Economic inequality, unfairness perceptions, and populist attitudes

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January 18th, 2022

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Abstract: One popular explanation for the rise of populism points to growing economic inequality. This explanation remains contested, however, not least because direct evidence on the link between economic inequality and support for populism is scarce. This contribution puts forth the simple argument that anti-elite populist sentiments flourish in contexts of high economic inequality, when and because individuals perceive income distributions to be unfair. To probe the different observable implications of this argument, several survey datasets are analyzed. First, German survey data indicate that individuals who think that differences in income are too large are much more inclined to hold populist attitudes. Second, international survey data from the ISSP show the trend towards growing income concentration to be reflected in a growing tendency of the public to view income differences as too large. Third, international survey data from the latest wave of the CSES suggest that populist attitudes are more widespread in countries with higher levels of economic inequality. Collectively, these findings point to the plausibility of a link between growing inequality and populism's upsurge, thereby contributing to the ongoing debate.

Keywords: Populism, populist attitudes, economic inequality, injustice perceptions, inequity aversion.

1. Introduction

Over the last decades, populism has been on the rise in several world regions, affecting both newer and more established democracies. What explains this trend? Some research suggests that economic inequality might play a role. One common finding is that support for populist ideas and parties is more widespread among the self-perceived "left behind" who are discontent with societal development (Elchardus & Spruyt 2016; Gidron & Hall 2020; Spruyt et al. 2016; Steenvorden & Harteveld 2018). Similarly, populism is stronger in regions falling behind economically (Broz et al. 2021; Colantone & Stanig 2018a, 2018b). At the same time, economic inequality has been on the rise over the past decades in many countries, including rich, developed democracies—particularly in the form of rising income and wealth contributions at the top (Alvaredo et al. 2018; Jensen & van Kersbergen 2017; Keeley 2015). These findings allude to the possibility that populism thrives when growing concentrations of income and wealth at the top makes more people feel "left behind" relative to societies' most well-to-do.

Yet, whether there is indeed a link between growing economic inequality and rising populism remains a contested question—both in the scholarly and, perhaps even more so, in the broader public debate. A common argument is that the rise of populism represents foremost a "cultural backlash" originating in individuals' value orientations (e.g., Norris & Inglehart 2019)—though many scholars now acknowledge the interplay of economic and cultural forces (e.g., Gidron & Hall 2017; 2020). Part of the controversy on the relevance of growing economic inequality for the populist surge is related to the scarcity of direct evidence on the link between economic inequality, its perceptions among individuals, and support for populism (see below). The goal of the present contribution is to assemble such evidence from a variety of observational data.

While there is a multitude of potential mechanisms that may connect economic inequality and support for populism (cf. Stoetzer et al. 2021), this contribution puts forth a simple argument that takes seriously what populism is essentially about according to the increasingly dominant

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ideational approach to populism (Hawkins et al. 2019; Mudde 2004). In this understanding, populism is chiefly about a perceived antagonism between "the elite" and "the people" in which ruling parties and politicians would represent only—or even embody—the elite's interests. From this perspective, growing concentrations of income and wealth at the top may nurture perceptions of economic unfairness and these beliefs may in turn stir a sense that politicians care only about the (rich) elite. Simply put, populist sentiments may flourish in contexts of high economic inequality, when and because individuals perceive income and wealth differences to be unfairly large. The present study is devoted to exploring the plausibility of this argument using observational evidence from survey data.

Because this is essentially an argument about populist sentiment among citizens, or populist "demand", this study focusses on populist attitudes (Akkerman et al. 2014; Castanho Silva et al. 2019, 2020; Schulz et al. 2018; van Hauwaert et al. 2019; Wuttke et al. 2020), rather than populist voting or the success of populist parties. While research documents a strong connection between populist attitudes and voting, including both left-wing and right-wing populist parties (Akkerman et al. 2014; Andreadis et al. 2019; Geurkink et al. 2020; Steiner & Landwehr 2018; van Hauwaert & van Kessel 2018), the connection is not one-to-one and contingent on supply-side factors. Rather than studying how populist political elites leverage populist sentiment, this study is interested in the forces that drive populist attitudes in the first place.

As this study's argument has multiple observable implications, which cannot be studied using one single available dataset, I combine observational analyses of several survey datasets to explore these different observable implications. Using data from two German surveys (GESIS 2019, GLES 2019), study 1 finds that individuals who think that differences in income are too large, or that social justice is low, are much more inclined to hold populist attitudes. Analyzing five waves of data from the International Social Survey Programme's Social Inequality module spanning the years 1987 to 2019 1992, 1999 and 2009 (ISSP 1989, 1994, 2002, 2017, 2021),

study 2 reports a connection between growing top income shares and a growing share of citizens that considers differences in income to be too large. Based on an advance release of the 5th wave of the Comparative Study of Electoral Systems (CSES 2021), study 3 suggests that citizens tend to hold more populist attitudes where economic inequality is higher. Collectively, these pieces of observational evidence point to the plausibility of a link between growing economic inequality and populism's upsurge, thereby contributing to the ongoing debate.

In the next section, I elaborate on the theoretical argument linking economic inequality and populist attitudes via perceptions of economic inequity and situate it in previous research. The next three section reports results from studies 1,2 and 3. A final section concludes.

2. Theoretical argument and previous research

This study argues that populist sentiments may flourish in contexts of high economic inequality, when and because individuals think that differences in income and wealth are unfairly large. Figure 1 sketches this simple theoretical argument that connects economic inequality and populist attitudes. In this argument, perceptions of economic inequity mediate between economic inequality and populist attitudes.

Before proceeding, a few clarifications on the key constructs of Figure 1 are in order. First, the general argument of Figure 1 is about *economic inequality* in general. Yet, this study will focus on income inequality specifically, partly for the lack of data on (individual's views on) wealth inequality. Second, *perceptions of economic inequity* denote the belief that economic inequality is unfairly large. Perceptions of economic inequity are thus not the same as perceptions of economic inequality. Even gross economic inequalities may potentially be perceived as fair. While perceptions of economic inequality are purely factual, perceptions of economic inequity are the product of such factual beliefs and normative standards on what is considered fair or

just.[1] Third, my understanding of *populist attitudes* follows the ideational approach to populism (Hawkins et al. 2019). According to Cas Mudde's (2004: 543) well-known ideational definition, populism is "an ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, 'the pure people' versus 'the corrupt elite', and which argues that politics should be an expression of the volonté générale (general will) of the people." Populism, thus defined, denotes support for a specific set of ideas. These are (a) the (anti-pluralist) belief in a homogenous and virtuous 'people' whose common will should prevail in politics (*will of the people*) and (b) a morally charged opposition against 'the' (political) elite (*anti-elitism*) that together constitute (c) a *Manichean outlook*. Recently introduced survey instruments follow this ideational approach and measure expressed support for these ideas (e.g., Akkerman et al. 2014; Castanho Silva et al. 2019, 2020; Schulz et al. 2018; van Hauwaert et al. 2019; Wuttke et al. 2020). The present study is made possible by the quick adoption of such scales in national and international survey projects.

Figure 1: Theoretical argument linking economic inequality and populist attitudes

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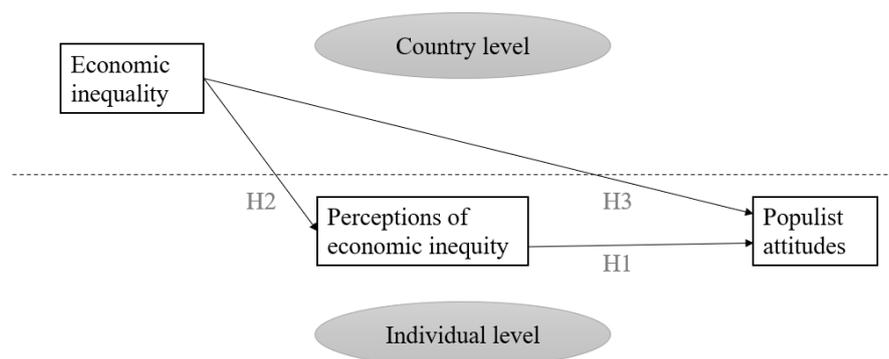
[1] In principle, economic inequality may therefore also be seen as unfairly *low*. In this paper, the distinction between "fair" and "unfairly low" is not important as both the argument and the survey instruments center on perceptions of whether income differences are "unfairly large" or not.

Figure 1 makes clear that the theoretical argument has different observable implications, which are denoted as three hypotheses (H1, H2 and H3). First, at the individual level, it is expected that those who think that economic inequality is unfairly large are more supportive of populist ideas (H1). Second, the higher the level of economic inequality in a country, the more widespread are perceptions of unfairly high economic inequality are expected to be (H2). Third, and as a result, populist attitudes should be more widespread when economic inequality is higher (H3). Below, I will discuss these three hypotheses individually in more detail. While there is related evidence, there is a lack of clear and direct evidence on all three hypotheses.

H1 builds on previous research showing that support for populism is often driven by deep-seated discontent about societal development. Studies indicate that it is "society-centered discontent" (Giebler et al. 2020)—be it "anomie" (Spruyt et al. 2014), "declinism" (Elchardus & Spruyt 2016), "nostalgic deprivation" (Gest et al. 2017) or "societal pessimism" (Steenvorden & Harteveld 2017)—more than a negative view of one's own situation that affects populist attitudes as well as voting for populists. Society-centered inequity perceptions might be particularly powerful in this regard as fairness considerations loom generally large in humans, most of whom share a moral aversion to inequity in outcomes (Fehr & Schmidt 1999).[2] Fairness considerations can be a powerful motive in the political domain as well, as, for example, emphasized in classic theories of relative deprivation (Gurr 1970; Runciman 1966).

Thus, the sense that economic inequality is unfairly high may fuel political discontent and the morally charged conviction that political elites only serve elite interests and neglect the will of the "common people"—thereby increasing support for populism's core ideas. In line with that,

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[2] The latter qualification implies a conditioning role of inequity aversion: We may expect that the effect of inequity perceptions on populist attitudes is larger for individuals who care more about equity, i.e., for those who attach more importance to a fair society and who think that income differences should be small. This conditioning role is not the focus of this article, yet I present evidence below that is consistent with this implication of the argument. For the main argument, the crucial assumption is that most people share an aversion to inequity—even if the strength of this aversion varies.

previous qualitative research on major historical cases of populist mobilization identifies resentment over issues related to social justice—most of them directly connected to economic inequality—as a common element (Betz 2019). However, studies on populist attitudes have, to my knowledge, not considered individuals' views on the fairness of the income (or wealth) distribution, nor their views on social justice more broadly.[3] This might be partly driven by the lack of survey data including both measures of inequity perceptions and populist attitudes. To address this gap at least partially, study 1 will utilize survey data from Germany that include both.

Even if perceptions of economic inequity drive populist sentiment, it is a different question how such perceptions themself relate to the reality of increasing economic inequality. Yet, if we want to understand the nexus between growing economic inequality and the rise of populism, this is a crucial question that needs to be addressed. It may seem obvious, to suggest—as H2 does—that when income differences are larger, more people also think that differences in income are *unfairly* large. Particularly when increasing inequality is the result of growing income (or wealth) concentrations at the very top, inequity perceptions might be assumed to be widespread not only among individuals in the lower part but also among those in the middle of the income distribution. However, there is little systematic empirical evidence on this question, perhaps also because of the scarcity of long-run cross-national survey data on inequity perceptions needed to study this link.

