1] Solt (2020b) demonstrates that the DCPO model provides a better fit to survey data than the models put forward by Claassen (2019) or Caughey, O'Grady, and Warshaw (2019). The McGann, Dellepiane-Avellaneda, and Bartle (2019) model depends on dense survey data unlike the sparse data on political interest described in the preceding section. Kolczynska et al. (2020) is the very most recent of these five works and builds on each of the others, but the MRP approach developed in that piece is suitable not only when the available survey data are dense but also when ancillary data on population characteristics are available, so it is similarly inappropriate to this application.

[2] The ordinal responses to question q are coded to range from 1 (expressing the least political interest) to R (expressing the most political interest), and r takes on all values greater than 1 and less than or equal to R.

[3] Estimating δ_{kq} requires repeated administrations of question q in country k, so when responses to question q are observed in country k in only a single year, the DCPO model sets δ_{kq} to zero by assumption,

The dispersion of question q, its noisiness in relation to the latent variable, is α_q. The mean and standard deviation of the unbounded latent trait of macrointerest are $\bar{\theta'}_{kt}$ and σ_{kt}, respectively.

Random-walk priors are used to account for the dynamics in $\bar{\theta'}_{kt}$ and σ_{kt}, and weakly informative priors are placed on the other parameters.[4] The dispersion parameters α_q are constrained to be positive and all survey responses are coded with high values indicating more political interest to fix direction. The difficulty β of "to some extent" (the third response on the four-point, "not at all" to "a great deal" scale) to the European Social Survey's question "To what extent would you say you are interested in politics?" is set to 1 to identify location, and for each question q the difficulties for increasing response categories r are constrained to be increasing. The sum of δ_{kq} across all countries k is set to zero for each question q:

$$\sum_{k=1}^{K} \delta_{kq} = 0 \tag{5}$$

Finally, the logistic function is used to transform $\bar{\theta'}_{kt}$ to the unit interval and so give the bounded mean of macrointerest, $\bar{\theta}_{kt}$, which is our parameter of interest here (see Solt 2020b, 3–8).

The DCPO model accounts for the incomparability of different survey questions with two parameters. First, it incorporates the *difficulty* of each question's responses, that is, how much political interest is indicated by a given response. That each response evinces more or less of our latent trait is most easily seen with regard to the ordinal responses to the same question: indicating that one is "strongly interested" exhibits more political interest than stating one is "fairly interested," which is a more interested response that "not very interested," which in turn is more interested than "not at all." But this is also true across questions. For example, indicating that politics is among "the sort of things in life interest you a lot" likely expresses even more interest than agreeing that one is interested in politics "most of the time." Second, the DCPO model accounts for each question's *dispersion*, its noisiness with regard to our latent trait. The lower a question's dispersion, the better that changes in responses to the question map onto changes in macrointerest. Together, the model's difficulty and dispersion estimates work to generate comparable estimates of the

increasing the error of the model by any country-item bias that is present. Questions that are asked repeatedly over time in only a single country pose no risk of country-specific item bias, so δ_{kq} in such cases are also set to zero.

[4]The dispersion parameters α_q are drawn from standard half-normal prior distributions, that is, the positive half of N(0, 1). The first difficulty parameters for each question, β_{q1}, are drawn from standard normal prior distributions, and the differences between βs for each r for the same question q are drawn from standard half-normal prior distributions. The item-bias parameters δ_{kq} receive normally-distributed hierarchical priors with mean 0 and standard deviations drawn from standard half-normal prior distributions. The initial value of the mean unbounded latent trait for each country, $\bar{\theta'}_{k1}$, is assigned a standard normal prior, as are the transition variances $\sigma^2_{\bar{\theta'}}$ and σ^2_{σ}; the initial value of the standard deviation of the unbounded latent trait for each country, σ_{k1}, is drawn from a standard lognormal prior distribution. The overall dispersion, ϕ, receives a somewhat more informative prior drawn from a gamma(4, 0.1) distribution that yields values that are well scaled for that parameter.

latent variable of macrointerest from the available but incomparable source data.

To address the sparsity of the source data—the fact that there are gaps in the time series of each country, and even many observed country-years have only one or few observed items—DCPO uses simple local-level dynamic linear models, i.e., random-walk priors, for each country. That is, within each country, each year's value of macrointerest is modeled as the previous year's estimate plus a random shock. These dynamic models smooth the estimates of macrointerest over time and allow estimation even in years for which little or no survey data is available, albeit at the expense of greater measurement uncertainty.

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