Macrointerest Across Countries

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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 (economic) 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 for large-scale cross-sectional time-series 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 countries 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 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 public of advanced democracies to take more interest in politics. The results support arguments that, in these countries, election campaigns, inclusive institutions, and good (economic) 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 (See the full list of macrointerest survey items in online Appendix).

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. Still, the multitude of different survey items makes these data incomparable and difficult to use together.
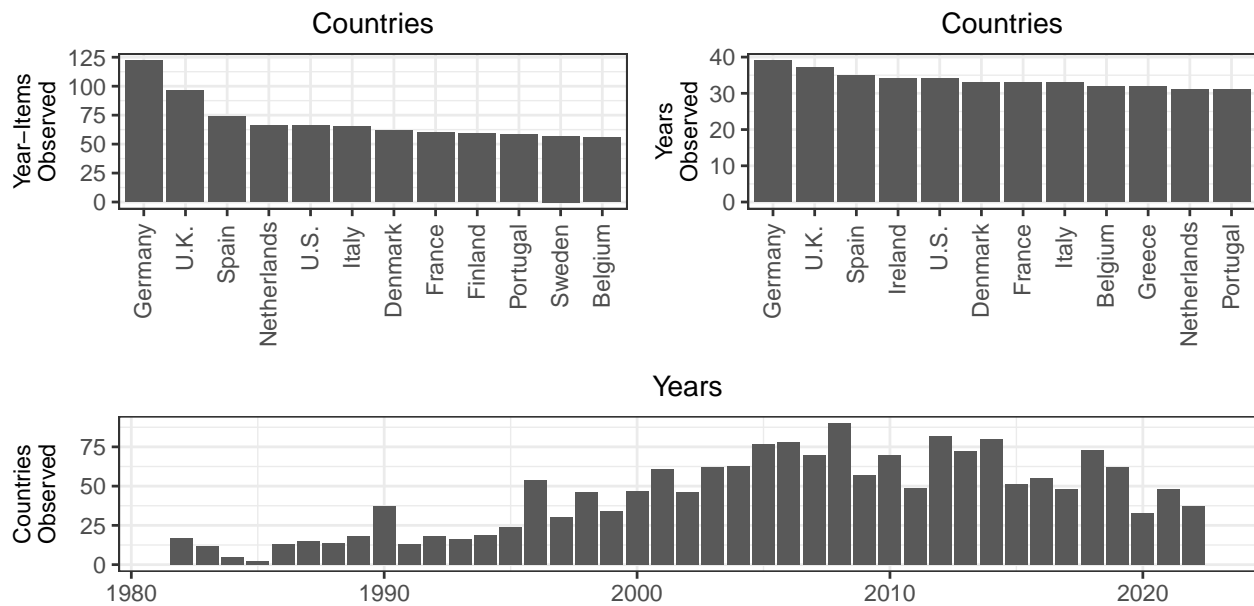

Figure 1: Countries and Years with the Most Observations in the Source Data

In the top left panel of Figure 1, the twelve countries with the most country-year-item observations is displayed. Germany, with 122 observations, is the best represented country in these source data, followed by the United Kingdom, Spain, the Netherlands, and the United States. At the other end of the scale, there are seven countries—Azerbaijan, Cambodia, Kosovo, Kyrgyzstan, Liberia, Myanmar (Burma), and Puerto Rico—that have only the bare

minimum three observations needed to be included in the source dataset at all. In the top right panel are the dozen countries with the most observed years; this group is similar to that on the left, but with Ireland and Greece adding to the list and Finland and Sweden dropping off. The bottom panel shows the number of countries observed in each year. Coverage across countries reached its apex in 2008, when respondents in 90 countries were asked at least one item about their interest in politics. The next section describes how this sparse and incomparable survey data was used together with a latent variable model to generate complete time series of macrointerest scores that are comparable across countries.

