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., **Almond1963?**). 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 (**Peterson2022?**). 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 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 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 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 syrvey items in online Appendix). In accordance with the advice offered

by (**Hu2022?**) to avoid data-entry errors by automating data collection, the `DCPOtools` R package (**Solt2019?**) 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. Still, the multitude of different survey items makes these data incomparable and difficult to use together.
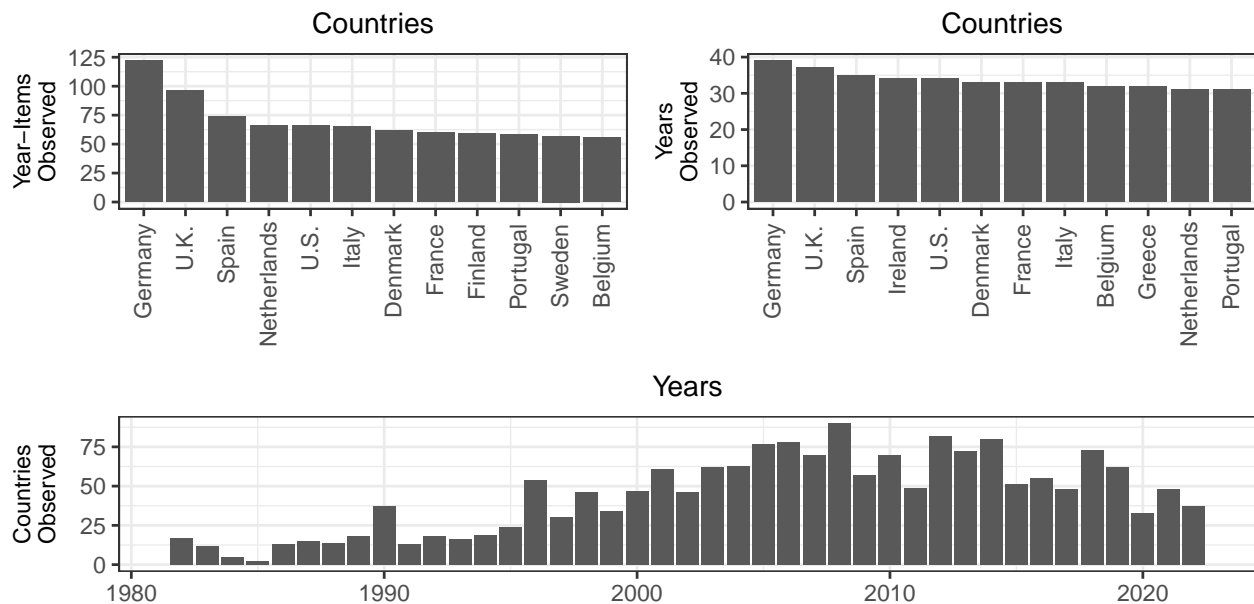

Figure 1: Countries and Years with the Most Observations in the Source Data

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 (2020a).[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 (2020a, 3–8); the focus here is on how it deals with the two principal issues raised by the source data, incomparability and sparsity.

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[1]Solt (2020a) 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 (**Peterson2022?**) generates time series of public opinion in only a *single* country and so makes a poor choice for cross-national data (see Caughey, O'Grady, and Warshaw 2019, 686). We also conducted a more detailed comparison between DCPO and (**Peterson2022?**)'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.

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 (**Solt2019?**), 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., **Hu2023?**). 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 (**Adcock2001?**). 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 2020a, 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 (**Adcock2001?**). 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

