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Harteveld, Eelco

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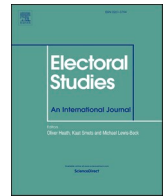
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# Ticking all the boxes? A comparative study of social sorting and affective polarization

Eelco Harteveld

Department of Political Science, University of Amsterdam, Nieuwe Achtergracht 166, 1018 WV, Amsterdam, Netherlands

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## ABSTRACT

This study explores whether, in societies around the world, affective polarization – or animosity between citizens based on their political allegiance – is stronger if *political divisions align with non-political ones*. Such ‘social sorting’ has earlier been established to foster affective polarization in the United States. In this study, I argue that the underlying mechanism travels across the globe. I then present two complementary studies which confirm this hypothesis. First, I employ CSES data to predict the level of affective polarization by social sorting at 119 elections in 40 countries, showing that greater alignment of partisan divisions with non-political divisions in a society (along the lines of income, education, religion and region) is associated with stronger dislike towards political outgroups. Second, using Dutch panel data, I show that individuals who fit the socio-demographic ‘profile’ of their party better tend to be more affectively polarized. This has important implications for our understanding of affective polarization.

## 1. Introduction

Politics seems increasingly tribal and divisive. This has spurred scholarly interest in the phenomenon of *affective polarization*, or animosity between compatriots with opposing political identities (Iyengar et al. 2012, 2019; Iyengar and Westwood 2015; Mason 2015, 2018; Abramowitz and Webster 2016; Wagner, 2020; Banda and Cluverius 2018; Reiljan 2020). Excessive affective polarization can erode democratic norms and practice (Strickler, 2018; Hetherington and Rudolph 2015; Tappin and McKay 2019; Martherus et al., 2019; Kalmoe and Mason 2018). While present across the globe, the extent to which societies are affectively polarized varies widely between countries and over time (Iyengar and Westwood 2015; Reiljan 2020; Boxell 2020). Mutual dislike across political camps is not just a ‘sign of the times’, but rather something that thrives under certain conditions but not others. This study aims to contribute to our understanding of these conditions by investigating a factor that might explain (macro- and micro-level) variation in affective polarization: the *alignment of political and non-political divisions in society*, or ‘social sorting’.

It is a classic insight that cross-cutting cleavages decrease social tensions (Lipset 1960). Mason (2016; 2018) and Mason and Wronski (2018) demonstrate that Americans with aligned religious, racial and partisan identities – for instance, Christian and non-white Republicans – are more antagonistic towards partisan outgroups, regardless of the

extremity of their views. The contribution of the present study is to argue that this mechanism likely travels beyond the United States, and to subsequently test the validity of this claim across a wide set of cases around the globe. The central hypothesis is that if politically like-minded individuals in any society *also* tend to share non-political identities – i.e., if they are *socially sorted* along political lines – they will be more antagonistic towards those with opposing views. As will be discussed below, this expectation builds on insights from social identity theory and the literature on cleavages that are not a priori restricted to the United States. Of course, different societies are divided along different lines – between religious groups, between city dwellers and rural inhabitants, or rather between the poorest and the middle classes, etcetera. Still, regardless of the nature of the divisions involved, if they align with political divisions, antagonism between political camps can be expected to be amplified. Political ‘ingroups’ and ‘outgroups’ will appear even more distinct and homogeneous, fostering negative outgroup affect and behavior (Mason and Wronski 2018; Roccas and Brewer 2002).

I investigate the relation between social sorting and affective polarization comparatively using two complementary studies, one on the aggregate and one on the individual level. This should confirm whether the relation found in the United States indeed travels to other contexts, and hence shed light on the causes (and prospects) of affective polarization around the globe. First, I analyze CSES data on 40 countries between 1996 and 2018 to investigate the relation between the alignment

E-mail address: [e.harteveld@uva.nl](mailto:e.harteveld@uva.nl).

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of political and non-political identities (on the one hand) and affective polarization (on the other). This analysis shows that in periods in which political divisions correlate more strongly with non-political ones, affective polarization tends to be higher too. To further gauge the likelihood that such aggregate patterns are brought about by the hypothesized relations on the individual level, I supplement this with a study of individual-level panel data from the Netherlands (2007–2018;  $N = 8205$ ) that allows me to track the extent to which a respondent fits the socio-demographic profile of their party. This shows that individuals who become more strongly ‘sorted’ in this way are also more likely to become more affectively polarized. The Conclusion section discusses the implications for our understanding of affective polarization.

## 2. Theory

Does social sorting amplify affective polarization? In order to explore this relation (as studied extensively in the United States by Mason [2016, 2018] and Mason and Wronski [2018]) across a wider set of cases, I develop two points below. First, I discuss how affective polarization has been conceptualized outside the two-party system for which it was originally coined. I then discuss by which mechanisms such antipathy has been theorized to be fostered by social sorting, arguing that neither these mechanisms, nor the prevalence of social sorting as such, are necessarily restricted to the United States. Rather, the extent to which political divisions are correlated with non-political divisions will vary strongly between societies as well as over time. This might provide a clue to the question why politics is more heated in some societies than others.

### 2.1. Politics as a (divisive) social identity

Our political views – whether it is a party preference such as being a Social Democratic supporter, an ideological position such as being conservative (Mason 2018), or even an issue position such as being a ‘Remainer’ (Hobolt et al., 2020) – can constitute a *social identity*. A social identity is “that part of an individual’s self-concept which derives from his knowledge of his membership of a group [...] together with the value and emotional significance attached to the membership” (Tajfel and Turner, 1979). Depending on intergroup dynamics, this can also involve varying degrees of negative bias towards the out-group (Brewer 1999). The resulting ‘affect gap’ towards the political outgroup is now commonly called *affective polarization* (Iyengar et al., 2012).<sup>1</sup>

In the American context, Iyengar and Westwood (2015: 691) define affective polarization as “the tendency of people identifying as Republicans or Democrats to view opposing partisans negatively and copartisans positively”. Research has demonstrated that this affect gap has grown steadily. Americans feel increasingly *colder* towards adherents of the opposite party and are increasingly unwilling to have social interactions with outpartisans (Iyengar et al. 2018). Implicit association tests (IATs) suggest that unconscious prejudice based on partisanship is (now) stronger in the US than negative affect based on race (Iyengar and Westwood 2015). Excessive affective polarization has a likely negative impact on democratic health. Next to competitive elections and strong institutions, a well-functioning democracy requires norms that allow for deliberation, compromise, and forbearance between citizens and elites of opposing political camps (Ziblatt and Levitsky, 2018; Strickler, 2018). If political identities become strongly entrenched, and those voting for the ‘wrong party’ become loathed, such acceptance (or at least

