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Mobile internet and the rise of political tribalism in Europe

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Abstract
We study the political effects of the diffusion of mobile Internet between 2007 and 2017, using data on electoral outcomes and on mobile Internet signal across the 84,564 municipalities of 22 European countries. We find that access to mobile Internet increased voters' support for right-wing populist parties and for parties running on extreme socially conservative platforms, primarily in areas with greater economic deprivation. Using survey data, we also show that mobile Internet increased communitarian attitudes, such as nationalism and dislike of strangers and minorities. We conclude that mobile Internet benefitted right-wing populist parties because, in line with findings in social psychology, it fostered offline tribalism.

Key words: populism, communitarianism, Europe, mobile internet
JEL codes: D72; D91; L86

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1. Introduction

The rise of populism is one of the most prominent changes in the political systems of advanced democracies during the last few decades. Widely used classifications show that in Europe the vote share of populist parties roughly doubled between the mid-late 2000s and the mid-late 2010s, peaking at over 30 percent at the end of the period. This same period also saw a rapid diffusion in 3G and 4G mobile technologies, accompanied by a spread in the use of mobile Internet and social media.[1] While in 2007, the first year Apple's Iphone reached the market, around one third of European citizens were not yet in reach of mobile Internet signal, by the second half of the 2010s, mobile Internet coverage was effectively universal. A natural question is whether these two phenomena are causally related, and how.

This paper argues that they are. The spread of mobile Internet contributed to the rise of European populism because it exacerbated communitarian tendencies in the population. The electoral success of populism in Europe was largely due to nationalist, anti-immigration, anti EU-integration parties, locating on the right of the political spectrum and often capitalizing on xenophobic and nationalist political narratives. We find causal evidence that access to mobile Internet increased electoral support for such parties, especially in areas at greater economic disadvantage. Building on insights in social psychology, we focus on one key mechanism rooted in changes in voters' preferences. We show in particular that access to mobile Internet in disadvantaged areas made voters more communitarian in their policy views, increasing their distrust and intolerance of strangers and enhancing nationalist tendencies. We also discuss and rule out other possible mechanisms through which mobile Internet might have favored European populist parties.

The cleavage between communitarian versus universalistic views of the world is commonly recognized as a fundamental dimension of political conflict in modern democracies. Communitarian moral values emphasize loyalty to the in-group and distrust of strangers, while universalist values entail altruism and trust towards strangers (Tabellini, 2008). This cleavage is systematically correlated with opposite political opinions and policy views about immigration, nationalism, civil rights, and the composition of government spending (Enke, 2020; Enke et al., 2023; Haidt, 2012).

A priori, the effect of mobile Internet and social media on views and opinions is ambiguous. By enabling individuals to communicate and be exposed to physically and culturally distant individuals and communities, online technologies have the potential to enhance universalism and the sense of belonging to a wider community (Rheingold, 2000). This would translate into voters adopting more liberal views and lowering their support for communitarian parties. On the other hand, as discussed below, an influential literature in social psychology argues that social media promote in-group bias and out-group animosity,

[1] According to the "Digital 2021 Global Report" by the media agency "We are Social", in 2021 people spent an average of 3 hours 39 minutes on mobile daily, of which 50.1 percent was spent on social media. Social media also tend to be mostly accessed via mobile: for example, 81 percent of Facebook users only access it via a mobile phone (https://bit.ly/3GZaCYl).

particularly when individuals and communities feel under threat. This strengthening of communitarian perspectives, in turn, would favor right-wing populist parties campaigning on nationalistic policy platforms and promoting intolerance towards immigrants and minorities.

We exploit granular data on mobile signal availability and administrative data on electoral outcomes in national parliamentary elections, combined with data on party platforms, between 2007 and 2017. Our sample includes 22 major European countries, accounting for more than half a billion people and 96 percent of the European population. The novel data that we have assembled for this exercise come at the level of municipality, the lowest administrative unit according to the standard statistical nomenclature of territorial units. The data overall cover about 85,000 municipalities, each accounting for less than 6,000 individuals on average. We complement the analysis with individual-level survey data that allow us to provide direct evidence on the role of mobile Internet on voting intentions and voters' policy views.

