CROSS-COUNTRY TRENDS IN AFFECTIVE POLARIZATION

Levi Boxell
Matthew Gentzkow
Jesse M. Shapiro

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Levi Boxell, Matthew Gentzkow, and Jesse M. Shapiro
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ABSTRACT

We measure trends in affective polarization in nine OECD countries over the past four decades. The US experienced the largest increase in polarization over this period. Three countries experienced a smaller increase in polarization. Five countries experienced a decrease in polarization. These findings are most consistent with explanations of polarization based on changes that are more distinctive to the US (e.g., changing party composition, growing racial divisions, the emergence of partisan cable news), and less consistent with explanations based on changes that are more universal (e.g., the emergence of the internet, rising economic inequality).

Levi Boxell
Stanford University, Department of Economics
579 Jane Stanford Way
Stanford, CA 94305
Lboxell@stanford.edu

Matthew Gentzkow
Department of Economics
Stanford University
579 Jane Stanford Way
Stanford, CA 94305
and NBER
gentzkow@stanford.edu

Jesse M. Shapiro
Economics Department
Box B
Brown University
Providence, RI 02912
and NBER
jesse_shapiro_1@brown.edu

1 Introduction

Affective polarization refers to the extent to which citizens feel more negatively toward other political parties than toward their own (Iyengar et al. 2019). Affective polarization has risen substantially in the US in recent decades (Iyengar et al. 2019). In 1978, the average partisan rated in-party members 27.0 points higher than out-party members on a "feeling thermometer" ranging from 0 to 100. In 2016 the difference was 45.9, implying an increase of .72 standard deviations in the 1978 distribution. Growing affective polarization may have important consequences, including reducing the efficacy of government (Hetherington and Rudolph 2015),[1] increasing the homophily of social groups (Iyengar et al. 2012; Iyengar et al. 2019), and altering economic decisions (Gift and Gift 2015; Iyengar et al. 2019).

There is limited evidence on long-term trends in affective polarization in developed democracies other than the US. Cross-country comparisons are helpful in assessing why affective polarization has been rising in the US. Some explanations, such as the increased sorting of ideological groups to parties following the realignment of the US South (Levendusky 2009; Fiorina 2016), the deepening of racial divisions (Valentino and Zhirkov 2017), and the rise in partisan cable news (Levendusky 2013), seem peculiarly American, while others, such as the rise of the internet and social media as sources of political information (Lelkes et al. 2017) and the rise in economic inequality (Payne 2017; Pearlstein 2018), are more universal. Determining whether the recent increase in affective polarization is specific to the US could help to adjudicate among these competing explanations.

In this paper, we present the first cross-country evidence on long-term trends in affective polarization, focusing on nine OECD countries over the past four decades. We find that the US exhibited the largest increase in affective polarization over this period. In three other countries—Canada, New Zealand, and Switzerland—polarization also rose, but to a lesser extent. In five other countries—Australia, Britain, Norway, Sweden, and (West) Germany—polarization fell. Focusing on the period after 2000, all countries except Germany, Norway, and Switzerland exhibit a positive linear trend, and the trend in the US appears less distinctive.

We discuss the implications of our evidence for various potential explanations of the rise in affective polarization in the US. Some trends, such as the introduction of the internet, rising eco-

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[1] See also Kimball et al. (2018). Commentators expressing related concerns include Obama (2010), Blankenhorn (2015), and Drutman (2017). A 2018 survey shows that more than 70 percent of foreign policy opinion leaders consider political polarization a "critical threat" facing the US, ranking it above issues such as foreign nuclear programs (Smeltz et al. 2018).

nomic inequality, and increasing immigration, have been similar in all or most of the countries in our sample, and no faster in the countries with rising affective polarization. Other trends, such as changing party composition, growing racial divisions, and the rise of cable news, are more distinctive to the US, and receive more support as potential explanations in our data.

To conduct our analysis, we constructed a new database from 116 different surveys, many of which had to be harmonized manually. These data permit a first look at long-term cross-country trends in affective polarization, but they also have important limitations. The set of years with available survey data differs across countries. Question wording and response scales differ across countries and, in some cases, across survey years for a given country. We include information about question wording and scale in our plots, analyze the sensitivity of our findings to an alternative transformation of the response scale, and show direct evidence on the sensitivity of measured affective polarization to survey question wording and response scale. Because the number and nature of political parties differ across countries and within countries over time, even identically structured survey questions may take on different meanings in different contexts. We analyze the sensitivity of our findings to restricting attention to the top two parties in each country and focusing on periods in which this pair of parties is stable. Our reading of the evidence is that our central conclusion—that the US stands out for the pace of the long-term increase in affective polarization—is not likely an artifact of data limitations.

Previous comparative work on affective polarization has been cross-sectional (e.g., Carlin and Love 2018; Westwood et al. 2018; Martini and Torcal 2019) or has relied on data from the Comparative Study of Electoral Systems (CSES) including a maximum of four survey modules per country beginning in 1996 (Reiljan 2020; Gidron et al. 2019a, b; Harteveld 2019; Ward and Tavits 2019). An exception is work by Iyengar et al. (2012), who compare how individuals in the US and UK between 1960 and 2010 feel about their children marrying across party lines, finding larger increases in displeasure for the US.

There is also previous comparative work studying dimensions of mass polarization other than affective polarization. Draca and Schwarz (2020) use three waves of the World and European Values Surveys from 1989 through 2010 and find that the US experienced the largest increase in ideological polarization among the 17 countries considered.[2] Ideological polarization may have causes and consequences distinct from those of affective polarization (Iyengar et al. 2019).

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[2]Some previous studies examine long-term trends in mass polarization in individual countries outside the United States, including Canada (Kevins and Soroka 2018), Germany (Munzert and Bauer 2013), Britain (Adams et al. 2012a, b), and the Netherlands (Adams et al. 2011). These studies do not report trends in affective polarization.

The remainder of the paper is organized as follows. Section 2 describes our data sources and measure of affective polarization. Section 3 presents our main findings and sensitivity analysis. Section 4 concludes and discusses implications for the possible causes of the recent rise in affective polarization in the US.

2   Data and Measure of Affective Polarization

We select from the set of 1973 OECD members those countries for which there is a reasonably continuous series of affect-based questions for multiple parties beginning in the late 1970s or early 1980s, along with some Commonwealth countries that are likely to be an especially interesting comparison to the US. We also include Switzerland. Appendix A.4 provides information on data availability for OECD members, including countries we do not include in our sample. The set of survey years differs across sample countries. Appendices A.5 and A.6 detail the survey variables and data sources for each sample country and included survey year.

We extract each respondent's party identification, and exclude "leaners" who only choose a party identification in response to a second survey prompt. Appendix Figure 1 depicts trends in the share of respondents identifying with a party and the share of affiliates who are affiliated with the top two parties, separately by country. In seven countries (US, Canada, Britain, Germany, Australia, New Zealand, and Sweden), the share of affiliates who are affiliated with the top two parties is always above 0.65; in the remaining two countries, it is always above 0.45.

We extract a measure of each respondent's affect toward the parties in the respondent's country. Questions about affect vary across surveys, commonly asking respondents how they feel toward a given party, how much they like the party, or to what extent they sympathize with the party.[3] Numerical response scales also differ across surveys. We apply an affine transformation to the responses in each survey so that the minimum response is 0 and the maximum response is 100. We refer to the transformed response as the respondent's reported affect toward the given party.

We also extract a survey weight associated with each respondent.

To define affective polarization, fix a given survey and let $\mathcal{P}$ denote the set of parties about which respondents are asked their affect, excluding parties with zero affiliates. Let $\mathcal{N}$ denote the set of respondents who both provide a valid party identification and report a valid affect toward their own party and at least one other party. For each respondent $i \in \mathcal{N}$, let $p(i) \in \mathcal{P}$ denote the

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[3]Druckman and Levendusky (2019) study the interpretation of such questions.

party with which the respondent identifies and let $\mathcal{P}_i \subseteq \mathcal{P}$ denote the set of parties respondent i reports a valid affect toward. Let $A_i^p \in [0, 100]$ denote the reported affect of respondent i toward party $p \in \mathcal{P}_i$. Finally, let $w_i \geq 0$ denote the survey weight of respondent $i \in \mathcal{N}$ and let $W(\mathcal{P}') = \sum_{\{i \in \mathcal{N}: p(i) \in \mathcal{P}'\}} w_i$ denote the weighted number of respondents in any set of parties $\mathcal{P}' \subseteq \mathcal{P}$, with $W(\mathcal{P})$ denoting the weighted number of respondents in $\mathcal{N}$.

Denote by π_i the partisan affect of respondent i, defined as

$$\pi_i = \sum_{p' \in \mathcal{P}_i \backslash p(i)} \frac{W(p')}{W(\mathcal{P}_i) - W(p(i))} \left(A_i^{p(i)} - A_i^{p'} \right).$$

Partisan affect π_i reflects the extent to which respondent i expresses a more favorable attitude toward her own party than toward other parties.

We define affective polarization Π as the weighted average of respondents' partisan affect:

$$\Pi = \sum_{i \in \mathcal{N}} \frac{w_i}{W(\mathcal{P})} \pi_i.$$

If there are two parties and all respondents state their affect toward both, then affective polarization Π is the difference between weighted mean own-party affect and weighted mean other-party affect, as in Iyengar et al. (2019).[4] In the multi-party case, our definition is similar to ones adopted by Gidron et al. (2019b, equations 1 and 2), Harteveld (2019, equation 1), and Reiljan (2020, equation 3).

We obtain data on various potential explanatory variables at the level of the country and year from a range of sources that are detailed in Appendix A.7.

3   Comparison of Trends in Affective Polarization

Figure 1 shows the time path of affective polarization in each of the nine countries that we study. Each plot depicts an estimated linear time trend and reports its slope and standard error. Plot markers indicate the response scaling in the original survey question, and uniform confidence bands are shown for the estimated affective polarization series. These bands do not contain the

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[4]In this case:

$$\Pi = \sum_{i \in \mathcal{N}} \frac{w_i}{W(\mathcal{P})} A_i^{p(i)} - \sum_{i \in \mathcal{N}} \frac{w_i}{W(\mathcal{P})} A_i^{\mathcal{P} \backslash p(i)}.$$

linear fit, indicating that the linear fit is rejected by the data and should therefore be taken only as a convenient summary of the average change, not as a complete description of the dynamics of the series.

Consistent with the existing evidence, Figure 1 shows that affective polarization grew rapidly in the US over the sample period. The estimated linear trend is 4.8 points per decade (SE = 0.6). For comparison, the standard deviation in partisan affect in the base period of 1978 was 26.3.

Three other countries—Canada, Switzerland, and New Zealand—exhibit a smaller positive trend. Canada's is the largest trend of the three, with a slope of 3.9 points per decade (SE = 1.3). Panel A of Table 1 shows that we cannot reject that the US and Canada or that the US and Switzerland have equal slopes, but we can reject that the US and New Zealand have equal slopes.

The remaining five countries—Australia, Britain, Norway, Sweden, and Germany—exhibit a negative trend. The negative trend is statistically significant in the case of Sweden and Germany. Germany exhibits the largest negative trend, equal to 4.0 points per decade (SE = 0.3), which can be compared to a standard deviation in partisan affect in the base period of 1977 of 25.4. Panel A of Table 1 shows that we can reject the equality of the slopes between the US and each of these countries.

Appendix Figure 2 breaks down the trends in affective polarization into affect toward the respondent's own party and affect toward other parties. The US appears more distinctive in this comparison, with affect toward other parties decreasing at a rate of 5.6 points per decade (SE = 0.5), nearly three times quicker than any other country in our sample.