<sup>1</sup> The word ‘polarization’ has been used to refer to *levels* (i.e. a state of division) and to *changes* (the increase of this division). This study employs the word in the former sense.

pragmatism) might dwindle. It might even legitimate violence against opponents (Kalmoe and Mason 2018).<sup>2</sup>

Importantly, the prevalence of affective polarization is far from restricted to the United States. In fact, in many countries the level of interpartisan hostility appears to *exceed* those found in the US (Boxell et al., 2017; Reiljan 2020; Wagner, 2020). Recent research has made important strides in applying the concept of affective polarization to multiparty systems. The main conceptual challenge is to account for a more complicated configuration of possible political identities – and hence enemies. In the two-party system of the US, affective polarization takes place between two clearly defined partisan camps, which in turn increasingly align with ideological divisions (Baldassarri and Gelman 2008; Webster and Abramowitz 2017; Banda and Cluverius 2018). In multiparty systems, self-identification with any single party is generally weaker (though not absent; Huddy et al., 2018; Bankert et al., 2017), and any partisan ingroup is not opposed to every possible partisan outgroup to the same extent (Wagner, 2020). ‘Political identities’ in the broad sense of the word also include ideological identities such as being ‘progressive’ (Devine 2015)<sup>3</sup> and even issue identities such as a being a ‘Brexitteer’ (Hobolt et al., 2020). A supposedly shared ideological identification as left-winger might lead a Social Democratic supporter to feel more warmly towards supporters of Green parties than towards supporters of a mainstream, let alone radical, right-wing party (Hartevelde 2021). While these examples defy a dichotomous ingroup-outgroup configuration, all of them refer to affective distance towards politically-defined outgroups and hence justify the term affective polarization.

It is crucial to recognize that affective polarization is distinct from ideological polarization – the extent to which citizens disagree on matters of ideology and issue positions. This relation is endogenous and not straightforward (Iyengar et al. 2018; Ward and Tavits 2019). While affective polarization has grown according to most accounts, there is less evidence for surging ideological polarization: regarding most topics, Americans’ and Europeans’ actual views have become less, rather than more, divided (Baldassarri and Gelman 2008; Adams et al., 2012; Nuesser et al., 2014). Indeed, Reiljan (2020) and Gidron et al. (2019a) find a weak or inconsistent relation between ideological polarization on affective polarization. Individual-level evidence is mixed too (Rogowski and Sutherland 2016; Bougher 2017). All in all, it is clear that affective polarization depends partly – perhaps mostly – on other factors than the strength of ideological disagreement between camps. This points the way towards explanations rooted in the relations between political camps as *social groups*, including their social sorting. Still, ideological polarization functions as a key benchmark to compare any other correlate of affective polarization to.

### 2.2. The role of social sorting along political lines

Why is affective polarization higher in some contexts and among some individuals than others? Mason (2016; 2018) and Mason and Wronski (2018) have documented that political outgroup derogation is fostered by social sorting,<sup>4</sup> that is, the alignment of political identities with other identities. Based on this work, I expect such alignment to

<sup>2</sup> Importantly, affective polarization might also have positive consequences, especially for political engagement (Ward and Tavits 2019; Wagner, 2020) and correct voting (Pierce and Lau 2019).

<sup>3</sup> Mason (2018: 878) shows that Americans, too, “are dividing themselves socially on the basis of whether they call themselves liberal or conservative, independent of their actual policy differences”.

<sup>4</sup> The term ‘sorting’ has been used to denote a range of related phenomena, most importantly (in the US context) the overlap of ideology and party identities. This is of interest in e.g. the US case, where such overlap has been historically low until recent decades, but not the focus of this comparative study, which focuses on overlap of political identities with non-political identities.

foster antipathy towards political opponents, and to do so everywhere – not only in the US where it has been documented so far. After all, the underlying mechanisms, which involve intergroup relations, are plausibly universal. They reiterate the insight that cross-cutting cleavages work in the interest of social harmony (Lipset 1960).

Most concretely, social sorting ‘infuses’ political divisions with the tensions characterizing other divisions in society. In a sorted context, a political group (say, Green party supporters) will be consciously or subconsciously associated with non-political groups (say, the highly educated or city-dwellers). To the extent that prejudice or bias exists towards the latter (based on allegedly competing values, lifestyle, or interests), this amplifies any purely *political* antipathy (say, over environmental policy). While this amplified dislike might not be exclusively political, it does bear political consequences.

In addition, from a social identity theory perspective, increasing alignment impacts citizens’ perceptions of the relations between groups and reduces their ‘social identity complexity’ (Roccas and Brewer 2002; see also Mason and Wronski 2018). Recall the abovementioned situation in which a person associates a political outgroup (say, again, Green party supporters) to typically be an outgroup in many other respects as well (highly educated and urbanites). In that case their understanding of the relation between these groups is quite straightforward. If instead the same person would perceive that this political outgroup (Green party supporters) is often on the *ingroup* side in other respects (‘us lower educated’ or ‘us rural folk’), this would imply a higher social identity complexity. A more complex social identity generally enhances tolerance towards outgroups because it decreases the tendency to overestimate the internal homogeneity of, as well as differences between, the ingroup and the outgroup (*idem*).<sup>5</sup> As a result, groups such as ‘Green supporters’ will appear less like a threatening homogeneous and distinct block. Indeed, stressing (in experimental settings) that outgroup members are ingroup members on another dimension decreases bias (Gaertner et al., 1993; Levendusky 2018). It follows from this that having cross-cutting political and non-political identities should reduce negative affect towards the political outgroup.

In their work on the US context, Mason (2016; 2018) and Mason and Wronski (2018) have extensively demonstrated that social sorting is indeed associated with amplified affective polarization. They show that Republicans who are also white and Christian tend to be more affectively polarized than Republicans with at least one cross-cutting identity – regardless of ideological extremity. The same mechanism is observable among Democrats who identify as secular and non-white, as opposed to Democrats with cross-cutting identities. Mason and Wronski (2018) stress the need to study the “cumulative relationship between social identities and partisan identities”. The fact that affective polarization depends on the *configuration* of a broader set of identities is also apparent from the work of Levendusky (2018). He finds affective polarization to be lower among respondents who were made more aware of their overarching American identity crosscutting political lines (either due to a cue or because they were interviewed on the national holiday 4 July; but cf. Brandt and Turner-Zwinkels 2020).

Of course, the fact that non-political attributes tend to generally go together with a particular political allegiance does not mean that all citizens are aware of – and hence can be influenced by – this. Roccas and Brewer (2002) and Mason (2018) therefore also study the cognitive representation of such alignment. Still, research in US suggests partisans are generally aware of (but overestimate) the features associated with Democratic or Republic support, such as religion, union membership or income (Ahler and Sood 2018). In short, the alignment of social groups with political camps (the empirical focus of this study) can be expected to feature systematically, if imperfectly, in citizens’ perceptions.