An obvious concern is the possibly non-random allocation of coverage across municipalities, which would lead to biased estimates of impact. For this reason, we propose a novel identification strategy that relies on insights from the corporate finance literature. In particular, there is compelling evidence that managers engage in projects on behalf of the company that yield personal benefits (see Shleifer and Vishny, 1997, for a review) and that CEOs in the natural resources industry in the USA promote investment in areas close to their residential properties (Décaire and Sosyura, 2021). Closely related, an influential body of research shows that managers extract personal rents when the firm or the sector is performing well for reasons beyond the managers' control, due to shareholders' inattention which creates room for managers' slack (Bertrand and Mullainathan, 2000, 2001). We thus instrument mobile Internet coverage with the interaction between the log distance of each municipality from the closest birthplace of a Telecommunication manager in office in the previous years and the country's growth rate in mobile phone coverage. In light of the literature in corporate finance, we expect areas closer to managers' birthplaces to receive greater coverage and this effect to be particularly pronounced in periods of higher sectoral growth, something which we find strong evidence for.

We show that mobile Internet coverage increased the vote share of right-wing populist parties and of parties characterized by extreme policy platforms in dimensions that are nationalistic and communitarian, such as opposition to immigration, to ethnic minorities and to European integration. This explains a considerable fraction of the overall rise in support for populist and communitarian parties in Europe. According to our estimates, the observed increase in mobile Internet coverage in our sample period (from 68 to 97 percent) is responsible for an increase in the vote share of right-wing populist parties of between 3.8 and 5.1 percentage points, corresponding to between 38 and 42 percent of the observed increase depending on the measure used. The effect is amplified by local economic deprivation, which we measure in terms of the unemployment rate, although results are qualitatively unchanged if we focus on other measures.

Our 2SLS estimates could capture simultaneous trends in coverage and electoral outcomes along dimensions associated to a municipality distance from a manager's birthplace. Such birthplaces are clearly not randomly allocated, and there is evidence that they tend to be larger and more affluent than the average country municipality. To address this concern, we validate the exclusion restriction in a number of ways. First, we show that estimates are insensitive to the inclusion of a large array of baseline controls, including income per capita, population and distance from top cities in the country, region and province, all interacted with time fixed effects. Second, we show that results are also unchanged, although less precise, if we restrict the sample to municipalities for which the closest managers' birthplace is not a large city. This eases concerns that the instrument is capturing distance from the major cities in the country. Third, we perform a test based on random assignment of managers to municipalities conditional on population class. We find that our main estimates typically lie in the upper tail of the empirical distribution, suggesting that the effects we uncover are unlikely to be driven by managers' birthplaces being selected in terms of size.

The effects of mobile Internet are only present for right-wing populist parties, while they are absent for left-wing populist parties, or parties holding extreme universalistic positions. There is also no evidence that mobile Internet increased turnout, nor that it favored new parties. The latter suggests that the effects that we estimate are not due to generic features of populism, unrelated to specific policy positions, such as an oversimplified or radical political discourse (Canovan, 1999; Oliver and Rahn, 2016). The distinctive feature of parties that benefited from mobile Internet is their being strongly communitarian on a variety of issues.

To corroborate this interpretation, we study the effects of mobile coverage on policy opinions and voting intentions from the Integrated Value Surveys (IVS) (Gedeshi et al., 2021; Haerpfer et al., 2021). We find that access to mobile Internet has made respondents living in economically disadvantaged areas more communitarian (more opposed to immigration, more nationalistic, more intolerant of minorities) and more likely to vote for communitarian parties. This technology-induced shift in preferences is able to explain around 20 percent of the rise in voters' support for right-wing populist parties. In sum, evidence from micro-data is consistent with the idea that mobile Internet contributed to the success of right-wing populist parties because it made citizens more tribalistic in their attitudes and more permeable to political messages that discriminate against minorities and out-group members, especially in circumstances of economic strain.

These findings are consistent with a large empirical literature on social psychology about the effects of social media. There is extensive evidence that online social networks exhibit a large degree of political homophily (D'Amico and Tabellini, 2022; Halberstam and Knight, 2016), especially among conservatives (Barberá et al., 2015), which is likely to strengthen in-group bias. This does not necessarily imply that individuals are unaware of the ideas of others, but undermining opposite points of view is often a feature of the online political discourse (Bright et al., 2020). In particular, a small but influential literature in social