Estimating Cross-National Macrointerest

Several 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, this work employs the latest of these methods that is appropriate for data that are both incomparable and 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 model with country-specific item-bias terms.[2] For a comprehensive description of the DCPO model, see Appendix and Solt (2020b, 3–8); the focus here is on how it deals with the two principal

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[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 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. It is perhaps worth noting that the dyad-ratios model employed in Peterson et al. (2022) generates time series of public opinion in only a *single* country that is not easy nor efficient to be expanded to cross-national analyses (see Caughey, O'Grady, and Warshaw 2019, 686). We also conducted a more detailed comparison between DCPO and Peterson et al. (2022)'s Wcalc in Appendix .

[2]Several alternative approaches exist for transforming data to the unit interval, e.g., the cumulative distribution function (CDF) of the normal distribution, which facilitates the interpretation of results as percentiles. Each transformation method carries distinct assumptions and conditions. It is imperative for researchers to select a method that aligns optimally with their data characteristics and research objectives.

issues raised by the source data, incomparability and sparsity.

The DCPO model accounts for incomparability using three sets of 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 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. Third, to provide for the possibility that translation issues or cultural differences result in the same question being interpreted differently in different countries, the model estimates *country-specific bias* parameters that shift the difficulty of all responses for a particular question in a particular country. Together, the model's difficulty, dispersion, and country-specific bias parameters 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 $\hat{R}$ 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). 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 across all country-years who offered the two most interested responses on 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.

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,
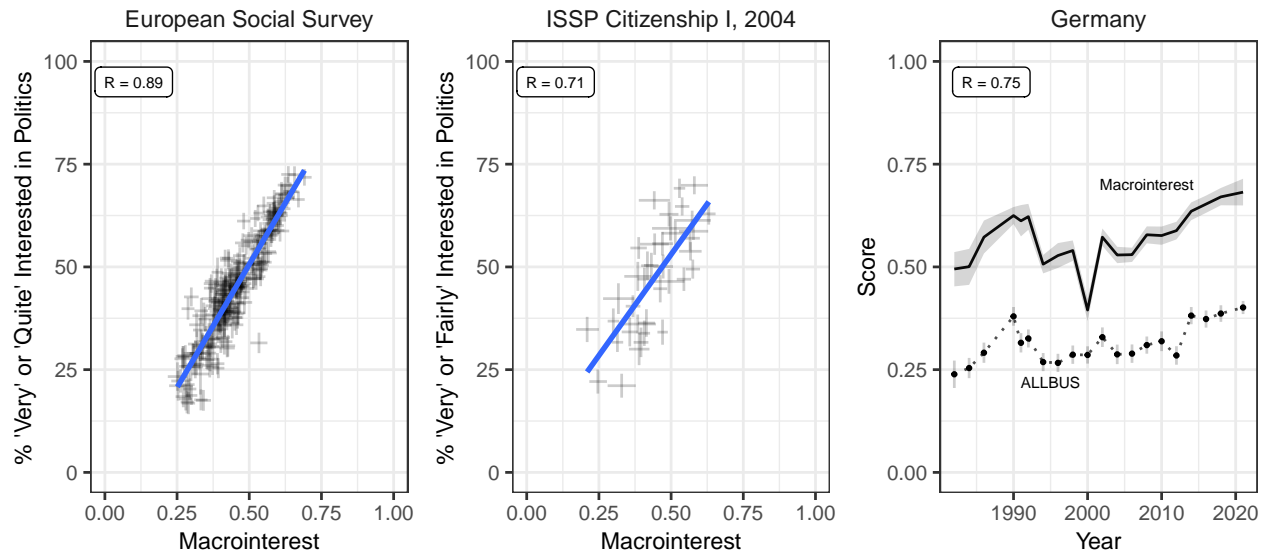
Figure 2: Internal Convergent Validation: Correlations Between Macrointerest and Individual Source-Data Survey Items
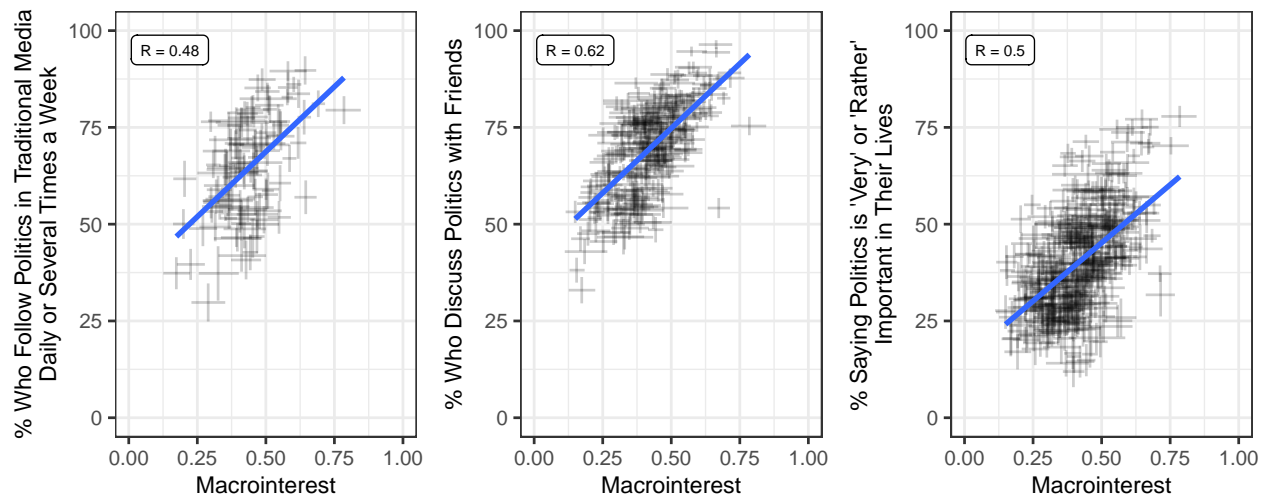
Figure 3: Construct Validation: Correlations Between Macrointerest and Other Aspects of Political Engagement