<sup>5</sup> Furthermore, disliking an outgroup that is simultaneously often perceived as an ingroup would create cognitive inconsistencies that need to be avoided (Roccas and Brewer 2002).

Through the mechanisms discussed above, this is expected to foster affective polarization.

The alignment of political with one or more non-political identities is a feature of politics around the world. Political conflict often has its roots in structural divisions. Political parties mobilize voters by appealing to one side of a salient current or historical cleavage (Lipset and Rokkan 1967). Studies on political behavior have uncovered cases of dealignment – a weakening of the basis of political parties in structural groups – but also of realignment (Kitschelt and Rehm, 2015). The degree and content of alignment differs between and within world regions. For instance, in the case of Western Europe, there appears a general decline in the association of vote choice with class but an increase in the predictive power of education, while in many countries historical cleavages around religion, center-periphery status or language still play a role (e.g. Van der Brug and Rekker, 2020; Knutsen 2010). In Latin America, where levels of alignment tend to be weaker but not absent, parties’ roots in (if anything) class have given way, in several cases, to mobilization around religion (with a special role for Evangelicals), education, or indigenous vs non-indigenous background (Carlin et al., 2015; Layton et al., 2021). Voting along ethno-linguistic lines has also been observed in Africa (Cheeseman and Ford 2007), but again not everywhere to the same extent and usually as a factor among others (Erdmann 2007). Durrer de la Sota and Gethin (2021) note the role of age and education in shaping political allegiances in South Korea and Hong Kong (in the former case at the expense of a regional cleavage), whereas ethnic identification plays an increasingly important role in Taiwan. In none of these East Asian cases does class emerge as a strong predictor of voting.

In short, neither the concept nor the phenomenon of social sorting is new. Rather, the extent to which political groups are socially sorted, and the lines along which they are, varies between contexts and over time. Politics in a given society can go through dealignment (for instance, because new parties campaign on crosscutting issues) or rather realignment (as parties start to appeal to citizens across a salient structural divide) (Kitschelt and Rehm, 2015). Spatial segregation can create neighborhoods or entire regions in which citizens share not only a worldview but also other features such as education or ethnicity (Bishop, 2009; but see Abrams and Fiorina 2012). Cross-cutting institutions that socially integrate socio-demographic groups and a plethora of political views – for instance churches or sport clubs – can decline (but also grow) in importance or become organized along more homogeneous (or heterogeneous) lines (Putnam 2000). All of this creates variation in social sorting that might explain differences in the prevalence of affective polarization. Hence:

**Hypothesis.** *higher levels of social sorting along political lines are associated with higher levels of affective polarization*

Affective polarization might in turn encourage people to ‘sort’, i.e. withdraw in homogeneous groups. Establishing causal directions with certainty is beyond the observational data presented in this paper. While the US studies discussed above provided strong evidence for the hypothesized mechanism, any correlation between affective polarization and social sorting might partly reflect a reciprocal effect. Nevertheless, it remains important to establish whether the correlation between social sorting and affective polarization even travels beyond the US context, and how strong this association is compared to other correlates of affective polarization.

### 3. Design

In the remainder of this paper, I investigate the relation between social sorting and affective polarization empirically in two complementary studies. The first study does so on the *aggregate* level using the *Comparative Study of Electoral Systems* (CSES) data, covering 119 elections in 40 countries between 1996 and 2018. The goal is to assess whether this relation indeed holds across the world. I calculate a *Social Sorting Score* inspired by Selway (2011) that captures the extent to which

political divisions align with non-political cleavages in a society. I then use this *Social Sorting Score* to predict affective polarization, which I measure following the operationalization of Reiljan (2020). The time span provides sufficient variation *within countries*, which isolates the correlations as far as possible from (relatively) time-invariant confounding factors such as political system or culture.

The repeated cross-sectional nature of the CSES data makes it less suitable to make strong inferences about mechanisms on the individual level. I therefore complement my design with the second study, which employs panel data to study the mechanism using a longitudinal design. I employ the population-representative Dutch LISS panel that allows to track the social sorting of individuals over a period of up to ten years (2008–2018). I develop a measure of the extent to which individuals fit the socio-demographic profile of a party, and use a hybrid model to study if affective polarization moves in tandem with an individual's social sorting.

#### 4. Study 1: affective polarization and social sorting in 40 countries

##### 4.1. Data and cases

The *Comparative Study of Electoral Systems*<sup>6</sup> data consists of harmonized election studies in countries around the world between 1996 and (in the present study) 2018. This provides a unique collection of equivalent survey items across all continents over 20 years. 40 countries have valid observations of the key independent and dependent variables at least once (see Appendix A in the Supporting Information).<sup>7</sup> In total this yields a maximum of 119 (country-election) observations. While the main interest of this study is to study the relation between social sorting and affective polarization on the aggregate level (allowing for a longitudinal element), I replicate the main correlation on the individual level in the robustness section.

##### 4.2. Operationalization

###### 4.2.1. Affective polarization

The dependent variable is Reiljan (2020)'s *Affective Polarization Index* (API). Like the measures proposed by Wagner (2020) and Gidron et al. (2019a), this is based on sympathy scores towards out-parties. Although related, this is not the same as affect towards *partisans*. However, because of the correlation between the two ( $r = 0.69$  in the US in Iyengar et al., 2012 and  $r = 0.64$  in the Netherlands in Hartevelde 2021; see also Druckman and Levendusky, 2019) it can be used – with some caveats – to infer affective polarization between citizens. The *Affective Polarization Index* can be thought of as ‘weighted sympathy’ towards outparties. The formula below (taken from Reiljan 2020: 381) summarizes the procedure. First, for each partisan group  $n$  (i.e. all respondents who say they identify with a particular party<sup>8</sup>) the average evaluation towards all other parties  $m$  is subtracted from the average evaluation of the inparty. Each difference is weighted by the relative size of a party (measured as vote share) and summed over all outparties. This is repeated for each of the partisan groups, and all these ‘relative AP’ scores are weighted by vote shared and summed up as well. In short, the *Affective Polarization Index* is calculated as (Reiljan 2020: 381)

$$\sum_{n=1}^N \left[ \sum_{\substack{m=1 \\ m \neq n}}^N \left( (Like_n - Like_m) \times \left( \frac{Vote\ share_m}{1 - Vote\ share_n} \right) \right) \times Vote\ share_n \right] \quad (1)$$

###### 4.2.2. Social sorting

The operationalization of the main independent variable is inspired by the work of Selway (2011) and Knutsen (2010). Selway (2011) defines cross-cuttingness, which is the reverse of sorting, as the extent to which “group  $i$  on cleavage  $x$  is identically distributed among groups on cleavage  $y$  with all other groups on cleavage  $x$ ” (p. 51). He measures the cross-cuttingness of two divisions by calculating Cramér's  $V$ , a measure of association for categorical variables, and subtracting it from 1. Because I am interested in sorting, I simply use Cramér's  $V$ . Another application of Cramér's  $V$  is the work of Knutsen (e.g. 2004; 2010), who measured the strength of cleavages in a country through Cramér's  $V$  associations with party choice.

