Political Polarisation Compared:
Creating a Comprehensive Index of Political Polarisation

By

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Abstract

Political polarisation is a very pressing political issue, as it can worsen democracy and has been rising in many countries in the past two decades. However, the exact scope of the problem is unclear, because conflicting measurements and conceptualisations have created disagreement about which countries are polarised. Scholars usually pick one 'type' of polarisation (ideological, affective) and measure that type, even though multiple are salient to the concept. Furthermore, little comparative data is available that measures multiple types of political polarisation at once. This thesis aims to rectify both of these problems by creating a comparative measure of political polarisation that incorporates multiple types.

This thesis first conceptualises political polarisation as a four-dimensional concept, operating through ideological and affective aspects and at the mass and elite levels. Then, it creates a comparative index that uses multinational surveys to measure all four types in more than 100 countries and over 25 years, using survey questions and transformations common in the scholarly literature. This thesis finds that the index mostly aligns with scholarly expectations when countries have much scholarly consensus on their polarisation levels; that the United States has spiked in the past 5 years, whereas Poland and the United Kingdom have not; and that polarisation in general has not uniformly risen, but that instead elite types have risen while mass types have oscillated or declined. These results favour looking at the relationship between different types and specifying causes and solutions focused around particular types rather than viewing political polarisation as uniform.

Table of Contents

Political polarisation might be one of the most pressing contemporary political issues. A polarised society might struggle to solve important problems together (Hetherington, 2009); it might encourage one party to use undemocratic means to stay in power (Aydın-Düzgit, 2019); it might even exacerbate conflict or hurt its resolution (Esteban & Schneider, 2008; Feldmann, 2019). It also seems to have gotten worse in many countries, ranging from Hungary and Turkey (e.g. McCoy, Rahman, & Somer, 2018) to Poland (Kinowska-Mazaraki, 2021) and Brazil (e.g. Hussak van Velthem Meira, 2019). As such, it is of paramount importance to figure out how to reduce political polarisation in countries that are polarised and guard against polarisation in those that are not.

Unfortunately, this requires answering questions which spawn much confusion or disagreement in the current scholarly literature. Specifically, scholars frequently disagree on whether certain countries are polarised or not and when this polarisation occurred. For example, most scholars argue that polarisation in the United States has increased, but some scholars disagree (Lelkes, 2016; Fiorina, 2014; Abramowitz & Saunders, 2005). Similar debates can be found in the United Kingdom (Boxell, Gentzkow, & Shapiro, 2020; Hobolt, Leeper, & Tilley, 2020) and Poland before 2015 (Kinowska-Mazaraki, 2021; Fomina, 2019). This confusion hurts the scholarly ability to investigate causes of polarisation and depolarisation, as these rely on agreement about where and when those processes occurred.

In turn, this confusion seems to stem from the lack of agreement about the concept of political polarisation and its subdimensions. Political polarisation has ideological aspects and emotional ones, and can be conceptualised at the mass level and the political elite level; all of these facets have different associated measurements. Although all these elements seem to constitute political polarisation in fundamental ways, comparative measurements usually focus

1

on only one of these aspects when measuring the concept. For example, Stanig (2011) and Sartori (1976) focus on ideological polarisation, where Lauka, McCoy, and Firat (2018) and Boxell, Gentkoz, and Shapiro (2020) use affective measures of polarisation. Reiljan's paper (2019) does include both in its analysis but views them as separate concepts rather than subdimensions of a single concept. Some studies include a multidimensional conceptualisation of polarisation, but these studies only focus on four or fewer countries (Westwood et al., 2015; Lupu, 2014). In other words, no comparative analysis of political polarisation as a multidimensional concept exists at the moment.

Two distinct issues seem to contribute to this gap. Firstly, scholars often conceptualise political polarisation through a single dimension, which invites the use of only particular measurements for that dimension. Secondly, comparative studies often use survey data, and these surveys often do not allow for the measurement of multiple types at the same time.

This thesis aims to create this comparative index that incorporates different types of political polarisation by using various multinational survey projects. It first defines political polarisation, arguing that four types of political polarisation are salient, operating on two levels - the elite and mass levels - and containing two elements - affective and ideological elements. Then, it will look at the different ways in which each of these types usually get measured and how each type can best be operationalised given the available survey data. To validate this measure, this thesis will use various case studies where scholarly consensus exists about the level of polarisation over time, namely Turkey, Japan, Hungary, and Brazil, finding that the index mostly aligns with scholarly consensus.

When evaluating particular countries, this index does find a rise in polarisation in the United States, but not in the United Kingdom. More generally, this paper finds that, contrary to

popular belief, not all aspects of political polarisation have increased over the past two decades. Instead, elite types of polarisation have increased while mass types have either oscillated or decreased over time. This has profound implications on potential interventions to reduce political polarisation: instead of viewing polarisation as a single concept, it encourages curtailing particular types of polarisation, and it encourages research into the relationship between the types of political polarisation. The index itself can be used to study particular countries and to evaluate structural guardrails and interventions that may reduce political polarisation.

1. The Concept of Political Polarisation

To create an index that accurately measures political polarisation as a multidimensional concept, one must first understand what political polarisation entails and which types of polarisation are most salient. This chapter aims to do exactly that, first looking to define political polarisation more broadly, then focusing on the types of political polarisation commonly identified in the literature, and finally creating a new conceptualisation of political polarisation as operating through ideological and affective aspects and at the mass and elite levels.

2.1 Polarisation Defined

Political polarisation foregrounds the nature of political cleavages within a particular country. Most early definitions focused in particular on the ideological cleavages present between political parties. For example, in his seminal work *Parties and Party Systems,* Sartori (1976) describes a country as polarised when it exhibits the following characteristics:

> "Its lateral poles are literally two poles apart, and the distance between them covers a
>
> maximum spread of opinion. This is tantamount to saying that cleavages are likely to be
>
> very deep, that consensus is surely low, and that the legitimacy of the political system is
>
> widely questioned. Briefly put, we have polarisation when we have ideological distance
>
> (in contra-distinction to ideological proximity)." (p. 120)

More recently, scholars have argued that focusing on only ideological elements at the party level is not sufficient. Both emotional elements and the presence of all these elements at the mass level have gained increased significance. For example, Lauka, McCoy, and Firat (2018) argue that "ideological polarization of the political parties is neither necessary nor sufficient for political polarization of the masses" (p. 109) and instead argue that "in contexts of deepening political polarization, party identity increasingly acts as a *social identity* [emphasis added]" (p.

110). Political polarisation appears also to manifest within society at large, through emotions and social identity, which earlier definitions did not fully capture.

Some definitions hope to incorporate both aspects, usually doing so in one of two ways. Firstly, one can make a very broad definition that transcends these specific aspects. For example, Carothers and O'Donohue (2019) describe in their initial definition that "a country's political life is polarized to the extent that competing political forces diverge in their ideas and actions and lack any significant common ground" (p. 8), focusing the rest of their chapter on how this can manifest in different ways. Alternatively, one can define polarisation as the combination of these different aspects. Persily (2015) does so in the introductory chapter of *Solutions to Political Polarisation in America*:

> "Three separate but interacting phenomena fall within the ambit of "polarization." The first is ideological convergence within parties and divergence between parties – what we might call "hyperpartisanship." The second, often characterized as "gridlock," refers to the inability of the system to perform basic policy-making functions due to obstructionist tactics. Third, when we speak of polarization we often mean something beyond government dysfunction: a larger cultural phenomenon of "incivility," namely the erosion of norms that historically constrained the discourse and actions of political actors or the mass public." (p. 4)

Lelkes (2016) similarly argues that political polarisation can best be described as an umbrella term of multiple types of political cleavages that can exist. In general, it is clear that a strong conceptualisation of political polarisation incorporates multiple of these aspects. Since so many different types of polarisation have been described in the literature, the next part of this section

will briefly discuss these in turn and highlight which are most pertinent to the concept of

polarisation, and which describe related phenomena but not the concept itself.

Ideological Polarisation

Ideological aspects of polarisation form the backbone of many definitions of polarisation,

like Sartori's (1976) definition of the previous chapter, or Dalton (2008) who defines political

polarisation as "the degree of ideological differentiation among political parties in a system" (p.

900). Ideological polarisation centres around the issue positions of parties or individuals and the

distribution of those positions. If one imagines political viewpoints as moving from left to right,

a non-polarised society would have a normal distribution - with most citizens sitting somewhere

in the middle - whereas a polarised society would approach a bimodal distribution - with most

citizens sitting at one end of the spectrum. Figure 1 visualises this distinction. People may be

polarised on a particular issue, implying that they hold opposing extreme positions without much

common ground, or they may be ideologically polarised more generally, implying that these

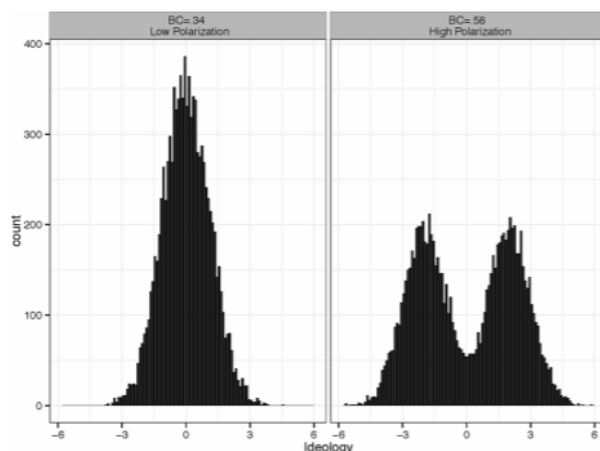extreme positions extend to many different issues at the same time.

Figure 1: Histogram showing theoretical ideological positions in a non-polarised and polarised society. Reprinted from Lelkes (2016).

Ideological polarisation separates into two slightly distinct concepts with different framings. *Divergence* focuses purely on these issue positions or the aggregation of these issue positions. On the other hand, *alignment* focuses on the degree to which individuals attach themselves ideologically to political polarisation. Alignment creates ideological polarisation because people with more attachment to a particular party will often change their positions to fit the party's, therefore creating a stronger bimodality for many ideological issues in that society. However, alignment therefore only impacts ideological polarisation through its impact on divergence with the underlying assumption that these different parties have significantly different platforms. (e.g. Lelkes, 2016)

These types of ideological polarisation can occur at different levels. Divergence can occur both in the political elite and in the masses; both levels have political views that can be aggregated and compared. Alignment can also clearly occur at the mass level through the attachment of citizens to political parties. However, the extent of alignment at the elite level may be more indicative of the country's political system rather than its degree of political polarisation. The extent to which individual politicians get selected by voters significantly changes their expected amount of disagreement with the party platform (Schumacher & Elmelund-Præstekær, 2017), and political norms around voting behaviour of the representatives likely also impacts political elite alignment quite significantly. Although polarisation could theoretically also manifest as differences in alignment at the elite level, this link remains tentative for now and alignment therefore works more appropriately at only the mass level.

Affective Polarisation

Affective polarisation refers to the emotional side of political discourse, describing the extent to which different political groups feel distant from one another. As Iyengar, Lelkes, Levendusky, Malhotra, and Westwood (2018) describe, a society gets more affectively polarised when people "increasingly dislike and distrust those from [another] party." (p. 130). In two-party systems, this clearly manifests in dislike towards members of the other party, whereas in multi-party systems, this dislike can be more muddled but still often involves clear in- and out-groups that separate either groups of parties or one party from the rest. Affective polarisation also holds a clear link to identity; citizens using party affiliation as a salient aspect of personal identity may more readily create these in- and out-groups.