6

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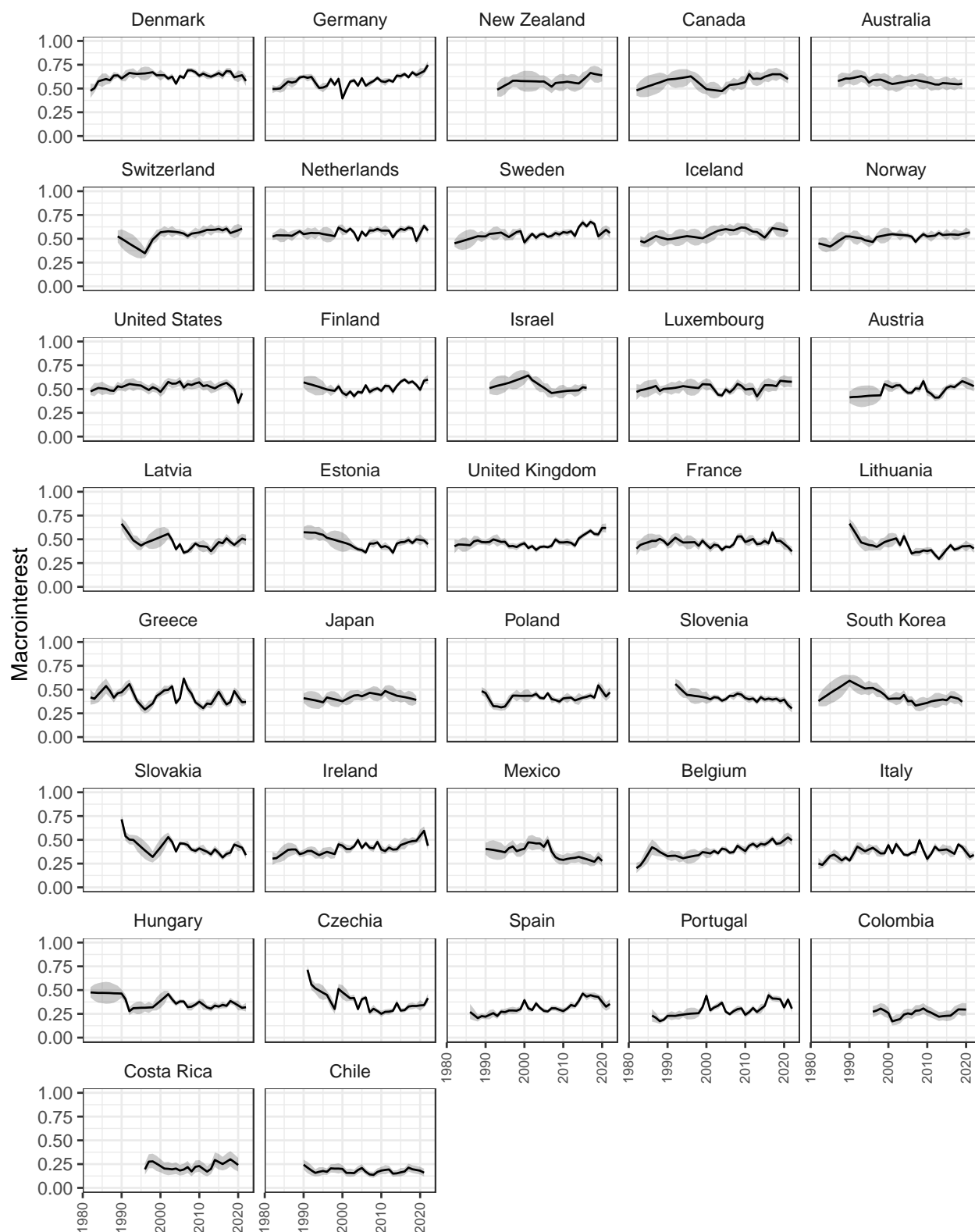
Note: Countries are ordered by their median macrointerest score; gray shading represents 80% credible intervals.

Figure 4: Macrointerest Scores Over Time Within OECD Democracies

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 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 along with increasing economic growth ("good" times), not worsening economic growth ("bad" times) (see also Stimson 2015; Peterson et al. 2022, 206).

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.[3] The model was estimated using the `brms` R package (Bürkner 2017).