psychology shows that social media promote online "tribalism", i.e., in-group favoritism and out-group animosity. Evidence from this literature shows that content characterized by moral outrage, fear and animosity is particularly effective at capturing users' attention and creating engagement (Berger and Milkman, 2012; Crockett, 2017; Rathje et al., 2021; Vosoughi et al., 2018), which in turn creates incentives for both users and platforms to produce and spread such content.[2] There is also an argument that online animosity is best directed towards out-group members, both because the return from producing and sharing derogatory content is higher when directed to the out-group relative to the in-group (Rathje et al., 2021), and because the cost is lower, as out-groups pose a lower risk of offline retaliation (Crockett, 2017).[3] In addition, theories of social identity suggest that when the in-group versus out-group distinction becomes hyper-salient, as it is the case in an online environment, individuals will have an incentive to subsume their individual identity into the in-group, and adopt its norms and prescriptions, at the expense of the out-group (Tajfel and Turner, 1979). In light of this evidence, it is plausible that social media might have increased support for nationalistic policy platforms and intolerance towards immigrants and minorities. This might happen because voters exposed to social media become more tribalistic in their attitudes, or because political messages promoting communitarian positions are particularly effective in persuading voters through social media.

Our finding that the effect of social media on communitarian tendencies is enhanced by economic insecurity is also consistent with the literature on social psychology and scapegoating. A prominent literature in social psychology argues that in-group bias rises when individuals and communities are under threat. In such circumstances, out-groups are seen as competing for scarce resources, while the in-group is seen as offering protection (Gelfand et al., 2011; Jackson et al., 2019; Stephan and Stephan, 2013). There is also evidence that ostracism of outsiders and minorities becomes more widespread during economic crises. This is explained by the observation that, during bad times, people seek someone to blame for their misfortunes, and outsiders are obvious scapegoats. Thus bad times provide rationales for intolerance of minorities and distrust of strangers, making such behavior socially more acceptable (Allport et al., 1954; Bursztyn et al., 2022).

Our paper is related to several lines of research. First, we contribute to the literature on the political effects of the media, and in particular social media and the Internet (for all, see Zhuravskaya et al., 2020).[4] A large body of research has argued that broadband

[2] Emotionally charged Tweets, for example, tend to be re-shared about 20 percent more than neutral Tweets on the same topic (Brady et al., 2017; Stieglitz and Dang-Xuan, 2013), while on Facebook people engage disproportionately with more sensationalist and provocative content (Zuckerberg, 2018).

[3] Indeed, over 70 percent of online hate speech is directed towards geographically and socially distant minorities (United Nations, 2021).

[4] An established body of literature in economics finds effects of TV on political outcomes, such as reduced turnout and lower political knowledge as voters substitute away from newspapers (Gentzkow, 2006); political persuasion of ideologically biased media (DellaVigna and Kaplan, 2007; Enikolopov et al., 2011); persistent political effects of entertainment TV (Durante et al., 2019). See Strömberg (2015) for a review of this literature. Manacorda and Tesei (2020) show that mobile phones increase political mobilization and protests in Africa but only when sufficient reasons for grievance exist.

availability has led to a decline in political participation and - via this - reduced government accountability (Falck et al., 2014; Gavazza et al., 2019), although there is also evidence that in the long-term this generates opportunities to reach out to disenfranchised voters (Campante et al., 2018). A recent set of papers focus on mobile Internet and the role of social media on political outcomes. The paper most closely related to ours is Guriev et al. (2021) who show, using data for a large number of low- and high-income countries around the world, that, by exposing misgovernance and corruption, 3G mobile availability reduces voters' confidence in government and reduces the incumbent's chances of re-election, although the effect is only at play when media are not censored. The authors also provide evidence for Europe that this mechanism is able to explain reduced support for traditional parties to the advantage of anti-establishment populist parties. Our paper provides a different and potentially complementary explanation for this phenomenon, which is rooted in the tribalistic nature of right-wing populist parties in Europe and the tendency of mobile Internet and social media to over-emphasize the distinction between in-group and out-group members. In this, our work also relates to Bursztyn et al. (2019, 2020), Enikolopov et al. (2020) and Müller and Schwarz (2021), who argue that exposure to social media may fan the flames of hate towards minorities and facilitate the occurrence of protests. These papers emphasize how social media strengthen complementarities in the expression of radical or socially unacceptable views and in engaging in extreme conducts, but do not draw implications for voting outcomes, nor do they present arguments that these complementarities are stronger for the extreme right rather than the extreme left. As discussed in the survey by Zhuravskaya et al. (2020), recent research has also shown that fake news circulate widely on social media, and they spread faster and more widely than true news, perhaps because of their more radical and novel content. Moreover, fake news circulation is found to be more widespread amongst right-wing users. Nevertheless, there is no systematic evidence that fake news influence opinion formation or political behavior.