The term affective polarisation and affective elements of polarisation most commonly get used in reference to the mass level and as a broader societal concept - for example when Persily (2015) makes reference to 'incivility', he describes it as a "larger cultural phenomenon" (p. 4). However, emotional elements of polarisation also have relevance at the political elite level. As Skytte (2020) points out, emotionally charged discourse - what he refers to as 'incivility' as well - at the elite level has substantively different effects to ideological polarisation at the elite level, affecting political trust where elite ideological polarisation does not, and the tone of debate can be qualitatively separated from the distance between positions within a debate, highlighting the relevance of emotional elements at the elite level

Perceived Polarisation

Perceived polarisation refers to the "the degree to which the mass public perceives the parties and their followers to be polarized" (Lelkes, 2016, p. 399). It seems to be causally related to other types of polarisation; when perceived polarisation rises, people's ideological positions decreases while their affective polarisation increases (Levendusky & Malhotra, 2016). However, perceived polarisation cannot accurately be described as a "form of mass polarisation" in the way Lelkes (2016) does, because it itself does not actually describe a particular cleavage on which individuals polarise. While perceived polarisation relates to political polarisation in important ways, it is not part of it. As such, it will be excluded from the conceptualisation of polarisation made in this paper.

Political Elite Polarisation

The previous types of polarisation described different elements of political life which can become polarised. However, one can also distinguish political polarisation in terms of the affected groups. Scholars use the term elite polarisation (or political elite polarisation) when these cleavages happen at the political elite level, meaning mostly representatives and party officials. Connotatively, this term more frequently refers specifically to ideological elements of political polarisation at the elite level (e.g. Hetherington, 2009), but it can also include affective elements (Skytte, 2020). As highlighted above, the different elements of political polarisation can manifest differently at the elite level when compared to the mass level; although divergence and affective polarisation mostly appear in similar ways, alignment and perceived polarisation are more salient concepts at the mass level.

Mass Polarisation

Mass polarisation refers to the presence of political cleavages at the mass level - among citizens or 'ordinary people'. This can refer to all aforementioned types of political polarisation, including alignment, divergence, affective polarisation, and perceived polarisation. Mass polarisation most often gets used in contrast to political elite polarisation. Elite and mass polarisation can affect each other in various ways. In particular, elites often seem to predate mass polarisation of both elements; ideological polarisation among the elite can lead to subsequent increases among both alignment and divergence at the mass level (Barber & McCarthy, 2015; Krasa & Polborn, 2014) and incivility among the elite impacts affective polarisation at the mass level (McCoy, Rahman, & Somer, 2018; Skytte, 2020).

Pernicious Polarisation

The concept of pernicious or severe polarisation stems from the observation that limited amounts of polarisation can be healthy for democracy as it offers differentiation between parties, and that only high levels of polarisation can be detrimental to democracy. As McCoy, Rahman, and Somer (2018) describe, "some level of political polarization is theorized to be beneficial to a democracy in terms of providing voting heuristics or clues to help voters choose among candidates, mobilizing supporters, strengthening political parties, and providing programmatic choices" (p. 18). At the same time, high levels of political polarisation can reduce cooperation between different parties and create gridlock, incentivise illiberal one-party rule, or even exacerbate or contribute to conflict and civil war (McCoy, Rahman, & Somer, 2018; Carothers & O'Donohue, 2019). Pernicious polarisation describes polarisation that is severe enough to cause

these negative effects. Polarisation becomes pernicious when there exists "a single cleavage dominating pluralistic political life, overriding other cleavages, effacing countervailing links among political and societal actors, and creating a powerful dynamic of irreconcilable opposition between camps that question or even deny each other's legitimacy" (Carothers & O'Donohue, 2019, p. 10). At this point, there exists large sustained opposition between two groups at both the mass and elite levels with strong affective elements.

Pernicious polarisation effectively captures the distinction between moderate polarisation which has neutral or positive effects on the health of democracies and its detrimental severe counterpart. However, it does not function well as a conceptualisation of political polarisation because it does not capture polarisation itself, but rather its effects. To measure pernicious polarisation, one would still need to measure one or more of the other types; pernicious polarisation only implies that once that measurement reaches a certain threshold, it will start to have a negative effect. As such, it will not be included in the conceptualisation of political polarisation in this paper, although the results section will discuss which countries may experience pernicious polarisation based on the results of this paper.

2.3 The Concept of Polarisation

With this understanding of the different types of political polarisation, the general definitions of political polarisation can now be reframed within this context. One conceptual approach equates one particular type of polarisation to political polarisation more generally. Sartori (1976) does this when he says that "we have polarisation when we have ideological distance" (p. 120) - essentially equating political polarisation to divergence. Similarly

Abramowitz and Saunders (2005) focus only on alignment when arguing that "it is the existence of subgroup cleavages, rather than the overall distribution of opinion, that is critical in determining the extent of ideological polarization in a society" (p. 4). Figures 2 and 3 visualise these conceptualisations of political polarisation.

Figure 2: Visualised conceptualisation of political polarisation of Sartori (1976).
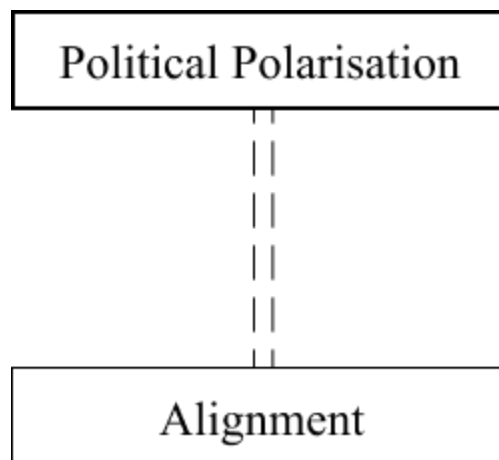
Figure 3: Visualised conceptualisation of political polarisation of Abramowitz and Saunders (2005).

A more common conceptual approach includes seeing different types of polarisation as separate but distinct components of the larger concept, which functions as an 'umbrella term'.

This is employed by Persily (2015) when he discusses the concepts of hyperpartisanship, gridlock, and incivility - which function essentially as synonyms for alignment, elite polarisation, and affective polarization - and by Lelkes (2016) when he views political polarisation as an umbrella term for alignment, divergence, perceived polarisation, and affective polarisation. These two approaches are visualised in Figures 4 and 5.
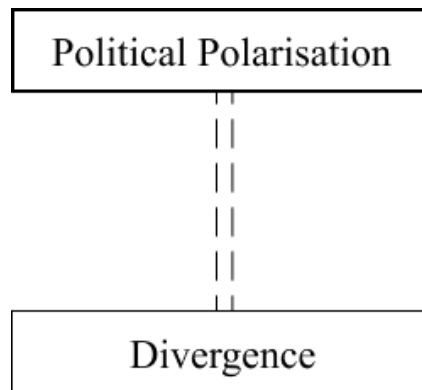

Figure 4: Visualised conceptualisation of political polarisation of Persily (2015).

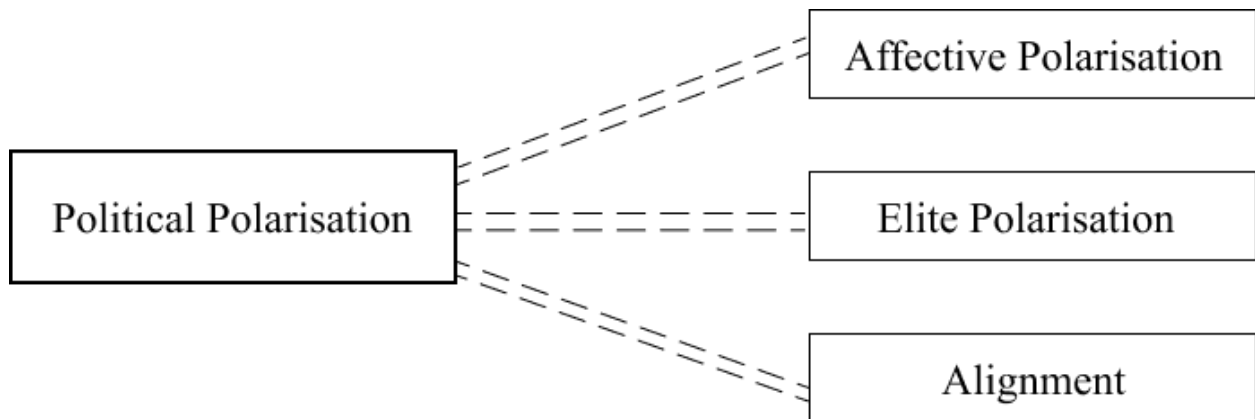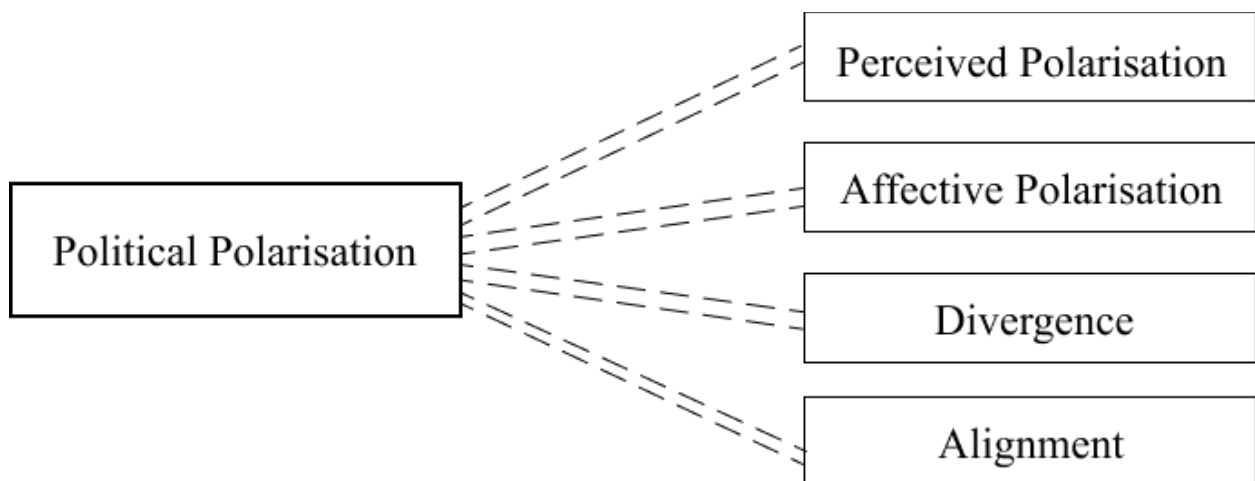*Figure 5:* Visualised conceptualisations of political polarisation of Lelkes (2016).

This thesis parts slightly from both approaches. The relevance of different types of cleavages at different levels excludes the possibility of one dimensional conceptualisations. At the same time, current 'umbrella term' approaches erroneously equate the element of polarisation and the group affected by polarisation. Although elite polarisation and affective polarisation both get referred to as types of polarisation, they function in fundamentally different ways: elite polarisation specifies the affected group but is agnostic on the form of the cleavage, where affective polarisation specifies the cleavage but remains agnostic about the affected group. As such, merely equating the two is not suitable.

Instead, this thesis argues that political polarisation has two dimensions on which political polarisation can be distinguished: the 'level' of polarisation - or the group affected - and the 'element' of polarisation - or the way in which the political cleavages manifest. Political polarisation manifests at both the elite and the mass level, and it manifests through both ideological and emotional elements. This conceptualisation provides four different types of polarisation: ideological polarisation at the mass level, ideological polarisation at the elite level, affective polarisation at the mass level, and affective polarisation at the elite level. Table 1 shows this typology. This approach accurately incorporates the relevant types of polarisation while excluding the types that do not constitute the concept itself. Types of polarisation like perceived polarisation and pernicious polarisation, while closely related to the concept, do not themselves constitute polarisation and are therefore excluded here. Meanwhile, these four subdimensions do seem to capture the other types of cleavage that people usually associate with political polarisation.

Element

	Ideology	Affect
Mass	Mass Ideological Polarisation	Mass Affective Polarisation
Elite	Elite Ideological Polarisation	Elite Affective Polarisation

Level

Table 1: Typology of political polarisation used in this thesis.