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[3]We incorporate the measurement uncertainty with the "method of composition,"a technique frequently utilized across numerous studies in political science (e.g., **CaugheyWarshaw2018a?**; **Kastellec-EtAl2015?**; **TaiEtAl2022a?**). See Supplementary Material C of (**TaiEtAl2022a?**) for a comprehensive technical exposition of the method's application within the DCPO framework and ex post estimations.
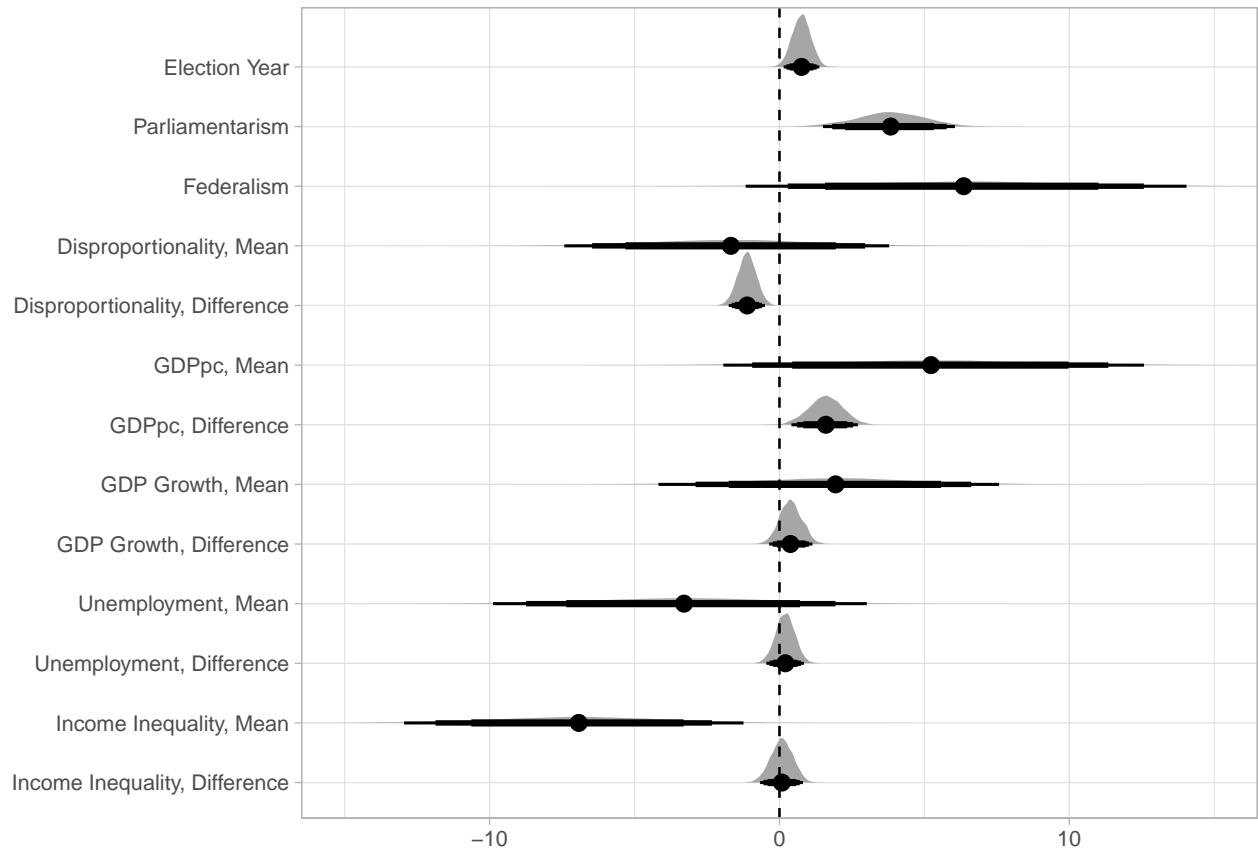
Notes: Dots indicate posterior means; whiskers, from thickest to thinnest, describe 80%, 90%, and 95% credible intervals; shading depicts the posterior probability density function.

Figure 5: Predicting Macrointerest in OECD Democracies

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

11

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 as evidenced by differences in mean levels across countries is found to be larger, 5.2 points, but only its 80% credible interval (1.6 to 11 points) excludes zero. The posterior means for growth in the national economy are positive as well, but the posterior distributions do not suggest relationships that are statistically defensible. The findings with regard to unemployment 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, evidence moderately supports the notion that absolute economic growth, rather than depression, is associated with increased macrointerest, while the distributional bias in economic growth outcomes consistently diminishes 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 cross-national macrointerest dataset presented here addresses this issue, providing annual time series across more than a hundred countries and allowing more and

better tests of the wide range of theories that implicate the public's interest in politics. For example, while the cross-sectional analysis in Kittilson and Schwindt-Bayer (2010, 997–99) found that, among the three inclusive institutions it considered, only the disproportionality of electoral results influenced political interest and engagement, the pooled time-series analysis presented here indicates parliamentarism, federalism, and proportionality all yield greater macrointerest as Kittilson and Schwindt-Bayer (2010) theorized. And although the single-country study in Peterson et al. (2022, 219) concludes that bad times prompt increased macrointerest, this evidence shows just the opposite, that it is *good* times that lead the public to take interest in politics. By drawing on information about *both* differences across countries *and* change over time, it appears these data on cross-national macrointerest provide a firmer basis for drawing sound conclusions. The cross-national macrointerest dataset is available on the Harvard Dataverse for use in the further investigation of these and other theories on the causes and consequences of aggregate political interest.