A separate literature in political science claims that Internet and social media lead to "echo chambers", i.e. citizens' tendency to engage in conversation with and draw information from similar politically-oriented audiences. This has been proposed as an explanation for the increase in political polarization in the USA (Sunstein, 2018). Evidence in economics, though, seems to find mixed support for this hypothesis (Boxell et al., 2017; D'Amico and Tabellini, 2022), and our evidence also seems to run counter it. Although admittedly our results refer to Europe, with markedly different political institutions and electoral rules compared to the USA, increased polarization would imply a greater mass of voters in both tails of the distribution, while we only find an effect on communitarianism but not on universalism.

Second, our work relates to the burgeoning literature in economics and political science on economic and cultural determinants of the rise in populist vote reviewed by Guriev and Papaioannou (2020). Key economic drivers range from austerity measures (Fetzer, 2019), technological change (Anelli et al., 2021), exposure to international competition

(Colantone and Stanig, 2018; Autor et al., 2020), immigration (Dustmann et al., 2019; Halla et al., 2017), globalization (Rodrik, 2018), unemployment and economic grievances (Algan et al., 2017; Dustmann et al., 2017) and associated economic insecurity (Guiso et al., 2020). An alternative explanation, championed by Norris and Inglehart (2019) suggests that this phenomenon is ascribable to the gradual backlash of previous dominant groups, who felt threatened in their identity by liberal elites embracing universalistic positions. This relates to a large literature that points to the emergence of new political cleavages and emphasizes voters' realignment across dimensions of social identity rather than traditional class conflict (Besley and Persson, 2021; Bonomi et al., 2021; Grossman and Helpman, 2021; Hooghe and Marks, 2018; Shayo, 2009, 2020). None of this work, though, draws a link between the so-called ICT revolution - arguably the most relevant cultural change of our times - and populism or focuses on a mechanism working through increased tribalism and identitarian politics.

The rest of the paper is organized as follows. Section 2 discusses the data and descriptive statistics associated to electoral outcomes and diffusion of mobile Internet coverage. Section 3 lays out the empirical strategy. Section 4 presents the empirical results on administrative-level voting outcomes. Section 5 presents direct evidence on mechanisms of impact using individual-level data. Section 6 discusses and rules out alternative mechanisms. Section 7 concludes.

2. Data Sources and Descriptive Trends

In this section, we introduce data on electoral outcomes and mobile Internet penetration that we use in the rest of the analysis and we characterize their levels and trends both within and across countries, as well as for the continent as a whole.

2.1. Electoral Outcomes

In order to carry out our analysis, starting from information produced by national electoral commissions, we have manually assembled novel data on the number of votes by party between 2007 and 2017 across the 84,564 municipalities of the 22 largest European countries, accounting for over half a billion people.[5,6] The data refer to voting outcomes in all national lower house parliamentary elections held over the period, with the exception of France, for which the data refer to the first-round Presidential elections, and typically cover three elections per country. For thirteen of these countries, we were also able to

[5] Countries in the sample are: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland and United Kingdom. These include all major EU27 countries (with the exception of the following small countries: Croatia, Cyprus, Estonia, Ireland, Latvia, Lithuania, Malta), collectively accounting for 96 percent of EU27 population, plus Norway and Switzerland.

[6] Local Administrative Units (LAUs) are the lowest administrative units according to the EU nomenclature of territorial units for statistics and, in most countries, they correspond to municipalities. Because of this, in the rest of the paper, we refer to LAUs as municipalities. Appendix Table B.1 provides details on the number of municipalities per country.

collect information on the number of eligible voters by municipality, which allows us to compute measures of voter turnout.

In order to characterize trends in voting outcomes, we start by focusing on support for parties classified as "populist". We consider two widely used classifications, respectively by Rooduijn et al. (2019) and Norris (2020). While the former defines populism as a political ideology, and the latter as a form of political rhetoric, both classifications identify the distinction between "the pure people" versus "the corrupt elite", and the idea that legitimate authority flows directly from the will of the people, as defining features of populist parties. Both measures also allow us to distinguish between right- and left-wing parties. Note however that in Rooduijn et al. (2019) some populist parties are defined as neither right- or left-wing. Hence, the sum of right- and left-wing populist under this classification does not add to the total populist vote.[7]