European Social Survey — R = 0.89

ISSP Citizenship I, 2004 — R = 0.71

Germany — R = 0.75
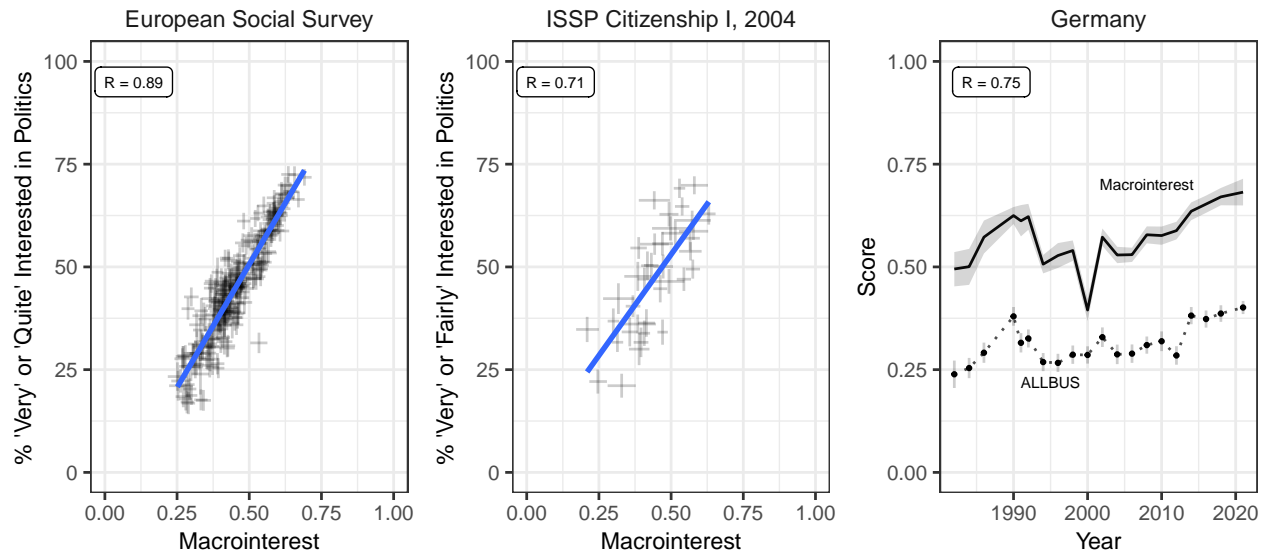
Note: Gray whiskers and shading represent 80% credible intervals.

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

R = 0.48

R = 0.62

R = 0.5
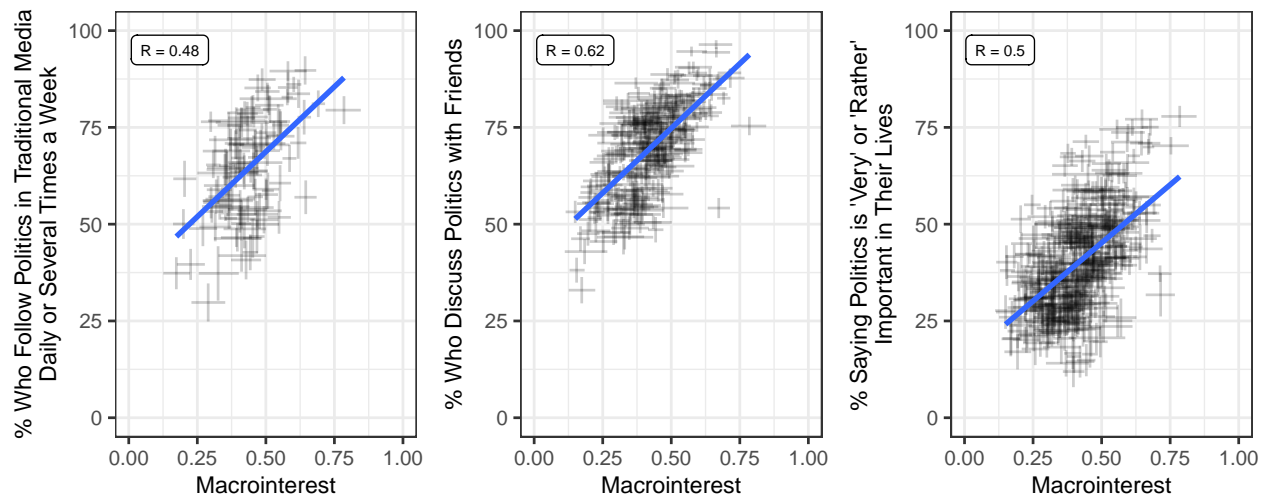
Note: Gray whiskers and shading represent 80% credible intervals. Survey items sourced from World Values Study and European Values Study.