For each of the elections covered in the dataset, I calculated four bivariate Cramér's  $V$  associations between on the one hand *party identification*<sup>9</sup> and on the other hand each of the following non-political variables: *income* (5 quintiles), *education* (5 harmonized categories), *region* (number of categories differs per country), and *religion* (operationalized as ‘majority religion’ vs the rest).<sup>10</sup> The selection of non-political divisions was restricted to variables consistently available across most election studies,<sup>11</sup> but it does capture arguably most of the major social fault lines that tend to be expressed politically: class (approximated by income), the ‘new class’ or ‘winners and losers of globalization’ division (education), as well as center-periphery (region) and religious oppositions. Each of the four Cramér's  $V$  scores reflects how well party identification can be predicted by the respective non-political variable. I calculate an overall *Social Sorting Score* for a context  $c$  as the average of the associations across the four dyads<sup>12</sup>

$$\frac{(Cramer's\ V_{ideology, income} + Cramer's\ V_{ideology, education} + Cramer's\ V_{ideology, region} + Cramer's\ V_{ideology, religion})}{4} \quad (2)$$

Because it is based on an association measure for categorical variables, the *Social Sorting Score* is a priori agnostic about the *shape* of the relation between party preference and each of the other identities. For instance, in some countries, the lower educated are relative often supporters of the Social Democratic party, in other countries of the Conservative party; in again other countries, they might usually vote for far left or far right alternatives, rather than centrist ones. All of these patterns are captured by the cross-cuttingness measure, as it reflects how well categories of education (or income, region, or religion) predict vote choice. The better it does, the higher the *Social Sorting Score*.

The measure comes with several caveats. First, taking the *average*

<sup>6</sup> [www.cses.org](http://www.cses.org). For the replication syntax of Study 1 and Study 2, see <https://doi.org/10.7910/DVN/Y4QHRA>.

<sup>7</sup> I opted not to restrict the analysis to a particular subset, because a priori the mechanisms should apply in all contexts.

<sup>8</sup> Based on the question “Do you feel closer to any particular party?”.

<sup>9</sup> Also based on the question “Do you feel closer to any particular party?”. Only parties for which at least 25 respondents voted were included.

<sup>10</sup> The number and specificity of religious options varied widely in CSES. Because this impacts Cramér's  $V$ , this variable was dichotomized into ‘majority religion’ vs the rest (including atheism, if not the majority).

<sup>11</sup> For this reason, ethnicity could not be included. In some cases, ethnicity is captured by region or religion. In other cases, this means the social sorting measure will underestimate sorting in ethnically divided cases.

<sup>12</sup> In case one of the variables is missing in particular country or election, the *Social Sorting Score* is calculated over the remaining variables. This maximizes the number of cases, although it might add further cross-national variation in the score. However, this is less problematic because patterns of missingness are usually country-rather than election-specific, and the focus of the analysis is on within-country effects.

Cramér's  $V$  means that countries that are (moderately) sorted along multiple lines get higher scores than countries that are (perhaps strongly) sorted along a single dimension. While it is plausible that the former cumulative sorting matters more than the latter (Mason and Wronski 2018), the analysis will be replicated with a measure taking the maximum Cramér's  $V$ . Second, the *Social Sorting Score* relies on ascribed identities that can be 'objectively' measured (education, income, region, and religion), rather than directly assessing citizens' subjective identities. However, it seems plausible that the factors included in the measure have some systematic bearing on many citizens' subjective identities. Third, the *Social Sorting Score* will be sensitive to the extent to which the chosen variables capture the relevant politically-aligned divisions in a country. Some countries might be sorted along lines not systematically measured in CSES, in which case the measure will *underestimate* the actual level of sorting. For this reason, within-country comparisons are most valid.

#### 4.2.3. Control variables

As control variables, I include several other characteristics that can be expected to impact affective polarization. Most importantly, I include *Ideological polarization on the elite level* (see Banda and Cluverius 2018) and *Ideological polarization on the mass level*. The former is measured by the standard deviation in left-right positions according to the Comparative Manifesto Project (MARPOR).<sup>13</sup> *Ideological polarization on the mass level* is simply the standard deviation in left-right positions of respondents in a given year and country.

Furthermore, I include the *Salience of cultural issues* and *Salience of economic issues*. Gidron et al. (2019b) and Hartevelde (2021) show that distance on the cultural dimension is especially conducive to affective polarization. This measure is based on manifesto data collected by MARPOR, and consists of the share of the manifesto's of all parties in a given election that is devoted to cultural issues or economic issues, respectively.<sup>14</sup>

Because the main interest is to explain changes over time *within* countries (see below), the models do not include slow-moving economic indicators such as GDP or inequality (Gidron et al., 2019a). I do include the control variable *Number of parties*. A larger set of parties changes the logic of competition and cooperation, and possibly reflects a more consensual political culture. Arguably, this indicator too varies more substantially between countries than over time. Still, I include it because I expect it to correlate with the outcome variable in a mechanical way, too: the more parties are available in the questionnaire (which can differ from election to election), the more negative affect towards one of them gets averaged out by others. This indicator should absorb much of that correlation.

#### 4.3. Design

The independent and dependent variables are available for 119 waves across 40 countries. Affective polarization and social sorting are measured at the level of country-election, providing repeated observations at the country level. The analysis is performed at the aggregated level, using both a fixed effects (FE) and between-effects (BE) estimation. The FE specification restricts the estimation to variation *within* countries, *between* elections. In other words: at elections in which a country is more sorted than on average, is affective polarization relatively high too? This absorbs potential time-invariant confounders at the

<sup>13</sup> See manifesto-project.wzb.eu.

<sup>14</sup> Coded as cultural issues were: environmentalism, culture, equality, national way of live, law and order, multiculturalism. Coded as economic issues were: free market economy; incentives; market regulation; economic planning; corporatism; protectionism; economic goals; demand management; economic growth; controlled economy; nationalization; economic orthodoxy; Marxist analysis.

country level, and also reduces the problem that the absolute level of *Social Sorting* will be sensitive to the selection of non-political variables it includes. The between-effects (BE) specification is based on variation *between* countries. Do those countries that are (on average) more sorted also experience more affective polarization? Of the 40 countries under study, 10 appeared in the dataset only once; these are only included in the between-effects analyses.<sup>15</sup>

#### 4.4. Results

##### 4.4.1. Descriptives

Appendix B reports the trends in affective polarization, social sorting (including in a separate figure its subcomponents), and ideological polarization on the mass level. It testifies that affective polarization has different levels and trends across the world. Replicating Reiljan (2020), Southern Europe and East-Central Europe generally show very high scores, followed by the US. Furthermore, there is ample variation in the trend of social sorting (see Boxell et al. 2019). It also shows that affective polarization and ideological polarization sometimes, but not always, move in tandem. The same is true for affective polarization and social sorting. However, the large number of cases defies visual identification of correlations. For that we turn to a regression analysis.