These types are ontologically related to the broader concept of political polarisation, meaning that these types together constitute the essence of polarisation. Alternative conceptions, like those that view types of polarisation as caused by the latent concept of political polarisation, seem less appropriate because the cleavages themselves form the definition of polarisation. Although the elements may have causal relations with each other, this does not change their underlying relationship with political polarisation in general. This conceptualisation of political polarisation sees none of the elements as necessary for political polarisation to occur, instead viewing it as a continuous concept that increases as any of the four types increases.

2. Measuring Political Polarisation

With conceptualisation of political polarisation specified above, it becomes clear that a comprehensive index of political polarisation incorporates measurements for all four types and aggregates them in a way to fully capture the concept of political polarisation. This section will justify how to measure and aggregate to best capture the conceptualisation of political polarisation from this thesis. First, it will discuss how each type is usually measured, in particular in a comparative setting. Then, it will evaluate the existing data, the available multinational surveys and relevant questions they provide. After that, it will outline the operationalisation used for each question and type, before ending by discussing how missing data can best be handled in this context.

3.1 Measurement of Each Type

Elite Ideological Polarisation

Scholars most frequently measure elite issue polarisation by evaluating the distribution of views by parties on scales which aim to capture or summarise the major cleavage(s) in a particular society. This can be done using multidimensional ideological scales, but a one-dimensional scale is most common. Usually, the 'left-right' divide gets used for this. The parties then get weighted by size, put on this scale, and a measure of variation like variance or standard deviation often gets used to measure polarisation (e.g. Dalton, 2008; Ezrow, 2008; Lupu, 2015). Although measures of variation are most common, other strategies can better capture certain elements of polarisation. For example, using the difference between the left-most and right-most parties, also known as the 'range', alleviates certain pitfalls that variation-based strategies have, like giving unintuitively high scores for systems with fewer but less extreme parties and

unintuitively low scores for increasing extreme party presence in ideologically skewed party systems (Schmitt, 2016).

Certain countries may have other specific methods to measure elite ideological polarisation. For example, Poole and Rosenthal (1985) developed a method to analyse legislators' voting records in the United States called the DW-NOMINATE score, which has become widely used to measure elite ideological polarisation there (e.g. Krasa & Polborn, 2014; Lupu, 2015). Similarly, specific cleavages may be more salient in particular countries than others, making comparative research more difficult. Nevertheless, the left-right cleavage is considered somewhat malleable, allowing countries' citizens to project their country's cleavages, and therefore can serve adequately as a comparative tool. The Comparative Studies of Electoral Systems (CSES; 2020) is widely used for this purpose through its expert survey which rates major parties in many countries (e.g. Dalton, 2008; Lupu, 2015), and the Chapel Hill Expert Survey (CHES; Bakker et al., 2019) can be used for the same purpose. In addition, similar ratings can be made based on Manifesto data provided by the Manifesto Project (MARPOR; Volkens et al., 2020). Although general mass-level surveys sometimes get used to estimate elite ideological polarisation (Schmitt, 2016), they likely estimate perceived elite polarisation more than actual elite polarisation because the average citizen likely struggles to accurately place political parties on many issues, and it will therefore not be included in the index created by this paper.

Mass Ideological Polarisation

Mass ideological polarisation contains some similarity in measurements to elite ideological polarisation. In particular, the use of the right-left cleavage is once again common to

capture ideological differences. In this case, mass surveys, in particular those which ask respondents to place themselves on such a scale, become a useful comparative tool. Surveys such as the World Values Survey (WVS; Inglehart et al., 2020), CSES, and Latinobarómetro (2018) all ask such questions. Here, a measure of variance is more appropriate than a measure of range when aggregating data, because the large number of respondents prevents the earlier pitfalls from having the same significance, as these pitfalls mostly resulted from the extremely small number of parties. Some comparative surveys have also aimed to capture ideological differences on several issues, which can instead be used to measure mass ideological polarisation. For example, Grechyna (2016) used WVS questions on redistribution to create a measure of ideological polarisation, rather than the left-right self-placement.

Unlike for elite ideological polarisation, alignment becomes a more relevant concept to operationalise for the mass level. Studies frequently measure this through party attachment; if an individual feels attached or connected to a particular party, this indicates higher alignment (e.g. Lupu, 2015). Alternatively, asking people what parties they would and would not vote for captures similar tendencies of being ideologically connected to certain parties over others and can therefore also function as a way to measure partisan attachment (Lauka, McCoy, & Firat, 2018). The CSES has questions on all of these aspects and has been widely used for this purpose, and the Afrobarometer (2020) also has these questions.

Elite Affective Polarisation

Elite affective polarisation has been measured for comparative studies much less frequently than the other types of polarisation, seemingly because scholars have tended to focus predominantly on ideological forms of elite polarisation. In experimental studies, reports of

incivility have been used as independent variables (e.g. Skytte, 2020), but this neither measures real-world incidence of elite affective polarisation nor do they lend themselves to comparative use. A more suitable comparative approach might involve grading speeches or debates by their hostility, which could be done either manually or through computational algorithms, but these methods do not seem to have been developed yet.

However, one potential measure approximates elite affective polarisation somewhat. The Varieties of Democracy (VDem; Coppedge et al., 2020) database includes an expert survey where they ask country experts "when important policy changes are being considered, to what extent do political elites acknowledge and respect counterarguments?" This question asks specifically about the elite level, and the amount of hostility and incivility in political arguments likely forms a major determinant behind what answer experts give to this question. Furthermore, its use in the VDem dataset means it provides comparative data. Although this measure has not been used by other studies to measure elite affective polarisation, certain scholars have acknowledged its close relation to other types of polarisation. For example, McCoy, Rahman, and Somer (2018) use this variable to show how "tolerance for opposing views among political elites" (p. 31) had declined in certain polarised societies, which closely correlates with the concept of elite affective polarisation this paper aims to capture here.

Mass Affective Polarisation

Finally, mass affective polarisation can be measured in various ways, only some of which currently exist in comparative research. Firstly, one can measure mass affective polarisation in experimental settings, either by measuring implicit bias or the degree of in-group favoritism and discriminatory behaviour towards the outgroup (e.g. Iyengar & Westwood, 2015; Rand et al.,

2009). However, these measurement types are much more difficult to use in comparative

research. In addition, a useful way to measure affective polarisation may involve a so-called

'feeling thermometer', where people represent their feelings towards different political groups as

'hot' (100) or 'cold' (0). This survey question has been used in the American National Election

Survey (ANES) and has served as the basis for much U.S.-specific research on affective

polarisation (e.g. Lelkes, 2018; Iyengar et al., 2018), but it has appeared much less in

comparative surveys.

A useful alternative that *has* appeared in comparative surveys asks respondents for their

affect towards different political parties in a range between one and ten. People feel strong affect

towards a party if they rate them on one of the extremes, indicating strong like or dislike. This

measurement is slightly inferior because it asks respondents about their affect towards the party

itself, rather than members of that party. Nevertheless, it does provide an mass-level affect-based

measure, and as such has been used in the literature to measure mass affective polarisation (e.g.

Lauka, McCoy, & Firat, 2018; Reiljan, 2019). This question appeared in the CSES surveys.

Aggregation

The way in which the previous section conceptualised political polarisation determines

the most suitable aggregation strategy. As Wuttke et al. (2020) explain, the optimal aggregation

strategy for multidimensional concepts depends on two characteristics: whether the concept

operates in a continuous or binary way (the quantifier) and the extent to which high values in

dimension can compensate for low values in another (the qualifier). Each concept structure has a

different appropriate aggregation strategy, as shown in Table 2. Political polarisation, as

conceptualised in this paper, operates in a continuous manner, and increases in the four types all

20

can compensate for each other equally. This means that what Wuttke et al. (2020) refer to as the 'Bollen approach' is most suitable. This approach implies aggregating via (weighted) averages and creating single composite scores. As such, once each type is calculated for a particular country-year, all four types will simply be averaged to create a single polarisation score for that country-year.

Quantifier

		Dichotomous	Continuous
Qualifier	Compensatory	Sartori (ladder of abstraction)	Goertz (minimum value)
	Non-compensatory	Residual (threshold after summation)	Bollen (weighted averages)

Table 2: Possible aggregation strategies

In sum, the previous section has provided a clear conceptual framework for how the different types of political polarisation usually get measured. In the next few sections, this paper will use this basis to create a comprehensive index of political polarisation through multinational survey projects. It will first highlight the scope of the surveys, then defend specific methodological choices like the operationalisations used, and finally create the index within methodological constraints, particularly focusing on how to appropriately handle missing data.

3.2 Coverage

As highlighted in the previous section, a variety of measurements can be used to capture the different types of political polarisation. However, some of these measurements - such as the feeling thermometer and DW-NOMINATE score - are only available in one country and are

therefore not suitable for comparative analysis. Table 3 shows the comparative surveys and associated questions used in this paper. Because political polarisation, and in particular elite polarisation, relies fundamentally on competition between political parties, all countries classified by the Economist's Democracy Index as authoritarian were excluded. Hybrid regimes are not excluded. In total, 7 different surveys are used, with over 100 countries still included in some capacity and 47 countries measured fully. Table 4 shows the extent to which the surveys were able to measure each type of polarisation in different countries. Hybrid regimes will be included, but table 3 will show through asterisks which countries are considered hybrid regimes by the Democracy Index, in case scholars themselves aim to exclude these.

Survey	Polarisation type	Subtype/ measurement type	Question
CSES	Mass Ideological	Divergence: Self LR	Where would you place yourself on this scale? Left -- Right
Latinobarómetro	Mass Ideological	Divergence: Self LR	In politics, people normally speak of "left" and "right". On a scale where 0 is left and 10 is right, where would you place yourself?
WVS	Mass Ideological	Divergence: Self LR	In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?
WVS	Mass Ideological	Divergence: Issue	How would you place your views on this scale? (1) Incomes should be made more equal -- We need larger income differences as incentives for individual effort (2) private ownership of business and industry should be increased -- government ownership of business and industry should be increased (3) government should take more responsibility to ensure that everyone is provided for -- people should take more responsibility to provide for themselves
Afrobarometer	Mass Ideological	Attachment: Close	Do you feel close to any particular party?
CSES	Mass Ideological	Attachment: Close	Do you usually think of yourself as close to any particular party?
CSES	Mass Affective	Like/Dislike: Party	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.
CSES	Elite Ideological	Expert: Party LR	Parties' positions on the left-right scale (in the expert judgment of the CSES Collaborator)
CHES	Elite Ideological	Expert LR: parties	Position of the party in terms of its overall ideological stance.
MARPOR	Elite Ideological	Manifesto LR: parties	Right-left position of party
VDem	Elite Affective	Respect for Counter	When important policy changes are being considered, to what extent do political elites acknowledge and respect counterarguments?

Table 3: List of surveys and measurement questions for each type of political polarisation.