Panel C of Table 1 shows estimated linear trends separately for the periods before and after 2000. After 2000, all countries except Germany, Norway, and Switzerland exhibit a positive linear trend, and the trend in the US appears less distinctive.

Figure 2 shows the time path of affective polarization when restricting attention to the two largest parties in each survey round and to a set of surveys with the same two largest parties. The positive linear trend in Canada, Switzerland, and New Zealand is greater than in our baseline estimates. In this comparison, Canada outpaces the US with a slope of 14.5 points per decade (SE = 1.6), partly due to the restriction to the recent time period. The negative linear trend in Britain, Norway, Sweden, and Germany is also greater (in absolute value) than in our baseline estimates, and the small trend in Australia is essentially unchanged.

Our baseline estimates of affective polarization are based on those survey respondents who provide a party affiliation the first time they are asked. Appendix Figure 3 shows the time path of

affective polarization when including leaners who only choose a party identification in response to a second survey prompt. Appendix Figure 4 shows the time path of affective polarization when assigning party affiliation based on the party toward which the respondent reports the most positive affect. In the first case the US remains the country with the largest linear slope; in the second case it is only outpaced by Switzerland, for which there are relatively few survey years.

Our baseline estimates of affective polarization also depend on an affine transformation of responses into a common scale. Appendix Figure 5 shows the time path of affective polarization when we coarsen reported affect to a five-point scale so that surveys do not differ in the fineness of the affect scale. The US remains the country with the largest linear slope in this specification. Appendix Figure 6 compares the time path of affective polarization in the US measured from the survey question we use in our main analysis with the time path of affective polarization measured from an alternative survey question with a different response scale asked in a subset of survey years. The estimated trends differ by 1.2 points per decade (SE = 0.7), which can be compared to a baseline trend of 6.4 points per decade.

Panel B of Table 1 reports the estimated trends and standard errors for the sensitivity analyses in Appendix Figures 3–5.

4 Interpretation

4.1 Framework

Let Π_{ct} be the affective polarization in country $c \in \{1, ..., C\}$ in time $t \in \{1, ..., T\}$ and suppose that this obeys

$$\mathrm{E}\left(\Pi_{ct}|\alpha_c, x_c\right) = \alpha_c + \beta x_{ct} \tag{1}$$

where x_{ct} is some explanatory variable with coefficient β and associated vector $x_c = (x_{c1}, ..., x_{cT})$, and α_c is a country-specific intercept. The model defined by equation (1) can readily accommodate sampling error in the measurement of affective polarization.[5]

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[5]Suppose that we observe measurement Π_{ct} of true affective polarization Π_{ct}^* where

$$\mathrm{E}\left(\Pi_{ct} - \Pi_{ct}^*|\alpha_c, x_c\right) = 0$$

as would plausibly be the case for measurement error driven by survey sampling. Then it is immediate that

$$\mathrm{E}\left(\Pi_{ct}|\alpha_c, x_c\right) = \mathrm{E}\left(\Pi_{ct}^*|\alpha_c, x_c\right)$$

and hence that equation (1) holds for Π_{ct} if its analogue holds for Π_{ct}^*.

Pick some country of interest c^*, say the US, with $(\Pi_{c^*,T} - \Pi_{c^*,1}) > 0$. We can say that a given variable x_{ct} explains the increase in affective polarization in c^* if

$$\Delta_{c^*,T} = \frac{\beta \left(x_{c^*,T} - x_{c^*,1}\right)}{\left(\Pi_{c^*,T} - \Pi_{c^*,1}\right)} \tag{2}$$

is close to unity. As this requires that $\beta \neq 0$, suppose that $\beta > 0$. Then the variable x_{ct} must be increasing over time in country c^*, $(x_{c^*,T} - x_{c^*,1}) > 0$. Moreover, from equation (1):

(i) Affective polarization is expected to increase in a country c if $(x_{c,T} - x_{c,1}) > 0$. In particular, if $(x_{c,T} - x_{c,1}) > 0$ for all countries c, then affective polarization is expected to increase everywhere.

(ii) Affective polarization is expected to increase faster in country c' than in country c if $(x_{c',T} - x_{c',1}) > (x_{c,T} - x_{c,1})$.

The implications are reversed if instead $\beta < 0$.

The model defined by equation (1) is restrictive. It implies that the conditional expectation of affective polarization is linear in the explanatory variable with a coefficient that does not vary across countries. A causal interpretation of the coefficient β further requires econometric exogeneity of the explanatory variable x_{ct}. It is unlikely that these conditions hold in our setting, and if they fail, then a given explanatory variable x_{ct} can have an important role in explaining the rise in affective polarization in the US even if it fails to satisfy implications (i) and (ii). However, in our view, asserting an important role for an explanatory variable that fails to satisfy implications (i) and (ii) should ideally involve asserting a specific plausible violation of the model defined by equation (1) that reconciles the explanation with the facts.

4.2   Evaluation of Potential Explanations

Figure 3 plots average trends in each explanatory variable separately for the groups of countries with rising or falling affective polarization. Appendix Figure 7 plots the individual series for each of the explanatory variables that we consider.

Internet and broadband penetration increased in all countries over the sample period, yet affective polarization did not. This is inconsistent with implication (i). Moreover, internet penetration appears to have risen faster in countries with falling polarization. This is inconsistent with implication (ii). The fact that in many countries polarization rose faster in the post-2000 period than the

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pre-2000 period is consistent with a role for digital media, but digital media cannot account for the rapid growth in affective polarization in the US and Canada during the 1990s. (See also Boxell et al. 2017.)

Income inequality, as measured by the Gini coefficient, increased in all sample countries except Switzerland, for which we have limited data. This is inconsistent with implication (i). Moreover, the data do not exhibit evidence of implication (ii).

Openness to trade, as measured by the trade share of GDP, likewise increased fairly broadly over the sample period, with no clear evidence of a faster increase in those countries with increasing affective polarization.

All countries in our sample experienced an increase in the foreign-born share of the population over the period for which we have data, and differences in the rate of growth do not appear to align with differences in the trends in affective polarization.

In our view, the data do not support the hypothesis that these factors played an important role in the rise in affective polarization in the US in the sense of equations (1) and (2).

Other explanations are more consistent with our data. The period we study saw important changes in the composition of the political parties in the US. Among both political elites and voters, party identification became increasingly aligned with both political ideology and social identities such as race and religion (McCarty et al. 2008; Abramowitz and Saunders 2008; Levendusky 2009; Fiorina 2016, 2017; Mason and Wronski 2018; Valentino and Zhirkov 2017).[6] Many scholars have identified such "party sorting" among voters as a key potential cause of affective polarization, with sorting leading those from opposite parties to differ more on average in both ideology and identity (Fiorina and Abrams 2008; Mason 2016, 2018; Webster and Abramowitz 2017; Iyengar et al. 2019; Orr and Huber Forthcoming).[7] The underlying drivers of party sorting are not fully understood, and sorting could be a consequence as well as a cause of affective polarization (Lelkes 2018). However, many drivers emphasized in the literature, such as the realignment of the parties in the South following the civil rights era, are distinctive to the US and originate at least in part in the strategic choices of political elites rather than the shifting views of voters themselves (Fiorina and Abrams 2008, p. 581; Levendusky 2009, 2010; Lupu 2015; Banda and Cluverius 2018).[8]

Consistent with the view that changing party composition is distinctive to the US, Rehm and

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[6]See also Bertrand and Kamenica (2018) and Desmet and Wacziarg (2019).

[7]Harteveld (2019) studies the relationship between affective polarization and measures of sorting in a panel of countries drawn from the CSES.

[8]Regarding the Southern realignment, see Black and Black (2002), Valentino and Sears (2005), and Kuziemko and Washington (2018).

Reilly (2010) find that, according to expert ratings of party positions, elites in the US have polarized faster than those in the eight other OECD countries we consider. Some of these countries (e.g., Canada) have experienced smaller increases in elite polarization, and some (e.g., Australia, Norway, Sweden, Germany, and the UK) have experienced declines in elite polarization. Consistent with the hypothesized mechanism, Canada has also experienced growing partisan differences in issue positions among voters (Kevins and Soroka 2018), whereas Britain and Germany have experienced overall declines in partisan differences in issue positions among voters (Adams et al. 2012a; Munzert and Bauer 2013). Fiorina's (2017, Chapter 8) review of this and related evidence likewise concludes that the US has experienced faster growth in elite polarization and party differences in issue positions among voters than countries in Western Europe.

Increased party sorting by race has also been highlighted as a potentially important driver of affective polarization (see, e.g., Valentino and Zhirkov 2017; Abramowitz 2018; Mason and Wronski 2018; Westwood and Peterson 2019). Such sorting may in turn be driven by the growth in the non-white share of the population. With the caveat that it is difficult to define and compare racial composition across countries and time periods (see Appendix A.7), it is noteworthy that the increase in the non-white share has been twice as large in countries with rising affective polarization as in those with falling affective polarization (see Figure 3).

The rise of 24-hour partisan cable news provides another potential explanation. Partisan cable networks emerged during the period we study and arguably played a much larger role in the US than elsewhere, though this may be in part a consequence rather than a cause of growing affective polarization.[9] Older demographic groups also consume more partisan cable news and have polarized more quickly than younger demographic groups in the US (Boxell et al. 2017; Martin and Yurukoglu 2017). Interestingly, the five countries with a negative linear slope for affective polarization all devote more public funds per capita to public service broadcast media than three of the countries with a positive slope (Benson and Powers 2011, Table 1; see also Benson et al. 2017). A role for partisan cable news is also consistent with visual evidence (see Figure 1) of an acceleration of the growth in affective polarization in the US following the mid-1990s, which saw the launch of Fox News and MSNBC.

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[9]The share of households with cable or pay TV has been increasing in the US since the 1970s and is greater in the US than in some European countries (see, e.g., Duca and Saving 2017, 2018).