Moreover, there are considerations that make this connection less than obvious. Related research on whether perceptions of economic inequality are associated with actual levels of

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[3] Note that there is related research on inequity perceptions and populist *voting*. In a study on voting behavior in the 2017 German election, Steiner (2021) shows that perceptions of social injustice are associated with voting for the populist and radical right AfD. Inequity perceptions have also been considered in a few studies on the old-familiar construct of political trust—which is distinct from but related to populist attitudes (see: Geurkink et al. 2020). These studies find, for different world regions, that those who believe that economic resources are distributed unfairly (Kluegel & Mason 2004; Zmerli & Castillo 2015) or that there is too much social inequality (Loveless 2013) have lower trust in political institutions and actors—in line with the thrust of the argument here.

inequality suggests that the link between reality and even such purely factual perception is feeble (Gimpelson & Treisman 2018; Hauser et al. 2017; Kenworthy & McCall 2008). When moving from perceptions of economic inequality to assessments of economic inequity, an additional, potentially countervailing, force comes into play: That exposure to high inequality may lead to less egalitarian standards of how much inequality is still perceived as fair (Aalberg 2003; Trump 2018). If increasing economic inequality reduces aversion to inequality, even a perceived increase in inequality may not increase perceptions of inequity.[4]

To contribute novel empirical evidence, study 2 will draw on five waves of ISSP data spanning over thirty years and including a diverse set of nations. This data is sufficiently rich to address the question from a longitudinal within-country perspective that asks whether rising income shares of the top decile go along with an increased tendency to view income differences as too large.

In the argument of Figure 1, H3 follows from the first two hypothesis: If perceptions of economic inequity are more widespread in more economically unequal countries, and if perceptions of economic inequity trigger populist attitudes, populist attitudes should be more widespread the higher is economic inequality. Again, rising concentrations of income and wealth at the very top seem especially relevant: These might fuel the sense that political elites

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[4] This discussion again points to a conditioning role of inequity aversion: The extent to which rising economic inequality translates into perceived unfairness of the income distribution is likely contingent on normative standards, i.e., on how much inequality individuals are willing to accept. A rise in inequality may quickly lead individuals who prefer an egalitarian distribution of income to conclude that income differences are too large, while this should be less the case for individuals who are tolerant of high levels of inequality. In the empirical analysis below, I am mostly interested in the "main" (i.e., average) effect of rising inequality on inequity perceptions, but I will also present evidence that is consistent with the effect being conditioned by individuals preferred levels of inequality in an ideal society. The argument above is simplified in another important way: Whether inequalities are accepted as normatively just is bound to depend on how they (are perceived to) have arisen; for example, whether they have been caused by individual effort or luck (Alesina & La Ferrara 2005; Ahrens 2020; Fong 2001). Because of this, similar levels of inequality may be perceived as differently fair. Given data limitations, I am unable to address the role of beliefs about the causes of inequality in the empirical analysis. However, this is not an important obstacle for addressing the key question whether rising income concentration at the top has been accompanied by growing concerns over income differences being too large.

only care about the rich among broad segments of the population in the bottom and, also, the middle of the income distribution.

The country-level association between economic inequality and populist attitudes has also not been explored empirically to date. This is no surprise, given that cross-national data on populist attitudes have only become available very recently. There is some related research on economic inequality and voting for populist parties. Burgoon et al. (2019) find that „positional deprivation", measured as deviations of income growth of a respondent's decile from average growth across all deciles, is associated with voting for radical populist rather than mainstream parties. In relation to economic inequality, this implies that if income growth is heavily concentrated in the top decile, populist voting may increase overall as most of the other deciles end up with negative deviations from average income growth. In line with that, Engler and Weisstanner (2021) report that rising income inequality increases the likelihood of supporting parties of the radical right, and especially so among those with lower-middle incomes. Stoetzer et al. (2021) also find that income inequality increases vote shares of populist parties, both in their right-wing or left-wing variety (also see: Pastor & Veronesi 2018).[5]

To contribute first evidence on whether populist attitudes are more widespread in countries with more inequality, study 3 turns to the 5th wave of the CSES (CSES 2021). With its focus on the "politics of populism", CSES 5 is one of the first cross-national surveys to include a battery on populist attitudes. It integrates data from post-election studies from all continents, covering countries with very different levels of income inequality, and is therefore well-suited for a first exploration of the relation between inequality and populist attitudes.

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[5] Again, there is also related work on political trust and related outcomes: Studies suggest that economic inequality lowers political trust (Anderson & Singer 2008; Goubin & Hooghe 2020; Schäfer 2010; Zmerli & Castillo 2015), democracy satisfaction (Anderson & Singer 2008; Schäfer 2010), and, also, EU support (Kuhn et al. 2016). Since political trust and populist attitudes are related, this makes a similar pattern for populist attitudes likely. Yet, because these are also distinct attitudes (Geurkink et al. 2020), the association between economic inequality and populist attitudes should be analyzed on its own.

3. Study 1: Inequity perceptions and populist attitudes at the individual level

I study the association between perceptions of inequity and populist attitudes using two recent high-quality surveys from Germany: The 2017 Pre- and Post-election Cross Section of the German Longitudinal Election Study (GLES 2019) and the 2018 German General Social Survey, i.e., the "ALLBUS", 2018 (GESIS 2019). A unique, or at least rare, feature of these survey data is that they include both measures of inequity perceptions and of populist attitudes. Thus, the choice to use German survey data reflects data availability. Given Germany's moderate level of income inequality in international comparison (see data in next section) and Germany's limited historical experience with populism at the party level, there appears to be little reason to think of Germany as a most likely case and to question generalizability on these grounds. Yet, of course, this is worth investigating in future research.

The main rationale for utilizing two surveys, in addition to general robustness considerations, is that I can go beyond a narrow measure of perceived inequity of incomes: While the 2018 ALLBUS asks whether differences in income in Germany are too large, the 2017 GLES national election survey asks respondents to assess the justice of the state of society in Germany (see table 1 for a documentation of question wordings for the key survey instruments used in this paper). Whereas the ALLBUS item is concerned with income inequity specifically—we can think of it as targeted measure of social injustice perceptions that is concerned with income differences, the GLES item asks for a general assessment of social (in-)justice.[6] Though the income measure is closer to the argument of figure 1, especially insofar as the link to actual levels of income inequality is concerned, the theoretical discussion implies that both types of unfairness perceptions should be associated with populist attitudes.

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[6] Cognitive pre-test results of the GLES item indicate that many individuals think of aspects related to economic inequality, but that other facets of social injustice were also mentioned (Nießen et al. 2020).

Table 1: Documentation of main survey instruments used

	GLES 2017 cross-section	ALLBUS 2018	CSES 5 (2016-2021)	ISSP Inequality (1987, 1992, 1999, 2009, 2019)
Economic inequity & social justice perceptions	**Social justice:** "Let's talk about the state of society in Germany as a whole. How just or unjust would you say things are generally going?" 0: very just … 4: very unjust	**Economic inequity:** "Differences in income in Germany are too large." 0: strongly disagree … 4: strongly agree (part of the ISSP questionnaire of the ALLBUS and therefore posed to only a subset of all participants)	Not available	**Economic inequity:** "Differences in income in [COUNTRY] are too large." 0: strongly disagree … 4: strongly agree
Populist attitudes *(items sorted by subdimensions)*	Factor built from items below (loadings in parentheses; Eigenvalue=2.8; explained variance=0.47; alpha=0.76):	Factor built from items below (loadings in parentheses; Eigenvalue=2.8; explained variance: 0.46; alpha=0.76):	Factor built from items below (loadings in parentheses; Eigenvalue=2.6; explained variance: 0.53; alpha=0.70):	Not available
Will of the people	"The people, and not politicians, should make our most important policy decisions." (0.74) "The politicians in the German Bundestag need to follow the will of the people." (0.49) "I would rather be represented by a citizen than by a specialized politician." (0.70)	"The people and not politicians should make the important political decisions." (0.73) "The Members of the Bundestag must only be bound to the will of the people." (0.50) "An ordinary citizen would represent my interests better than a professional politician." (0.73) "The people basically agree what needs to happen politically." (0.62)	"The people, and not politicians, should make our most important policy decisions." (0.60)	
Anti-elitism	"Differences between the elite and the people are larger than the differences among the people." (0.63) "Politicians talk too much and take too little action." (0.75)	"Politicians talk too much and do too little." (0.71)	„Most politicians do not care about the people" (0.81) „Most politicians are trustworthy" (-0.69) "Politicians are the main problem in [COUNTRY]." (0.80)	
Manichean outlook	"What people call compromise in politics is really just selling out on one's principles." (0.75)	"What they call compromise in politics is in reality just a betrayal of principles." (0.75)		

Note: Most items of the Akkerman et al. (2014) scale tap into more than one subdimension at once. Assignment to subdimensions follows Wuttke et al.'s (2020: supplement 6) strategy 2. Because the GLES 2017 survey also includes all CSES items, we can verify that the two scales correlate well (r=0.83), at least in these data.

Both studies include populist attitude items that draw on the canonical Akkerman et al. (2014) scale. The items load well on a single dimension and have been combined into latent scales via a principal component factor analysis (see table 1).[7]

Figure A1 and A2 in the appendix present descriptive information on inequity perceptions and their bivariate association with populist attitudes. Most Germans agree that income differences are too large (about 83%). Perceptions of social justice are much more mixed: 32% think that the state of society is generally unjust, about 19% think it is just and almost half are undecided. Those who think that the German society is "very unjust" and those who "strongly agree" that income differences in Germany are too large tend to score highest in populist attitudes.

Figure 2 presents coefficients from OLS regressions with populist attitudes being the dependent variable. Populist attitudes are regressed on perceived social injustice or, respectively, perceived economic inequity, and a set of control variables that have been parallelized across the two surveys. All variables, including the populist attitude scale, have been rescaled to range from zero to one to ease interpretability. I present three models for each dataset. The first model is bivariate. The second adds socio-demographic controls plus self-assessed political interest and a political knowledge index built from quiz items. The third model adds assessments of one's personal and the country's current economic situation, satisfaction with the way democracy works and a question on whether "in comparison to how other people live here in Germany [respondents] think that [they] get a fair share"—a measure of relative deprivation. These are important but also conservative controls as it is possible that inequity perceptions influence some of them. For example, to the extent that satisfaction with democracy is lower

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[7] Results are similar when following an aggregation logic that better reflects the idea of an attitudinal syndrome with necessary conditions (Wuttke et al. 2020; see appendix). Also note that the ALLBUS 2018 battery includes an additional item on whether "politicians only care about the interests of the rich and powerful". Despite it loading strongly (=0.74) on the populism factor, I have excluded this item because it is conceptually related to inequity perceptions, and I wanted to make sure that it is not this particular item which drives the results. However, the fact that it loads strongly on populist attitudes is in line with the argument that populist sentiment is partly about the belief that politicians only serve a rich elite—which, in turn, is likely to be nurtured by the perception that differences in income are unfairly large.

when, and because, economic inequity is perceived as rampant, we could underestimate the effect of inequity perceptions.

Figure 2: Regressing populist attitudes on perceived social injustice and perceived economic inequity
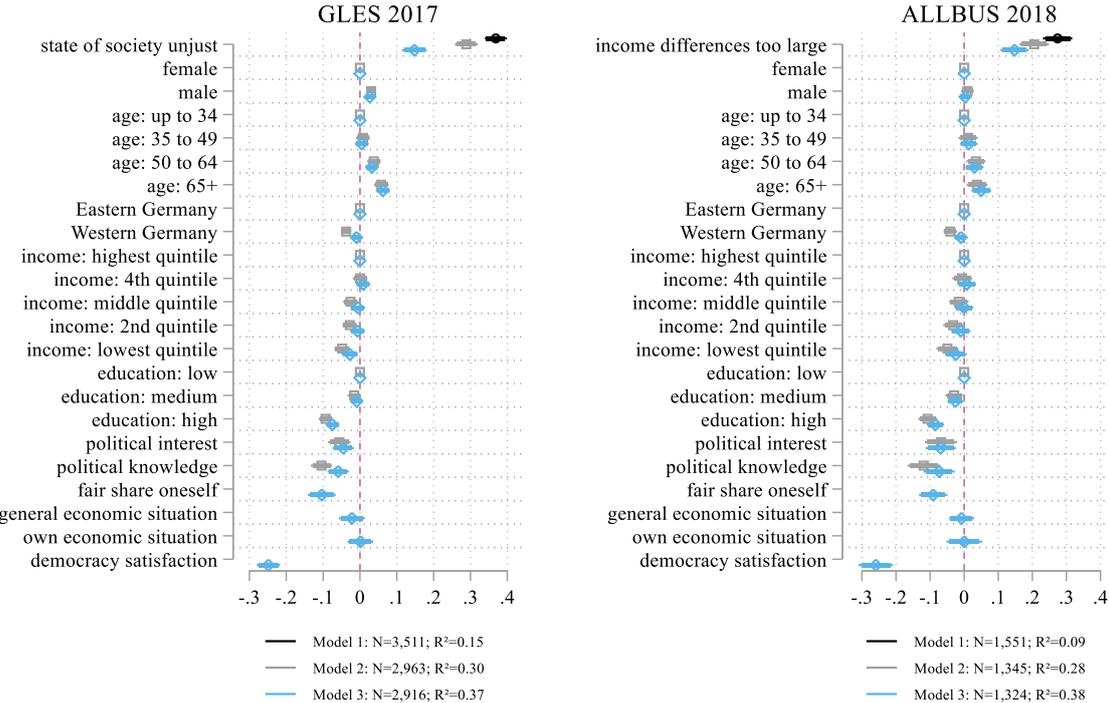
Note: Coefficients from OLS regressions with 95% (thin) and 90% (thick) confidence intervals. All variables are scaled to range from zero to one.