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

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., **Beach2018?**; **Larsen2022?**). 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
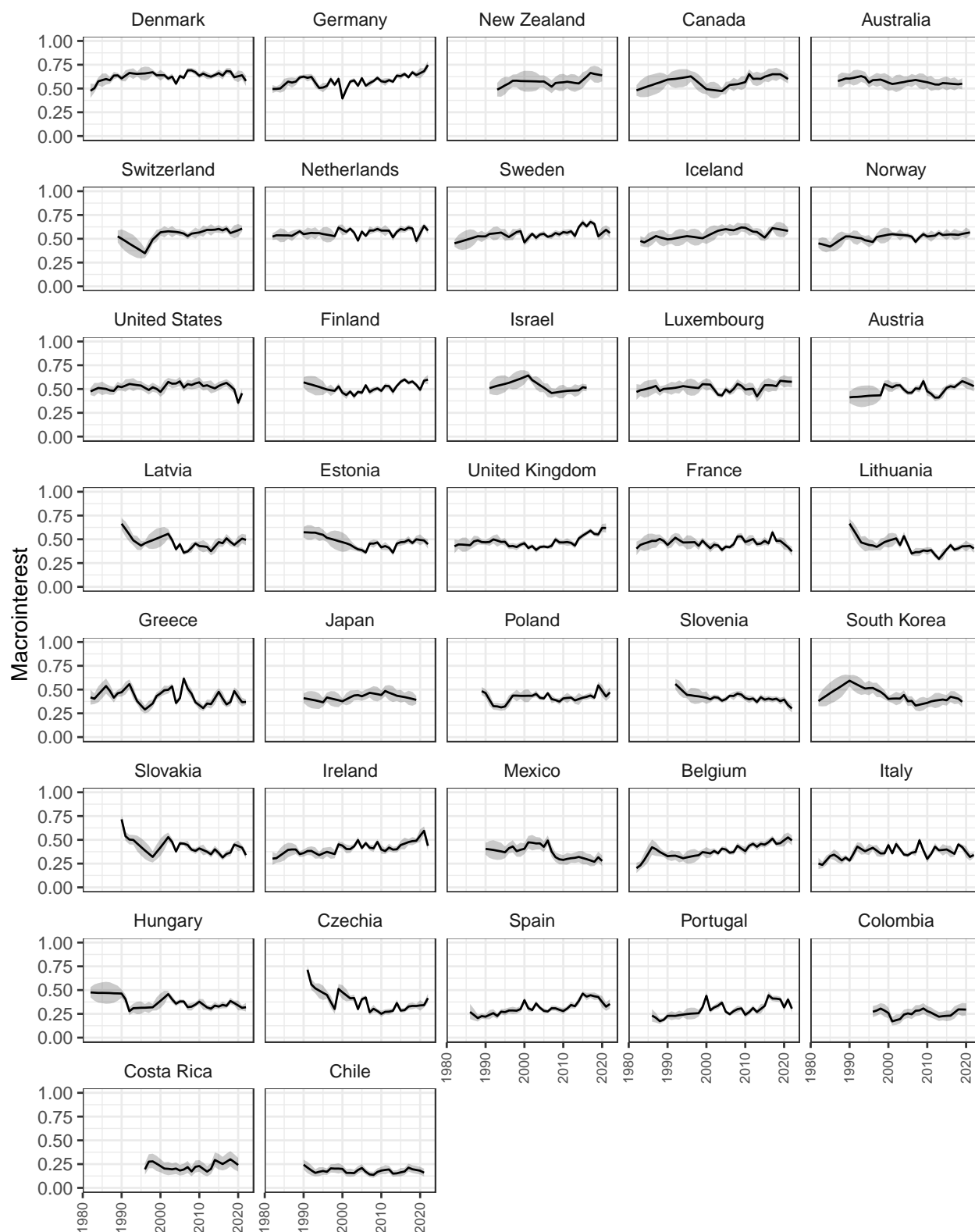
Note: Countries are ordered by their median macrointerest score; gray shading represents 80% credible intervals.

Figure 4: Macrointerest Scores Over Time Within OECD Democracies

won increases.

A third claim deals with the public's demand for accountability. (**Peterson2022?**) 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; **Peterson2022?**).