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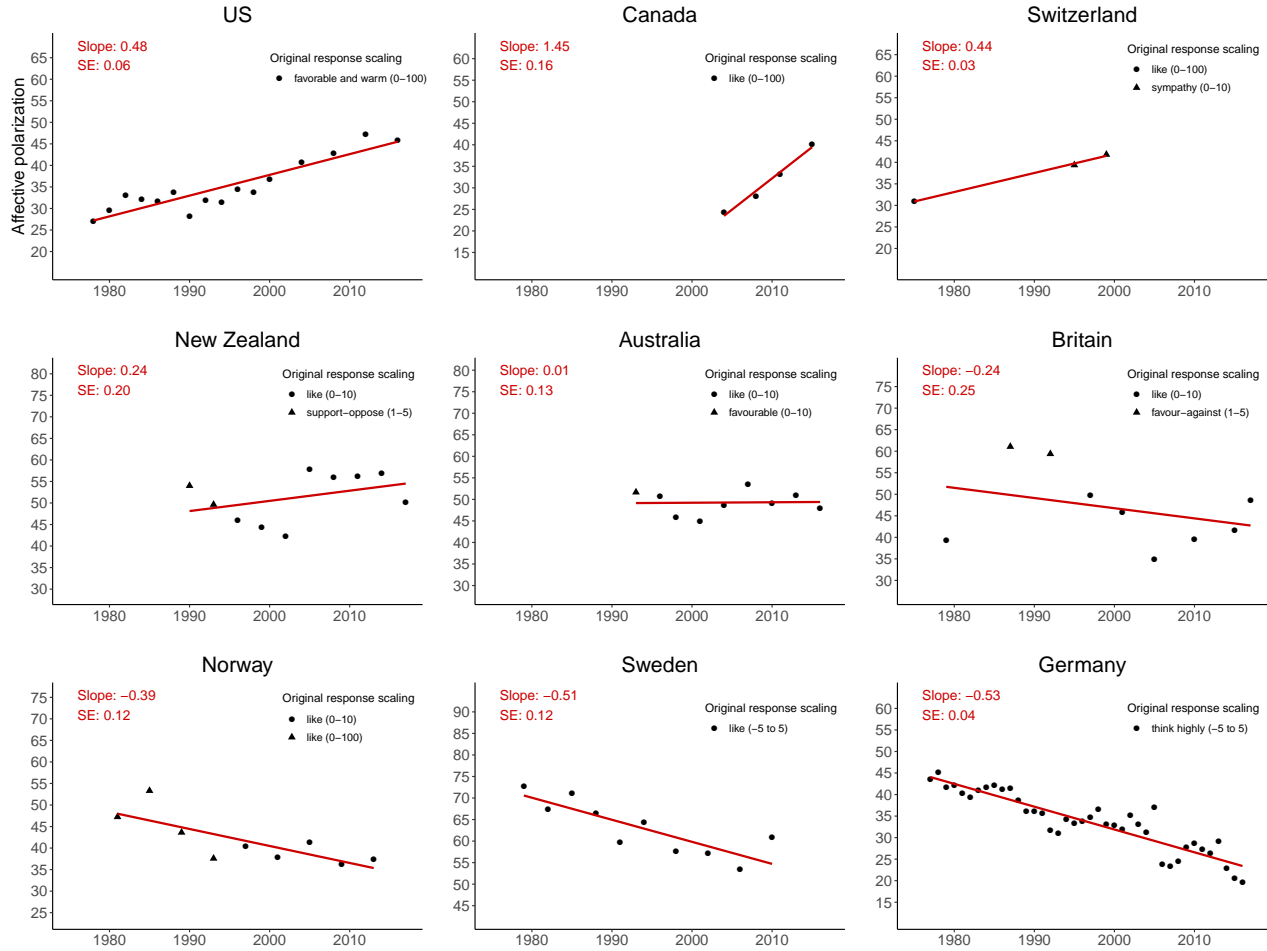
Figure 1: Trends in Affective Polarization by Country
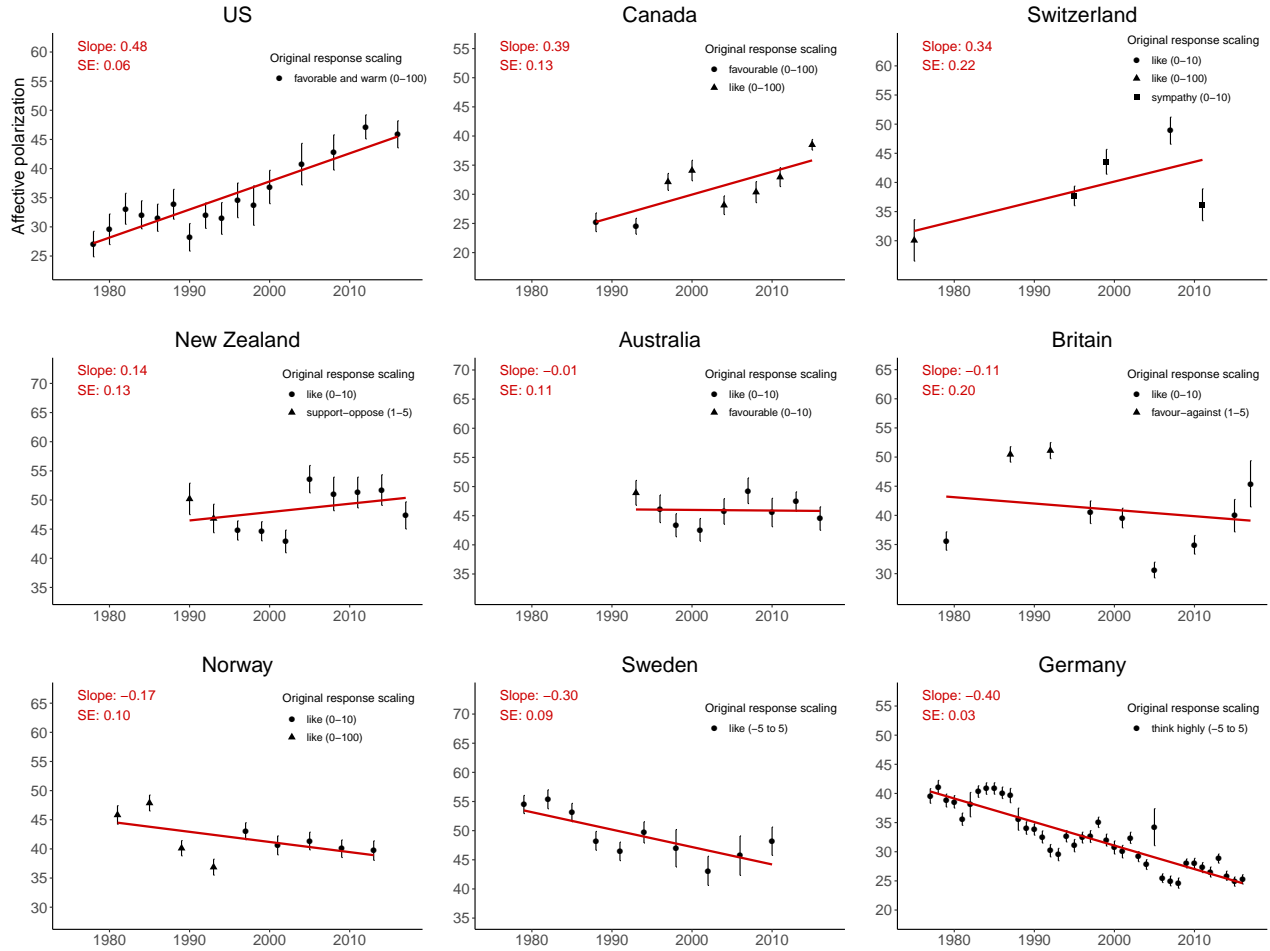
Note: The plot shows our estimates of affective polarization Π as defined in Section 2. In each plot, one point represents one survey. The red line displays a fitted bivariate linear regression line with affective polarization as the dependent variable and survey year as the independent variable. Each plot reports the estimated slope (change per year) and the standard error of this estimate. The error bars display a 95% uniform confidence band for affective polarization in the given country, constructed following the plug-in sup-t method described in Olea and Plagborg-Møller (2019), under the assumption that estimates are independent across surveys. These calculations use 1000 simulation draws and estimate the standard error of affective polarization in a given survey as

$$\sqrt{\sum_{i \in \mathcal{N}} \left(\frac{w_i}{W\left(\mathcal{P}\right)} \right)^2 \left(\pi_i - \Pi \right)^2}.$$

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Figure 2: Trends in Affective Polarization by Country – Top Two Parties

Note: The plot shows our estimates of affective polarization Π as defined in Section 2. In each survey, we restrict the universe of parties $\mathcal{P}$ to the two parties p with the largest weighted number of respondents $W(p)$ identifying with that party. We plot only those surveys in which the set of top two parties coincides with the modal set across all survey years for the given country. In each plot, one point represents one survey. The red line displays a fitted bivariate linear regression line with affective polarization as the dependent variable and survey year as the independent variable. Each plot reports the estimated slope (change per year) and the standard error of this estimate.

Figure 3: Trends in Potential Explanatory Variables
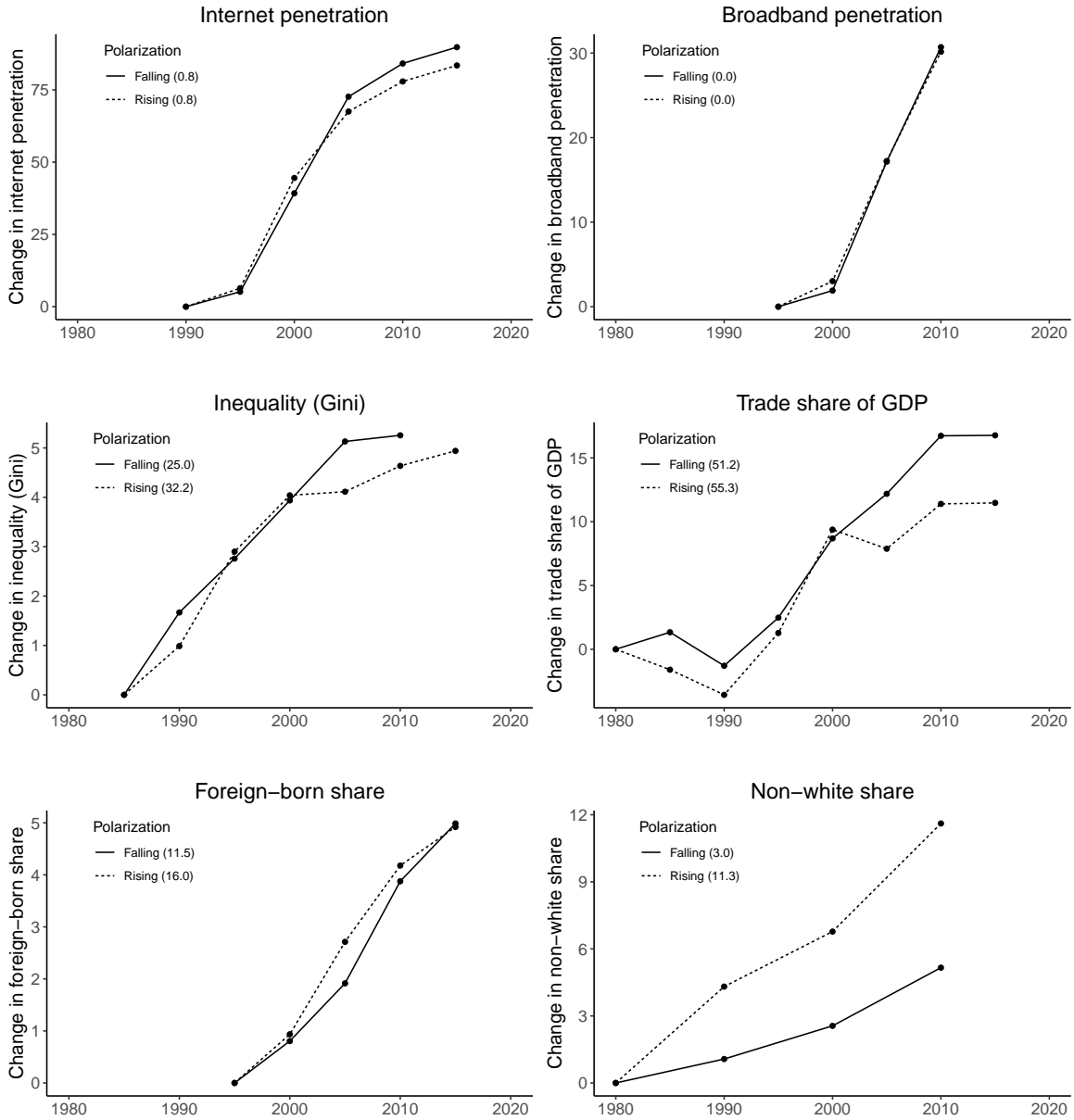
Note: Each plot shows the change in the average value of the given explanatory variable x_{ct} in the group of countries c in which affective polarization increases ("rising") and the group of countries in which affective polarization decreases ("falling") as defined by Figure 1. For each country, the data are first averaged by half-decade bins. The averages of these half-decade bins are then taken across countries in each group. Decade bins are used for 'Non-white share.' Only bins with observations from all countries in a group are reported, except for the inequality plot where Switzerland is excluded throughout due to data limitations. The set of years used for each country varies according to the available data. See Appendix Figure 7 for plots of the available data for each country and driver. The average level of the explanatory variable in the base period is reported in parentheses with the legend for each of the two groups. Internet penetration is the share of households with internet access, and broadband penetration is the number of broadband connections per 100 inhabitants. See Appendix A.7 for additional details on data sources and construction.
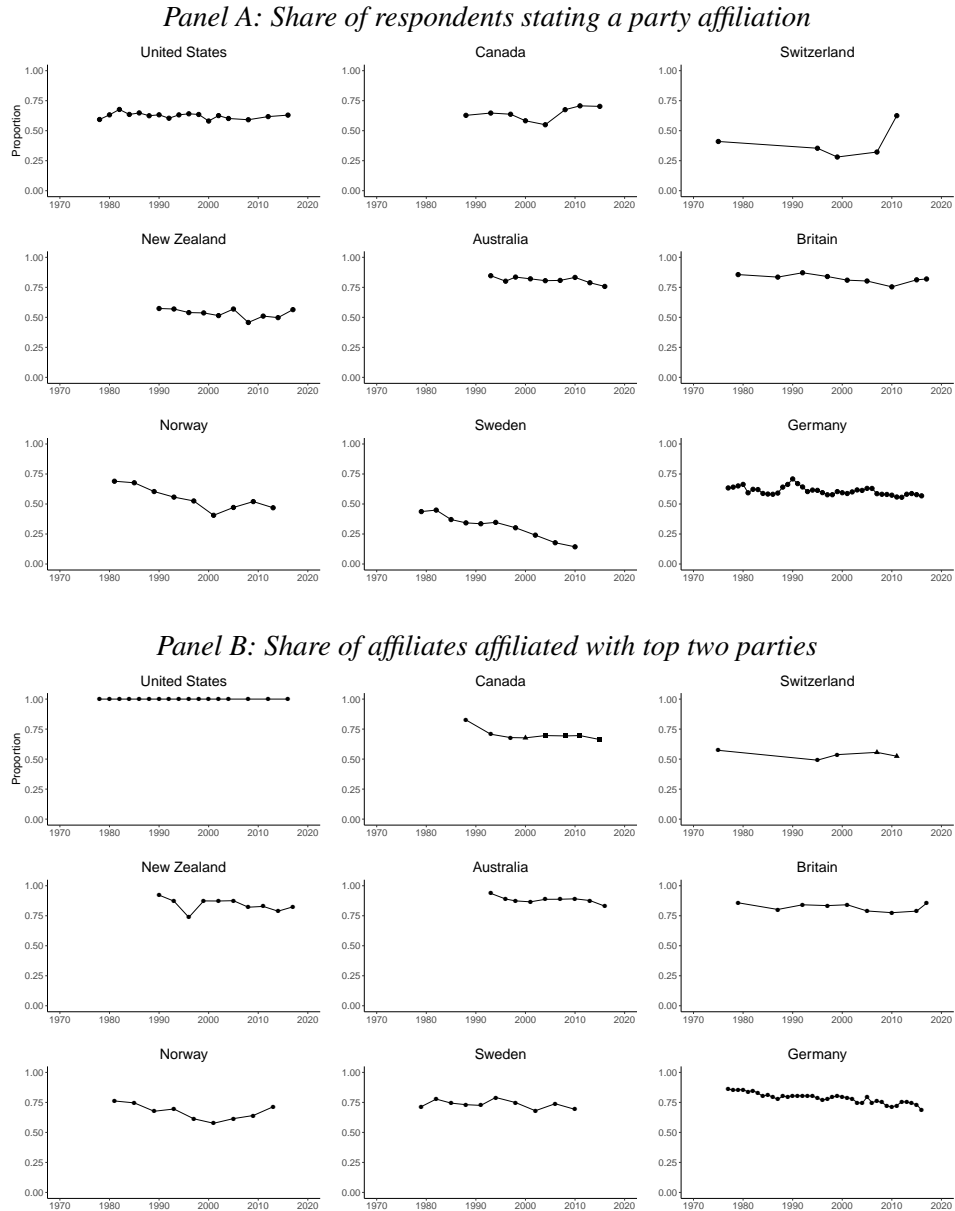
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Table 1: Trends in Affective Polarization