In Table 1 we characterize continent-wide trends in support for populist parties, both overall and separately for right- and left-wing parties. Each observation here is a country X election year. Importantly, most country X election year observations in our data (67 or 71 out of 72, depending on the definition of populism used) feature at least one populist party, suggesting that political supply is not a constraint to voters' choices. The Table reports results from regressions of the vote share for these parties by year of election and country on a linear year trend (divided by eleven, i.e., the implied trend over the period 2007-2017) and country fixed effects - to account for compositional changes due to elections not being synchronized across countries. Regressions are weighted by country population and standard errors are clustered at the country level. The first two columns refer to all populist parties, irrespective of their ideological leaning, the second two refer to right-wing parties and the last two to left-wing parties. Results in columns (1) and (2) confirm the marked increase in support for populist parties in Europe over the period, on the order of 17.1 and 23 percentage points according to the definitions by Rooduijn et al. (2019) and Norris (2020), respectively. Columns (3) and (4) illustrate that most of the rise in populism (around 60 to 70 percent) is concentrated among right-wing parties. This captures the well-known electoral success of parties like the French *National Rally*, the Italian *League* and the *Alternative for Germany* in Western Europe; the Hungarian *Fidesz* and the Polish *Law and Justice* in Eastern Europe; and the *Sweden Democrats* and the *True Finns* in Northern Europe. Columns (5) and (6) show a comparatively smaller increase in left-wing populism. This captures the electoral success of parties such as the *Five Star Movement* in Italy, *Podemos* in Spain and *Syriza* in Greece. In sum, Table 1 shows that, over the 11 years of observation, the European political landscape underwent a major transformation, with an unprecedented success of extreme right-wing populist parties, which effectively doubled their support over the period.

These classifications, however, ignore parties' positions on specific issues, and in particular the dimension of communitarianism versus universalism that is central to our working

[7] Populism in Rooduijn et al. (2019) and Norris (2020) show a clear positive association, with a correlation coefficient of 0.44.

hypothesis. For this reason, we complement these data with information from the Chapel Hill Expert Survey (CHES, Jolly et al., 2022) on parties' policy positions and ideologies that, broadly speaking, provide measures of support for a closed as opposed to an open society.[8] The data are available for 20 out of the 22 countries in our sample, as they do not include Norway and Switzerland. We first consider (1) the variable GAL-TAN (Hooghe et al., 2002; Hooghe and Marks, 2009) - literally, Green, Alternative, Libertarian vs. Traditionalist, Authoritarian, Nationalist - a widely used measure of the cultural cleavage between universalism (support for open borders, individual and minority rights and acceptance of global authorities) and communitarianism (support for traditional values, defence of the national community against competing sources of identity and support for the sovereignty of states). Second, we focus on parties' positions on immigration, which often features as one of the major sources of concern among European citizens, and in particular on (2) positions in favor of restrictive immigration policies, and (3) on opposition to multiculturalism. Relatedly, we consider parties' (4) support for ethnic minorities' rights as well as their (5) position towards European integration. The latter has been an extremely divisive issue in Europe since the great recession, with several parties - both on the right and on the left - opposing the process of integration, on the grounds that it dispossessed national states of their sovereign authority. We also consider the CHES classification of parties in terms of two broad ideological dimensions, namely (6) a traditional measure of left-right ideological orientation, and (7) a measure of left-right position on economic issues, which subsumes support for redistribution and government intervention in the economy. This measure identifies the dimensions of class and redistributive conflict that characterize voters' alignment in traditional liberal democracies. We rescale all variables in CHES so that higher values correspond to more communitarian positions.[9]

Figure 1 reports kernel density estimates of the distribution of such variables separately for right-wing populist, left-wing populist and all other parties. We present evidence based on Rooduijn et al. (2019), although results based on the alternative measure of populism by Norris (2020) in Appendix Figure A.1 are remarkably similar. Three main observations emerge. First, right-wing populist parties are markedly more communitarian than other parties, with the mass of the distribution being significantly shifted to the right. Second, left-wing populist parties are not significantly different from non-populist parties. Although they appear to be slightly more universalistic on issues such as immigration, they are also more communitarian when it comes to their position on EU integration. Third, right-wing populist parties appear very similar to other parties in terms of their position

[8] The CHES database is based on experts' assessment of parties' platforms and ideologies and it covers the majority of European parties, providing a consistent source across space and time. We use CHES data from waves 2006, 2010, 2014 and 2017. A list of the precise questions in CHES is provided in Appendix Table B.2.

[9] For each party, we use averages of these measures across all surveys over the period for which this information is available. We do so because data on party platforms are not available in all years when a party was in existence, and because experts' assessment varies discretely over time, an artificial result of the survey being run every three to four years. The latter might mismeasure position at the time of elections.

on economic issues. Hence support for redistribution and for government intervention in the economy are not characterizing features of European right-wing populism.