Both perceived social injustice and perceived economic inequity exert statistically significant positive effects on populist attitudes in all three specifications. The associations are quite strong from a substantive perspective as well. The bivariate (Pearson) correlations are 0.38 (GLES) and 0.30 (ALLBUS). The coefficients are reduced in the fully specified model, but remain of substantial magnitude, and are topped only by satisfaction with the way democracy works. Notably, in line with previous research's emphasis on society-centered discontent, perceptions of social injustice and economic inequity come out stronger than individual relative deprivation. It is reassuring to see that we obtain similar results for the two different unfairness measures,

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and across two datasets. This suggests that perceptions of general social injustice can be an important driver of populist attitudes, and that the same holds for more specific injustice perceptions of an unfairly large concentration of income.

Further analyses—presented in the appendix—indicate that inequity perceptions are more strongly related to populist attitudes among individuals who care more about equity or equality (see the argument in footnote 2). To test this, I utilized questions on the importance of a fair distribution of income (inequity aversion) (GLES 2017) and on whether differences in standards of living should be small (inequality aversion) (ALLBUS 2018). Interacting these with inequity perceptions, reveals that perceived unfairness tends to increase populist attitudes across all levels of inequity/inequality aversion but that the effect is larger for individuals who are more inequity/inequality averse. Alas, the latter group is much larger, i.e., the data indicate a large majority to think that a fair distribution of income is important and to agree that differences in standards of living should be small. These results refine the main results in a way that is consistent with the theoretical argument: Individuals develop populist attitudes in reaction to perceived inequity, because—and to the extent—they are averse to inequity.

4. Study 2: Economic inequality and perceptions of economic inequity over time

The next step is to analyze whether rising income concentration at the top has led more individuals to perceive income differences as unfairly large. To measure the evolvement of such perceptions over time, I utilize data from all five waves of the Inequality module of the ISSP from 1987 (ISSP 1989), 1992 (ISSP 1994), 1999 (ISSP 2002), 2009 (ISSP 2017) and 2019 (ISSP 2021).[8] All five waves include the item on whether income differences are too large—which was already used in the previous section in the analysis of the ALLBUS data. I combine

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[8] Note that data from the fifth Inequality module of ISSP run in 2019, or adjacent years, is not yet complete. The analysis is based on the first advance release that includes only a subset of all countries that took part in the survey.

these survey data with top decile income shares from the World Inequality Database (WID 2021), i.e., the share of overall income that goes to the top 10% of earners.[9]

In Figure 3, I show how top decile income shares and perceptions of income inequality being too high have evolved over time within countries. Figure 3 concentrates on those 32 countries included at least twice in the ISSP Inequality module data. The gray lines in Figure 3 indicate that top decile income shares have increased in most of these countries over the observed period.

To aggregate the survey data on inequity perceptions to the country-year level, I calculated an agreement-minus-disagreement balance. That is, I subtracted the share of respondents disagreeing with the statement that income differences are too large from those agreeing with the statement, while utilizing the post-stratification weights provided by ISSP. The first thing to note about the resulting measure is that agreement that income differences are too large always outweighs disagreement by far: The black lines are always well above zero (see y-axis on the left). Over-time trends in perceptions of economic inequity are more diverse. Still, several countries jump to the eye in which inequity perceptions have increased in tandem with top decile incomes shares. This is true for most of the Post-Communist countries that already took part in waves 1 and/or 2 of the ISSP Inequality module. Countries such as Hungary, Poland, or Russia experienced drastic increases in income concentration during the 1990s, and these were accompanied by growing perceptions that income differences are too large. Also, in some of the more long-standing, "Western" democracies such as Australia, Germany or Italy have increases in income concentration been visibly mirrored in growing concerns that income differences are too high.

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[9] Because the theoretical argument is about income concentration at the top, top decile income shares as measured in the WID are more appropriate than the more commonly used Gini coefficient which summarizes inequality across the entire distribution and may also reflect income differences between the middle and the poor. Another advantage of the WID data in this context is that, by drawing on tax returns, the data may overcome the bias resulting from top earner's lower probability to be included in household surveys from which economic inequality data are traditionally derived. Note that the income shares are before taxes. This might be a drawback—but data coverage for income shares after taxes and transfers is much more limited.

Figure 3: Top decile income share and perceptions of inequity within countries over time
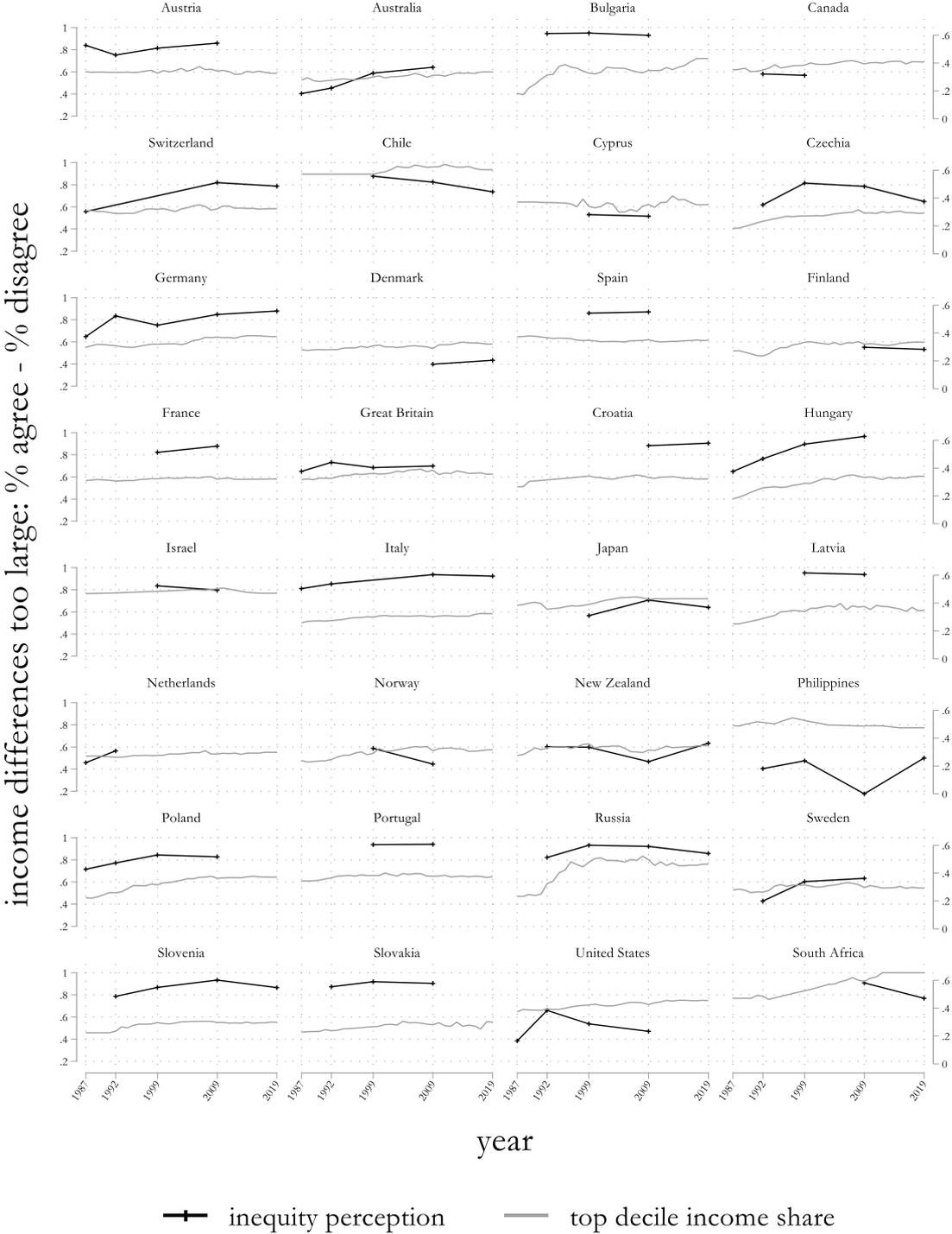
Note: Y-axis on the left is for net agreement that income differences are too large, y-axis on the right refers to the income share of the top decile. Data collected for Czechoslovakia in 1992 have been assigned to the Czech Republic and Slovakia, respectively, based on a within-country region variable.

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To study the within-country association between top income shares and inequity concerns in a more robust manner, Table 2 presents results from regressions with country fixed effects (run on the country-level data). In models 1 and 2 the outcome variable is the agreement-minus-disagreement balance used for Figure 3, for models 3 and 4 I took the country mean of agreement with the statement that income differences are too large (coded on a scale from zero to four) instead. Models 2 and 4 add a linear time control to ensure that results are not spurious due to common over-time trends in income inequality and inequity perceptions.

Table 2: Fixed effect regressions of inequity perception on top decile income share

	(1)	(2)	(3)	(4)
	Net inequity	Net inequity	Mean inequity	Mean inequity
Top decile inc. share	1.18[***]	0.97[**]	2.39[***]	1.94[**]
	(0.27)	(0.35)	(0.53)	(0.68)
Constant	0.31[**]	-1.82	2.28[***]	-2.17
	(0.10)	(2.19)	(0.19)	(4.25)
Country fixed effects	X	X	X	X
Linear time trend		X		X
Observations	109	109	109	109
R²	0.23	0.24	0.24	0.26

Note: Standard errors in parentheses; $^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

The results reveal a statistically significant and substantively relevant positive association between the top decile income share and agreeing that income differences are too large. According to model 2, if the top deciles' income share increases by ten percentage points, net agreement that income differences are too large also increases by about ten percentage points, meaning for example that 5% of respondents shift from disagreeing with the statement to agreeing with it. Expressed in standard deviations of the estimation sample, an increase in the top decile income share by one standard deviation (0.093) is associated with net agreement increasing by roughly half its standard deviation (of 0.175). According to model 4, a ten percentage points increase in the top decile income share leads to an increase of about 0.2 in mean agreement. To again express this in standard deviations: If the top decile income share

increases by one standard deviation (0.093), mean agreement is predicted to increase by roughly half its standard deviation (of 0.346).

In the appendix, I show that results are similar when using the income share of the top 1% instead of the top 10% share. Results are also qualitatively very similar in a multilevel model which regresses individuals' agreement with the income inequity item on country-level top income shares in a two-level model with random intercepts for country-years and country fixed effects.

Further analyses in the appendix point to the link between rising income concentration at the top and concerns over income inequity to be conditioned by aversion to inequality (see the argument in footnote 4). To test this, I utilized a question which asked respondents to choose their preferred society from five graphic displays of income distributions, which I coded from least to most egalitarian. Cross-level interactions indicate that the link between growing income concentrations and perceptions of too much income inequality is stronger for those who find an egalitarian distribution to be normatively desirable. Though, two additional points should be noted. First, the estimated conditional effects of top income shares vary only slightly in substantive terms, and they are statistically significant for all levels of inequality aversion. Second, inequality aversion is highly skewed: More than half of respondents chose the most egalitarian distribution with most people in the middle and only very few respondents preferred the more inegalitarian distributions. Like above, these results refine the main results in a way that is consistent with the theoretical argument: When income is increasingly concentrated at the top, individuals are more likely to view income differences as too large, because—and to the extent—they are averse to inequality.