All types present	3 types present	2 types present	1 type present	No types	Excluded: Autocracies
Albania	Armenia*	Bangladesh*	Bhutan*	Switzerland	Azerbaijan
Argentina	Bosnia and Herzegovina*	Benin*	Fiji*	Nepal*	Belarus
Australia	Cyprus	Bolivia*	Gambia*		Kazakhstan
Austria	Dominican Republic	Botswana	Guyana		Russia
Belgium	Georgia*	Cape Verde	Jamaica		Tajikistan
Brazil	Kyrgyzstan*	Colombia	Mongolia		Turkmenistan
Bulgaria	Luxembourg	Costa Rica	Papua New Guinea		Uzbekistan
Canada	Malta	Ecuador	Suriname		Cuba
Chile	Moldova*	El Salvador*	Timor-Leste		Nicaragua
Croatia	North Macedonia*	Ghana			Venezuela
Czech Republic	Ukraine*	Guatemala*			Afghanistan
Denmark		Haiti*			Cambodia
Estonia		Honduras*			China
Finland		India			Laos
France		Indonesia			Myanmar
Germany		Ivory Coast*			North Korea
Greece		Lebanon*			Vietnam
Hong Kong*		Lesotho			Algeria
Hungary		Liberia*			Bahrain
Iceland		Madagascar*			Egypt
Ireland		Malawi*			Iran
Israel		Malaysia			Iraq
Italy		Mauritius			Jordan
Japan		Morocco*			Kuwait
Kenya*		Namibia			Libya
Latvia		Nigeria*			Oman
Lithuania		Pakistan*			Palestine
Mexico		Panama			Qatar
Montenegro*		Paraguay			Saudi Arabia
Netherlands		Senegal*			Sudan
New Zealand		Sierra Leone*			Syria
Norway		Singapore			United Arab Emirates
Peru		Sri Lanka			Yemen
Philippines		Tanzania*			Angola
Poland		Trinidad and Tobago			Burkina Faso
Portugal		Tunisia			Burundi
Romania		Uganda*			Cameroon
Serbia		Zambia*			Central African
Slovakia					Republic
Slovenia					Chad
South Africa					Comoros
South Korea					Republic of the Congo
Spain					Democratic Republic of
Sweden					the Congo
Taiwan					Djibouti
Thailand					Equatorial Guinea
Turkey*					Eritrea
United Kingdom					Eswatini
United States					Ethiopia

Uruguay					Gabon
					Guinea
					Guinea-Bissau
					Mali
					Mauritania
					Mozambique
					Niger
					Rwanda
					Togo
					Zimbabwe
* Hybrid regime. Political polarisation as a concept may have reduced applicability in these countries.					

Table 4: List of countries for different levels of inclusion in the index.

The available surveys largely dictated the starting year for the index. Table 5 highlights the first available year for each survey project. In some cases, early waves had to be excluded because they did not ask the questions of interest. Since many of these survey projects started to become available around the early to mid 90s, 1993 was chosen as the starting year for this index.

Survey Project	First available year
VDem	1782
MARPOR	1920
WVS	1989
CHES	1994
LB	1995
CSES	2001
AB	2004

Table 5: List of starting years for each survey project used in this thesis.

3.3 Operationalisations

In order to transform the individual-level or party-level data provided by the surveys into country-level data the index requires, each type of question must be aggregated to the country level. For that, this paper uses calculations that exist in the literature, although all will be normalised to range from 0 to 10, a range that many calculations already output and that is easy to parse. This section will briefly go over the calculations for each type.

Elite Ideological Polarisation

As discussed above, elite ideological polarisation should be aggregated using both a variance-based measure and a range-based measure. For the measure that approximate variance, this paper uses Dalton's (2008) measure, the most well-established measure which has been widely used or approximated in other studies (e.g. Lauka, McCoy, & Firat, 2018; Lupu, 2015). It uses the formula given in (1), where p is the proportion of votes for a party, I is the party's ideological position, and $\overline{I}$ is the average ideological position:

$$EI_s = \sqrt{\sum_{i=1}^{n} p_i \times (\frac{I_i - \overline{I_i}}{5})^2}$$

(1)

This formula normalises the vote-weighted average distance between the parties' ideological position and the mean ideological position, with the division by 5 ensuring a value that ranges from 0 to 10. For range, the difference between the leftmost and rightmost parties is used. This also has a theoretical minimum of 0 - when all parties have the same ideology - and a theoretical maximum of 10 - when the most extreme parties place on the very edge of the spectrum.

26

Mass Ideological Polarisation

For mass ideological polarisation, attachment when measured via questions that ask for positive partisanship can simply be calculated as the proportion of positive partisanship for a particular country-year, multiplied times ten to align with other scores. For divergence, much like the elite level, the mass level uses both a variance-based measure and a range-based measure. The variance-based approach reflects the formula from Dalton (2008), changing only to aggregate individual-level data instead of party-level data, as shown in (2):

$$MI_s = \sqrt{\sum_{i=1}^{n} p_i \times \frac{\left(\frac{I_i - \overline{I_i}}{5}\right)^2}{n}}$$

(2)

However, range cannot be extrapolated from elite ideological polarisation in the same way, because with so many responses the range would always go up to ten. Instead, following Lauka, McCoy, and Firat (2018), this paper multiplies the proportion of individuals who place themselves far on the right with the proportion far on the left. This results in values between 0 (if one extreme has no values) and 0.25 (if both extremes have half of the values). Theoretically, this should then be multiplied by 40 to range from 0 to 10. However, in practice, most values were quite low and the range was somewhat limited, so it was instead multiplied by 80 to align with other indicators, as shown in (3):

$$MI_e = 80 \times (p_l \times p_r)$$

(3)

Elite Affective Polarisation

Elite affective polarisation currently focuses on country-level data already - since the question from the VDem dataset asks experts about a particular country and year. For that

reason, no calculations are required; the data must only be normalised to also range from 0 to 10, whereas it currently ranges from about -3.5 to 3.5.

Mass Affective Polarisation

Mass affective polarisation currently only gets measured through a question in the CSES that asks for a person's affect towards different parties. To aggregate this to country-level data, this paper again uses the formula from Lauka, McCoy, and Firat (2018), where np is the number of parties (with a maximum of 9 when using CSES data), Lp is the proportion of parties liked by an individual and Dp is the proportion disliked, as seen in (4):

$$MA = 80 \times \left(\frac{\sum\limits_{i=1}^{np} Lp_i \times Dp_i}{n} \right) \tag{4}$$

Once again, this formula is multiplied by 80 in order to create a range that aligns with the others.

3.4 Missing data

Data can be missing from this index in two distinct ways, which necessitate distinct but related responses. Firstly, each individual survey question has a different associated nonresponse. For this index, all non-responses were simply omitted. To record the lowered confidence associated with higher nonresponse, an additional 'confidence variable' was created, using the response rate squared to punish values with lower response rates. This means that a non-response rate of 20% leads to a 'confidence rating' of 0.64 (namely 0.8×0.8), where a non-response rating of 50% leads to a rating of 0.25.

Secondly, countries may have limited survey coverage, and surveys may only cover specific years. Figure 6 shows what the country-level data looks like for a country with high survey coverage, South Korea. Clearly, even though coverage is quite high, a lot of cells are still empty. This causes the scores in years with more missing data to be significantly skewed by a small number of surveys.

	Country	Year	WVS Self LRe	WVS Self LRs	WVS Issue1	WVS Issue2	WVS Issue3	CSES Close	CSES Expert LRs	CSES Expert LRr	...	CSES Self LRs	CSES Self LRe	CHES LRs	CHES LRr	MARPOR LRs	LB Self LRe
2224	South Korea	2005	4.980532	4.993859	5.809663	4.993260	3.763741	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2225	South Korea	2006	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2226	South Korea	2007	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2227	South Korea	2008	NaN	NaN	NaN	NaN	NaN	4.051447	5.147340	7.0	...	5.033507	5.097864	NaN	NaN	3.115128	NaN
2228	South Korea	2009	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2229	South Korea	2010	4.588134	4.741805	5.643580	4.857800	3.538692	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2230	South Korea	2011	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2231	South Korea	2012	NaN	NaN	NaN	NaN	NaN	4.951768	5.128842	7.0	...	4.947328	4.928641	NaN	NaN	2.526998	NaN
2232	South Korea	2013	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2233	South Korea	2014	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2234	South Korea	2015	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2235	South Korea	2016	NaN	NaN	NaN	NaN	NaN	4.979149	4.932028	6.0	...	4.547640	3.822426	NaN	NaN	2.680775	NaN
2236	South Korea	2017	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2237	South Korea	2018	3.866260	4.562860	5.575937	4.868643	4.633781	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2238	South Korea	2019	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN
2239	South Korea	2020	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	NaN	NaN	NaN

Figure 6: Initial country-level data for South Korea.

Year	Mass Ideological	Mass Affective	Elite Ideological	Elite Affective	Total Polarisation
2005	4.943316	NaN	NaN	2.33718	3.640248
2006	NaN	NaN	NaN	2.33718	2.337180
2007	NaN	NaN	NaN	2.33718	2.337180
2008	4.727606	3.689234	5.087490	3.83875	4.335770
2009	NaN	NaN	NaN	4.08746	4.087460
2010	4.669988	NaN	NaN	4.23376	4.451874
2011	NaN	NaN	NaN	4.23376	4.233760
2012	4.942579	2.608267	4.885280	4.23376	4.167472
2013	NaN	NaN	NaN	3.66319	3.663190
2014	NaN	NaN	NaN	3.66319	3.663190
2015	NaN	NaN	NaN	3.97707	3.977070
2016	4.449738	3.783567	4.537601	3.88929	4.165049
2017	NaN	NaN	NaN	2.71357	2.713570
2018	4.485080	NaN	NaN	2.97425	3.729665
2019	NaN	NaN	NaN	2.94233	2.942330
2020	NaN	NaN	NaN	NaN	NaN

Figure 7: Types scores and overall scores based only on initial data for South Korea.

To improve this, this paper will impute missing country-years when nearby country-years for that question do have available data. One well-established way of doing this is through Bayesian inference (Solt, 2009), but this method proved too computationally expensive given the amount of data that must be imputed here. Instead, this paper uses linear interpolation, another common method for imputing missing country years that works particularly well with time series data when the concept has a "structural nature with low volatility or [follows] long-term trends" (Pasteels, 2013, p. 4). Political polarisation roughly seems to follow this, although country-years with particular spikes due to exceptional events will not be recorded with this method. Using interpolation allows for rough estimates of political polarisation in significantly more settings.

To show the increased uncertainty associated with these imputed values, the second dataframe which records the confidence due to response rate will also factor in the extent of

interpolation required for a particular estimate. This dataframe imputes values so long as data was recorded ten or fewer years away, and it uses the the formula in (5) to calculate its confidence:

$$c = rr^2 \times (1 - ((1 - 0.8^{y_a}) \times (1 - 0.8^{y_b})))$$

Here, c is the confidence, rr is the interpolated response rate based on the nearest years, y_a is the number of years between the current year and the next observation, and y_b is the number of years between the current year and the previous observation. Table 6 shows how the confidence updates depending on what nearest years are present, assuming a response rate of 100%.

ya

		1	2	3	4	5	6	7	8	9	10	>10
	1	0,96	0,928	0,902	0,882	0,866	0,852	0,842	0,834	0,827	0,821	0,8
	2	0,928	0,870	0,824	0,787	0,758	0,734	0,715	0,700	0,688	0,679	0,64
	3	0,902	0,824	0,762	0,712	0,672	0,640	0,614	0,594	0,577	0,564	0,512
	4	0,882	0,787	0,712	0,651	0,603	0,564	0,533	0,509	0,489	0,473	0,410
	5	0,866	0,758	0,672	0,603	0,548	0,504	0,469	0,440	0,418	0,400	0,328
	6	0,852	0,734	0,640	0,564	0,504	0,456	0,417	0,386	0,361	0,341	0,262
yb	7	0,842	0,715	0,614	0,533	0,469	0,417	0,375	0,342	0,316	0,295	0,210
	8	0,834	0,700	0,594	0,509	0,440	0,386	0,342	0,307	0,279	0,257	0,168
	9	0,827	0,688	0,577	0,489	0,418	0,361	0,316	0,279	0,250	0,227	0,134
	10	0,821	0,679	0,564	0,473	0,400	0,341	0,295	0,257	0,227	0,203	0,107
	>10	0,8	0,64	0,512	0,410	0,328	0,262	0,210	0,168	0,134	0,107	N/A

Table 6: Factor of confidence based on the nearest present data points.

After these missing data get imputed, the types can be calculated. For individual types, weighted averages were used, where the confidence functioned as weights in order to favour data

with high response rates and less interpolation. Between types, weighted averages were only used for types that had a total certainty rating of below 1, meaning they likely recorded only a single value many years away, to ensure that the long interpolation periods did not affect the final index too strongly.