In columns (1) to (7) of Table 2, for each variable in CHES, we report trends in support for parties in the top (communitarian) and bottom (universalistic) deciles of the respective continent-wide distribution, regardless of whether they are classified as populist or not. The results in the upper panel show a steep increase in support for highly communitarian parties, which more than doubled their initial voting share over the period. In particular, parties characterized by extreme positions on the defense of traditional values and strongly opposed to individual and minority freedoms (column 1) increased their electoral support by 5.2 percentage points. An even greater electoral success, of between 6.6 and 9.9 percentage points, was enjoyed by parties advocating extremely restrictive immigration policies and strongly opposed to multiculturalism and ethnic minority rights (columns 2 to 4), as well as opposing the process of EU integration (column 5). The overall shift to the extreme right is mirrored by the 8.3 percentage points increase in the vote share of far-right parties (column 6). Importantly, and consistent with the reduced role of the traditional divide between labor and capital in explaining voters' alignment (Hooghe and Marks, 2009) and the rise of identity politics (Bonomi et al., 2021), there is no evidence of a shift in support for parties holding extreme right-wing positions on economic issues (column 7). On the other hand, the results in the bottom panel of the table show only a very modest increase in support for parties characterized by extreme universalistic policy platforms and ideologies. Overall, the data thus reveal that, over the period of observation, Europe experienced a considerable increase in support for parties embodying extreme communitarian positions, with no corresponding change in support for parties holding extreme universalistic positions. In sum, we see no evidence of voters' polarization in Europe, at least in terms of the universalistic/communitarian divide. This appears in contrast with what found for the USA, where these is evidence of increased polarization in terms of liberal/conservative views, although the effect appears to be restricted to the most politically engaged (Prior, 2013).

Although Tables 1 and 2 provide clear evidence of continent-wide trends in voting outcomes, they mask substantial heterogeneity both across and within countries. Figure 2 presents the shares of votes for right-wing populist parties as defined by Rooduijn et al. (2019) across the 84,564 European municipalities at two different points in time, 2010 and 2017.[10] Results are very similar if we focus on measures of right-wing populism from Norris (2020), reported in Appendix Figure A.2. The data refer to the vote share in the closest preceding election. We also show the boundaries of the 279 NUTS2 European regions. Redder (bluer) areas denote higher (lower) vote shares for right-wing populist parties. Focusing on the year 2010 (top panel) and using a cut-off of 10 percent in the vote share, one can observe strong support for right-wing populism already in a number of countries, most notably Eastern Europe (Poland at 39 percent, and Hungary at 70

[10] We report 2010 because this is the first year in which all countries in the sample had held at least one election since 2007.

percent) and smaller countries in Central and Northern Europe (Austria at 29 percent and Switzerland at 30 percent). By the end of the sample period, in 2017 (bottom panel), over half of European countries are above this threshold, with significant increase in support for right-wing populist parties in large European countries where they previously had little or no representation, such as France (from 5 to 15 percent), Germany (from 0 to 14 percent), Sweden (from 6 to 13 percent) and Czech Republic (from 0 to 11 percent), and further consolidation in several other countries, including Denmark (from 13 to 21 percent), Poland (from 39 to 49 percent), and the Netherlands (from 20 to 23 percent).

Figure 2 also shows pronounced intra-country variation in vote for right-wing populist parties, as well as differential trends across finely defined geographical areas. Notable trends include rises in support for *Alternative For Germany* in former East Germany, for *National Rally* in peripheral areas in the South and Northeast of France and for *Law and Justice* in traditionally poorer areas of South-Eastern Poland. In order to characterize trends across municipalities of the same country, we integrate our data with information on municipality characteristics from the European Spatial Planning Observation Network (ESPON).[11]

In columns (1) and (2) of Appendix Table A.1 we report regressions of municipality-level support for right-wing populist parties on the interaction between baseline municipality characteristics and linear year trends. The regressions include both municipality fixed effects as well as country X year fixed effects, in order to abstract from country-wide trends. The results show that, as a whole, across Europe the rise in support for right-wing populist parties was particularly pronounced in poorer, urban municipalities, with high unemployment rates and relatively low population density.

2.2. Mobile Internet Coverage

In order to investigate the effect of mobile Internet on voting outcomes we use proprietary data on the availability of mobile phone signal across all 22 European countries in our sample. The data are collected by the GSMA (the association representing the interests of the mobile phone industry worldwide) in partnership with Collins Bartholomew (a digital mapping provider) and they come from submissions made directly by mobile operators for the purposes of constructing roaming coverage maps for end users. The data licensed to us for this analysis provide, for all years between 2007 and 2017, geo-located information on mobile phone coverage at the level of precision of between 1 km^2 (for high-quality submissions based on GIS vector format) and 15-23 km^2 (for submissions based on the location of antennas and their corresponding radius of coverage) on the ground (GSMA, 2012).