Data to test these hypotheses regarding the causes of macrointerest are drawn from several sources. The Democratic Electoral Systems (DES) dataset updated in (**Bormann2022?**) 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 (**OECD2023?**) and on the Gini index of disposable income inequality from the Standardized World Income Inequality Database (Solt 2020b).

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 **Bell2015?**). 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 (**Bell2015?**). 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).

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

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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., Caughey and Warshaw 2018; Kastellec et al. 2015; Tai, Hu, and Solt 2022). See Supplementary Material C of Tai, Hu, and Solt (2022) for a comprehensive technical exposition of the method's application within the DCPO framework and ex post estimations.
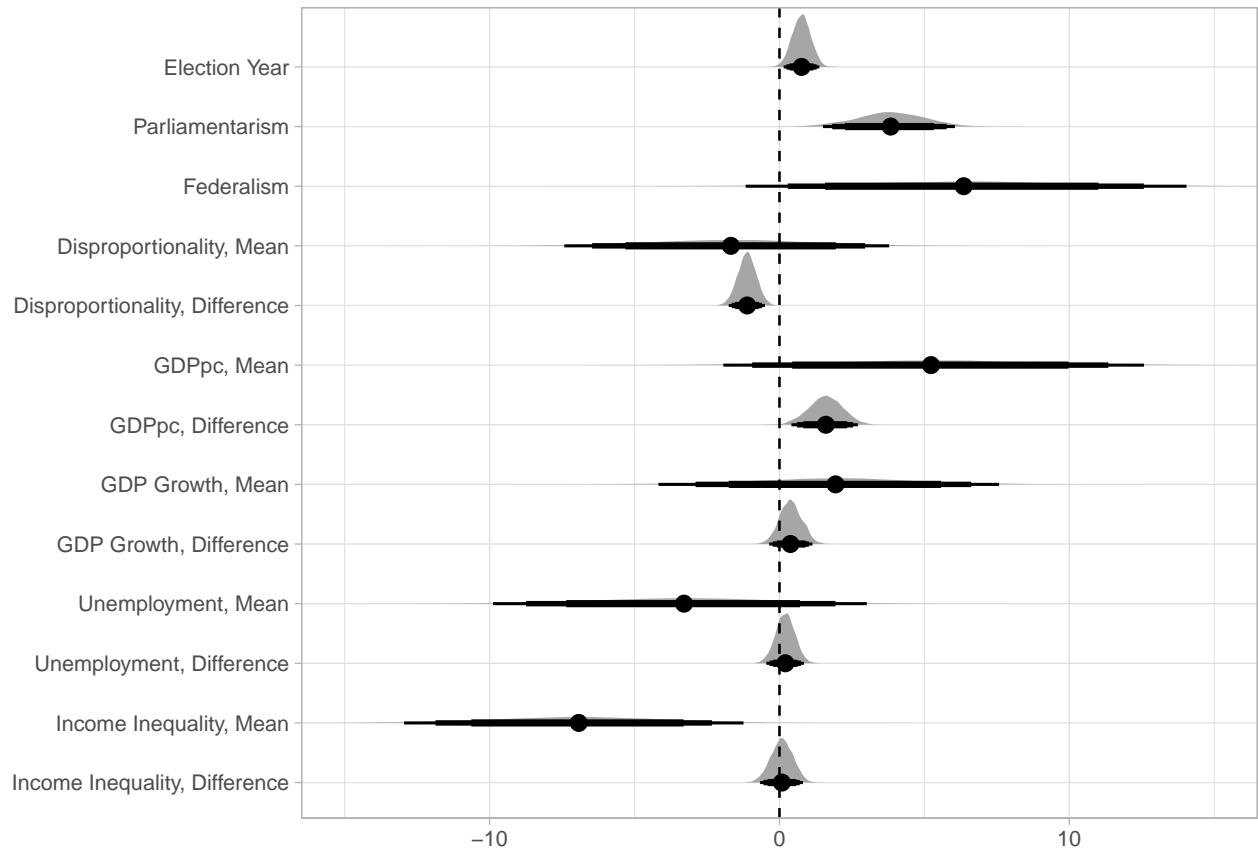
Figure 5: Predicting Macrointerest in OECD Democracies

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., **Larsen2022?**).

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 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 (**Peterson2022?**) 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 (**Solt2019?**); 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 **??** 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.