	United States	Canada	Switzerland	New Zealand	Australia	Britain	Norway	Sweden	Germany
				Panel A: Baseline					
Baseline	0.48 (0.06) [16]	0.39 (0.13) [8]	0.34 (0.22) [5]	0.14 (0.13) [10]	-0.01 (0.11) [9]	-0.11 (0.20) [9]	-0.17 (0.10) [9]	-0.30 (0.09) [10]	-0.40 (0.03) [40]
Test of equality w/ US	1.00	0.53	0.53	0.02	0.00	0.00	0.00	0.00	0.00
Test of equality w/ zero	0.00	0.00	0.13	0.27	0.92	0.59	0.07	0.00	0.00
				Panel B: Sensitivity analysis					
Top two parties	0.48 (0.06) [16]	1.45 (0.16) [4]	0.44 (0.03) [3]	0.24 (0.20) [10]	0.01 (0.13) [9]	-0.24 (0.25) [9]	-0.39 (0.12) [9]	-0.51 (0.12) [10]	-0.53 (0.04) [40]
Including leaners	0.41 (0.06) [16]	0.28 (0.20) [6]	0.29 (0.15) [4]	0.13 (0.10) [9]	--- (---) [---]	-0.10 (0.20) [9]	--- (---) [---]	-0.37 (0.07) [10]	--- (---) [---]
Favorite party	0.38 (0.05) [16]	0.33 (0.09) [8]	0.43 (0.09) [5]	0.16 (0.08) [10]	-0.13 (0.09) [9]	-0.04 (0.17) [9]	-0.15 (0.07) [9]	-0.28 (0.08) [10]	-0.19 (0.02) [40]
Coarsening	0.45 (0.06) [16]	0.43 (0.14) [8]	0.38 (0.25) [5]	0.19 (0.13) [10]	-0.01 (0.12) [9]	-0.11 (0.20) [9]	-0.21 (0.10) [9]	-0.29 (0.08) [10]	-0.42 (0.04) [40]
				Panel C: Time periods					
Pre-2000	0.26 (0.09) [12]	0.83 (0.30) [4]	0.50 (0.15) [3]	-0.62 (0.17) [4]	-1.10 (0.14) [3]	0.37 (0.65) [4]	-0.41 (0.32) [5]	-0.46 (0.13) [7]	-0.44 (0.07) [24]
Post-2000	0.49 (0.19) [4]	0.94 (0.15) [4]	-3.18 (---) [2]	0.16 (0.34) [6]	0.11 (0.20) [6]	0.47 (0.40) [5]	-0.10 (0.07) [4]	0.64 (0.01) [3]	-0.34 (0.13) [16]
Test of equality	0.26	0.75	---	0.04	0.00	0.89	0.34	0.00	0.45

Note: The table reports the estimated slope of a fitted bivariate linear regression line with affective polarization Π (as defined in Section 2) as the dependent variable and survey year as the independent variable. Below the estimated slope, the table reports the standard error of the slope in parentheses and the number of survey years in brackets. 'Baseline' reports estimates from our main specification as in Figure 1. 'Top two parties' reports estimates after restricting the universe of parties $\mathcal{P}$ to the two parties p with the largest weighted number of respondents $W(p)$ identifying with that party and restricting to surveys in which the set of top two parties coincides with the modal set across all years for the given country as in Figure 2. 'Including leaners' reports estimates after including respondents who only choose a party identification in response to a second survey prompt and restricting to countries that have such a survey in at least two years as in Appendix Figure 3. 'Favorite party' reports estimates after assuming each respondent i is affiliated to the party p toward which the respondent expresses the most positive affect A_i^p, breaking ties at random, as in Appendix Figure 4. 'Coarsening' reports estimates after coarsening reported affect A_i^p to a five-point scale by rounding to the nearest multiple of 25 as in Appendix Figure 5. 'Pre-2000' and 'Post-2000' report estimates after restricting to observations to the period before 2000 (inclusive) and after 2000 (exclusive) respectively. The last two rows of Panel A report the p-values from the tests of whether the slope for a given country is equal to the slope in the US and zero, respectively. The last row of Panel C reports the p-value for the test of whether the slope in pre-2000 is the same as the slope in post-2000 for each country.

A   Appendix for Online Publication

A.1   Trends in Party Affiliation

Appendix Figure 1: Trends in Party Affiliation

Panel A: Share of respondents stating a party affiliation

Panel B: Share of affiliates affiliated with top two parties

Note: Panel A shows the weighted number of affiliates expressed as a share of the weighted number of respondents. Panel B shows the weighted number of respondents affiliated with the top two parties, expressed as a share of the weighted number of affiliates. In both panels, the weighted number of affiliates is the weighted number of respondents who state an affiliation to a party about which an affect question is asked in at least one survey for the given country. In Panel B, distinct shapes are used to indicate sets of survey years for which the top two parties are the same.

A.2 Sensitivity Analysis

Appendix Figure 2: Trends in Own-Party and Other-Party Affect by Country
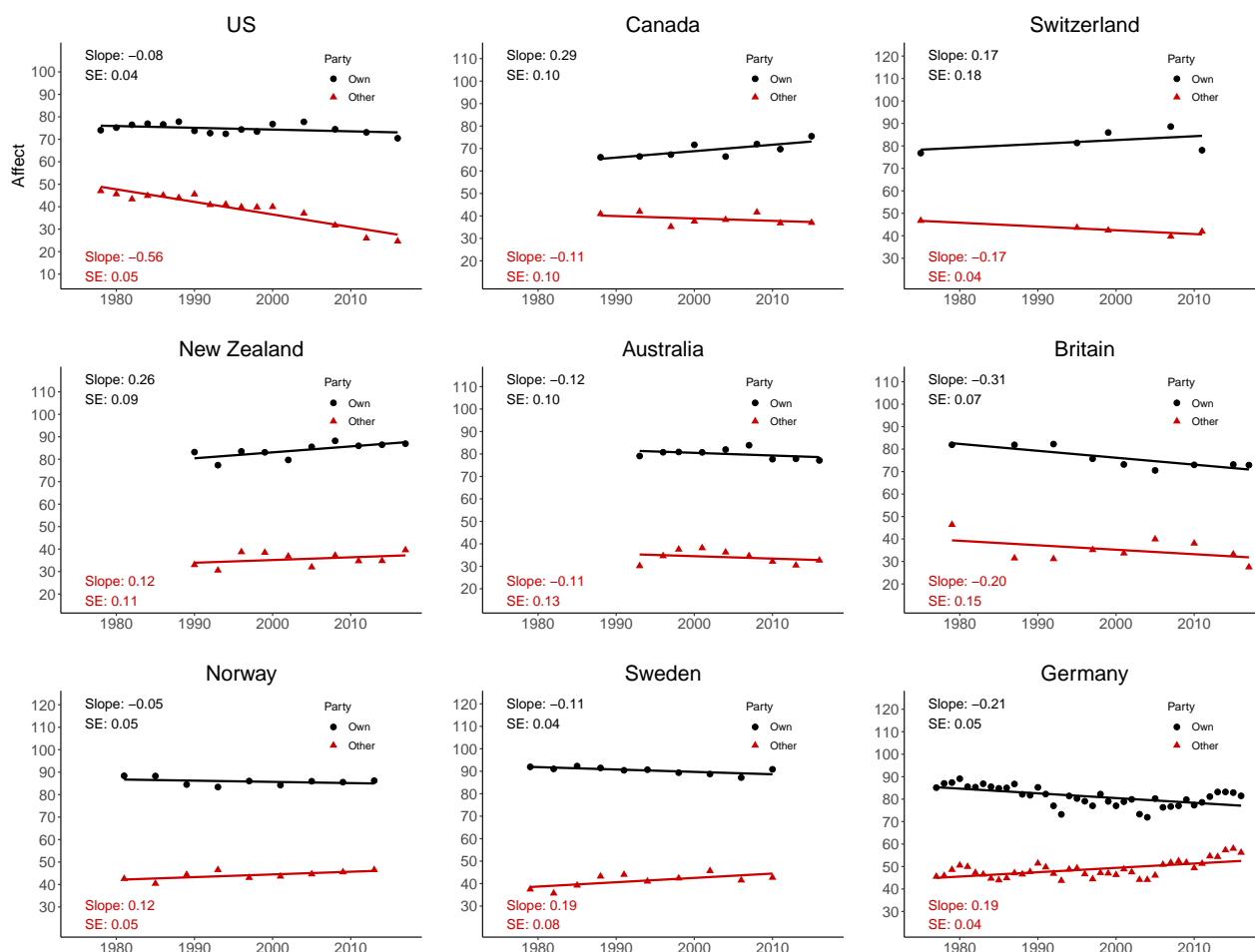
Note: The plot decomposes affective polarization Π into own-party affect (black circles) and other-party affect (red triangles). Following the notation in Section 2, own-party affect is defined as the weighted average of $A_i^{p(i)}$, whereas other-party affect is defined as the weighted average of

$$\sum_{p' \in \mathcal{P}_i \backslash p(i)} \frac{W\left(p'\right)}{W\left(\mathcal{P}_i\right) - W\left(p\left(i\right)\right)} A_i^{p'}.$$