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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. In accordance 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. The current version of the software facilitates the entire practical data generation process, from accessing original survey datasets to their conversion into R-compatible formats, and to restructuring them for analysis with the DCPO model. The primary objective is to limit manual interventions, thereby reducing error potential inherent in human-operated data preparation tasks.

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

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

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

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
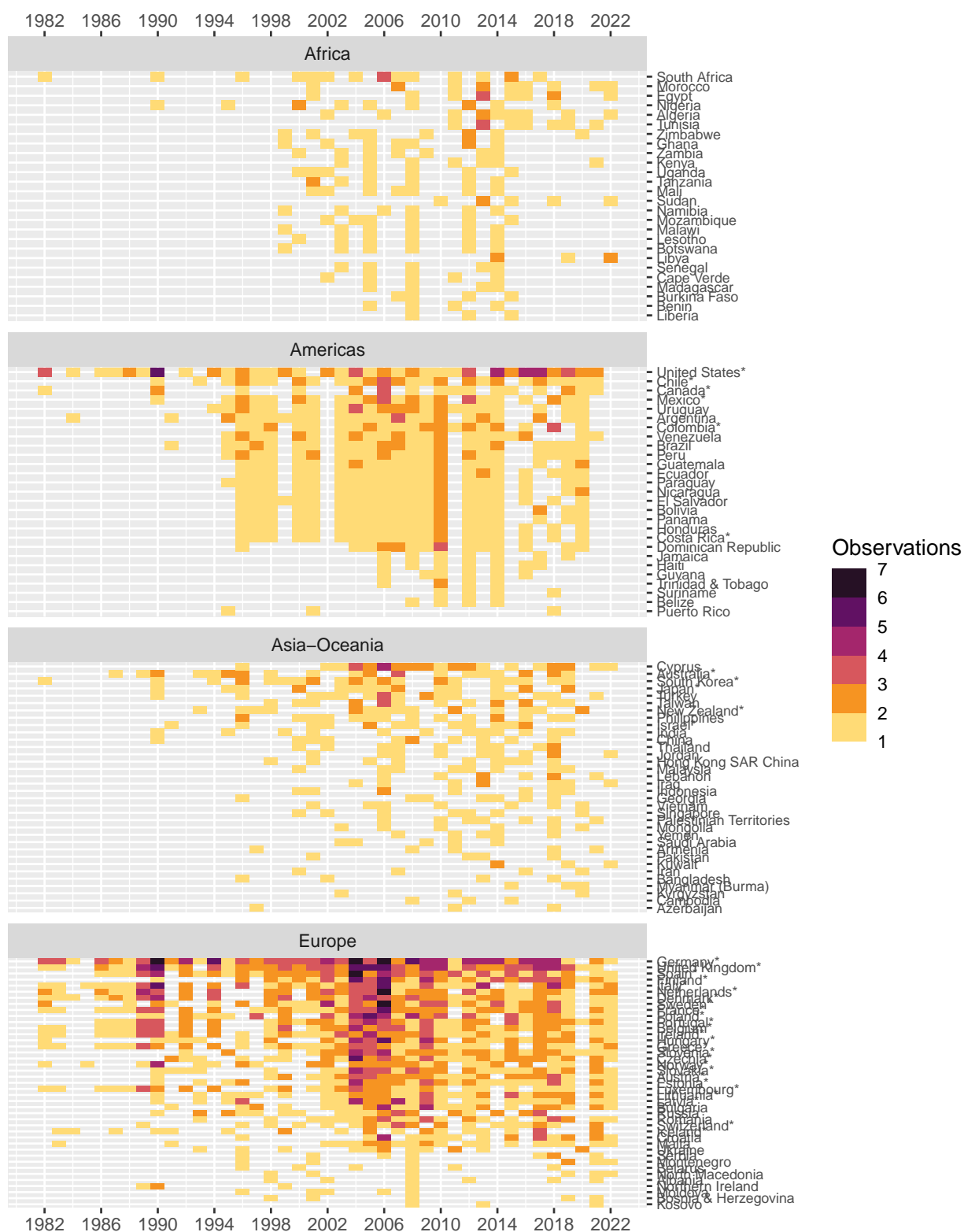
Starred countries are OECD democracies, the sample employed in the analysis of macrointerest presented in the main text.