5. Study 3: Income inequality and populist attitudes across countries

In the third step, I turn to the 5th wave of the Comparative Study of Electoral Systems (CSES 2021). At this stage, I am able to use the Third Advance Release of the dataset from 20 July 2021 which includes data from 31 election studies in 28 countries.[10] While the countries are from different world regions and vary strongly in their levels of economic inequality, there are, of course, limits in how far we can go with multivariate analyses given the limited number of macro-level observations in the advance release. Nevertheless, the data are sufficiently rich to assess whether there is an association between income inequality and populist attitudes that holds when including a (limited) set of key control variables.

With its focus on the "politics of populism", CSES 5 includes several items that tap into populist sentiments and related orientations. However, because CSES 5 does not draw on a single established scale, it is not straightforward which of the items should be included in a measure of populist attitudes (Wuttke et al. 2020). For the analysis in this paper, I concentrate on four items which have been included in all of the election studies.[11] These four items load well on a single scale (see Table 1) and have been combined via principal component factor analysis into

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[10] There are two elections in Iceland (2016 and 2017) as well Taiwan (2016, 2020) and there are separate election studies for Flanders and Wallonia for the Belgian national election in 2019. The final release of CSES 5 will include substantially more election studies than the current release. (The final release of CSES 4 included 45 election studies.)

[11] I thereby largely follow the suggestion by Wuttke et al. (2020: supplement 6) who list seven items of CSES 5 that pertain to the core understanding of populist attitudes. Of these seven items, I exclude two ("compromise is really selling out one's principles"; "will of the majority should always prevail") for pragmatic reasons because they have not been included in some of the election studies. I exclude another item—asking about perceptions of the presence of corruption—for conceptual reasons, because it asks about a factual belief that seems only indirectly related to populist attitudes. However, whether the corruption perception item is included or not makes little practical difference as the resulting factors correlate almost perfectly (0.97). As in the proposal by Wuttke et al. (2020: supplement 6), I also excluded the item on whether "most politicians care only about the interests of the rich and powerful"—despite it loading strongly (=0.80) on the populist attitude scale if included in the factor analysis. As discussed above in the context of the ALLBUS 2018, I thereby safeguard against the possibility that this particular item—which is conceptually related to economic inequality—might drive the results. Also following Wuttke et al. (2020), I show results for an alternative measure of populist attitudes that multiplies scores on the two subdimensions of populist attitudes covered by the CSES (will of the people and anti-elitism) in the appendix. These results are similar to those for the factor score shown below.

a measure of populist attitudes.[12] While not being identical to the Akkerman et al. (2014) scale used above, the two scales are conceptually close, have one item in common ("people not politicians should make important political decisions") and correlate strongly with each other.[13]

Cross-country differences in populist attitudes are pronounced. A violin plot showing the distributions of populist attitudes across countries is available in appendix C. Country means of populist attitudes vary from -0.77 (Norway 2017) to 0.99 (Brazil 2018). Not only do the means vary strongly, but the distributions of some countries also hardly overlap: For example, about 83% of Brazilians score above zero on populism, whereas only about 20% of Icelanders and 22% of Norwegians do.

Figure 4 presents scatterplots of mean populist attitudes and income inequality. In the left-hand panels, income inequality is measured via the top decile income share from WID (2021) as in the last section. In the right-hand panels, I draw on the Gini coefficient of equalized disposable income as measured by the World Bank.[14] Populist attitudes tend to be higher in more unequal countries. This tendency is especially clear if we look at all countries (upper panels). It is still clear when we zoom in on the subset of countries that are usually classified as established democracies (lower panels), thereby excluding the most unequal (and populist) countries.

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[12] Castanho Silva et al. (2020) note that while the CSES populist attitude scale performs well regarding external validity, it has low cross-national validity. This assessment is based on a measurement invariance test which shows a measurement model with loadings allowed to vary by country to provide a statistically significant better fit than a model with factor loadings constrained to be similar across countries. As shown in the appendix, for the scale used here—which uses only a subset of the items included by Castanho Silva et al. (2020)—factor loadings are remarkably similar across countries when running separate analyses by country. Bias resulting from measurement noninvariance is therefore unlikely to be a major issue.

[13] Because the GLES 2017 survey also includes all CSES items, we can verify that the two scales correlate well (r=0.83), at least in these data.

[14] The data are included in CSES 5. The Gini coefficients refer to the year of the election or the year closest to the election for which data have been available when the data were processed. I added missing Gini data for Ireland 2016.

Figure 4: Income inequality and populist attitudes across elections
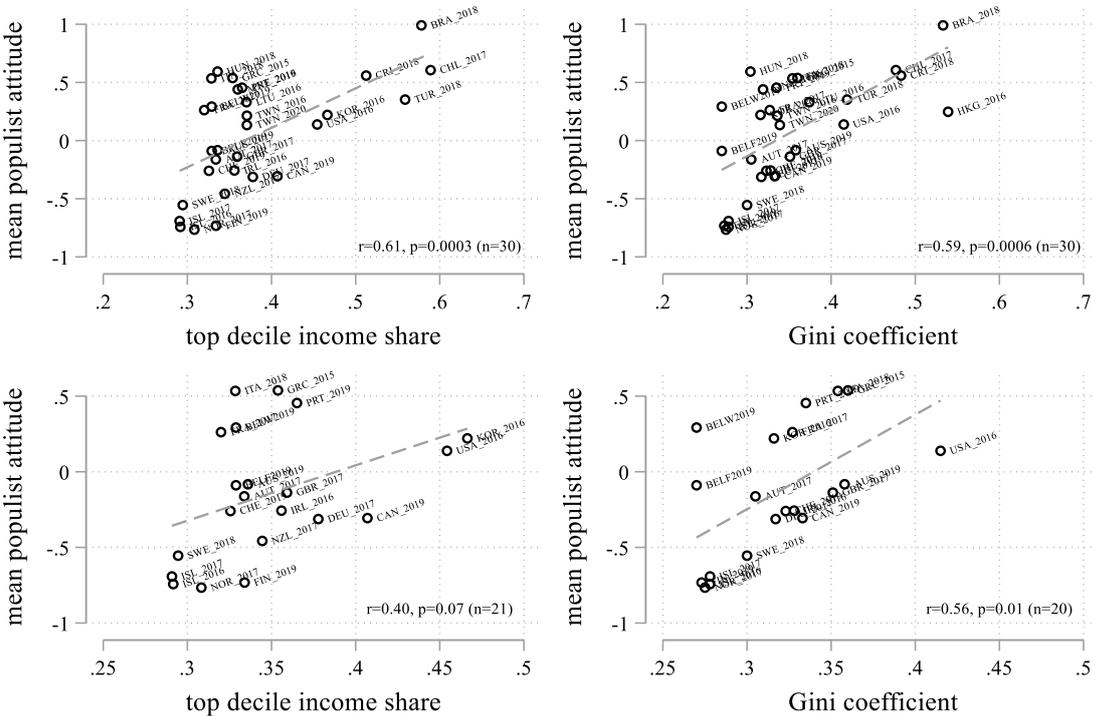
Note: Upper panels include all countries, lower panel includes only established democracies.

Table 4 analyzes the country-level association between (mean) populist attitudes and both measures of income inequality via simple OLS regressions. Control variables are introduced block-wise to see how robust the associations are under alternative sets of key covariates.[15] The income inequality variables are statistically significant across specifications, with $p<0.10$ (at least) for the top decile income share and $p<0.05$ for all models with the Gini coefficient. Unsurprisingly (see Polk et al. 2017), populist attitudes are also more widespread in countries with higher level of (perceived) corruption as measured by Transparency International's Corruption Perception Index (CPI) (original 0 to 100 scale divided by 100). None of the other controls is robustly associated with populist attitudes. According to the most fully specified

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[15] The control variables are part of the CSES 5 dataset. As indicated in table 4, some of the control variables are measured with a one-year lag. This is done to minimize observations with missing values. For the same reason, I added some data points that are missing in the current CSES release but are available from the sources listed by CSES.

models (models 5 and 10), an increase in the top decile income share by ten percentage points is associated with an increase of 0.28 in mean populist attitudes, and an increase of the Gini coefficient by 0.1 goes along with an increase in mean populist attitudes increase by 0.3. Expressed in standard deviations of the estimation sample, an increase in the top decile income share by one standard deviation (0.083) is associated with an increase in mean populist attitudes by 0.49 of its (country-level) standard deviation (of 0.474), and a one-standard-deviation increase in the Gini (0.066) is associated with an increase in populist attitudes by 0.42 of its standard deviation.

Table 4: Regressing mean populist attitude on income inequality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Top decile inc. share	3.39***	1.15[+]	5.18*	1.78[+]	2.82[+]					
	(0.87)	(0.66)	(2.16)	(0.98)	(1.50)					
Gini coefficient						3.92***	2.17**	5.45**	2.35*	3.02*
						(0.93)	(0.63)	(1.68)	(0.90)	(1.29)
Corruption (absence)		-2.30***			-2.51***		-2.15***			-2.60***
		(0.36)			(0.56)		(0.32)			(0.60)
System of government (ref: parliamentary)										
Mixed			0.12		0.03			0.12		0.03
			(0.18)		(0.12)			(0.17)		(0.12)
Presidential			-0.34		-0.23			-0.15		-0.11
			(0.45)		(0.29)			(0.30)		(0.21)
Polity regime score$_{t-1}$			0.01		0.04[+]			-0.02		0.02
			(0.03)		(0.02)			(0.03)		(0.02)
GDP per capita (ln)$_{t-1}$				-0.47[+]	0.12				-0.50*	0.16
				(0.24)	(0.23)				(0.20)	(0.23)
GDP growth rate$_{t-1}$				-0.01	-0.01				-0.01	-0.02
				(0.01)	(0.01)				(0.01)	(0.01)
Unemployment rate$_{t-1}$				2.04	0.39				1.28	-0.22
				(1.58)	(1.28)				(1.44)	(1.28)
Constant	-1.25***	1.16*	-1.99*	4.19	-0.93	-1.31***	0.75[+]	-1.65**	4.49[+]	-1.04
	(0.33)	(0.43)	(0.85)	(2.88)	(2.52)	(0.33)	(0.37)	(0.56)	(2.30)	(2.44)
Observations	30	30	30	30	30	30	30	29	30	29
R²	0.35	0.74	0.39	0.59	0.81	0.39	0.77	0.47	0.62	0.82

Note: Country-level data. Standard errors in parentheses. [+] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Another, more elaborate way to analyze the CSES 5 data is to keep the information on populist attitudes at the individual level and run multilevel models. Table 5 reports the results of such two-level models with random intercepts at the election study level. These models include individual-level sociodemographic controls (income, education, age, gender), thereby taking into account that cross-country differences in mean populist attitudes might also result from

"composition effects", i.e., differences in the distribution of individual-level variables that affect populist attitudes. For each the top income share and the Gini coefficient, I report two models: One with the income inequality measure as the only macro-level variable, and one model with all macro-level variables from Table 4. The results are consistent with those of the simple macro-level regressions from Table 4: Both income inequality measures are robustly associated with an individual's tendency to hold populist attitudes.[16]

Table 5: Multilevel models of populist attitudes

	(1)	(2)	(3)	(4)
Level 2 (election) variables				
Top decile income share	3.11***	2.99*		
	(0.87)	(1.32)		
Gini coefficient			3.71***	3.23**
			(0.91)	(1.19)
Absence of corruption (CPI)		-2.64***		-2.74***
		(0.49)		(0.52)
System of government (reference category: parliamentary)				
Mixed		-0.01		-0.02
		(0.11)		(0.10)
Presidential		-0.29		-0.18
		(0.25)		(0.19)
Polity score$_{t-1}$		0.04*		0.02
		(0.02)		(0.02)
GDP per capita (ln)$_{t-1}$		0.20		0.24
		(0.20)		(0.21)
GDP growth$_{t-1}$		-0.02		-0.02
		(0.01)		(0.01)
Unemployment rate$_{t-1}$		0.39		-0.29
		(1.13)		(1.14)
Level 1 (individual) variables				
Income quintile (reference category: lowest quintile)				
2nd income quintile	-0.09***	-0.09***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)
middle income quintile	-0.17***	-0.17***	-0.16***	-0.16***
	(0.01)	(0.01)	(0.01)	(0.01)
4th income quintile	-0.25***	-0.25***	-0.24***	-0.24***
	(0.01)	(0.01)	(0.01)	(0.01)

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[16] We may again wonder about the conditioning role of inequality aversion: Is the association between income inequality and populist attitudes stronger for those who are more averse to inequality? This is difficult to test with the CSES 5 data given the lack of a measure of inequality aversion. The data allow us to explore whether the effect is moderated by left-right positions. Results from such random slope models are presented in the appendix. The results indicate that income inequality is associated with an increase in populist attitudes at all positions on the left-right scale. The effect is weakest for those on the far right and strongest for those with moderate left-wing positions. The difference between low and high inequality contexts is larger for those on the moderate left than for the most left-wing individuals, because those on the far left have an increased tendency to hold populist attitudes even at low levels of inequality. Like the results from above, these findings tentatively hint at the effect being largest for those who are more averse to inequality, but the main message is that income inequality is associated with more populist outlooks among citizens of all ideological stripes.