Thus, affective polarization Π is equal to the difference between own-party affect and other-party affect. In each plot, one point represents one survey. The solid lines display fitted bivariate linear regression lines with affect as the dependent variable and survey year as the independent variable. Each plot reports the estimated slope (change per year) and the corresponding standard error.

Appendix Figure 3: Trends in Affective Polarization by Country – Including Leaners
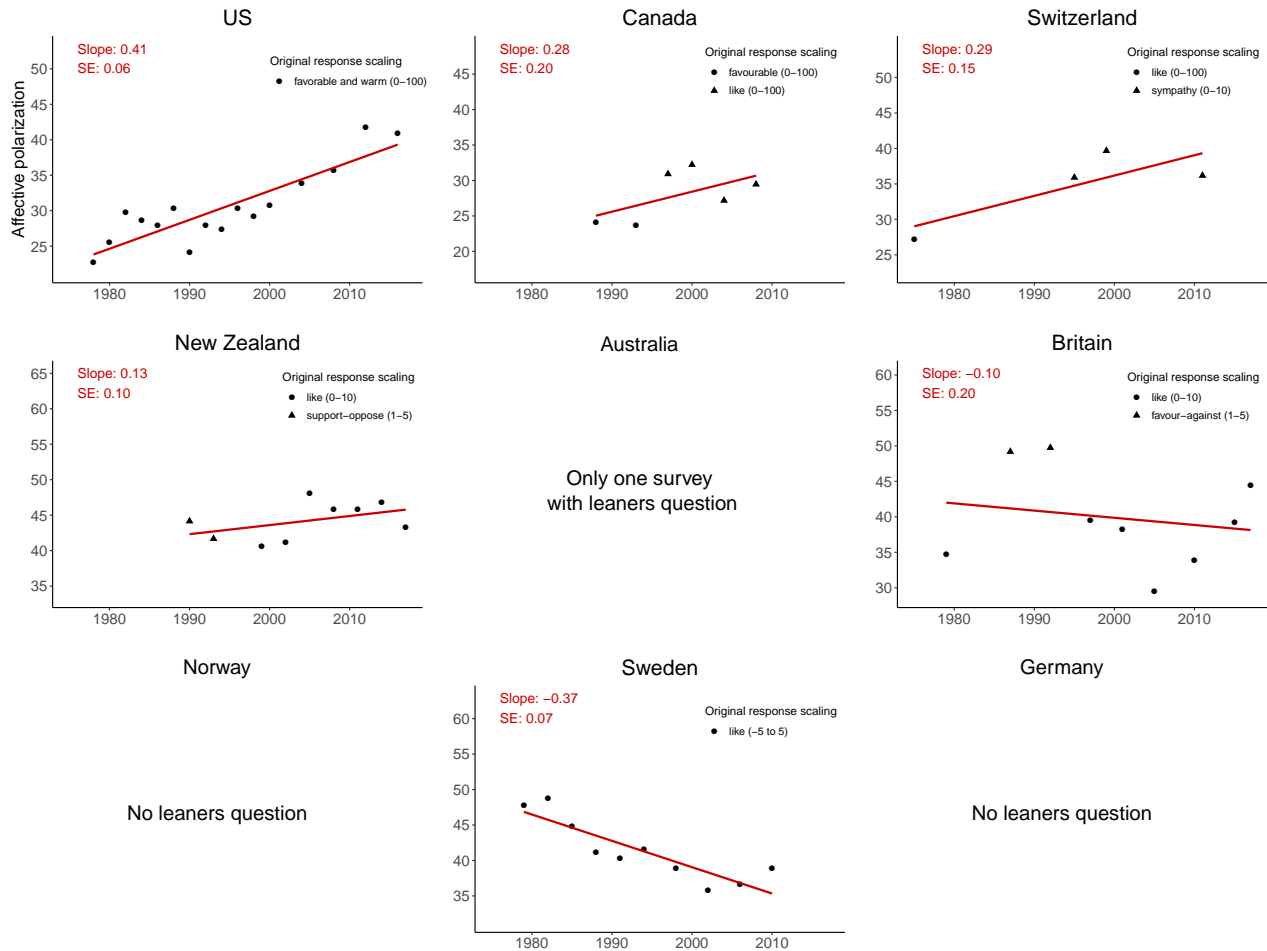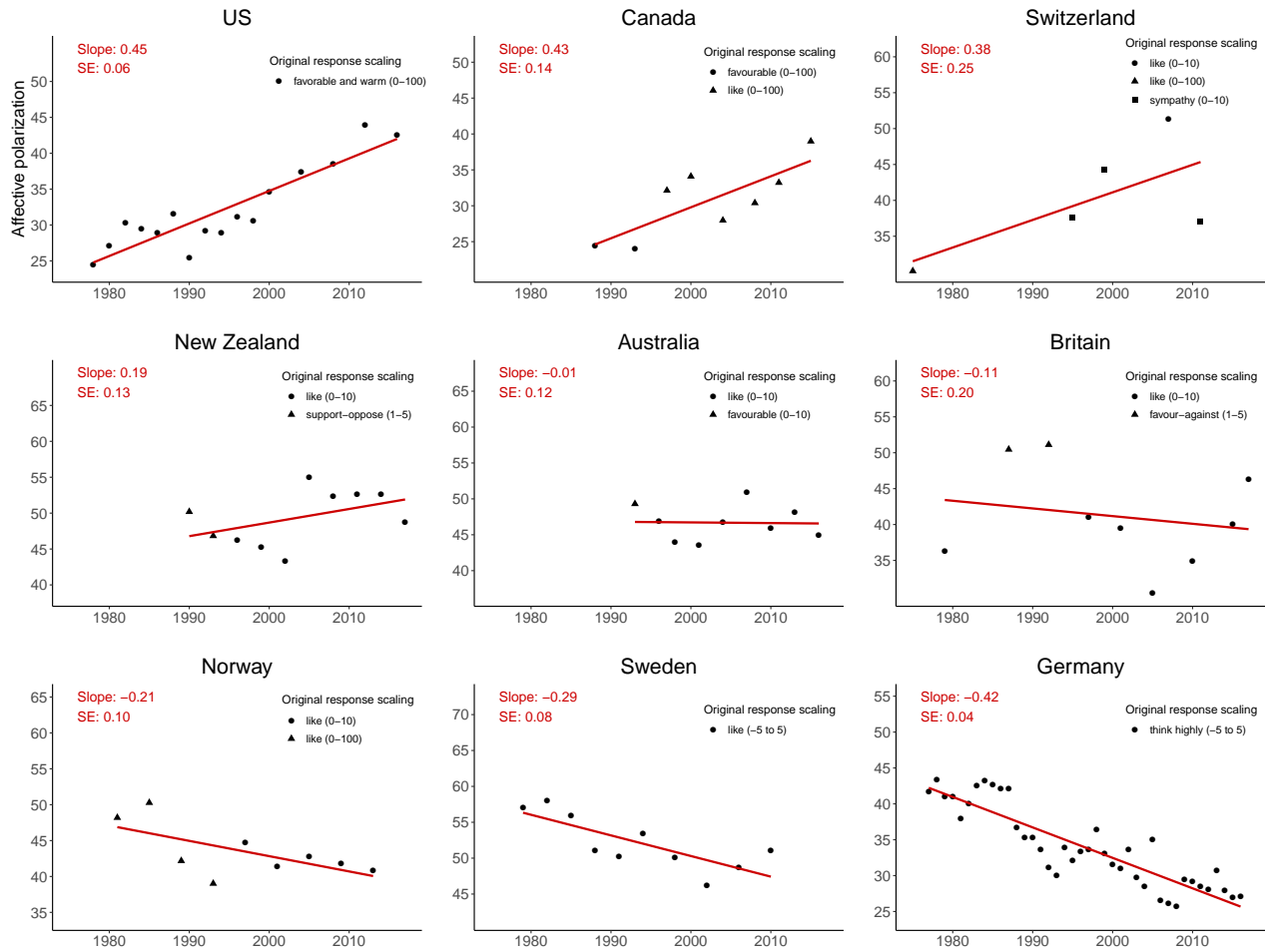

Note: The plot shows estimates of affective polarization Π as defined in Section 2. In contrast to our baseline estimates, we include leaners in the sample. Leaners are respondents who only choose a party identification in response to a second survey prompt. We include only surveys that have a second prompt, and only countries that have such a survey in at least two years. In each plot, one point represents one survey. The red line displays a fitted bivariate linear regression line with affective polarization as the dependent variable and survey year as the independent variable. Each plot reports the estimated slope (change per year) and the standard error of this estimate.