We focus on 3G and 4G technologies, which allow for data transfer through mobile devices and hence access to e-mail, Internet content and a variety of social media. We aggregate mobile phone coverage at the municipality-level. Our measure of coverage is the

[11] Descriptive statistics are reported in Appendix Table B.3.

fraction of municipality area in reach of the signal.[12,13]

Figure 3 reports the spatial distribution of coverage by municipality at the beginning (top panel) and the end of the period (bottom panel). As of 2007, when the Apple Iphone first reached the European market, one can still see a large share of uncovered municipalities in most Eastern European countries, as well as in large Western European countries, such as France and Spain. Of course, this does not account for the spatial distribution of the population. Hence, we compute country-level coverage by taking weighted averages of coverage across municipalities with weights equal to their population. This shows that in 2007 around 32 percent of the overall European population, roughly 175 million individuals, were not yet in reach of the signal. Specifically, this number was over 75 percent for countries in Eastern Europe, and between roughly 15 and 40 percent in Western Europe, depending on the country. While, for example, 2007 coverage in Germany and Italy was on the order of 86 percent, in countries such as Belgium, France, Denmark and Sweden this stood at 65 percent or less. Yet in other countries like Greece, less than 50 percent of the population was in reach of mobile Internet signal. By 2017, virtually all of the European population was covered by the signal, with only 3 percent of the population still uncovered.[14] The Figure also illustrates considerable variation in coverage at baseline, as well as differential trends, across municipalities within the same country. In particular, column (3) of Appendix Table A.1 shows that, net of country-wide trends, most of the rise in coverage over the period happened in poorer, rural municipalities with an ageing population. Given that coverage was almost universal by the end of the sample period, this implies that these areas were also underserved at baseline.

3. Empirical Model

In this section we discuss the specification and the identification of our empirical model. As we are interested in the effect of the availability of mobile Internet on voting outcomes, we focus on the following regression:

$$y_{mct} = \beta_1 Cov_{mct} + X'_{mc}\beta_t + \ f_m \ + f_{ct} + u_{mct} \tag{1}$$

where mct denotes a generic municipality m in country c at year t. y_{mct} are the electoral outcomes described in the previous section, Cov_{mct} is mobile Internet coverage and X_{mc}

[12] For each municipality, we take the maximum between 3G and 4G coverage. As this is typically an incremental technology (i.e., 4G signal allows for 3G reception), de facto, this is equivalent to taking the fraction of municipality area that is covered at least by 3G signal.

[13] Obviously, these data do not refer to actual mobile Internet usage, for which data for the whole of Europe at this level of geographical disaggregation are not readily available. However, signal availability is strongly correlated with actual subscriptions across countries and time, suggesting that supply-side constraints are significant predictors of take-up. Using aggregate data at the country-year level from the International Telecommunication Union, we estimate an elasticity of mobile broadband take-up to 3G/4G coverage of 0.47, that is statistically significant at conventional levels.

[14] Clearly, given the estimated conversion coefficient between coverage and usage, these data overestimate the number of people with actual access to mobile Internet at the beginning of the period.

a vector of baseline municipality characteristics whose effect we allow to vary by year (or country X year). If mobile Internet is responsible for support for right-wing populist parties, one will expect β_1 to be positive. By including in the model both municipality and country X year fixed effects, for identification, we exploit the within municipality variation net of generalized country specific trends.

Although we restrict to variation across narrowly defined administrative areas, one may still be concerned about the endogenous location of mobile Internet coverage. If areas with faster growth in coverage over the period also experienced lower (greater) increase in support for populist parties, then simple OLS will provide downward (upward) biased estimates of the parameter β_1. In addition, coverage is likely to be measured with error as the quality of submissions varies significantly across operators and countries, potentially leading to attenuation bias.