The combined use of linear interpolation and weighted averages significantly reduces variance in individual years. Figure 9 shows what South Korea's estimates look like after this process, and figure 9 plots the total polarisation estimate over time when compared to the initial estimates. Clearly, the data exhibits much less year-to-year variance because interpolation was used. The final score looks higher because it appropriately incorporates closely values of all types, whereas the original score got unduly skewed downward by the lack of data. Clearly, this method reduces the variance when particular types are only sparsely present by smoothing out their effect on the data.

Year	Mass Ideological	Mass Affective	Elite Ideological	Elite Affective	Total Polarisation
2005	4.746633	4.321775	4.814556	2.33718	4.048365
2006	4.733627	4.110929	4.905534	2.33718	4.018833
2007	4.723611	3.900081	4.996512	2.33718	3.991579
2008	4.718221	3.689234	5.087489	3.83875	4.333424
2009	4.720076	3.418992	5.036937	4.08746	4.338297
2010	4.712620	3.148750	4.986385	4.23376	4.307936
2011	4.735540	2.878509	4.935832	4.23376	4.228859
2012	4.772708	2.608267	4.885280	4.23376	4.125004
2013	4.717141	2.902092	4.798360	3.66319	4.048160
2014	4.650394	3.195917	4.711441	3.66319	4.084010
2015	4.573838	3.489742	4.624521	3.97707	4.183214
2016	4.488217	3.783567	4.537601	3.88929	4.174669
2017	4.483006	3.783567	4.537601	2.71357	3.884482
2018	4.473898	3.783567	4.537601	2.97425	3.958031
2019	4.473898	3.783567	4.537601	2.94233	3.955300
2020	4.473898	3.783567	4.537601	2.94233	4.023901

Figure 8: Final type scores and overall scores for South Korea.

Figure 9: Final estimate of South Korea's polarisation score over time.

3. Validation

Before looking at the results that the index outputs, it is important to ensure that the index measures the intended concept (of political polarisation). This section aims to evaluate that. Firstly, it will briefly look at the characteristics of the different types, before focusing the analysis on whether the output aligns with theoretical expectations, both in terms of the countries with the highest and lowest values and in terms of countries with clear scholarly consensus.

<u>4.1 Concept Properties</u>

In general, the total polarisation indicator seems to behave in the way we expect, exhibiting a normal distribution with a mean of 4.78 and standard deviation of 0.92. Figure 10 shows the distribution of polarisation scores. It seems natural that even most high values do not come close to 10, because that would require countries to reach or approach theoretical maxima on a wide range of indicators.
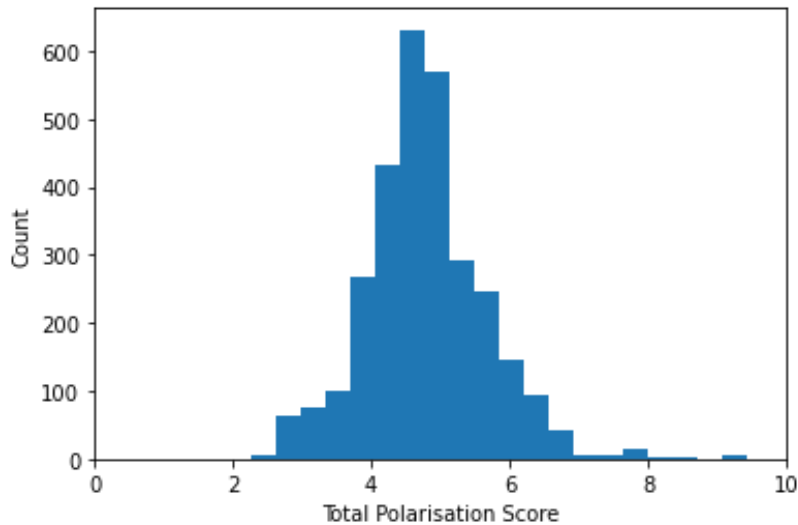
Figure 10: Histogram showing the range of total polarisation scores.

Encouragingly, most types also seem to have similar means and standard deviations. The means and standard deviations are given in table 7, and their respective distributions are shown in figures 11 through 14. The relative similarity in distributions means that the presence or absence of particular types will not have a very significant influence on the score of a country, increasing comparability between countries with differing levels of survey coverage.
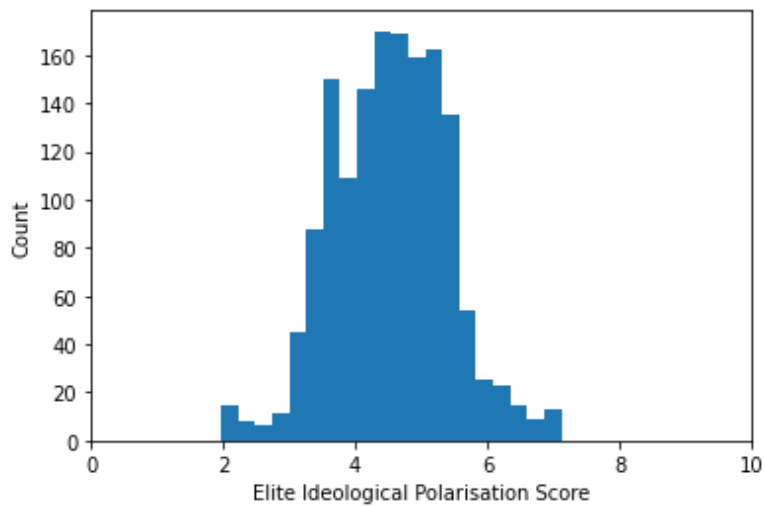

Figure 11: Histogram showing the range of elite ideological polarisation scores.
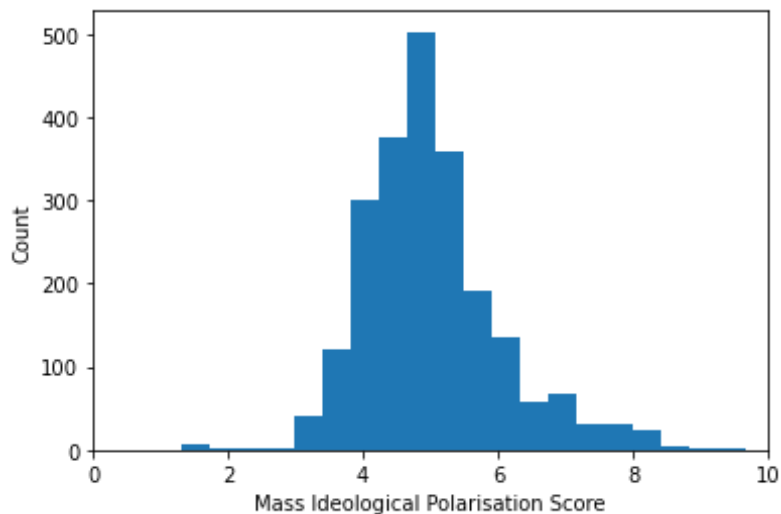
Figure 12: Histogram showing the range of mass ideological polarisation scores.
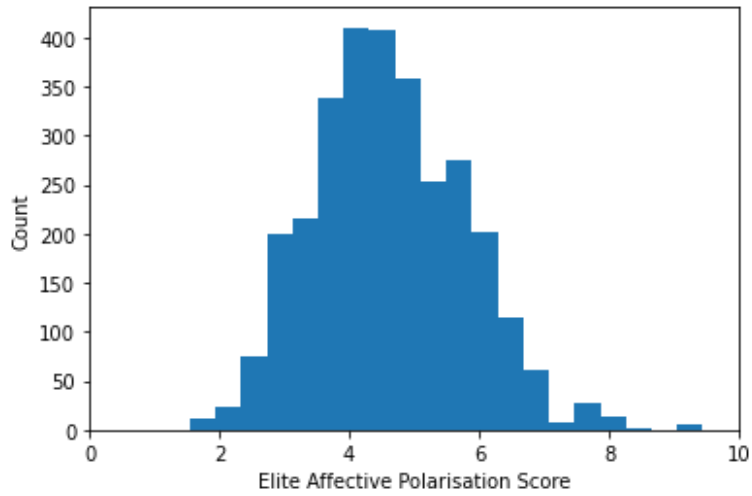
Figure 13: Histogram showing the range of elite affective polarisation scores.
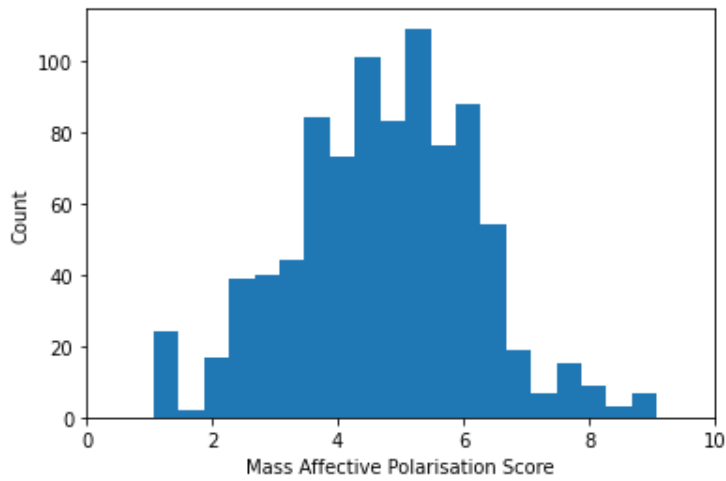
Figure 14: Histogram showing the range of mass affective polarisation scores.

Type	Mean	Standard Deviation
Elite Ideological	4,48	0,86
Mass Ideological	5,00	1,03
Elite Affective	4,61	1,17
Mass Affective	4,75	1,47
Total Score	4,79	0,87

Table 7: Means and standard deviations for each type of polarisation.

That being said, the countries with the highest and lowest scores usually had only very limited survey coverage. These are likely not fully reflective of the actual polarisation levels in those country-years. Usually, the presence of multiple survey scores would increase the likelihood that a country-year approaches its 'true' polarisation level because the indicators would have a moderating effect on each other; this effect is lacking when only one or two surveys were used. Figure 15 shows the association between the polarisation score and the certainty score: it is clear that low certainty scores correspond to much greater ranges. Because low certainty and the presence of only one type of polarisation also does not align with the conceptualisation of polarisation laid out in the paper, the rest of this results section focuses on estimates in which we are reasonably confident (a certainty score of more than 2) and which have more than one type present when comparing multiple countries. This maintains estimates from 89 out of 109 countries, and maintains 1879 out of the 3024 available country-years. When analysing single countries, all observations will be used.
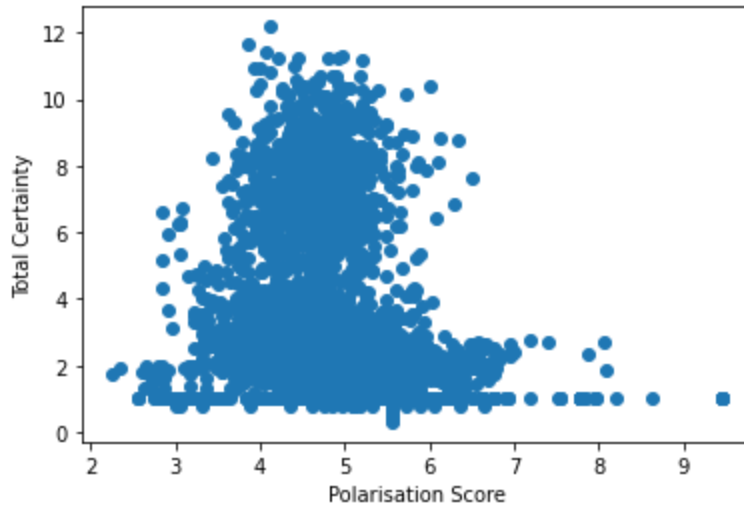
Figure 15: Scatter plot showing the association between a country-year's certainty score and its polarisation score.