Highest income quintile	-0.38***	-0.38***	-0.37***	-0.37***
	(0.01)	(0.01)	(0.02)	(0.02)
Education (reference category: low education)				
Education: middle	-0.02	-0.02	-0.01	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)
Education: high	-0.24***	-0.24***	-0.23***	-0.24***
	(0.02)	(0.02)	(0.02)	(0.02)
Age groups (reference category: up to 30)				
Age: 31 to 45	0.03**	0.03*	0.04**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)
Age: 46 to 65	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Age: older than 65	-0.10***	-0.10***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)
Male	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	-0.85*	-1.41	-0.95**	-1.57
	(0.34)	(2.22)	(0.33)	(2.17)
St. dev. of random intercept	0.39	0.21	0.36	0.21
Observations (level 1)	40712	40712	40045	39395
Observations (level 2)	29	29	29	28

Note: Multilevel models with individuals nested in election studies. Standard errors in parentheses. $^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

6. Discussion

This paper has proposed a simple argument linking economic inequality and populist attitudes: The populist idea of an antagonism between the people and a corrupt elite may spread more easily in contexts of high economic inequality, when and because individuals perceive income distributions to be unfair. I have sought to explore the empirical plausibility of this argument by gathering observational data on three observable implications of this argument. All three of these implications were supported by the data. First, survey data from Germany reveal that, at the individual level, perceptions of an unjust society and an unfair distribution of income are associated with holding populist attitudes. Second, perceptions of unfairly large differences in income appear, at least to some extent, to be grounded in the reality of rising income inequality in many countries: When income becomes increasingly concentrated at the top in a country, more individuals state that income differences are too large. Third, populist attitudes are more widespread in countries with higher levels of income inequality, whether measured by the (pre-tax) top decile income share or the Gini coefficient of disposable household income.

While the evidence presented in this paper is purely observational, collectively, these findings suggest that more economically equal countries might indeed be more immune to populism. This finding comes with obvious policy implications. At the same time, while the reality of (rising) economic inequality and perceptions of economic inequity appear linked, social justice perceptions are in all likelihood shaped by a broader set of considerations. In addition to these, (perceptions of) social cohesiveness and ethical, respectful and fair behavior particularly of elites but also among the citizenry at large might be important for whether individuals perceive society as just. This points to important follow-up questions on the origin of perceptions of an unjust society.

The theoretical argument I have presented and tested in the paper might be seen as simplified in other important ways. These simplifications mostly flow from the paper's goal to show that there is a simple logic that may connect economic inequality and support for populist ideas and to probe this idea empirically. First, the argument is simplified because it abstracts from people varying in their tendency to be averse to inequality or inequity. The additional findings I have discussed above suggest (a) that inequity perceptions are indeed more closely related to populist attitudes among those who prefer an egalitarian society and (b) that growing income concentration is indeed more closely associated with an increased tendency to view income differences as too large among those who prefer an egalitarian income distribution. Yet, these results also suggest the overwhelming majority to be sufficiently inequality averse for both of these links to hold. Second, as the argument I have put forth concerns the tendency to support populism's core ideas, little has been said about the tendency to support different varieties of populism, particularly in their left-wing or right-wing form. If economic inequality increases populist sentiment among citizens, both left- and right-wing populist parties or politicians may use this to their advantage by mobilizing voters via populist messages. This is true despite the fact that it is only left-wing populists who typically address economic inequality as an issue

directly. Hence, the argument presented and tested in this paper might help us understand why there is a link between growing income inequality and support for *right-wing* populist parties (Engler & Weisstanner 2021; Pastor & Veronesi 2018; Stoetzer et al. 2021), and not only left-wing ones—which seems puzzling if we only think about the policy issues typically addressed by these types of parties. However, investigating the repercussions of the present paper's argument on voting behavior empirically is beyond the scope of the present contribution and may be addressed in future research.

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Acknowledgements

Online Appendix to

Economic inequality, unfairness perceptions, and populist attitudes

Appendix A: Additional results for individual-level association between inequity perceptions and populist attitudes

A1. Descriptive results for inequity perceptions and populist attitudes

Figure A1.1: Inequity perceptions and populist attitudes in GLES 2017

Let's talk about the state of society in Germany as a whole.
How just or unjust would you say things are generally going?

Populist attitudes by social injustice perception
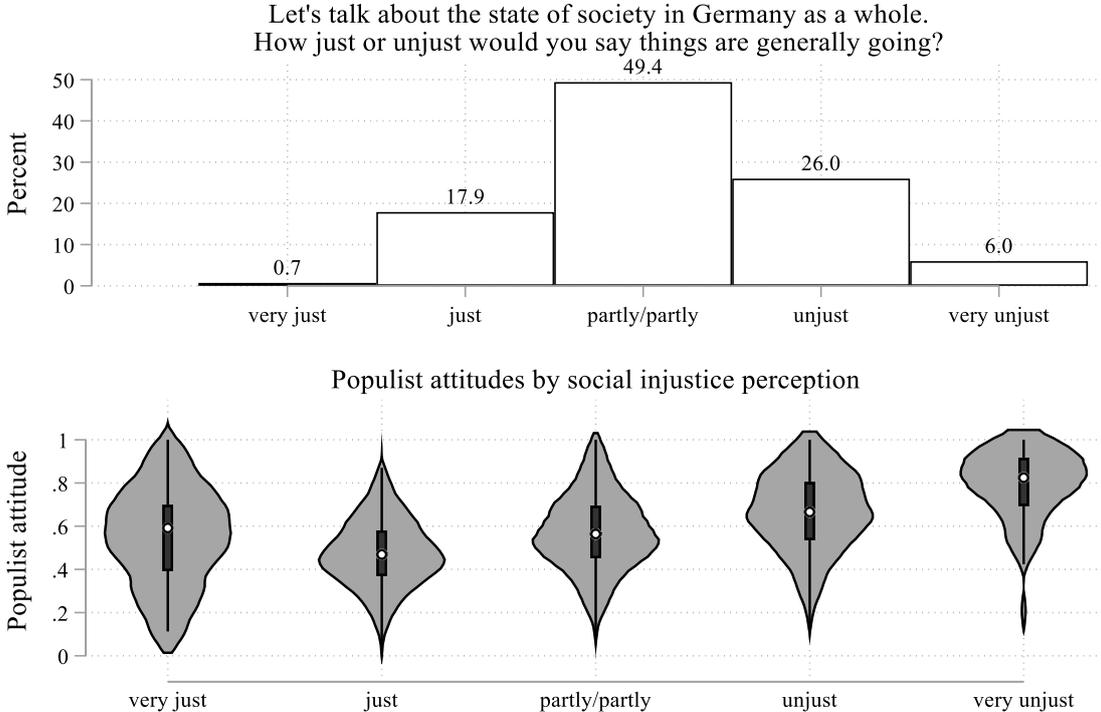
Figure A1.2: Inequity perceptions and populist attitudes in ALLBUS 2018

Differences in income in Germany are too large

Populist attitude by income inequity perception
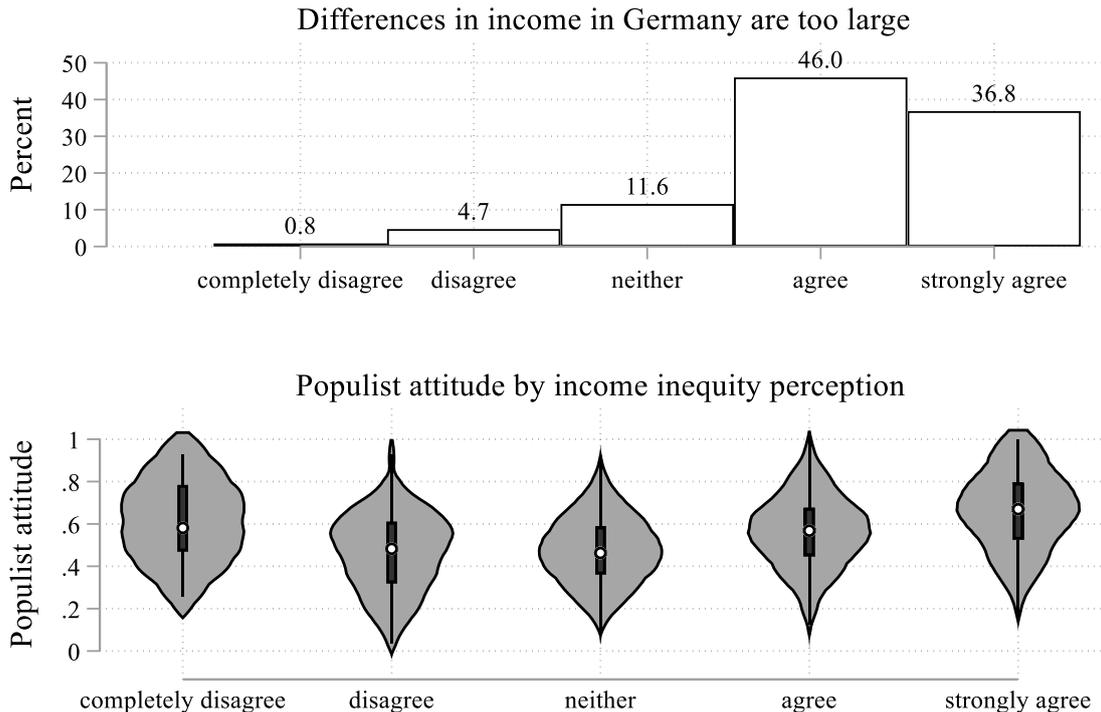
A2: Regression results for alternative measure of populist attitude with multiplicative aggregation