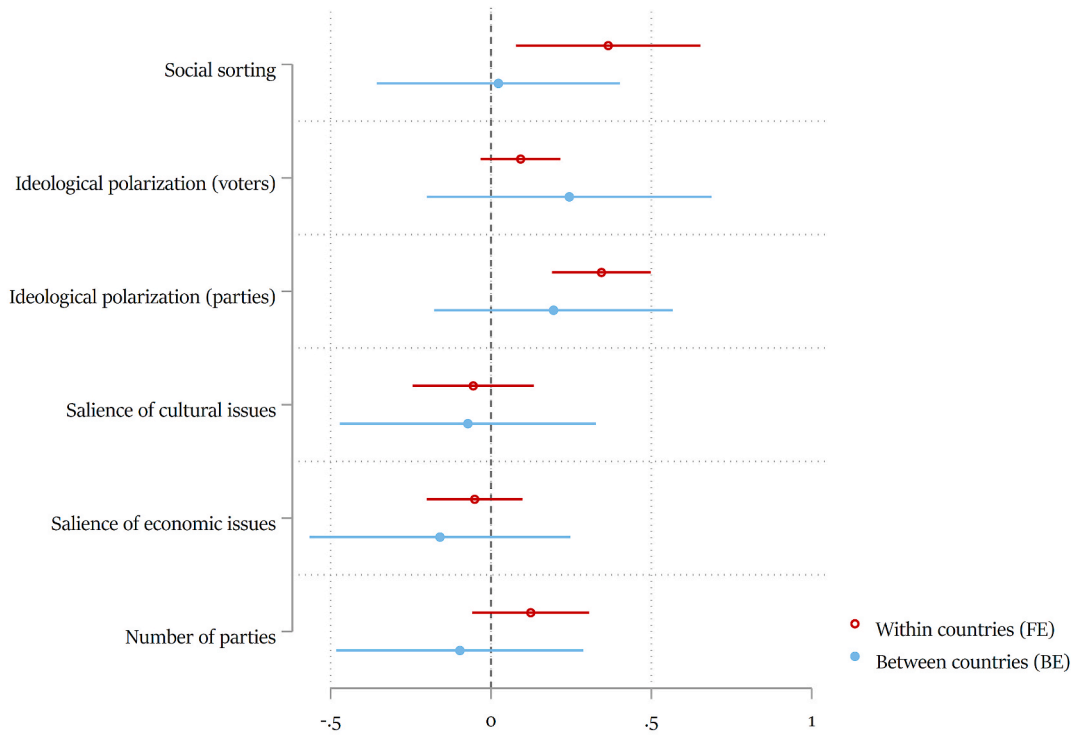
##### 4.4.2. Regression

Fig. 1 shows regression coefficients of the within-country (FE) and between-country (BE) models. To increase comparability, both the *Affective Polarization Index* and the independent variables were standardized across the sample as a whole. Each model contains all control variables as well as dummies for the CSES wave to capture possible worldwide trends in the dependent variable. Table 1 in Appendix C shows the full regression tables.

The open red dots (which represents the coefficients of the fixed-effects model) show that the *Social Sorting Score* has a positive effect ( $p = 0.013$ ) on the *Affective Polarization Index*. The effect size is substantial: an increase of 1 standard deviation in social sorting is associated with a 0.37 standard deviation increase in affective polarization. The between-country coefficient (closed blue dots), by contrast, provides no evidence for an effect of the *Social Sorting Score*. In other words, only variation in the social sorting measure over time predicts affective polarization. This might be due to lower comparability of the social sorting measure across countries. It could also mean, plausibly, that many unobserved factors determine the level of affective polarization in a country that add noise to the correlation. At any rate, the existence of a within-country effect supports the hypothesis that social sorting goes together with higher affective polarization.

To investigate how sensitive this effect is to different specifications of social sorting, Fig. 2 below presents the effects of alternative operationalizations (all based on separate models with fixed effects for countries; see Tables 2 in Appendix C). First, using the *maximum* (rather than the average) Cramér's  $V$  score yields a somewhat weaker correlation that is not significant at  $p = 0.11$ . This suggests that having multiple cumulative alignments is more polarizing than a single one. Secondly, the *Social Sorting Score* was modeled as its four individual sub-components (that is, overlap with education, income, etcetera) rather than their average or maximum. Theoretically, cumulative overlap is likely to matter most, so it is a priori unlikely that individual overlap scores are as strong predictors of affective polarization as the aggregate scores. Still, splitting them allows to explore whether some dimensions are more polarizing than others. It shows that political alignment along all four nonpolitical dimensions is (descriptively) associated with more affective polarization, but only significantly so (at the 10% and 5% level respectively) in the case of overlap with regional and religious divides. The latter two possibly create deeper fault lines than income and

<sup>15</sup> The average number of observations for a country is 2975.