Appendix Figure 4: Trends in Affective Polarization by Country – Favorite Party
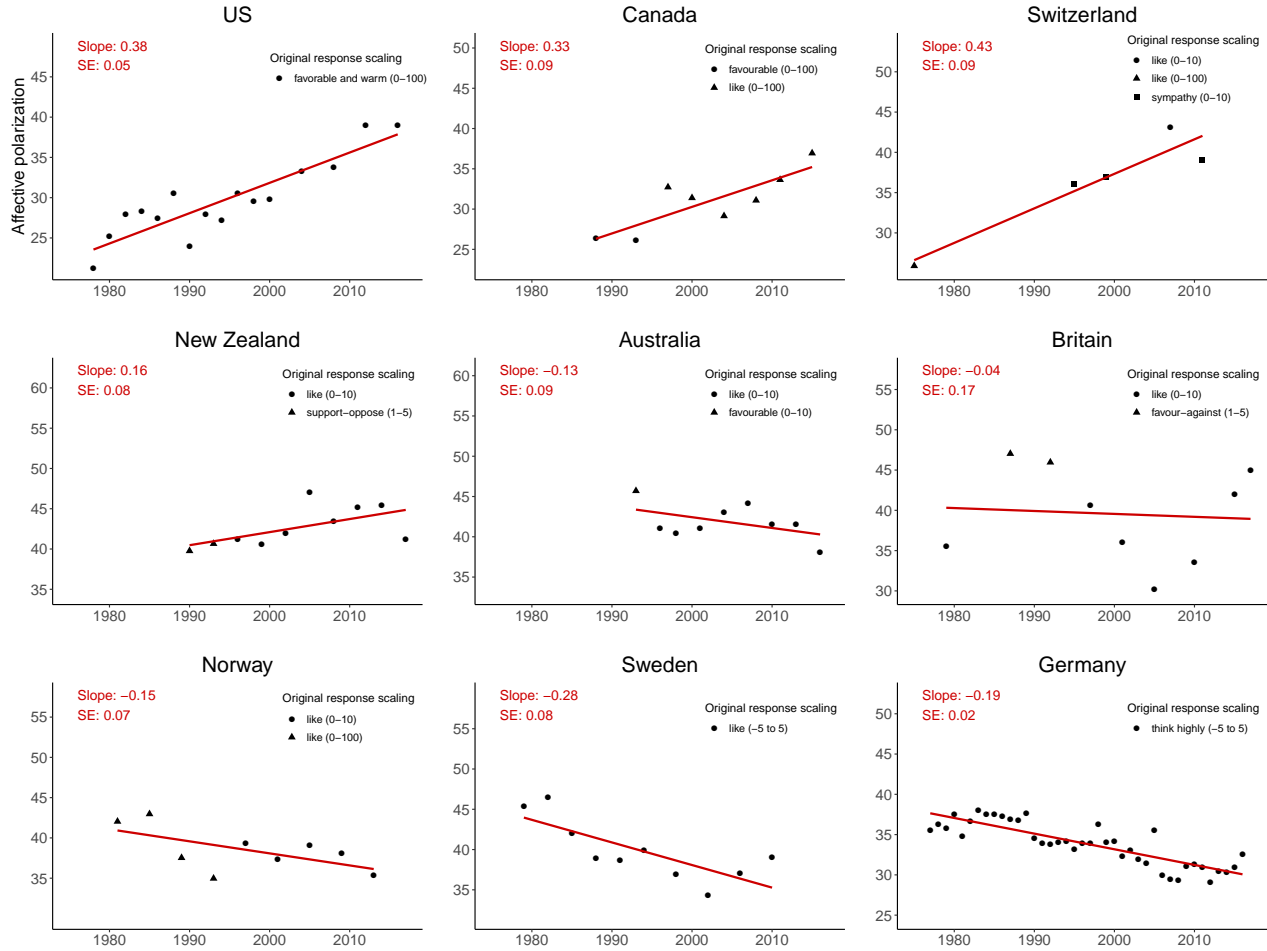
Note: The plot shows estimates of affective polarization Π as defined in Section 2. In contrast to our baseline estimates, we assume that each respondent i is affiliated to the party p toward which the respondent expresses the most positive affect A_i^p, breaking ties at random. In each plot, one point represents one survey. The red line displays a fitted bivariate linear regression line with affective polarization as the dependent variable and survey year as the independent variable. Each plot reports the estimated slope (change per year) and the standard error of this estimate.

Appendix Figure 5: Trends in Affective Polarization by Country – Coarsening Reported Affect

Note: The plot shows estimates of affective polarization Π as defined in Section 2. In contrast to our baseline estimates, we coarsen reported affect A_i^p to a five-point scale by rounding to the nearest multiple of 25. In each plot, one point represents one survey. The red line displays a fitted bivariate linear regression line with affective polarization as the dependent variable and survey year as the independent variable. Each plot reports the estimated slope (change per year) and the standard error of this estimate.

Appendix Figure 6: Trends in Affective Polarization in the US—Comparison of Alternative Response Coding and Question Wording
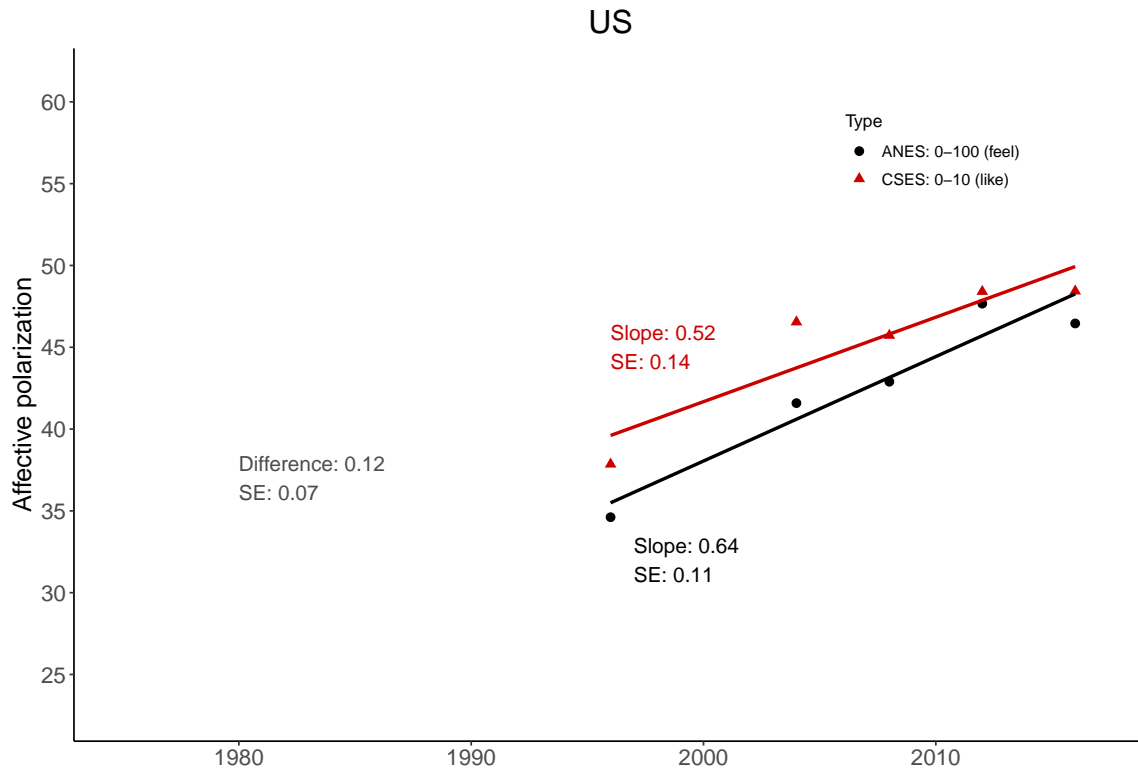
Note: The plot shows estimates of affective polarization Π as defined in Section 2 across two different series constructed from the ANES survey conducted in the US. The black line with circle markers uses the main ANES feeling thermometer asked in the pre-election wave of the study and which we use in our main estimates in Figure 1. The red line with triangle markers uses the post-election CSES module in the ANES survey that uses a 0-10 scale and alternative question wording. For example, in 2004, the CSES module asked, "I'd like to know what you think about each of our political parties. After I read the name of a political party, please rate it on a scale from 0 to 10, where 0 means you strongly dislike that party and 10 means that you strongly like that party. If I come to a party you haven't heard of or you feel you do not know enough about, just say so." Party affiliation is defined using the main ANES pre-election party identification variable. We use survey weights and restrict the sample to respondents with non-missing affect for both series. We use the 1996, 2004, 2008, 2012, and 2016 Time Series versions of the ANES data for this figure. Each line displays a bivariate linear regression line, fit to the respective series, with affective polarization as the dependent variable and survey year as the independent variable. The plot also reports the estimated slope (change per year) and the standard error of this estimate for each series. The difference between the two slopes is reported in grey to the left of the two series, with standard error calculated via a nonparametric bootstrap with 500 replicates, stratified by survey year.

A.3 Plots of Potential Explanatory Factors

Appendix Figure 7: Potential Explanatory Factors – Plots
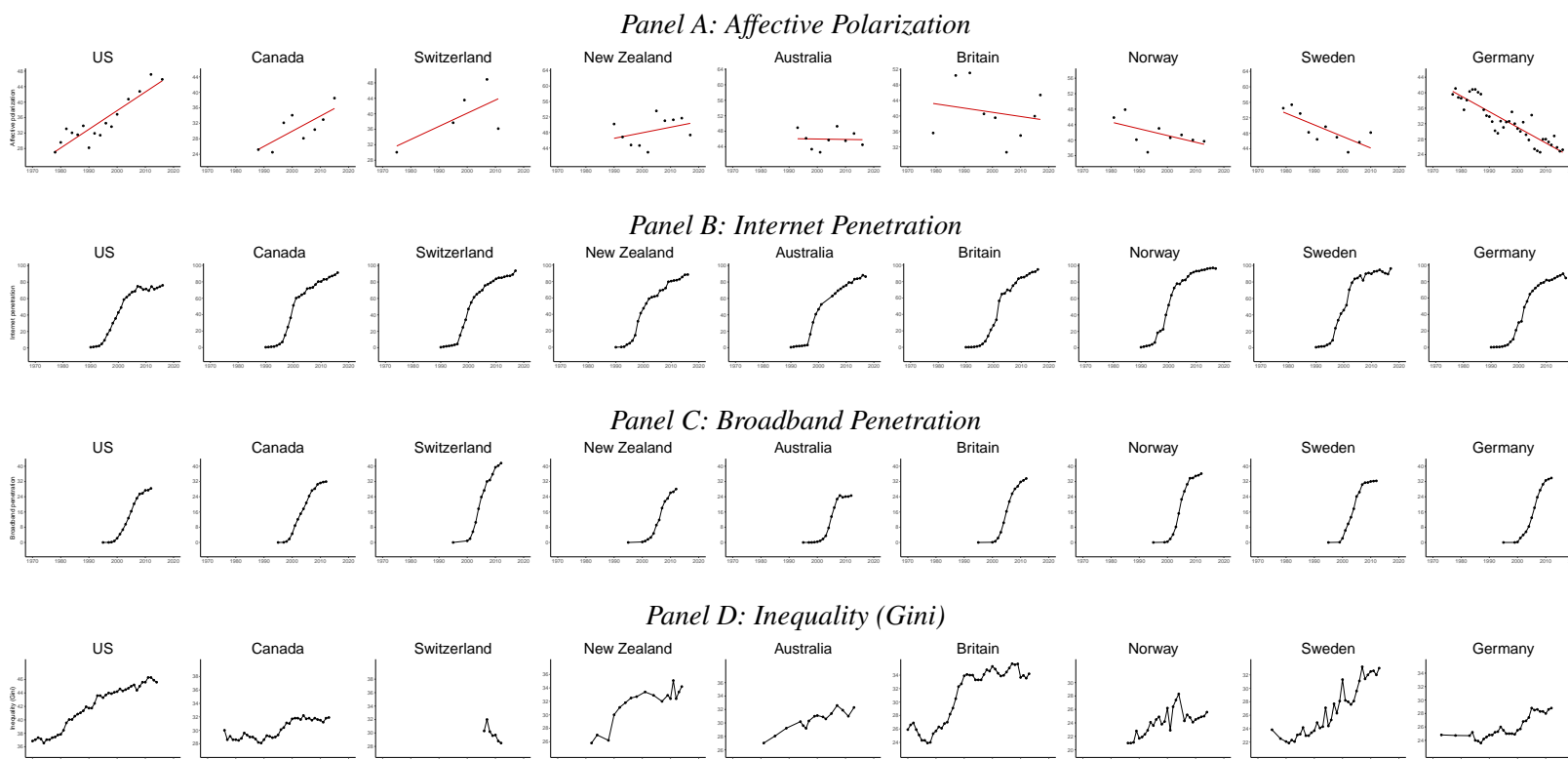
Panel A: Affective Polarization

Panel B: Internet Penetration

Panel C: Broadband Penetration

Panel D: Inequality (Gini)

Note: Countries are sorted from left to right in descending order of the estimated linear time trend of affective polarization. Panel A plots the measure of affective polarization along with the estimated linear time trend for each country; Panel B plots the share of households with internet access in each country; Panel C plots the number of broadband connections per 100 inhabitants in each country; and Panel D plots the Gini coefficient for each country. See Appendix A.7 for additional details on data sources and construction.