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). 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 macrointerest 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.[1]

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.[2] 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.

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[1]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.

[2]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, 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.

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.[3] 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 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

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[3]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 $\sigma^2_{\theta'}$ 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.

	(1)
Election Year	0.800
	[0.100, 1.400]
Parliamentarism	3.800
	[1.500, 6.100]
Federalism	6.400
	[-1.200, 14.000]
Disproportionality, Mean	-1.700
	[-7.400, 3.800]
Disproportionality, Difference	-1.100
	[-1.800, -0.500]
GDPpc, Mean	5.200
	[-1.900, 12.600]
GDPpc, Difference	1.600
	[0.400, 2.700]
GDP Growth, Mean	1.900
	[-4.200, 7.600]
GDP Growth, Difference	0.400
	[-0.400, 1.100]
Unemployment, Mean	-3.300
	[-9.900, 3.000]
Unemployment, Difference	0.200
	[-0.500, 0.800]
Income Inequality, Mean	-6.900
	[-13.000, -1.200]
Income Inequality, Difference	0.100
	[-0.700, 0.800]
N	7812
Country	128
Year	40

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.

Numeric Result of Figure 5

Comparison with (PetersonEtAl2022?)

This study extends the pivotal concept of "macrointerest" from (**PetersonEtAl2022?**), yet diverges methodologically by employing the Dynamic Comparative Public Opinion (DCPO) model instead of the dynamic ratio algorithm, commonly referred to as "Wcalc," as utilized

in the original research (**PetersonEtAl2022?**). Apart from the primary rationale stated in the main article—that Wcalc is inherently tailored for generating public opinion time series within a single country rather than for cross-national comparison—there are also methodological and operational distinctions between these two approaches.

The dynamic ratio algorithm primarily seeks to uncover shared variance over time among various survey items. Its process involves initially pairing these items, subsequently calculating the ratio for each unique pair, and then analyzing the distribution of these ratios. DCPO instead directly models the relationship between the latent variable and survey item responses using a Bayesian Item Response Theory (IRT) approach. This method provides a probabilistic framework, enabling the estimation of response probabilities contingent on both the level of the latent trait and specific characteristics of the survey items.

Additionally, these methods adopt differing strategies for addressing missing data at certain time points. The dynamic ratio algorithm tackles this challenge by estimating values for unobserved series at each time point, basing these estimations on the calculated ratio of missing survey items to those observed in the corresponding period. For the same issue, DCPO, on the other hand, employs dynamic linear models at the local level for each country, leveraging random-walk priors. This approach not only smooths the estimates of macrointerest over time but also facilitates estimation in years characterized by limited or absent survey data, and simultaneously providing specific uncertainty estimates.

In application, as (**PetersonEtAl2022?**) pointed out, to conduct the dynamic ratio algorithm, researchers have to remove or redistribute the responses of moderate opinions. Since modeling the item characteristics directly, DCPO does not need to twist the original item response. It can also yield the credible intervals of the estimates from the Bayesian process, rather than relying on the ex post bootstrapping for uncertainty estimation. DCPO additionally implements a logistic function to confine the outcome estimation within a unit interval. This bounding process can diminish the uncertainty of estimates for countries at the extremes. As highlighted by (**LinzerStaton2015?**), "constraining the latent variable might have minimal impact on the scale, yielding more reasonable uncertainty estimates."