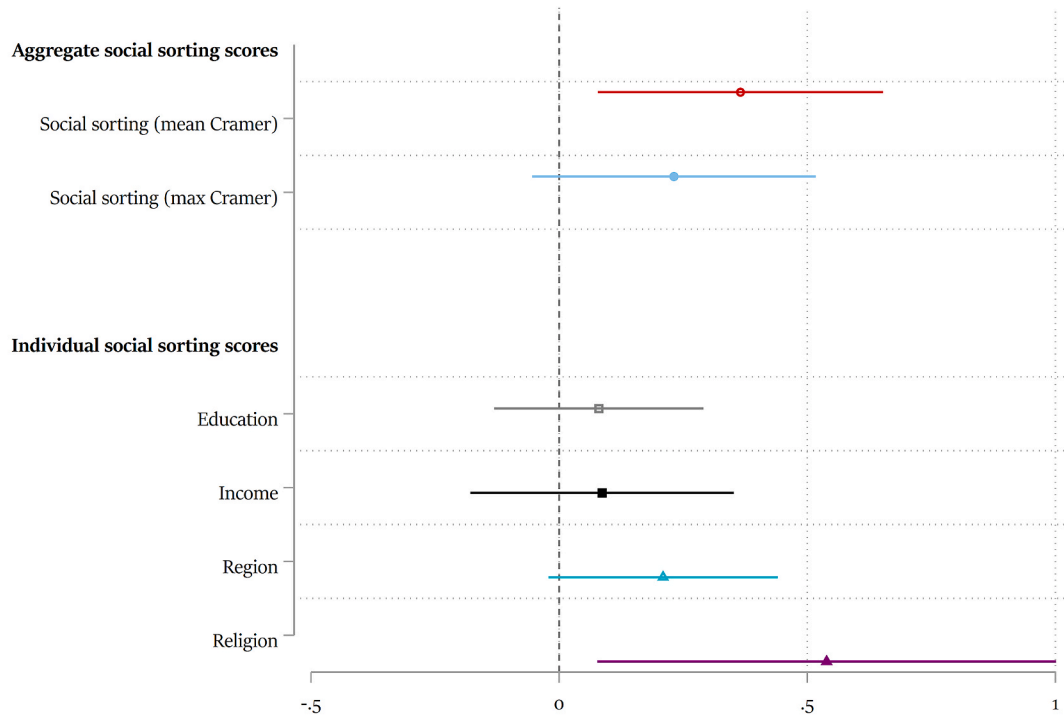


$N_{observations} = 119; N_{groups} = 40$

Note: Includes CSES round dummies (not shown). Fixed effects for countries. 95% confidence intervals.

Source: CSES

Fig. 1. Regression coefficients of FE and BE models explaining Affective Polarization Index.



Note: Different operationalizations of social sorting, each of them estimated in a separate model. All models controls for the same variables as Figure 1, including round dummies. Fixed effects for countries.

Fig. 2. Regression models with different operationalizations of social sorting.

education. Still, the mean Cramér's  $V$  score has a stronger effect than all of the subcomponents except religion (from which it does not differ significantly), suggesting an aggregate variable to be the best predictor.

Having explored the effects of sorting, we can return to the control variables of Fig. 1, which perform largely as expected, even if not all of them are robust predictors. The number of parties is not significantly associated with affective polarization, despite the expectation that fragmentation would dampen polarization. Ideological polarization, both on the level of voters and parties, is associated with more affective polarization. Ideological polarization among voters is somewhat associated (but not significantly so) with more affective polarization when comparing both between and within countries; ideological polarization among parties is a solid predictor of variation in affective polarization within countries. It is notable that the *Social Sorting Score* has an effect size that is comparable to that of ideological polarization. This confirms that affective polarization is rooted in much more than substantive disagreement alone (Lyengar et al. 2019). The salience of either cultural or economic issues does not play a role, in contrast to Gidron et al. (2019b) and Hartevelde (2021). The dummies for CSES waves (not included in the figure) suggest a small upward trend in affective polarization exists, net of the included predictors.

#### 4.4.3. Robustness

I conducted a set of additional analyses to further gauge the robustness of the above findings. First, I replicated the analysis on the individual level using the individual-level measures of affective polarization (Wagner's [2020] weighted affective polarization score) and social sorting (the respondent's 'fit' to a party in socio-demographic terms,<sup>16</sup> or reverse residual score) used (and further explained) in Study 2 below. Table 3 in Appendix C shows the results of a multilevel model in which (standardized) affective polarization was predicted by (standardized) social sorting as well as a set of control variables at the individual and country-wave level.<sup>17</sup> This confirms that social sorting, also when measured on the individual level, has a significantly positive effect ( $p < 0.01$ ;  $b = 0.144$ ).

Second, I performed two robustness checks on the aggregate models of Fig. 1 above, which are reported in Tables 4 and 5 of Appendix C. I estimated a first-differences model (i.e. testing whether the *change* in API is predicted by the *change* in the independent variables), which, too, isolates the effect from time-invariant confounders but is more robust in case of high serial correlation. This yielded a significant effect of similar magnitude ( $b = 0.35$ ;  $p = 0.020$ ). I also replicated the fixed-effects analysis using a 'jackknife' strategy (removing one country at a time) to test the sensitivity of the findings for the patterns in individual countries. Under this specification the  $p$ -value of the effect of social sorting increases from 0.025 to 0.069. Given the more conservative specification and directional hypothesis this still yields evidence for a relation between social sorting and affective polarization.

## 5. Study 2: a Dutch panel study on social sorting and affective polarization

### 5.1. Data and case

Study 1 revealed that when societies become more sorted along

<sup>16</sup> The same factors were used as in the aggregate analysis: income, education, region and religion.

<sup>17</sup> On the individual level: left-right position (far left [0–2], mainstream left [3–4], center [5], mainstream right [6–7], and far right [8–10]), age (16–25; each ten year period until 65; and over 65), gender, education (harmonized by CSES into 3 categories), and the number of parties assigned a sympathy score by the respondent. On the country-wave level: mass ideological polarization; elite ideological polarization; salience of cultural issues; salience of economic issues; round dummies; and country dummies.

political lines, affective polarization is generally higher. In this study, I zoom in on one case, the Netherlands, and track the 'social sortedness' and affective polarization among a total of 8205 unique individuals over periods up to 10 years (from 2008 to 2018). If the pattern of Study 1 is brought about by the theoretical mechanism discussed earlier, we would expect to see that individuals who fit their partisan ingroup better in socio-demographic terms should generally be more affectively polarized.

The Netherlands experiences only weak affective polarization according to Reiljan (2020) and is not characterized by the unique linguistic, ethnic, or religious cleavages studied by Westwood et al. (2018). It thus makes for a less-likely case to explain any variation in affective polarization by social sorting. To the extent that the two do correlate, it is plausible that effects are at least as pronounced in contexts that are both more affectively polarized and sorted (for a discussion of affective polarization in the Netherlands, see Hartevelde 2021).

The source of the data is the *Longitudinal Internet Studies for the Social sciences* (LISS) panel, which is recruited based on a population-representative sample.<sup>18</sup> Its respondents answer a battery of questions on politics every year. In total, 8205 unique individuals with nonmissing observations took part during a part or the whole of the period 2008–2018. LISS provides a sizeable number of observations even for individual respondents (Vaisey and Miles 2017): 69% of the respondents has nonmissing responses to the relevant questions for at least 3 waves; 59% for at least 4 waves; and 48% for 5 waves or more (on average 3.4 waves). See Appendix D for descriptive statistics of the variables.