4.2 Extreme cases

In terms of countries with particularly high and low scores, the index seems to mostly align with theoretical expectations. Tables 8 and 9 show the countries with the lowest and highest scores in 2019, tables 10 and 11 show the country-years with the lowest and highest scores in all available years, and appendix A shows the average score for each country over all years. Countries like Japan, Taiwan, and Norway often get highlighted as having low polarisation, whereas Bolivia and Turkey are often seen as having high polarisation. However, there are many countries that do not usually get mentioned in the polarisation literature, including those with some of the most extreme scores like Tunisia, the Dominican Republic, Lesotho, and Luxembourg. This is likely because more focus goes towards countries with a larger population or geopolitical influence. To more precisely validate the data from the index, the next section will look at specific cases with widespread scholarly agreement to see to what extent the index aligns with the existing literature.

Country	Total Polarisation
Luxembourg	3,46
Tunisia	3,63
Malta	3,68
Taiwan	3,77
Japan	3,81
South Korea	3,96
Philippines	3,99
Costa Rica	4,04
Lithuania	4,18
Indonesia	4,18

Country	Total Polarisation
Dominican Republic	7,88
Honduras	6,60
Bangladesh	5,97
Turkey	5,88
France	5,66
Italy	5,62
Nigeria	5,56
Guatemala	5,49
Panama	5,49
Bolivia	5,48

Tables 8 & 9: Tables showing the lowest (left) and highest (right) scores in the polarisation index in 2019.

Country	Period	(Lowest) Total Polarisation Score
Thailand	2005-2013	2,83
Japan	2007-2011	3,15
Chile	1995-1999	3,21
Tunisia	2013-2018	3,23
Taiwan	2014-2018	3,27
Luxembourg	2013-2018	3,30
Philippines	1994-1998	3,31
Slovenia	1995	3,35
Lithuania	2007-2008	3,35
Norway	1993-1995	3,37

Table 10: Table showing the lowest scores in the polarisation index in all country-years,

aggregating country-years if they fall in the same period.

Country	Period	(Highest) Total Polarisation Score
Dominican Republic	2013-2019	8,05
Nigeria	1993-1997	6,99
Lesotho	2003-2007	6,83
Dominican Republic	2003-2005	6,77
Tanzania	2001-2005	6,76
Honduras	2016-2019	6,66
Turkey	2015-2017	6,50
Namibia	2004-2005	6,49
El Salvador	2003-2005	6,34
Bangladesh	2002	6,23

Table 11: Table showing the lowest scores in the polarisation index in all country-years, aggregating country-years if they fall in the same period.

4.3 Case studies: undisputed countries

Turkey

Turkey is often viewed as a country with very extreme recent polarisation due to the illiberal practices of Erdoğan, leading to an Islamist-secularist divide (e.g. Aydın-Düzgit, 2019). Somer (2018) describes the trajectory over time, noting that although polarisation slowly rose

since 2002, 2007 functioned as a significant turning point, leading to a sharper rise in polarisation until 2014, since when it has been significant and pernicious. Figure 16 shows the total polarisation score over time for Turkey in this index. This score mostly aligns with existing expectations: a slow rise in the early 2000s gives way to a much sharper rise after 2007, leading to a peak in the mid-2010s. The precise peak in 2016 likely resulted from the divisive failed coup in the same year. In slight contrast to existing research, this index seems to indicate that polarisation has decreased after 2016, whereas other scholars appear to view polarisation as plateauing rather than declining. Still, the polarisation scores remain extremely high at around 6.
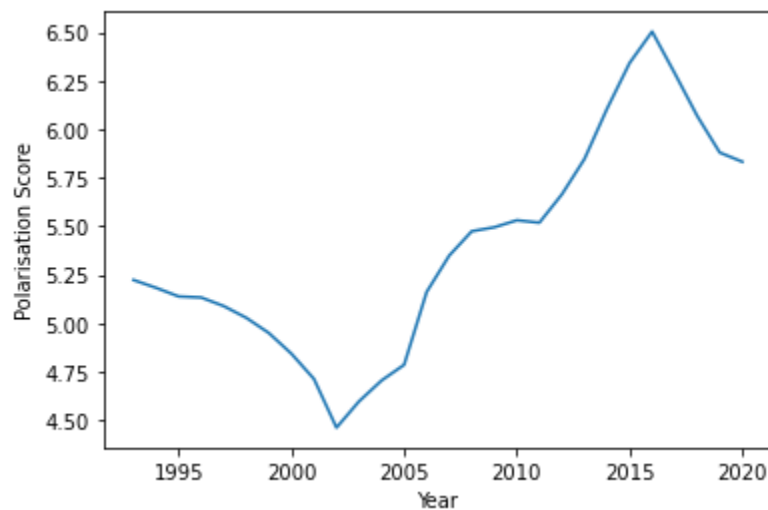
Figure 16: Polarisation score over time for Turkey.

Japan

On the opposite end, Japan serves as an example where consistent low polarisation marks the past few decades. More so than any particular peaks or troughs in polarisation, the consistency and absence most often gets noted in relation to this country (e.g. Solís, 2019; Solomon, 2016). The scores in this index align with this view: although the score differs slightly over time, a very small range of 0.75 in almost 30 years and a very low mean of 3.57 make Japan

one of the consistently least polarised countries in the index. Figure 17 shows these scores over time.

Figure 17: Polarisation score over time for Japan.

Hungary

Hungary serves as a case where the index and the qualitative opinions of scholars do not fully align, revealing some of the index's limitations. Hungary usually gets described as an extremely polarised society within the European context and as steadily on the rise since the early 2000s, stabilising at a high level since 2010 (e.g. Vegetti, 2018; McCoy, Rahman, & Somer, 2018). However, this does not align with the scores in this index, as figure 18 shows. Instead, this index shows a very clearly defined peak in the early 2000s, with consistent moderately high polarisation after.
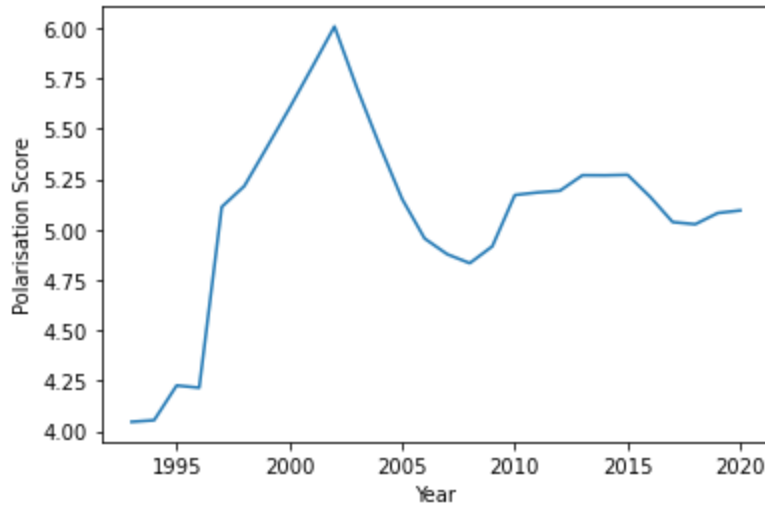
Figure 18: Polarisation score over time for Hungary.

Analysis of each type shows that the score on the mass affective type heavily influences the polarisation score for Hungary, as shown in figure 19. Other types appear to follow the narrative laid out above, rising steadily since the early 2000s. However, the mass affective only records two values, one above all other values in 2002 and one below all other values in 2018, which therefore tempers this general narrative. This highlights the large influence singular scores can have, indicating that one must pay attention to the behavior of the different types when analysing these scores.

Figure 19: Polarisation score for each type over time for Hungary.

Brazil

In Brazil, scholars seem to agree that although Brazil was not divided before, Bolsonaro has created a potentially polarising platform (Hussak van Velthem Meira, 2019; Mignozetti & Spektor, 2019; Gethin & Morgan, 2018). At first glance, the data supports such an explanation, showing a stark rise in polarisation around the 2018 elections, as figure 20 shows. However, as figure 21 highlights, much of this increase results from losing elite ideological and mass affective data from 2018 onwards, where the other types had naturally been higher. Although the increase in elite affective polarisation likely indicates that polarisation as a whole has increased, this increase likely is not as stark as the index implies.
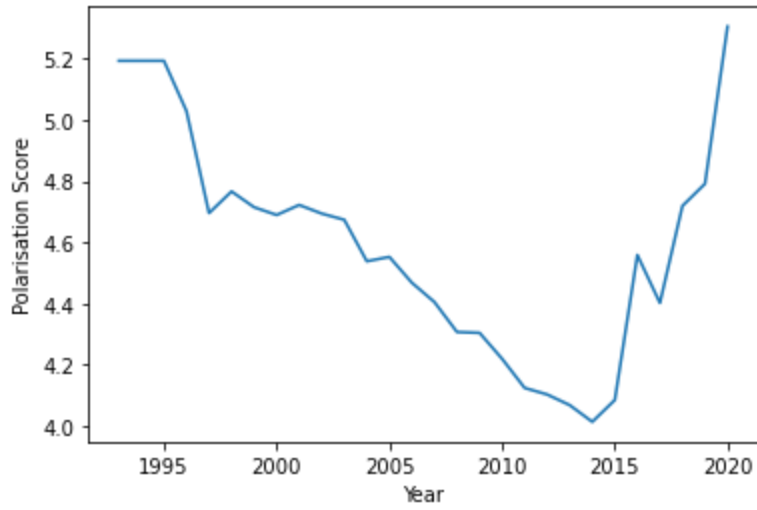
45

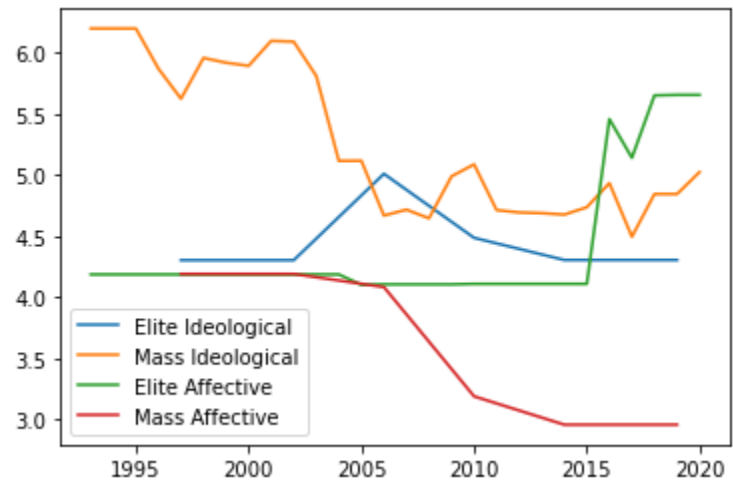*Figure 20:* Polarisation score over time for Brazil.

Figure 21: Polarisation score for each type over time for Brazil.

In sum, the index seems to generally align with scholarly expectations of the extent of political polarisation in particular countries. The presence or absence of particular types or periods can occasionally distort the data slightly, but the smoothing methods used have mitigated these deleterious effects somewhat.

4. Results and Discussion

Given that the index appears to mostly accurately reflect polarisation levels, the next chapter can analyse some questions of interest using this data. Firstly, this chapter will look at some countries where the trajectory of polarisation is somewhat disputed with the index data. Then, this chapter will revisit pernicious polarisation, attempting to find a threshold of pernicious polarisation in this data. Finally, this chapter will end by evaluating the general trajectory of political polarisation since 1993, surprisingly finding that it is not a simple unanimous rise as is commonly assumed.

5.1 Case studies: disputed countries

United States

Although the United States (US) is frequently perceived by the public as the most polarised it has been in decades (e.g. Klein, 2014), scholars have been debating the extent and nature of this rise (Fiorina, 2014; Abramowitz & Saunders, 2005). Before Trump, the scholarly consensus appeared to be that particular types, like aspects of mass ideological polarisation, had not increased, while others, like affective polarisation, had increased (e.g. Lelkes, 2016; Iyengar et al., 2019). After Trump, the view that all types have increased, or at least that polarisation in general has increased, seems to have become more widespread (e.g. McCoy, Rahman, & Somer, 2018).