Table A2.1: Regressing populist attitudes (multiplicative aggregation of subdimensions) on perceived social injustice and perceived economic inequity
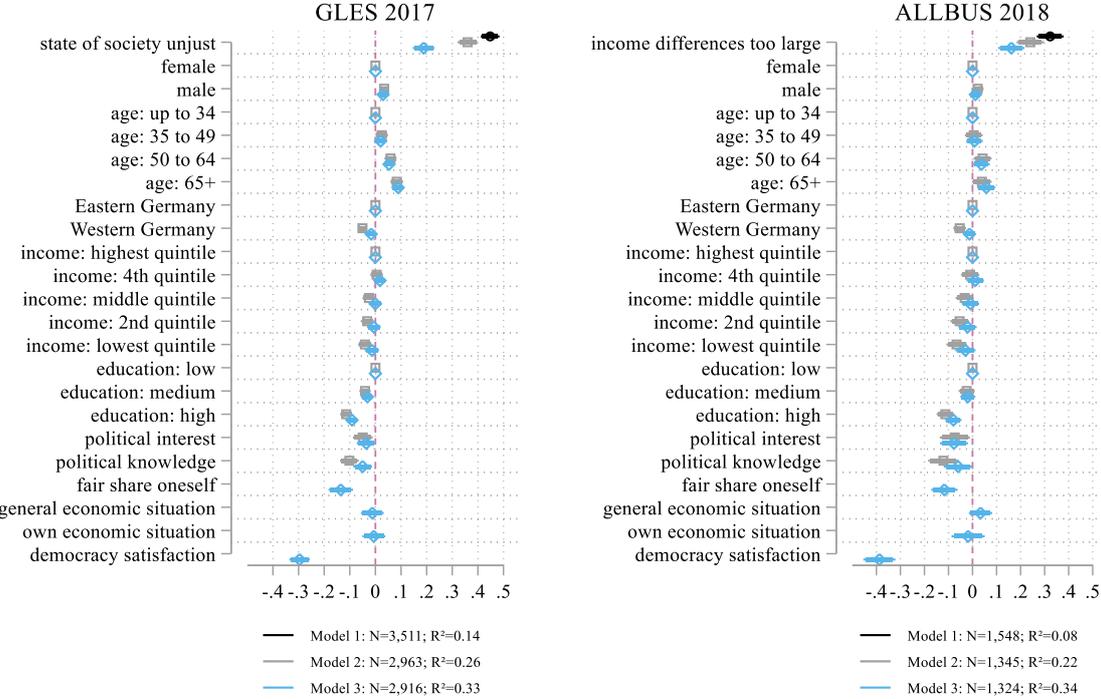
Note: Same regression model as in Figure 2 of the article, albeit with a multiplicative aggregation of populist attitudes from three subdimension (according to strategy 2 in Wuttke et al. (2020: supplement 6) for the Akkerman et al. (2014) scale, see Table 1 of the article). Coefficients from OLS regressions with 95% (thin) and 90% (thick) confidence intervals.

A3: Interactions between inequity perceptions and inequity aversion

Below I extend the individual-level analysis on inequity perceptions and populist attitudes by specifying interactions between assessment of inequity and measures of inequity/inequality aversion. For this purpose, I draw on the following two items:

- GLES 2017: "How important is it to you personally that politics provides a fair distribution of income among people?" (0: not important at all; 1: very important) (inequity aversion)

- ALLBUS 2018: "For a society to be fair, differences in people's standard of living should be small." (0: strongly disagree; 1: strongly agree) (inequality aversion)

Table A1 lists the regression coefficients and figures A1 and A2 show the corresponding conditional effect plots.[17]

The interactions look similar in both cases: The effect of inequity perceptions is larger for those with stronger inequity/inequality aversion. It is about three times as large for those with maximum inequity/inequality aversion compared to those with minimum inequity/inequality aversion. These result, while qualifying the main results of a simple association between perceived inequity and populist attitudes, further support the logic behind H1: Individuals develop populist attitudes in reaction to perceived inequity, because—and to the extent—they are averse to inequity/inequality. These results also imply that inequity/inequality aversion is positively related to populist attitudes only if individuals think that social justice is low or that income differences are too large.

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[17] These models assume a linear interaction rather than treating the inequity aversion variables as categorical. Results are similar, though look noisier, when treating these as categorical.

Table A3.1: Regressing populist attitudes on perceived social injustice and perceived economic inequity

	GLES 2017 (1)	ALLBUS 2018 (2)
State of society unjust	0.10	
	(0.07)	
Importance fair distribution of income	-0.04	
	(0.04)	
State of society unjust X importance fair income distribution	0.20**	
	(0.08)	
Income differences too large		0.07
		(0.05)
Differences in living standards should be small		-0.04
		(0.06)
Income differences too large X diff's in living standards should be small		0.17*
		(0.07)
Male	0.03***	0.01
	(0.01)	(0.01)
Age: 35-49	0.01	0.01
	(0.01)	(0.01)
Age: 50-64	0.04***	0.03*
	(0.01)	(0.01)
Age: 65 and older	0.06***	0.04*
	(0.01)	(0.02)
Western Germany	-0.03***	-0.04***
	(0.01)	(0.01)
Income: 4th quintile	-0.00	0.00
	(0.01)	(0.01)
Income: middle quintile	-0.02*	-0.01
	(0.01)	(0.01)
Income: 2nd quintile	-0.03*	-0.02
	(0.01)	(0.01)
Income: lowest quintile	-0.04***	-0.04*
	(0.01)	(0.02)
Education: medium	-0.02+	-0.03*
	(0.01)	(0.01)
Education: high	-0.09***	-0.10***
	(0.01)	(0.01)
Political interest	-0.06***	-0.07**
	(0.02)	(0.02)
Political knowledge	-0.10***	-0.11***
	(0.01)	(0.02)
Constant	0.62***	0.64***
	(0.04)	(0.04)
Observations	2957	1323
R²	0.30	0.30

Note: Standard errors in parentheses. $^{+} p < 0.10$, $^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$

Figure A3.1: Conditional effects of perceived social injustice on populist attitudes from model 1 in table A1

Importance of fair distribution of income
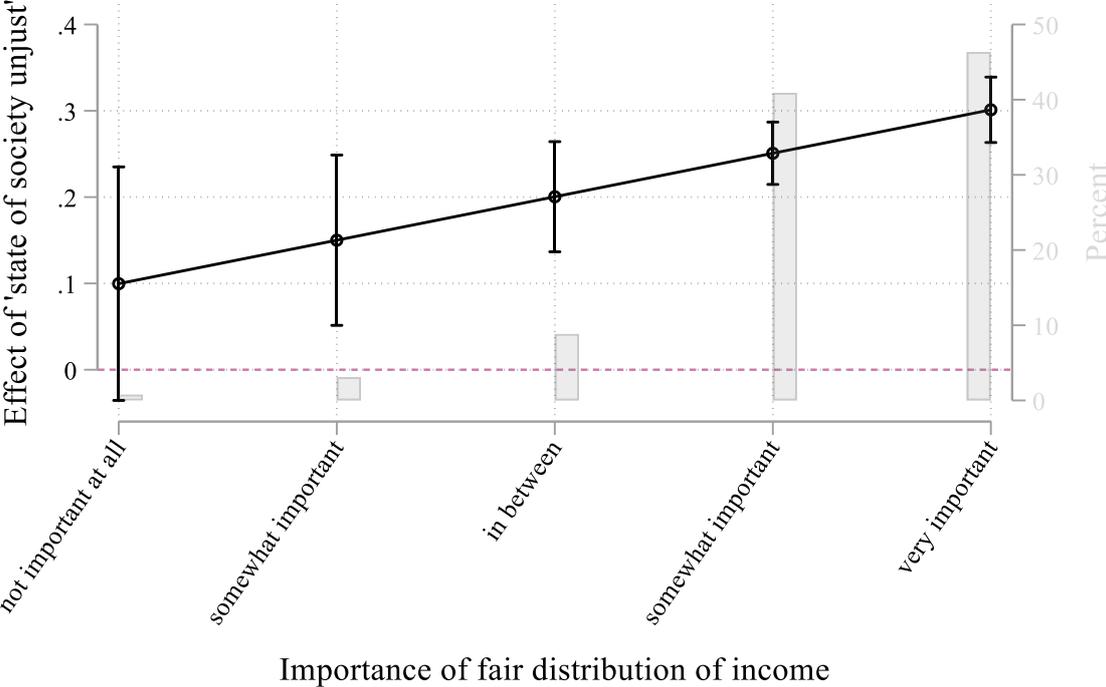
Figure A3.2: Conditional effects of perceived economic inequity on populist attitudes from model 2 in table A2

Differences in standards of living should be small
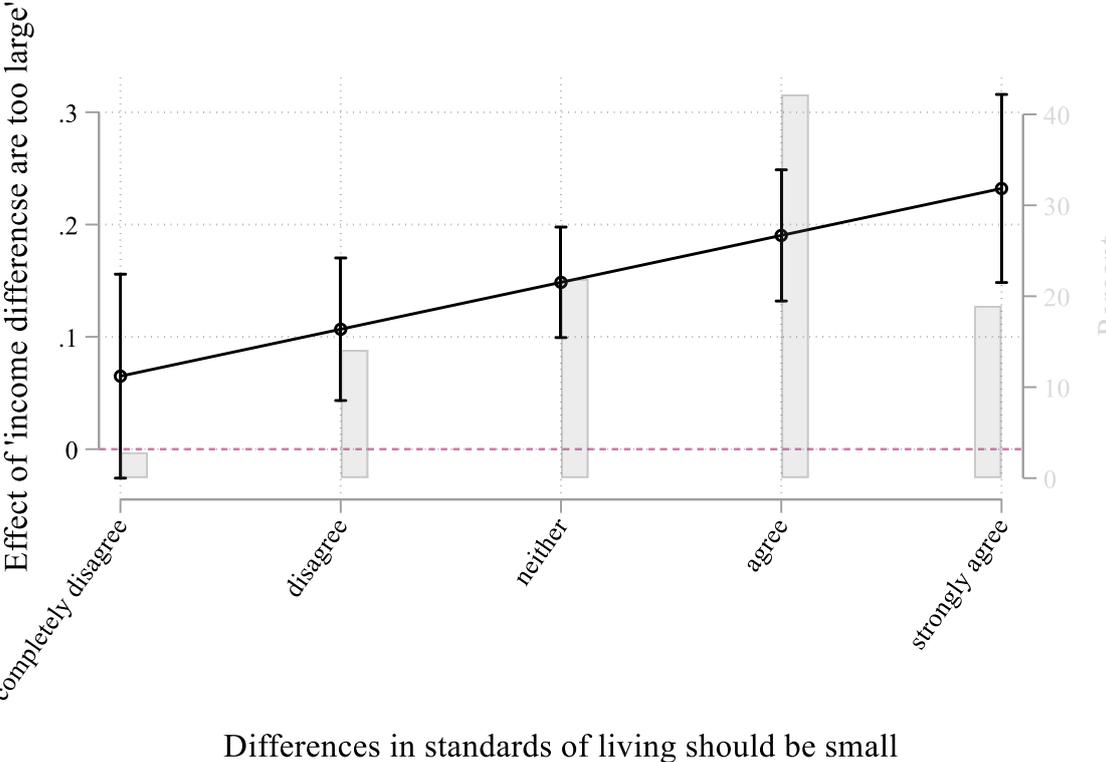
Appendix B: Additional results for association between inequality and inequity perceptions

B1. Country-level regressions using top percentile income shares instead of top decile income shares

Table B1.1: Fixed effect regressions of inequity perception on top percentile income share

	(1)	(2)	(3)	(4)
	Net inequity	Net inequity	Inequity mean	Inequity mean
Top percentile inc. sh.	1.59^{***}	1.16^{*}	3.10^{***}	2.12^{*}
	(0.42)	(0.51)	(0.83)	(1.00)
Constant	0.55^{***}	-2.69	2.77^{***}	-4.41
	(0.05)	(2.15)	(0.10)	(4.22)
Country fixed effects	X	X	X	X
Linear time trend		X		X
Observations	108	108	108	108
R²	0.18	0.21	0.18	0.21

Note: Standard errors in parentheses; $^{+} p < 0.10$, $^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

B2. Country-level regressions including inequality aversion (ideal society egalitarian)

Table B2.1: Fixed effect regressions of inequity perception on top decile income share and inequality aversion

	(1) Net inequity	(2) Net inequity	(3) Inequity mean	(4) Inequity mean
Top decile inc. sh.	1.30**	1.06*	2.66**	2.38*
	(0.45)	(0.50)	(0.93)	(1.03)
Inequality aversion	0.20**	-0.04	0.46**	0.18
	(0.07)	(0.21)	(0.15)	(0.44)
Top decile inc. sh. X inequality aversion		0.56		0.64
		(0.47)		(0.98)
Constant	1.60	1.90	3.76	4.10
	(2.18)	(2.19)	(4.46)	(4.52)
Country fixed effects	X	X	X	X
Linear time trend	X	X	X	X
Observations	91	91	91	91
R²	0.24	0.27	0.27	0.28