Appendix Figure 7: Potential Explanatory Factors – Plots, cont.
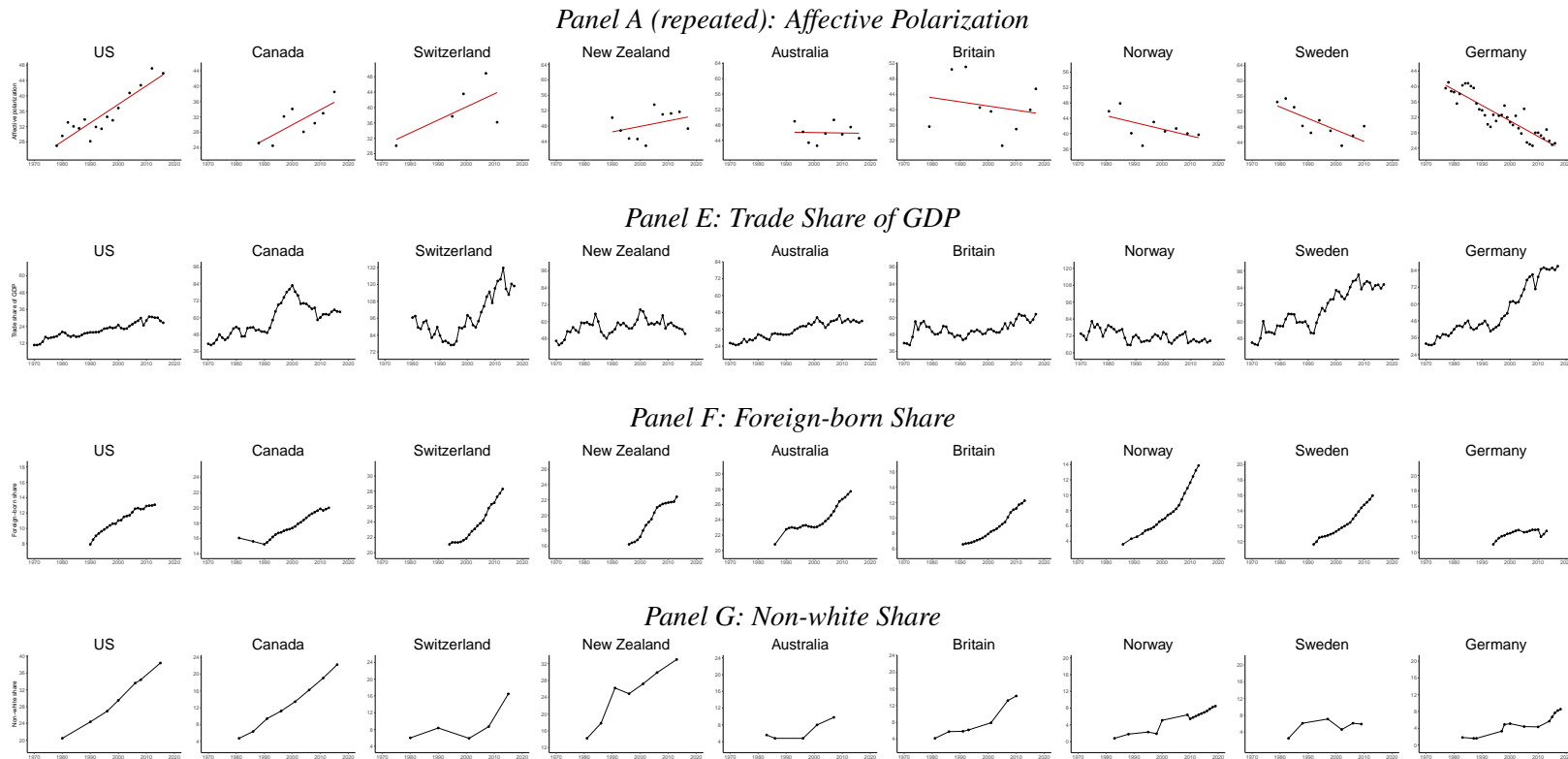
Panel A (repeated): Affective Polarization

Panel E: Trade Share of GDP

Panel F: Foreign-born Share

Panel G: Non-white Share

Note: Countries are sorted from left to right in descending order of the estimated linear time trend of affective polarization. Panel A plots the measure of affective polarization along with the estimated linear time trend for each country; Panel E plots the trade share of GDP in each country; Panel F plots the share of foreign born individuals in each country; and Panel G plots the proportion of the population that is non-white in each country. See Appendix A.7 for additional details on data sources and construction.

A.4 List of Available Surveys for 1973 OECD Members

Appendix Figure 8: Surveys with Party Affect Questions
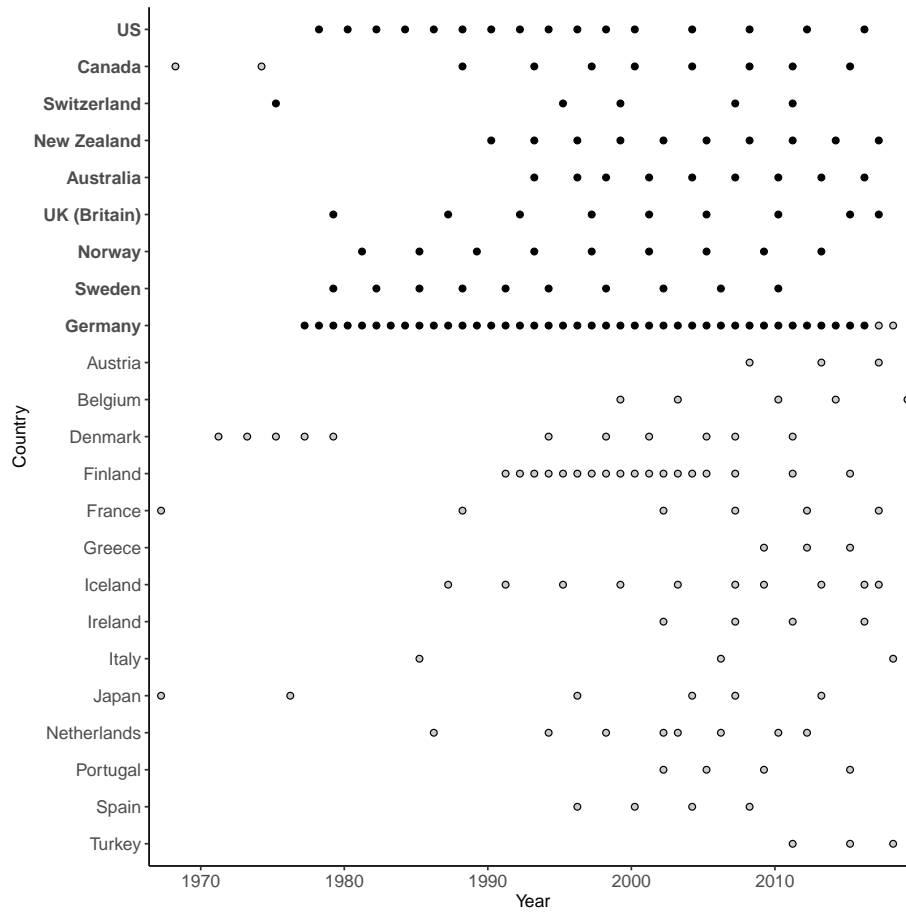
Note: For each member of the OECD as of 1973, the plot indicates election studies with party affect questions that we are aware of. The bolded names indicate the countries in our sample and the black dots indicate survey years in our sample. The non-bolded names indicate countries not in our sample and the gray dots indicate survey years not in our sample. In the case of Belgium, at the time of writing we have not been able to access the questionnaires for the purpose of verifying the presence of party affect questions for the 2010, 2014, and 2019 surveys.

Appendix Table 1: Sources for Surveys with Party Affect Questions

Country	In Sample	Sources
Australia	X	https://australianelectionstudy.org/
Austria		CSES
Belgium		https://soc.kuleuven.be/ceso/ispo/projects/; https://easy.dans.knaw.nl/ui/home
Canada	X	https://www.queensu.ca/cora/our-data/data-holdings; ICPSR 7009; ICPSR 7379
Denmark		http://cssr.surveybank.aau.dk/webview/
Finland		https://services.fsd.uta.fi/catalogue/index
France		ICPSR 7372; ICPSR 6583; CSES
(West) Germany	X	https://www.gesis.org/en/elections-home/politbarometer/recent-time-series/
Greece		CSES
Iceland		fel.hi.is
Ireland		CSES
Italy		http://www.itanes.org/dati/
Japan		ICPSR 7294; ICPSR 4682; CSES
Luxembourg		
Netherlands		ICPSR 28221; https://www.nkodata.nl/study_units/view/11; CSES
New Zealand	X	http://www.nzes.org/
Norway	X	https://nsd.no/nsddata/serier/norske_valgundersokelser_eng.html
Portugal		CSES
Spain		CSES
Sweden	X	https://valforskning.pol.gu.se/english
Switzerland	X	https://forscenter.ch/projects/selects/
Turkey		CSES
UK (Britain)	X	https://www.britishelectionstudy.com/
US	X	https://electionstudies.org/

Note: For each member of the OECD as of 1973, the table lists sources for accessing the election studies studies described in Appendix Figure 8. In the case of Belgium, at the time of writing we have not been able to access the questionnaires for the purpose of verifying the presence of party affect questions for the 2010, 2014, and 2019 surveys.

A.5 Survey Variables

We use three main survey variables in this study: partisan affect questions, party affiliation questions, and survey weights.

For partisan affect questions, we report the question wordings below, with the assigned question wording category in parentheses after the year. Survey years with similar wording are grouped together and a single example is given. In some surveys, regional parties are included only for those respondents in the relevant region.

For party affiliation questions, we do not detail the question wordings below. We use questions that ask, for example, "Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent, or what?" The exact language varies across countries and across surveys for a given country. As with the partisan affect questions, in some surveys, regional parties are included only for those respondents in the relevant region. Throughout, we attempt to restrict the sample to respondents for which party affiliate questions were asked.

For survey weights, we report below a description of our choice of weight for each country. In choosing the survey weights, we tried to obtain the largest nationally representative sample, sometimes compromising in order to maintain consistency across years.

A.5.1 Australia

We exclude online survey respondents from 2001. Surveys were conducted in English. Partisan affect questions are as follows.

- **1993** (favourable): Finally in this section, we would like to know your feelings about the political parties. Please show how you feel about them by circling a number from 0 to 10. 10 is the highest rating, if you feel very favourable about a party, and 0 is the lowest rating, for parties you feel very unfavourable about. If you are neutral about a particular party or don't know much about them, you should give them a rating of 5.

- **1996/1998/2001/2004/2007/2010/2013/2016** (like): Finally in this section, we would like to know what you think about each of our political parties. Please rate each party on a scale from 0 to 10, where 0 means you strongly dislike that party and 10 means that you strongly like that party. If you are neutral about a particular party or don't know much about them, you should give them a rating of 5.

For the 1993, 2010, and 2013 surveys, there is a single choice of weight variable. For the 2016 survey, there are multiple weight options, and we choose the weight variable that accounts for data from all sampling approaches. All other surveys are self-weighting.

A.5.2 Britain

Surveys were conducted in English. Partisan affect questions are as follows.

- **1979** (like): Let's say that you gave each of the parties a mark out of ten points—a mark according to how much or how little you like it. You can give each party any mark from 0 out of 10 for the least like, to 10 out of 10 for the most liked. What mark out of 10 would you give the [Insert Party Name]?