This index indicates that polarisation was indeed consistently rising in the US before Trump, with a peak in 2016, as figure 22 shows. Figure 23 highlights that the mass level appears to be most responsible for the consistent rise over the past several decades, whereas elite affective polarisation has increased most sharply since 2016. Surprisingly, elite ideological

48

polarisation has *fallen* over the past decade, with the rise in that time resulting from the other three types.
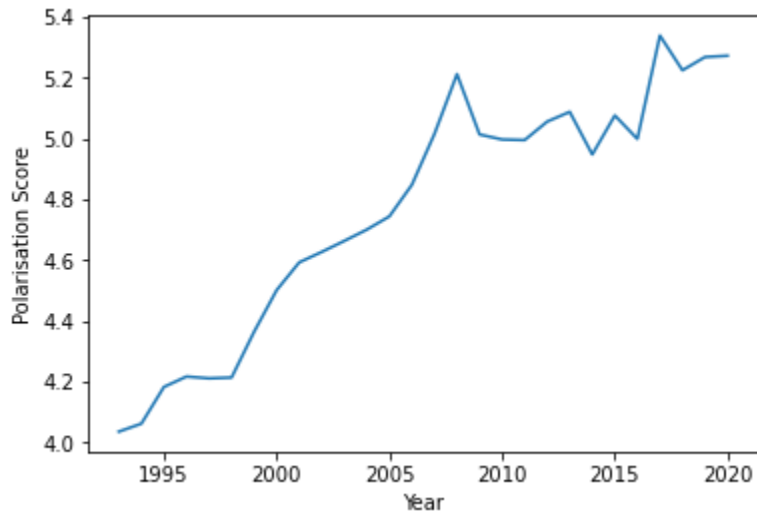

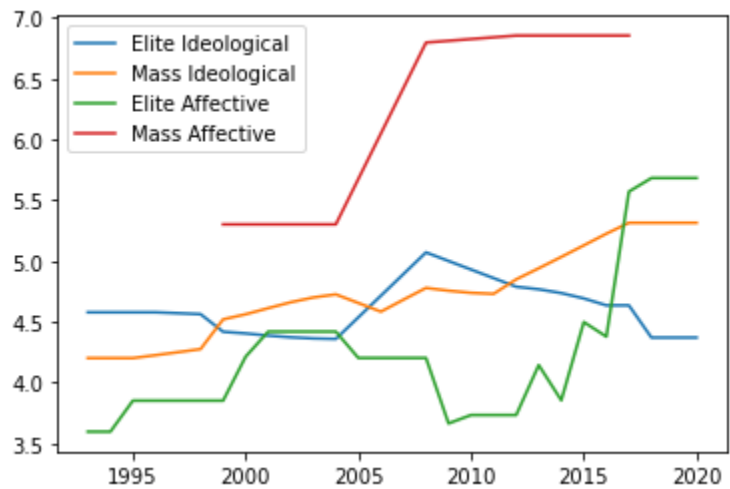*Figure 22:* Polarisation score over time for the United States.

Figure 23: Polarisation score for each type over time for the United States.

United Kingdom

In the United Kingdom (UK), disagreement also seems to exist around the level of polarisation. Although popular media and scholars often portray the UK as polarised, especially since the divisive Brexit vote (e.g. Hobolt, Leeper, & Tilley, 2020), the literature itself finds polarisation in the UK to have remained more or less stable or even slightly decreasing (e.g. Boxell, Gentzkow, & Shapiro, 2020). This index favours the latter narrative: polarisation has actually decreased in the past decade after a peak in 2010, and the post-Brexit era has not significantly changed this trend, as figure 24 shows.
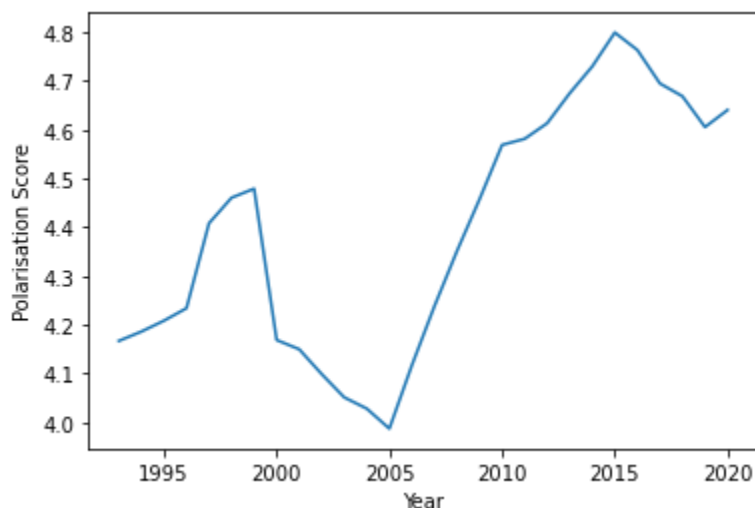

Figure 24: Polarisation score over time for the United Kingdom.

Poland

In Poland, most scholars note a very significant rise in polarisation around the electoral victories of the Law and Justice Party (Prawo i Sprawiedliwość, PiS) in 2015 (Kinowska-Mazaraki, 2021; Fomina, 2019). However, scholars disagree on the level of polarisation present beforehand. Kinowska-Mazaraki (2021) described the 2015 election as a "radical change of

direction" (p. 4), whereas Fomina (2019) describes a more consistent rise of polarisation up to 2015. This index sits between both narratives, indicating that both polarisation had been on the rise in the decades prior and that the rise accelerated in 2015. Notably, however, the index also detects a very noticeable peak around the first PiS-led government between 2005 and 2007, as figure 25 shows.
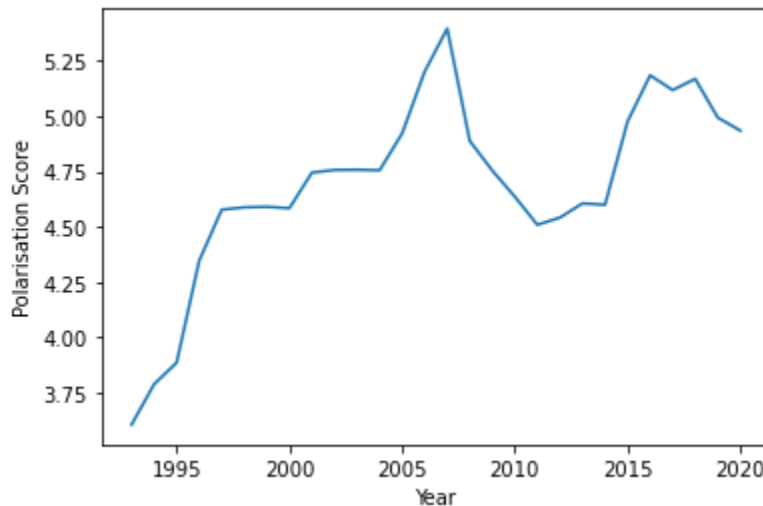

Figure 25: Polarisation score over time for Poland.

5.2 Threshold for pernicious polarisation

As discussed in section 2.2, pernicious polarisation represents a threshold above which political polarisation can start to have deleterious effects on the quality of democracy. Using data from this index, a threshold can be chosen above which polarisation seems to become pernicious, which can then be used to analyse particular cases. Ideally, this uses a fairly round number in order to make the threshold easier to parse, in particular because the number has to be retroactively chosen. Through trial and error, the number 5.25 was selected. A threshold of 5 included many countries that are usually not considered perniciously polarised, like Austria after 2016, Denmark between 2006 and 2009, and New Zealand between 2018 and now. On the other

hand, a threshold of 5.5 seemed to exclude many cases that *do* appear quite perniciously

polarised, including Hungary between 2013 and 2015, the United States after 2016, Greece

between 2009 and 2012, and Croatia before 1996. 5.25 seemed to align with theoretical

expectations most appropriately and was therefore selected. Table 12 shows what country-years

are perniciously polarised given this threshold, and table 13 shows the same for countries in 2019

specifically.

Country	Period(s)
Albania	2002-2010
Australia	2007-2008
Bangladesh	2002, 2016-2020
Bolivia	2015-2020
Bosnia and Herzegovina	1993-1995
Botswana	2004-2008
Brazil	2020
Colombia	2002-2004, 2019-2020
Croatia	1993-1995
Czech Republic	1999-2005
Dominican Republic	1994-2009, 2012-2019
Ecuador	1995-2016
El Salvador	1994-2015, 2018
France	1999-2002, 2013-2020
Ghana	2014-2017
Greece	2009-2012
Guatemala	1997-2005, 2010-2020
Haiti	2014-2017

Honduras	1997, 2002-2005, 2009, 2013-2020
Hungary	1999-2004, 2013-2015
Israel	1998-2007
Italy	2018-2020
Kenya	2006-2009, 2017-2018
Kyrgyzstan	2000-2010
Lesotho	2003-2008
Malawi	2003-2008
Namibia	2003-2008
Nigeria	1993-2002, 2015-2020
Panama	1997, 2013-2019
Paraguay	1997-2002, 2005
Poland	2007
Serbia	1993-1999
Slovakia	2006-2009
Tanzania	2000-2008
Thailand	2017
Turkey	2007-2020
Uganda	2000-2006
United States	2017-2020
Uruguay	2007-2014

Table 12: Table showing country-years above the pernicious polarisation threshold.

Country
Bangladesh
Bolivia
Colombia
Dominican Republic
France
Guatemala
Honduras
Italy
Nigeria
Panama
Turkey
United States

Table 13: Countries above the pernicious polarisation threshold in 2019.

5.3 Polarisation over time

Scholars and the public alike seem to believe that levels of political polarisation are rising

globally (e.g. Carothers and O'Donohue, 2019). This index does not fully corroborate that story.

Total polarisation levels, while continuously rising since 2010, peaked in the early-to-mid 2000s,

as shown in figure 26. This peak may exist for a few reasons: it could be due to random noise in

the data or data availability, it could be due to individual spikes in several countries happening

around the same time by chance, like the Second Intifada in Israel, or it could result from multi-

country events influencing multiple countries at once, like the Second Congo War. Although

political polarisation currently is once again rising, it is not yet at its peak in the 20-year data. A

similar story exists when counting the proportion of perniciously polarised countries, as figure 27 shows.
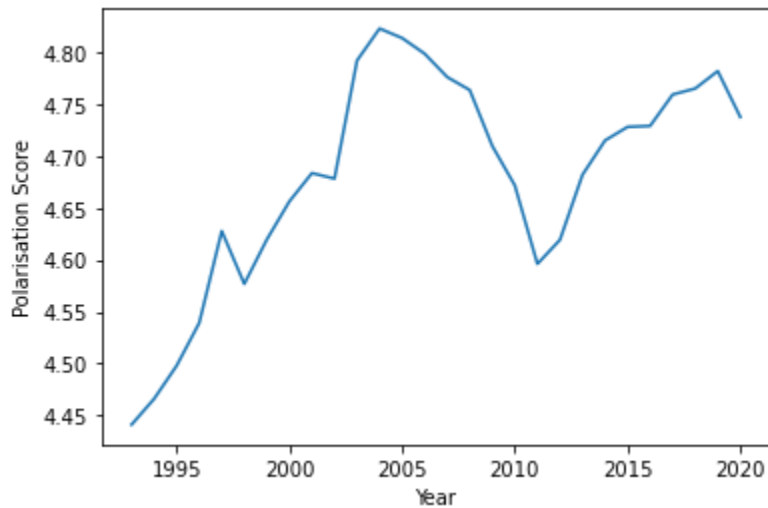

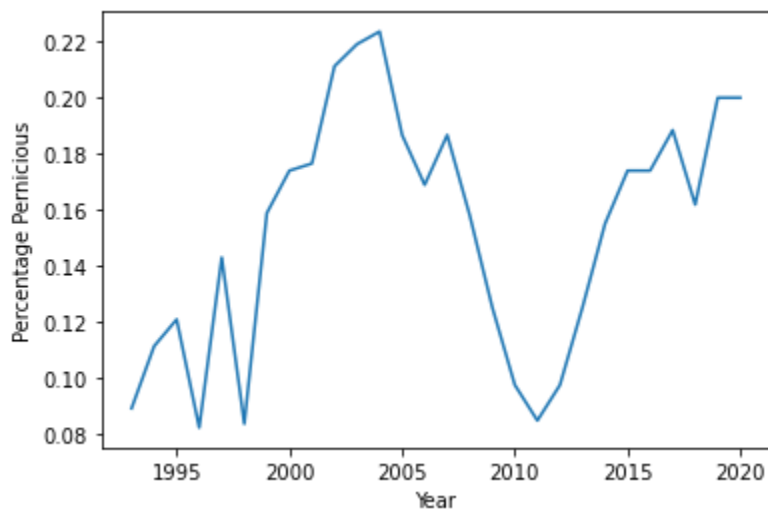*Figure 26:* Average polarisation levels for all countries over time.