Note: Inequity aversion is based on a question in which respondents were asked to choose their preferred society from five graphic displays of income distributions. These have been recoded to a zero to four scale from least to most egalitarian. Country means of the variable have been rescaled to range from zero (least egalitarian) to one (most egalitarian) in the observed data. The question on preferred income distribution was first included in the 1992 ISSP Social Inequality module, data from the 1987 ISSP Social Inequality module are thus not included. Standard errors in parentheses; $^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

Figure B2.1: Effect of top decile income share on inequity perceptions at varying levels of inequality aversion
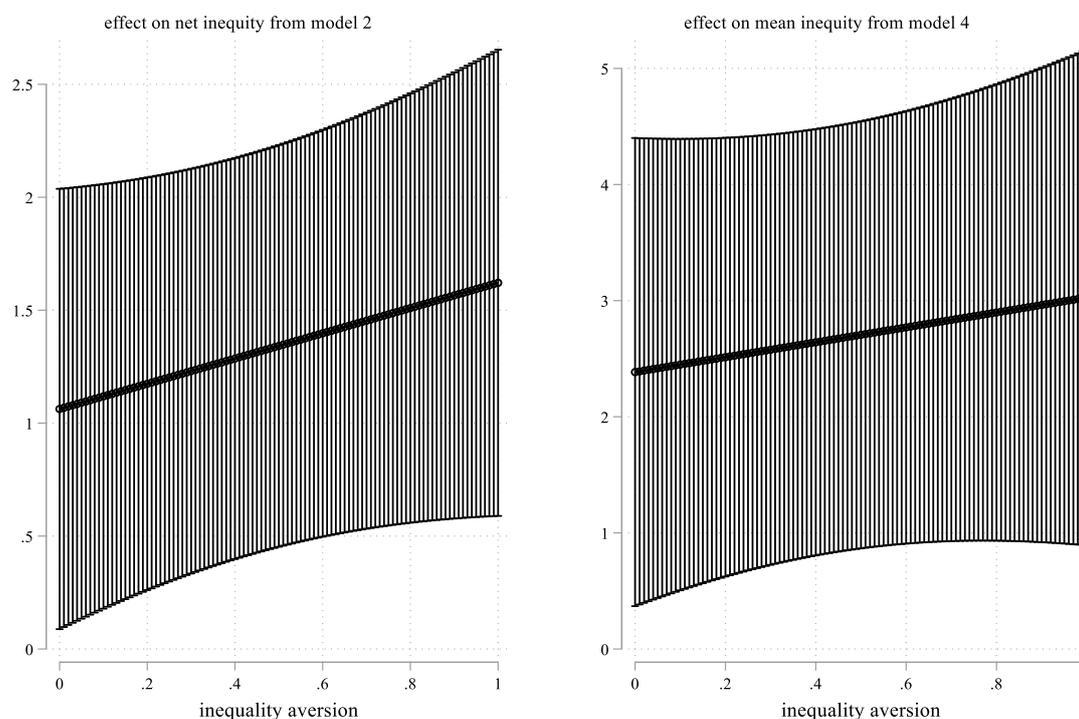
Note: Conditional effects with 95% confidence intervals.

B3. Multilevel regressions for association between inequity perceptions and top income shares

Table B3.1: Multilevel model regressing inequity perception on top decile/percentile income share

	(1)	(2)	(3)	(4)
Top decile income share	2.38***	1.89***		
	(0.40)	(0.51)		
Top percentile income share			3.13***	2.13**
			(0.64)	(0.76)
Constant	1.91***	-2.90	2.21***	-5.01
	(0.25)	(3.18)	(0.24)	(3.14)
Country fixed effects	X	X	X	X
Linear time trend		X		X
N, individual	148,958	148,958	147,457	147,457
N, country-year	109	109	108	108

Note: Linear multilevel random-intercept model with individuals nested in country-years. Dependent variable is agreement with the statement that "Differences in income in [COUNTRY] are too large" on a scale from zero to four. Standard errors in parentheses; $^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

B4. Multilevel regressions with interactions between top income shares and inequality aversion

Table B4.1: Multilevel model regressing inequity perception on top decile/percentile income share and inequality aversion

	(1)	(2)	(3)	(4)
Top decile income share	2.26**	1.91**		
	(0.70)	(0.69)		
Top percentile income share			3.01**	1.98+
			(1.00)	(1.03)
Preferred income distribution (ref.: bimodal)				
Pyramid	-0.10***	-0.16	-0.11***	-0.20**
	(0.02)	(0.11)	(0.02)	(0.08)
Pyramid, few at bottom	-0.06**	-0.22*	-0.06**	-0.21***
	(0.02)	(0.09)	(0.02)	(0.06)
Many near top, few at bottom	0.02	-0.17*	0.02	-0.15*
	(0.02)	(0.08)	(0.02)	(0.06)
Most in the middle	0.02	-0.19*	0.01	-0.16**
	(0.02)	(0.08)	(0.02)	(0.06)
Top share X preferred income distribution				
Top share X Pyramid		0.11		0.58
		(0.25)		(0.50)
Top share X Pyramid, few at bottom		0.36+		1.00*
		(0.20)		(0.41)
Top share X Many near top, few at bottom		0.45*		1.09**
		(0.18)		(0.38)
Top share X Most in the middle		0.47**		1.08**
		(0.17)		(0.37)
Constant	2.02	1.86	1.15	0.85
	(3.37)	(3.25)	(3.32)	(3.22)
Country fixed effects	X	X	X	X
Linear time trend	X	X	X	X
N, individual	114,567	114,567	113,247	113,247
N, country-year	91	91	90	90

Note: Linear multilevel random-intercept model with individuals nested in country-years. Dependent variable is agreement with the statement that "Differences in income in [COUNTRY] are too large" on a scale from zero to four. Models 2 and 4 also include random slopes for inequality aversion (treated as categorical). Inequity aversion is based on a question in which respondents were asked to choose their preferred society from five graphic displays of income distributions. The question on preferred income distribution was first included in the 1992 ISSP Social Inequality module, data from the 1987 ISSP Social Inequality module are thus not included. Standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure B4.1: Effect of top decile income share on inequity perceptions at different values of inequality aversion (multilevel models)
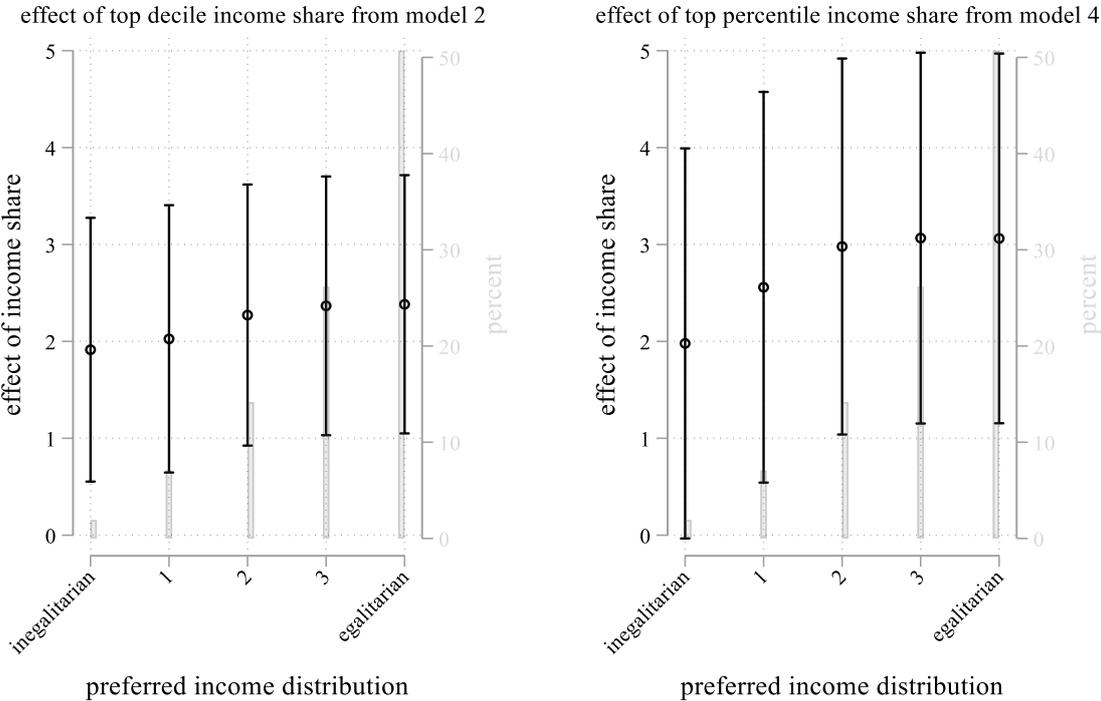
Note: Conditional effects with 95% confidence intervals.

Appendix C: Additional results for association between inequality and populist attitudes

**C1. Exploratory factor analysis of populist attitudes by election study**

Table C1.1: Factor loadings by election study

	Politicians do not care about the people	**Politicians are trust-worthy**	**Politicians are main problem**	**People should make decisions**	**Eigen-value**	**Explained variance**
Australia 2019	0.81	-0.68	0.80	0.66	2.20	0.55
Austria 2017	0.86	-0.79	0.80	0.51	2.25	0.56
Belgium 2019, Flanders	0.86	-0.69	0.78	0.66	2.25	0.56
Belgium 2019, Wallonia	0.83	-0.71	0.79	0.70	2.27	0.57
Brazil 2018	0.75	-0.35	0.74	0.52	1.50	0.38
Canada 2019	0.79	-0.69	0.76	0.60	2.03	0.51
Chile 2017	0.71	-0.55	0.71	0.56	1.62	0.41
Costa Rica 2018	0.67	-0.46	0.76	0.51	1.50	0.37
Finland 2019	0.81	-0.68	0.80	0.68	2.23	0.56
France 2017	0.74	-0.67	0.77	0.70	2.08	0.52
Germany 2017	0.82	-0.68	0.82	0.72	2.33	0.58
Greece 2015	0.81	-0.60	0.68	0.40	1.63	0.41
Hong Kong 2016	0.75	-0.43	0.71	0.22	1.29	0.32
Hungary 2018	0.81	-0.63	0.77	0.62	2.03	0.51
Iceland 2016	0.81	-0.79	0.79	0.57	2.23	0.56
Iceland 2017	0.81	-0.75	0.79	0.52	2.11	0.53
Ireland 2016	0.82	-0.68	0.80	0.55	2.09	0.52
Italy 2018	0.72	-0.59	0.77	0.56	1.78	0.44
Lithuania 2016	0.78	-0.63	0.77	0.68	2.05	0.51
Montenegro 2016	0.83	-0.25	0.80	0.80	2.00	1.02
New Zealand 2017	0.81	-0.63	0.81	0.63	2.12	0.53
Norway 2017	0.80	-0.74	0.81	0.65	2.26	1.53
Portugal 2019	0.79	-0.65	0.76	0.51	1.88	0.47
South Korea 2016	0.72	-0.69	0.68	0.13	1.47	0.37
Sweden 2018	0.82	-0.58	0.83	0.68	2.16	0.54
Switzerland 2019	0.82	-0.57	0.81	0.55	1.97	0.49
Taiwan 2016	0.78	-0.68	0.63	0.35	1.58	0.39
Taiwan 2020	0.76	-0.60	0.66	0.43	1.55	0.56
Turkey 2018	0.79	-0.63	0.69	0.53	1.79	0.45
UK 2017	0.82	-0.62	0.77	0.71	2.14	0.54
USA 2016	0.78	-0.65	0.76	0.52	1.88	0.47

Note: Factor loadings on first factor (along with Eigenvalue and explained variance) from principal component factors analysis run separately by election study.