- **1987/1992** (favour-against): Please choose a phrase from this card to say how you feel about the ____ Party? (Strongly in favor, In favor, Neither in favour/nor against, Against, Strongly against, DK/Can't say)

- **1997/2001/2005/2010/2015** (like): I'm now going to ask a few questions about political parties. On a scale that runs from 0 to 10, where 0 means strongly dislike and 10 means strongly like, how do you feel about the ____ Party?

The 1979 survey is self-weighting. For 1987 and 1992, there is a single weight variable that weights respondents by region. There are multiple weight variables for all other surveys, and we attempt to select a weight variable for each survey that is similar to the weight variables used in earlier surveys.

A.5.3 Canada

Surveys were conducted in English and French. We cite the English questions here. Partisan affect questions are as follows.

- **1988/1993** (favourable): Now let's talk about your feelings towards the political parties, their leaders and their candidates. I'll read a name and ask you to rate a person or a party on a thermometer that runs from 0 to 100 degrees. Ratings between 50 and 100 degrees mean that you feel favourable toward that person. Ratings between 0 and 50 degrees mean that you feel unfavourable toward that person. You may use any number from 0 to 100 to tell me how you feel. How would you rate the ____ Party?

    - 1993 clarifies "federal ____ Party"

- **1997/2000/2004/2008/2011/2015** (like): Now the political parties. On the same scale, where zero means you really dislike the party and one hundred means you really like the party. How do you feel about the federal ____ party?

For all surveys, we choose the weight variable that provides a nationally representative weight for all respondents by weighting across provinces and household demographics.

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A.5.4 (West) Germany

We drop observations in some months of 1982, 1987 and 1988 where multiple versions of the questionnaire were used (see variable v79 in the data outlining these observations). Surveys were conducted in German. We translate the question ourselves. Partisan affect questions are as follows.

- **All years** (think highly): Imagine a thermometer that goes from +5 to -5 with a 0 point in between. With this thermometer, tell me what you think of the individual parties. +5 means that you think highly of the party. -5 means you don't think anything of it at all. With the values in between, you can give your opinion in stages.

There is a single choice of weight variable for all years.

A.5.5 New Zealand

Surveys were conducted in English and Maori. We cite the English questions here. Partisan affect questions are as follows.

- **1990/1993** (support-oppose): Regardless of what their chances were in winning your particular electorate, or even winning any seats at all, how do you feel about these political parties? (Strongly Support = 1, Support = 2, Neutral = 3, Oppose = 4, Strongly Oppose = 5)

- **1996/1999/2002/2005/2008/2011/2014/2017** (like): We would like to know what you think about each of these political parties. Please rate each party on a scale from 0 to 10, where 0 means you strongly dislike that party and 10 means that you strongly like that party. If you haven't heard about that party or don't know enough about it, please circle '99' under 'don't know'. How do you feel about: [Insert Party Name]

For all surveys, we use weights associated with validated voters only for consistency across surveys. Weights for non-validated voters are not reported in the surveys between 2008 and 2017.

A.5.6 Norway

Surveys were conducted in Norwegian. We cite the official English translation here. Partisan affect questions are as follows.

- **1981/1985/1989/1993** (like): We want to know how much or little you like the different parties. On this card is a scale that we call "sympathy thermometer." At 50-degrees-line position the parties that you neither like or dislike. A party that you like to have a location from 50 to 100 degrees. The better you like the party, the higher position. However, if it is a party you do not like, it should be placed between 0 and 50 degrees, with 0 as the expression of at least sympathy.

- **1997/2001/2005/2009/2013** (like): After I read the name of a political party, please rate it on a scale from 0 to 10, where 0 means you strongly dislike that party and 10 means that you strongly like that party.

All surveys except 2013 are self-weighting. For the 2013 survey, we use the weight variable that includes mail-in respondents.

A.5.7 Sweden

Surveys were conducted in Swedish. We cite the official English translation here. Partisan affect questions are as follows.

- **1979/1982/1985/1988/1991/1994/1998/2002/2006/2010** (like): On this card there is a kind of scale. I would like you to use it in order to state how much you like or dislike the parties. If you like a party, use the "plus" figures. The better you like a party the higher the "plus" figure. For parties you dislike, use the "minus" figures. The more you dislike a party, the higher the "minus" figure. The zero point on the scale indicates that you neither like nor dislike a party. Where would you like to place the ___? (Ranges from -5 to 5.)

All surveys are self-weighting.

A.5.8 Switzerland

Surveys were conducted in German, French and Italian. We translate the questions ourselves. Partisan affect questions are as follows.

- **1975** (like): Here is a scale we call a favorability thermometer. Please give a score between 0 and 100 indicating how much you like the following groups and organizations. 100 means that you like them very much, 0 means that you do not like them at all. If you don't particularly like or dislike them... give a score of 50. What score would you give to [Insert Party Name]?

- **1995/1999** (sympathy): Now I would like to know what you think of our political parties. When I read the name of a political party to you, please indicate where you place it on a scale from 0 to 10, with 0 meaning "no sympathy at all", and 10 meaning "a lot of sympathy".

- **2007** (like): We would now like to know what you think of some of the political parties. Please place the _____ on a scale from 0 to 10. 0 means that you do not like this party at all. 10 means you like this party very much.

- **2011** (sympathy): Could you indicate, on a scale of 0 to 10, how much sympathy you feel for the following parties.

The documentation states that "In 1975, the scale was originally from 0 to 100, but 0 was later recoded wrongly to . (no value) and then to -1, so we don't know which -1 are originally 0's and which are really missings." In the main analysis, we treat the 1975 coding as-is. In Appendix Figure 9 below, we instead replace all out-party missing or -1 codings with 0 for the affect score and leave in-party affect scores as-is for the four parties for which affect questions were asked.

Appendix Figure 9: Alternative Coding Scheme for 1975 Switzerland
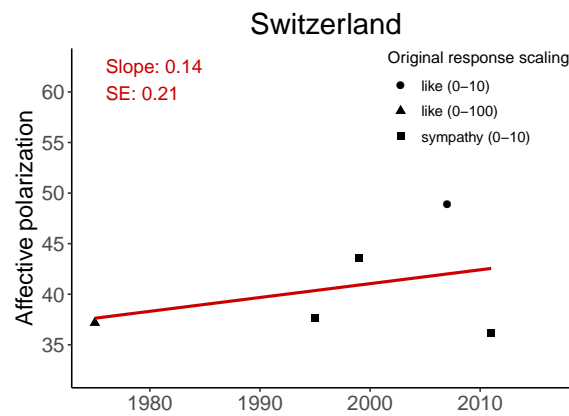
Note: The plot shows our estimates of affective polarization Π as defined in Section 2. One point represents one survey. The red line displays a fitted bivariate linear regression line with affective polarization as the dependent variable and survey year as the independent variable. The estimated slope (change per year) and the standard error of this estimate are also reported. For the data in 1975, we replace all out-party missing or -1 codings with zero for the four affect questions asked. We leave all in-party responses to the affect questions as-is.

For all surveys, we use the weight variable that weights respondents by canton, turnout, and party choice.

A.5.9   US

Surveys were conducted in English. Spanish and French translations did occur. We cite the English question here. Partisan affect questions are as follows.

- **All Years** (favorable and warm): We'd also like to get your feelings about some groups in American society. When I read the name of a group, we'd like you to rate it with what we call a feeling thermometer. Ratings between 50 degrees-100 degrees mean that you feel

favorably and warm toward the group; ratings between 0 and 50 degrees mean that you don't feel favorably towards the group and that you don't care too much for that group. If you don't feel particularly warm or cold toward a group you would rate them at 50 degrees. If we come to a group you don't know much about, just tell me and we'll move on to the next one.

For all surveys, we use the weight variable that includes both face-to-face and internet respondents.

A.6 Data References and Disclaimers

A.6.1 Australia

Data comes from the Australian Election Study[10] (https://australianelectionstudy.org/). Those who carried out the original analysis and collection of the data bear no responsibility for the further analysis or interpretation of it.

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A.6.3   Canada

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Data from the 1988 Canadian National Election Study were funded by the Social Sciences and Humanities Research Council of Canada (Grant #411-88-0030). The data were collected by the Institute for Social Research, York University for Richard Johnston, André Blais, Henry E. Brady and Jean Crête. The investigators, SSHRC and the Institute for Social Research bear no responsibility for the analyses and interpretations presented here.

Data from the 1993 Canadian Election Study were provided by the Institute for Social Research, York University. The survey was funded by the Social Sciences and Humanities Research Council of Canada (SSHRC), grant numbers 411-92-0019 and 421-92-0026, and was completed for the 1992/93 Canadian Election Team of Richard Johnston (University of British Columbia), André Blais (Université de Montréal), Henry Brady (University of California at Berkeley), Elisabeth Gidengil (McGill University), and Neil Nevitte (University of Calgary). Neither the Institute for Social Research, the SSHRC, nor the Canadian Election Team are responsible for the analyses and interpretations presented here.

Council (SSHRC) and Elections Canada, and was completed for the Canadian Election Study Team of Patrick Fournier (Université de Montréal), Fred Cutler (University of British Columbia), Stuart Soroka (University of Michigan), and Dietlind Stolle (McGill University). Neither the Institute for Social Research, SSHRC, Elections Canada, nor the Canadian Election Study Team are responsible for the analyses and interpretations presented here.

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A.6.4   (West) Germany

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A.6.6 Norway

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A.6.7 Sweden

Data comes from the Swedish National Election Studies (https://valforskning.pol.gu.se/english). Neither SND nor the principal investigator take any responsibility for how the data are used, nor for any interpretations of or conclusions based on it.

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A.6.9   US

Data comes from The American National Election Study (https://electionstudies.org/). These materials are based on work supported by the National Science Foundation under grant numbers SES 1444721, 2014-2017, the University of Michigan, and Stanford University. The original collector of the data, ANES, and the relevant funding agency/agencies bear no responsibility for use of the data or for interpretations or inferences based upon such uses.

A.7   Data Sources for Potential Explanatory Variables

See Appendix Figure 7 for plots of the available data for each country and variable.

- *Internet Penetration*: Share of individuals using the internet from Ritchie (2019).

- *Broadband Penetration*: Number of broadband subscriptions per 100 inhabitants from Table 4.11 of OECD (2013). We set this value to zero for all countries in 1995.

- *Inequality (Gini)*: Gini coefficient from Roser and Esteban Ortiz-Ospina (2013).

- *Trade Share of GDP*: World Bank (https://data.worldbank.org/indicator/ne.trd.gnfs.zs). Downloaded on April 12, 2019. Defined to be the "sum of exports and imports of goods and services measured as a share of gross domestic product."

- *Non-white Share*: Our primary data sources are the *Encyclopedia Britannica Books of the Year*. We supplement these with other sources when possible. In general, the classification of race/ethnicity/nationality varies substantially across countries and can vary over time, including which groups are included in an "other" category. There are also changes over time in the spatial coverage of the data (e.g., Germany vs. West Germany; United Kingdom vs. Great Britain). When shares do not sum to one (e.g., survey or census respondents may self-classify into multiple categories or rounding errors), we renormalize the shares to sum to one by dividing by their unnormalized sum. We applied the following general principles to classify groups as "white."

  - Australia: Has "white" category.
  - Canada: Not a "visible minority."
  - Continental Europe: Based on nationality or immigration status. Europeans/Americans are considered white.
  - New Zealand: Has a "European" category.
  - Great Britain: Has "white" category.
  - US: Non-Hispanic white.

- *Foreign-born Share*: Share of population that is foreign born from OECD (2019).

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