Figure 27: Percentage of countries with pernicious polarisation over time.

A look at the specific types of polarisation over time tells a more complex and surprising story. Elite polarisation, both ideological and affective, seems to follow the patterns described by

scholars and has been rising over time, as figure 28 shows. Elite ideological polarisation seems to have plateaued since around 2005 with a constant rise beforehand, and elite affective polarisation has started rising sharply since 2010, a rise which shows no signs of slowing down. On the other hand, both types of mass polarisation have *declined* over time, as seen in figure 29. Mass ideological polarisation has declined since its peak in 2005, whereas mass affective polarisation has decreased steadily since the 1990s.
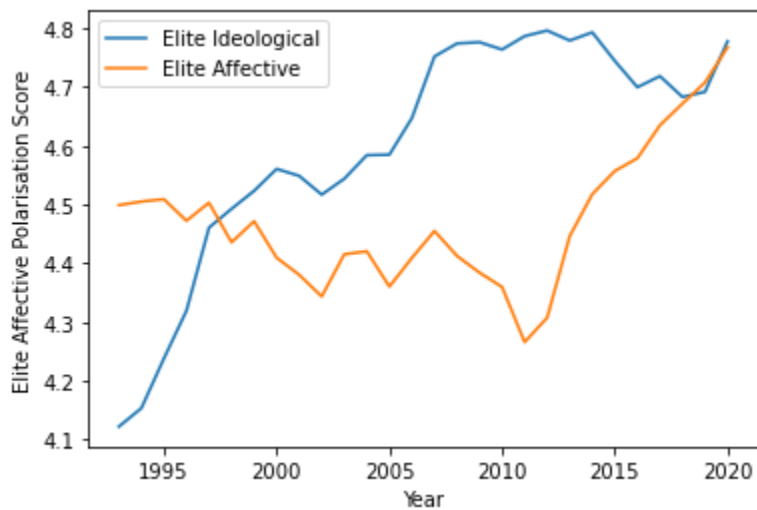

Figure 28: Average levels of elite polarisation in all countries over time.
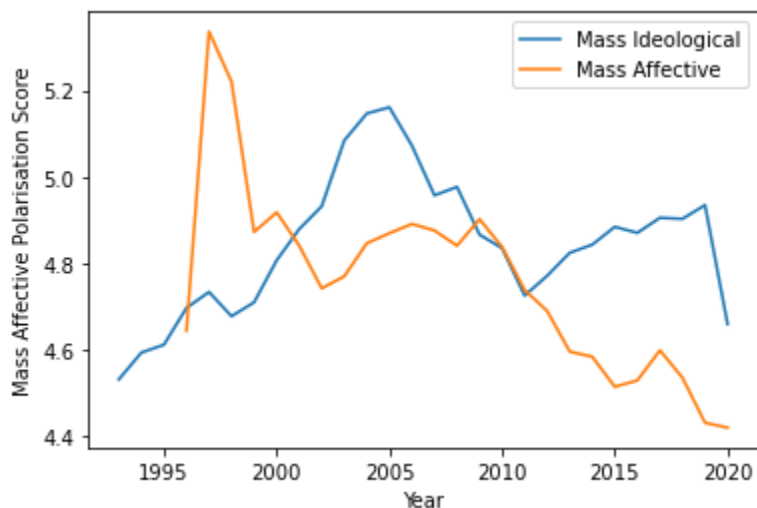
Figure 29: Average levels of elite polarisation in all countries over time.

This distinction profoundly impacts both the general narrative and the future prospects of global political polarisation. In terms of the general narrative, it becomes clear that the 'rise of political polarisation' is not only a one-dimensional process, but that the different types all undergo different longitudinal changes. This further vindicates the multidimensional conceptualisation created earlier and highlights the need to also analyse the types of polarisation individually. In terms of future prospects, conversations usually seem to revolve around whether the rise of political polarisation can be stopped or reversed, assuming a continuing upwards trend (e.g. Carothers and O'Donohue, 2019). However, this more complex picture indicates that political polarisation could trend in a number of ways, depending on the inferred relationship between elite and mass polarisation. When simplifying, three possibilities exist: elite polarisation may precede mass polarisation, mass polarisation may determine elite polarisation, or both operate more or less independently. This leads to three distinct alternative futures: one where mass polarisation starts to increase in the future, one where elite polarisation will decrease, and one where the two will continue to trend independently.

Evidence seems to favour the explanation that elite polarisation precedes mass polarisation. McCoy, Rahman, and Somer (2018) hold that rising elite affective polarisation precedes mass affective polarisation as a polarising leader or party mobilises previously politically disillusioned citizens, and Skytte (2020) finds similar evidence. For ideology, Krasa and Polborn (2014) find that elite ideological polarisation increases mass-level divergence after a twenty-year time lag, and Barber and McCarthy (2015) highlight that mass-level position switching in response to party positions means that elite ideological polarisation will become

57

reflected in the citizens over time. However, this evidence is not conclusive, and the real story is likely more complicated. Elites should respond to public ideological positions in democratic countries, meaning that the ideological influence is not fully one-sided. Furthermore, the causal relation between elite and mass polarisation is still tentative.

In sum, this index does not reflect the story that political polarisation is wholly increasing globally. Instead, elite polarisation has increased while mass polarisation has decreased. The presumed causal relationship between the two therefore has a profound effect on the expected trend in the following decades, but the most likely outcome seems to be that mass polarisation will follow elite polarisation and increase over time.

5. Conclusion

This thesis created a multidimensional conceptualisation of political polarisation and an index that measures this conceptualisation for more than 100 countries and over 25 years. Investigating particular countries through this index provided insights on both the strengths and limitations of this approach. Not only is this measurement of political polarisation as multidimensional more 'correct' in the sense that it better captures all aspects of the concept, it also allows for more nuanced analysis between types. A consistent level of polarisation over time could mean that all types remain consistent, or that some are increasing while others decrease at the same rate; it could mean that all types are similarly high, or that some are much higher than others. With this index, one can evaluate exactly how each type influences the final score, allowing for more nuanced analysis.

At the same time, the use of multiple types created some significant limitations. In particular, when a type had limited coverage for a particular country, it could cause scores to unduly fluctuate. Similarly, when only very few observations were available for a country, it could cause stronger fluctuations. This thesis tried to resolve this through linear interpolation and reduced weightings, but this did not fully resolve the problem as can be seen in cases like Brazil and Hungary.

Another limitation involves the selection of countries: although authoritarian countries were intentionally omitted because political polarisation does not fully apply in those countries, it is possible that countries which were previously authoritarian but now democratic or hybrid regimes have all country-years included, meaning that the index currently fails to appropriately exclude all cases of authoritarian governments, which might skew the results.

The index itself can also be further improved. Its current main constraining factor is the available data: the use of more surveys and questions will improve its validity. National-level data could potentially also be used for this: Boxell, Gentzkow, and Shapiro (2020) already showed that national-level data can be used comparatively around affective polarisation, they included a number of national surveys in their appendix, and this could easily extent to other types and countries. Finding surveys that measure elite and mass affective polarisation would be especially useful, as these types are currently only measured through one input. Furthermore, the index currently does not take demographic weightings used by the individual surveys; using these could further improve the quality of findings.

This paper's conclusion that polarisation has not been steadily rising over the past 25 years, and that mass-level polarisation has instead declined, contradicts common opinion and several explanations that often get used to understand this rise. For example, this contradicts the idea that social media has significantly influenced polarisation, which would mainly influence mass polarisation, the level that has not increased. Instead, this data supports explanations of polarisation that focus on the elites and institutions, like particular polarising figures. This surprising result also raises questions that demand further research. As highlighted in section 5.3, it especially mandates more research into the relationship between different types and interventions that target only particular types. This index provides data on these different types which can perhaps be used to evaluate how independently each behaves and which seem to precede others in time, which can be used to better establish causality.

The data from this thesis can be used by scholars who research political polarisation in a variety of ways. Scholars can use it to evaluate the extent to which political polarisation has effects that worsen democracy, to see which structural factors seem to better guard against (or

exacerbate) polarisation, or to investigate potential structural interventions which might reduce political polarisation. Comparative research on political polarisation, research that views polarisation as multidimensional, and solution-focused research are all currently sorely underdeveloped in the polarisation literature, and this thesis has aimed to provide a starting point which all three can use. The future of many democracies might depend on how we influence political polarisation, and this depends on the quality of analysis scholars perform. The data in this thesis provides the opportunity for more high-quality analysis; let us use this to create high-quality democracies.

Data Availability Statement

The code used is available in [this Google Drive folder](), alongside the full final output of the

index. Because most surveys require registration before download and cannot be freely shared,

they are not included here. Instead, a document with links to all survey data is also provided in

the folder.

Appendix A: Average score for all countries

Country	Total Polarisation
Luxembourg	3,39
Tunisia	3,45
Thailand	3,45
Japan	3,56
Philippines	3,74
Malta	3,76
Taiwan	3,79
Lithuania	3,97
Indonesia	3,99
South Korea	4,06
Slovenia	4,08
Spain	4,16
Costa Rica	4,19
Estonia	4,19
Norway	4,21

Country	Total Polarisation
Bosnia and Herzegovina	4,72
Latvia	4,73
Austria	4,74
United States	4,77
Uruguay	4,79
Serbia	4,79
Greece	4,80
New Zealand	4,81
Moldova	4,82
Romania	4,82
Bolivia	4,83
Panama	4,83
Croatia	4,84
Mexico	4,85
Slovakia	4,88

South Africa	4,29	Peru	4,91
Argentina	4,32	Armenia	4,94
North Macedonia	4,32	Colombia	4,94
Chile	4,33	Iceland	4,96
Belgium	4,34	Paraguay	4,99
India	4,35	Czech Republic	5,01
Canada	4,36	Ghana	5,05
Netherlands	4,38	Hungary	5,08
United Kingdom	4,40	Kenya	5,12
Italy	4,41	France	5,19
Hong Kong	4,41	Albania	5,22
Portugal	4,42	Haiti	5,25
Zambia	4,46	Israel	5,29
Bulgaria	4,48	Kyrgyzstan	5,37
Malaysia	4,50	Turkey	5,39
Germany	4,52	Guatemala	5,49
Ireland	4,52	El Salvador	5,49

Georgia	4,52	Ecuador	5,49
Montenegro	4,53	Nigeria	5,53
Pakistan	4,59	Honduras	5,59
Brazil	4,59	Malawi	5,68
Cyprus	4,62	Botswana	5,78
Australia	4,63	Bangladesh	5,92
Denmark	4,64	Uganda	5,93
Ukraine	4,64	Dominican Republic	6,18
Finland	4,67	Namibia	6,29
Poland	4,69	Tanzania	6,52
Sweden	4,70	Lesotho	6,57

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69

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