C2. Populist attitudes by country

Figure C2.1: Distribution of populist attitudes by elections
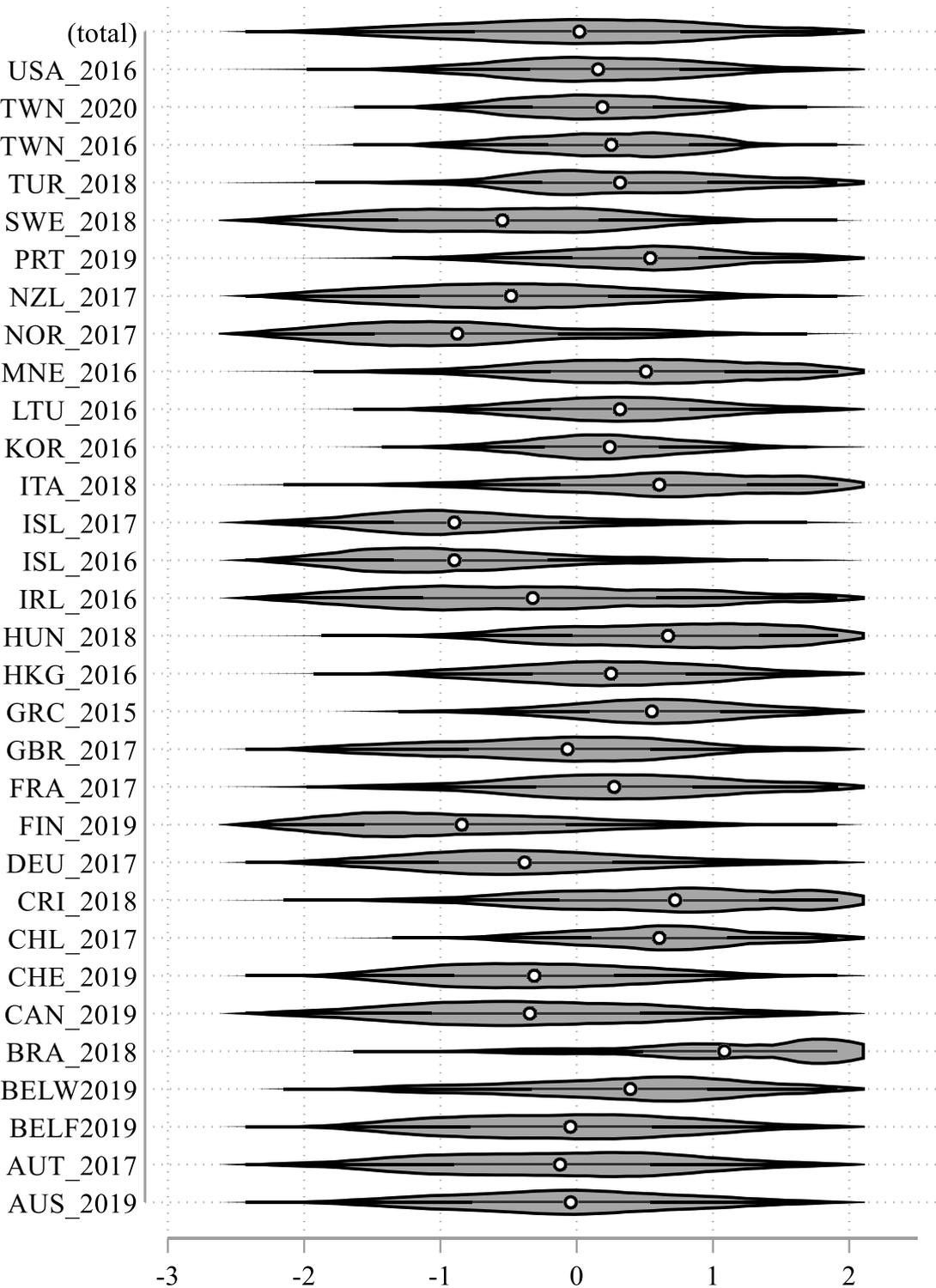
Table C3.1: Regressing mean populist attitude (multiplicative aggregation of subdimensions) on income inequality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Top decile inc. share	0.78***	0.31*	1.29**	0.33+	0.67+					
	(0.18)	(0.14)	(0.46)	(0.19)	(0.33)					
Gini coefficient						0.91***	0.54***	1.31**	0.52**	0.74*
						(0.20)	(0.13)	(0.35)	(0.18)	(0.27)
Corruption (absence)		-0.48***			-0.46***		-0.46***			-0.47**
		(0.08)			(0.12)		(0.07)			(0.13)
System of government (ref: parliamentary)										
Mixed			0.00		-0.01			0.00		-0.01
			(0.04)		(0.03)			(0.04)		(0.02)
Presidential			-0.11		-0.08			-0.05		-0.05
			(0.09)		(0.06)			(0.06)		(0.05)
Polity score$_{t-1}$			0.00		0.01			-0.00		0.00
			(0.01)		(0.00)			(0.01)		(0.00)
GDP per capita (ln)$_{t-1}$				-0.14**	-0.03				-0.13**	-0.02
				(0.05)	(0.05)				(0.04)	(0.05)
GDP growth rate$_{t-1}$				-0.00	-0.00				0.00	-0.00
				(0.00)	(0.00)				(0.00)	(0.00)
Unemployment rate$_{t-1}$				0.30	-0.03				0.17	-0.18
				(0.31)	(0.28)				(0.28)	(0.27)
Constant	0.11	1.14***	-0.27	3.15*	0.96	0.06	0.93***	-0.08	2.92**	0.95
	(0.14)	(0.18)	(0.36)	(1.20)	(1.08)	(0.14)	(0.15)	(0.24)	(0.95)	(1.03)
Observations	0.06	0.57***	-0.13	1.66**	0.66	0.05	0.48***	-0.04	1.59**	0.67
R²	(0.07)	(0.09)	(0.18)	(0.57)	(0.55)	(0.07)	(0.08)	(0.12)	(0.45)	(0.52)

Note: The country-level correlation between the means of the two populist attitudes measures (factor score and multiplicative aggregation) is 0.97. Country-level data. Standard errors in parentheses. $^{+} p < 0.10$, $^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

C4. Multilevel models for alternative measure of populist attitude with multiplicative aggregation

Table C4.1: Multilevel models of populist attitudes (multiplicative aggregation of subdimensions)

	(1)	(2)	(3)	(4)
Level 2 (election) variables				
Top decile income share	0.70***	0.71*		
	(0.18)	(0.29)		
Gini coefficient			0.85***	0.81**
			(0.19)	(0.25)
Absence of corruption (CPI)		-0.50***		-0.50***
		(0.11)		(0.11)
System of government (reference category: parliamentary)				
Mixed		-0.02		-0.03
		(0.02)		(0.02)
Presidential		-0.09+		-0.07+
		(0.06)		(0.04)
Polity score$_{t-1}$		0.01*		0.00
		(0.00)		(0.00)
GDP per capita (ln)$_{t-1}$		-0.01		-0.01
		(0.04)		(0.04)
GDP growth$_{t-1}$		-0.00		-0.00
		(0.00)		(0.00)
Unemployment rate$_{t-1}$		-0.05		-0.23
		(0.25)		(0.24)
Level 1 (individual) variables				
Income quintile (reference category: lowest quintile)				
2nd income quintile	-0.02***	-0.02***	-0.02***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)
middle income quintile	-0.05***	-0.05***	-0.05***	-0.05***
	(0.00)	(0.00)	(0.00)	(0.00)
4th income quintile	-0.07***	-0.07***	-0.07***	-0.07***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest income quintile	-0.10***	-0.10***	-0.10***	-0.10***
	(0.00)	(0.00)	(0.00)	(0.00)
Education (reference category: low education)				
Education: middle	-0.01**	-0.01**	-0.01*	-0.01*
	(0.00)	(0.00)	(0.00)	(0.00)
Education: high	-0.07***	-0.07***	-0.07***	-0.07***
	(0.01)	(0.01)	(0.01)	(0.01)
Age groups (reference category: up to 30)				
Age: 31 to 45	0.01**	0.01**	0.01**	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)
Age: 46 to 65	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Age: older than 65	-0.02***	-0.02***	-0.02***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)
Male	0.01*	0.01*	0.01*	0.01*
	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.18*	0.59	0.15*	0.57
	(0.07)	(0.48)	(0.07)	(0.46)
St. dev. of random intercept	0.08	0.05	0.08	0.04
Observations (level 1)	40712	40712	40045	39395
Observations (level 2)	29	29	29	28

Note: Multilevel models with individuals nested in election studies. Standard errors in parentheses. $^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

C5. Multilevel models with interaction between income inequality and left-right position

Figure C5.1: Marginal effects and predicted values from multilevel regressions
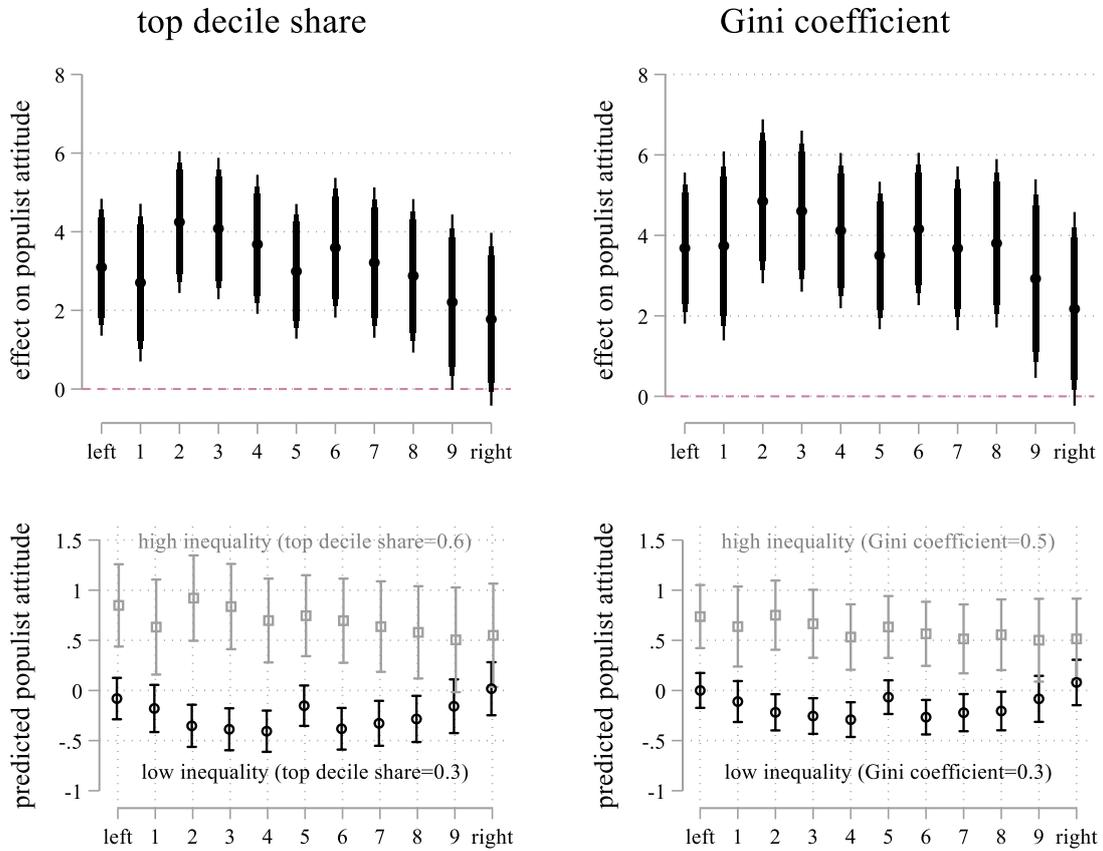
Note: Upper panels show conditional effects of top decile income share/Gini coefficient on populist attitudes (with 95%, 90% and 85% confidence intervals). Lower panels show predicted values (with 95% confidence intervals) for different values of left-right position and income inequality. Marginal effects and predicted values are from two multilevel models similar to models 1 and 3 of Table 5 with additional random slopes for self-categorized left-right position (treated as categorical) as well as cross-level interactions between left-right position and top decile income share/Gini coefficient.