In Figure A2, we compare the outcome from these two methods. In the left panel, we replicate (**PetersonEtAl2022?**)'s Figure 6 of the Wcalc scores of the U.S. macrointerest. We then bounded the Wcalc scores to the unit interval via a logistic transformation as DCPO does and calculate the 80% confidence intervals. The results is compared with the DCPO outputs in the shared time period (1982–2014) in the right panel of Figure A2. The variance of Wcalc scores become less observable when they are bounded relative to the standard error. DCPO, on the other hand, illustrates a more noticeable variance in macrointerst over years and gains a better efficiency based on not only one but multiple countries' data. In this sense, DCPO outcome brings stronger evidence for the original proposition of (**PetersonEtAl2022?**).
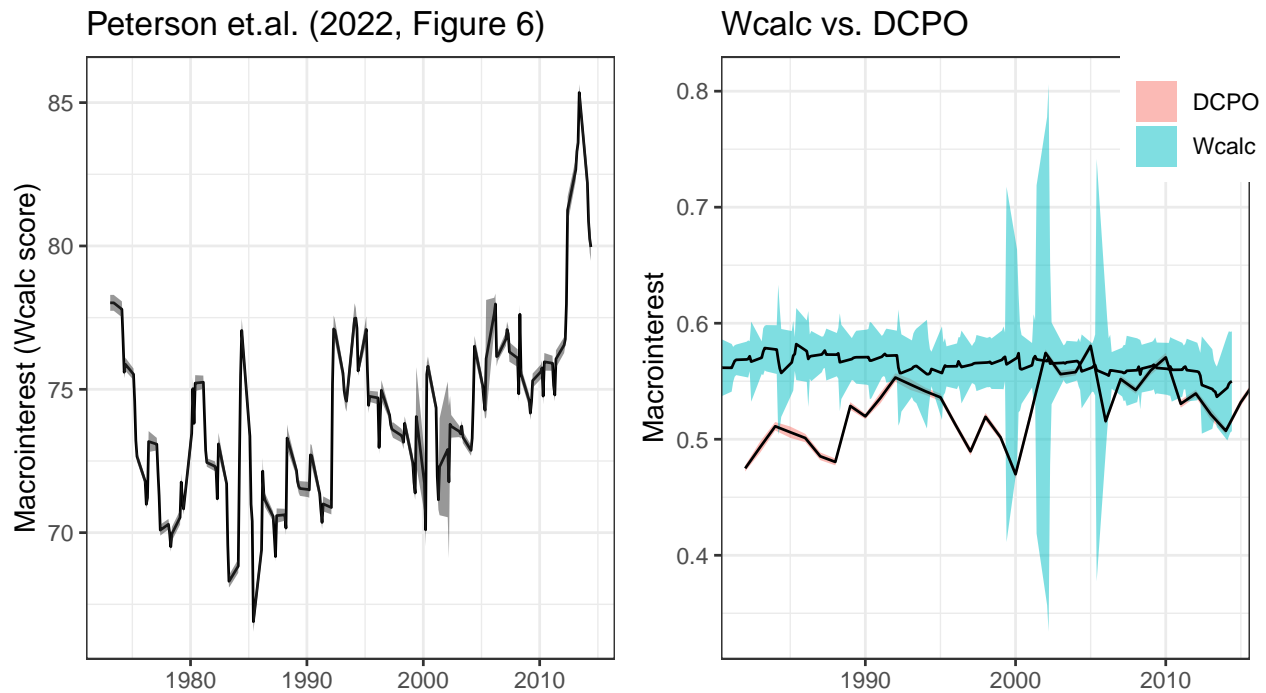
Figure A2: Comparison between DCPO and Wcalc

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