### 5.2. Operationalization

#### 5.2.1. Affective polarization

Because, in contrast to the main model of Study 1, the unit of analysis is the individual, affective polarization of an individual is measured using Wagner (2020)'s *Weighted Affective Polarization* measure. Like Reiljan (2020)'s measure, this is a 'weighted sympathy' measure, but calculated based on each individual's (rather than each partisan group's) sympathy scores towards all parties. This is achieved by taking a respondent's sympathy towards each party, subtracting it from the (weighted) average sympathy towards all parties, taking the squared term of this (to make it absolute), and multiplying it by the size of the party  $v_p$ . The final score is the square root of the sum of this score across all parties. The *Weighted Affective Polarization Score* (Wagner 2020: 4) is hence calculated as:

$$\sqrt{\sum_{p=1}^P v_p (\text{like}_{ip} - \overline{\text{like}}_i)^2} \quad (3)$$

The element  $\overline{\text{like}}_i$  is the weighted sympathy towards all parties:

$$\overline{\text{like}}_i = \sum_{p=1}^P (v_p * \text{like}_{ip}) \quad (4)$$

#### 5.2.2. Social sorting

In the two-party context of the United States, Mason and Wronski (2018) measured sorting by scoring, for a set of identities such as race and religion, whether each respondent is 'sorted' on it or not (i.e. belongs to the modal group of the respondent's in-party), weighted by the strength of the identification. The strength of identification is not available in the LISS data, so this study – like Study 1 – relies on ascribed, rather than subjective, identities. Moreover, in a fragmented multiparty context, it is less straightforward to identify whether an individual is sorted or not because not all identities are equally relevant in predicting

<sup>18</sup> The panel is based on a true probability sample of households drawn from the population register. Households that could not otherwise participate are provided with a computer and Internet connection. See [www.lissdata.nl](http://www.lissdata.nl) for more information.



each party.<sup>19</sup> Ideally, a measure is therefore agnostic about the factors on which sorting takes place.

I therefore calculate social sorting as *the extent to which an individual's party preference can be successfully predicted by socio-demographic variables*. I first estimate, for each wave and each party, a model in which I predict the vote by age, education, income, and urbanity.<sup>20</sup> I then estimate, for each individual, their *residual* according to this model.<sup>21</sup> This larger the *absolute* residual, the worse the individual 'fits' the socio-demographic composition of a party (as their support is either under- or overestimated). The *Social sorting* score, which should reflect a *good fit* to a party electorate in socio-demographic terms, is one minus the average absolute residual.

### 5.2.3. Control variables

Control variables include variables that plausibly correlate with both the propensity to be socially sorted and to be affectively polarized. The most important of these are dummies for left-right self-placement (to capture ideological polarization on the individual level; recoded to Far left [0–2]; Center left [3–4]; Center [5]; Center left [5–6]; and Far right [7–10]) and political interest (three categories), two variables that respectively capture ideological polarization and the salience of political identities (see Hartevelde 2021), and which might well change over time. I also control for education, age and gender. I formulate no expectations for the latter (mostly time-invariant) variables, but for their role in the US see Iyengar et al. (2019: 425).

### 5.3. Design

As in Study 1, the goal of the analysis is to establish the relationship between social sorting and affective polarization. This focus of the main analysis on explaining both variation *between* and *within* respondents, of which the latter makes most use of panel data by isolating effects from confounding by time-invariant individual characteristics (that is, given that for various reasons some citizens are both more sorted and polarized). I therefore estimate a hybrid model which simultaneously models both sources of variation, providing both a within- and between-estimator for each variable (Mundlak 1978; Bell and Jones 2015).

Of course, the focus on within-respondent variation raises the question whether individuals *change* in their level of sorting, as the features on which sorting is based often do not change (although they sometimes do). However, respondents can switch parties and hence end up in a more (or less) sorted party, and the party they belong to can change in composition to become more or less similar like the respondent. Even if sorting would vary more between individuals than within individuals, a focus on the latter makes for the more robust inferential strategy.

### 5.4. Results

#### 5.4.1. Regression

Fig. 3 shows the unstandardized coefficients<sup>22</sup> of the hybrid model explaining *Weighted Affective Polarization* score by *Social sorting* and

<sup>19</sup> A Christian democratic party might be sorted above all by religion, a social democratic party by class, a green party by education, etcetera.

<sup>20</sup> In contrast to Study 1, this variable includes urbanity rather than region, because urban-rural differences in political support are generally larger than regional differences in the small and dense country of the Netherlands. Religion is not available in all waves and therefore excluded. Age is used to capture the age differential in support for parties that was visible in recent elections (Van der Meer et al., 2017)

<sup>21</sup> This residual is calculated based on an OLS rather than logistic model to obtain continuous residuals. The result is a roughly normally distributed absolute residual.

<sup>22</sup> The coefficients are not standardized because there is no need to compare effect sizes of continuous variables, in contrast to Study 1.

other variables. Table 1 in Appendix E provides the full regression table. Each variable (except gender<sup>23</sup>) has a within- and between-respondents coefficient.

The first (within-respondent) coefficient confirms that in waves in which individuals score relatively high on *Social sorting*, this person also tends to score higher on *Weighted Affective Polarization*. Or, in other words, the better an individual's support for a party can be predicted by their socio-demographics, the more disliking this individual generally is of political outgroups. The between-respondent coefficient of *Social sorting* is of the same direction and somewhat smaller in size. This means that those respondents who are most sorted (keeping a range of socio-demographics and ideology constant) are also generally those who are most affectively polarized Fig. 2 is therefore in line with the hypothesis and further strengthens the plausibility that the aggregated patterns found in Study 1 are based on the hypothesized mechanisms.

Moving to the control variables, respondents on (or towards) the ideological extremes are generally more affectively polarized than those in the center. When directly modeled as extremity (i.e. distance from the center score of 5), the standardized within-respondent effect of extremity is 0.11, compared to a standardized effect of sorting of 0.66 (between respondents, however, which sees much more variation in extremity, it is a stronger predictor [0.25] than sorting [0.04]). Political interest, too, correlates with affective polarization. Older respondents and females are somewhat more affectively polarized (in line with the findings among Americans in Iyengar et al., 2012), as are the higher educated (not in line with *idem*).

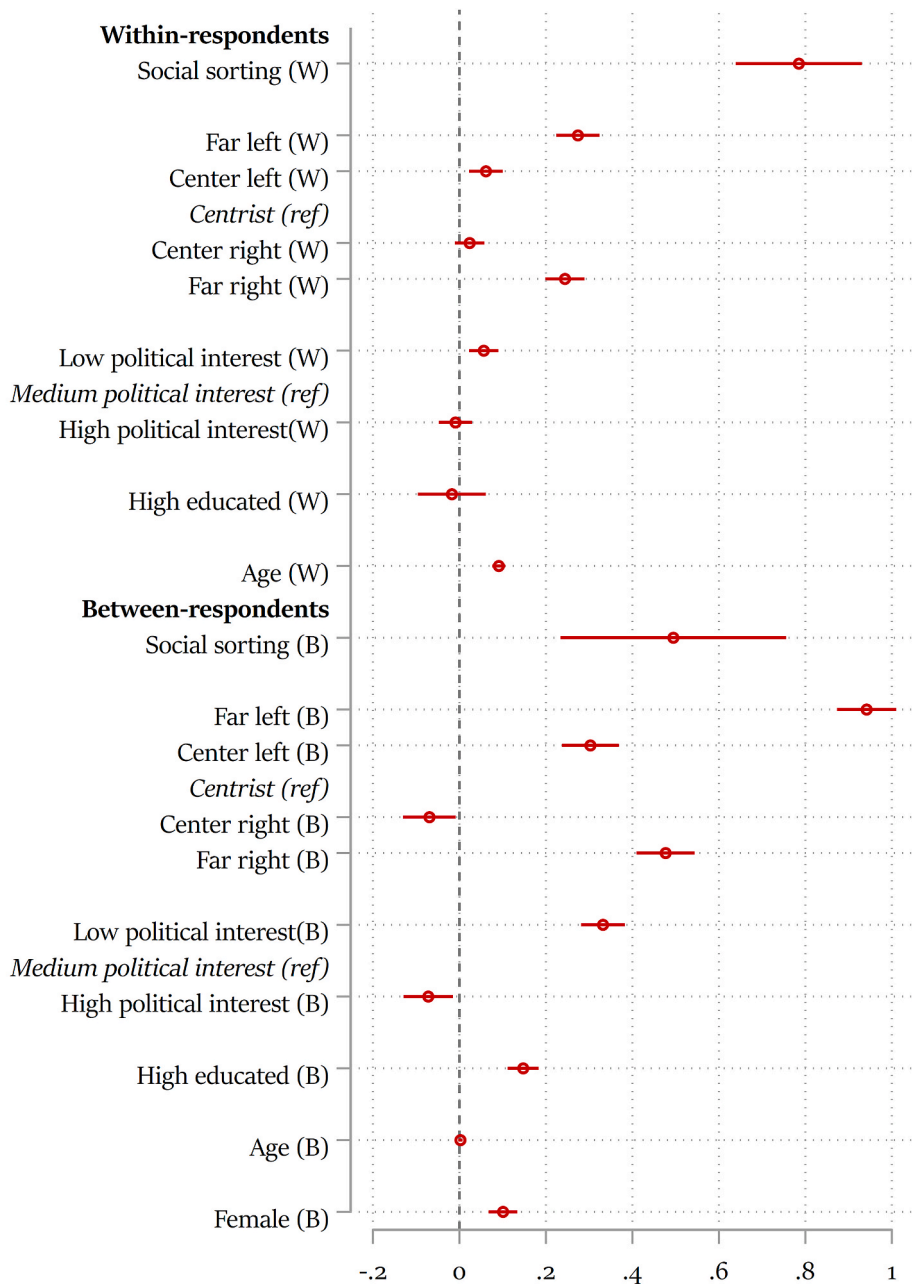
As an alternative specification, I again ran a first difference model, regressing change on change (see Table 2 in Appendix E). This results in a significant effect of a comparable magnitude ( $b = 0.57, p < 0.001$ ).

## 6. Conclusions

Cross-cutting cleavages have long been argued to decrease social tensions (Lipset 1960). Building on the research of Mason (2016; 2018) and Mason and Wronski (2018), this study investigated whether – in a broader set of cases than hitherto studied – citizens' dislike towards political opponents is stronger if political identities align with non-political identities. Comparing 119 elections in 40 countries over three decades, I found that social sorting along political lines is indeed associated with affective polarization across a range of specifications. The effect size is substantive and generally of a similar magnitude as that of ideological polarization – the extent to which citizens or elites disagree substantially on issues. I furthermore show, using Dutch panel data that allows to make stronger claims on the individual level, that when citizens (start to) better fit the socio-demographic profile of their party they also tend to be(come) more affective polarized. It is telling that this mechanism is visible even in a country with very weak affective polarization (Reiljan 2020). Both studies strongly suggest that hostility between political camps depends on its interplay with non-political identities – also beyond the US.

In line with previous work, this study thus confirms that (growing) affective polarization is about more than just (growing) issue disagreement (Iyengar et al., 2019; Lelkes 2019; Reiljan 2020). It raises a question with important implications: how purely *political* is affective polarization? To the extent that affective polarization is partly a reproduction – or amplification – of tensions smoldering outside the realm of politics, there are limits to the extent it can be abated by reforming a political culture or adjusting political institutions. Efforts to prevent affective polarization from becoming 'toxic' (or even lethal; Kalmoe and Mason 2018) would need to grapple with other dimensions of social division and segregation too. Empirically, it is difficult to isolate the relative role of the political and the non-political using observational data, precisely because citizens form conscious and subconscious

<sup>23</sup> There was no within-respondent variation in reported gender in LISS.



$N_{\text{observations}} = 27970$ ;  $N_{\text{respondents}} = 8205$   
 Note: '(W)' denotes within-respondent effects, '(B)' between-respondent effects. 95% confidence intervals. Based on Table 1 in Appendix E.

Fig. 3. Regression coefficients of hybrid model explaining Weighted Affective Polarization.

associations between political and non-political groups. Experimental or conjoint designs (for instance building on those employed by Helbling and Jungkunz, 2020) could be an important step forward in this respect. Does flagging a non-sorted identity (i.e., portraying somebody as a Green supporter and lower educated) as opposed to an (allegedly) sorted identity (Green supporter and higher educated) reduce affective distance towards that person?

Follow-up research could also improve on the operationalization of social sorting. The present study took a relatively coarse approach by assuming that respondents identify with the 'objective' categories presented to them in the questionnaires and are aware of how these are aligned with the political camps in the population at large. As Ahler and Sood (2018) show, people are often aware of the overlap between

political and nonpolitical group membership, albeit in a heavily distorted way. Still, the fact remains some citizens will identify more strongly than others with – say – their class, religious, or regional group, and this matters for the extent to which such identities influence their views of political opponents. It is therefore plausible that the resort to 'objective' indicators in the present study yields a conservative estimate of the relation between social sorting and affective polarization. Following Mason and Wronski (2018), future comparative studies on social sorting could benefit from including measures of subjective identification. Although this requires more elaborate data, it would provide for a more comprehensive test of the mechanism at hand.

A glance at the trends in the social sorting measure presented in this paper suggests that sorting is (somewhat) on the rise across the globe,

but with substantial variation in levels and trends between countries. This calls for furthering our theoretical and empirical understanding of social sorting and its causes. It also raises the question *who* tends to be sorted most. Even if only a subset of society, such as the most politically engaged, finds itself increasingly sorted, then the associated higher levels of affective polarization might spill over to the political debate and the public at large. Next to continuing the comparative agenda, an important next step is therefore to further explore its interaction with the individual level: who is most 'at risk' of becoming affectively polarized?

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.electstud.2021.102337>.

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