In an attempt to address such sources of potential bias, we build on a classical literature in corporate finance on "pet projects". This body of work, rooted in the agency theory of the firm (Jensen, 1986; Jensen and Meckling, 1976), argues that managers have considerable discretion to engage in projects on behalf of the company that yield personal benefits without increasing the value of the firm (see Shleifer and Vishny, 1997, for a review). Recent empirical evidence for the oil and gas industry in the USA indeed shows that CEOs promote investment in areas very close to their (and their relatives') residential properties, a mechanism that the authors precisely ascribe to direct returns from benefitting those areas - e.g., in terms of property value appreciation - or to lower effort (Décaire and Sosyura, 2021). A closely related and influential body of research documents that such agency problem is more acute when managers face loose monitoring. In particular, Bertrand and Mullainathan (2000, 2001) show that managers extract personal rents when the firm or the sector is performing well for reasons beyond the managers' control, due to shareholders' inattention, which creates room for managers' slack.[15]

In view of this literature, one might expect managers of Telecommunication (TLC) companies to over-invest in areas they have personal knowledge of or derive personal benefits from, and for this effect to be more pronounced in periods of high sectoral growth, and hence greater shareholders' inattention. Building on Décaire and Sosyura (2021), we proxy such areas with those close to managers' birthplaces. More specifically, we operationalize this approach by instrumenting coverage with the municipality's log distance from the nearest birthplace of a TLC manager (D_{mct}), as well as its interaction with the country's annual growth rate in mobile phone coverage ($\Delta lnCov_{ct}$), a measure of sectoral demand growth. Note that infrastructural investment is likely to take time to materialize. For this reason, we take average log distance over the 3 years preceding year t. In formulas, our first stage equation is:

$$Cov_{mct} = \gamma_1 D_{mct} + \gamma_2 D_{mct} \Delta lnCov_{ct} + X'_{mc}\gamma_t + f_m + f_{ct} + v_{mct} \quad (2)$$

[15] Brollo et al. (2013) provide evidence of a related mechanism in public finance, with voters being less able to monitor misallocation of resources on a larger budget.

where γ_1 captures the gradient in distance at zero sectoral growth and γ_2 the differential effect at positive growth. If proximity to a manager's birthplace matters for investment, and if this effect is enhanced when the sector is growing rapidly, one will expect both γ_1 and γ_2 to be negative.

The identification assumption behind the consistency of the 2SLS estimates relies on the lack of correlation between changes over time in latent support for populist parties and changes in coverage across municipalities at different distance from a manager's birthplace. Of course, a concern might still exist that distance from managers' birthplaces possibly correlates with other determinants of trends in populist vote. In particular, if managers are born in larger or more affluent cities, and these areas also happen to be on different trends in voting, our identification assumption might fail. We take this concern at heart and address this issue below using a variety of alternative strategies.

Model (1) assumes that the effect of mobile Internet availability is the same across municipalities, irrespective of their characteristics or underlying economic conditions. The literature reviewed in the Introduction, though, emphasizes that tribalism is enhanced when individuals feel under threat or face economic hardship. Hence, a natural conjecture is that economic insecurity, that others have found to be a direct driver of populism (e.g., Algan et al., 2017; Dustmann et al., 2017), amplifies voters' responses to mobile Internet access. To investigate this, we augment model (1) to allow for the interaction of mobile Internet coverage with the local unemployment rate, which is available at the level of the 279 European NUTS2 regions and for all years:

$$y_{mct} = \beta_1 Cov_{mct} + \beta_2 Cov_{mct} U_{rct} + \beta_3 U_{rct} + X'_{mc}\beta_t + f_m + f_{ct} + u_{mct}, \quad m \in r \qquad (3)$$

where U_{rct} is the regional unemployment rate.[16] As the unemployment rate is only one dimension of local economic and social deprivation, we also experiment below with alternative measures, such as the NUTS2 poverty rate and Gini Index, for which, however, we have information only at one point in time during the period.

4. Empirical Results

In this section we present estimates of our regression model. We focus on 2SLS estimates (Appendix C reports OLS estimates and discusses their difference with 2SLS).

[16] Although ESPON data provide information on the number of unemployed as well as working age population at the level of municipality, we use here NUTS2 unemployment rate from official Eurostat statistics. One advantage of this latter measure relative to the former is that it varies over time. This allows us to control for changes in the local unemployment rate. Additionally, the municipal-level measure in ESPON is missing for around 29 percent of population-weighted municipalities/year observations and data at the regional level allow us to circumvent this problem. At all rates, in the robustness checks we also experiment with municipality-level unemployment to population ratio.

4.1. First Stage Estimates

As a first step, we present estimates of our first stage model (2). Our identification strategy relies on variation in coverage across areas at different distance from the birthplaces of TLC managers. In order to perform this exercise, we rely on information on the identity of the 298 managers of the 86 main European TLC companies operating during the period 2007-2017. The data come from BoardEx (www.boardex.com), that collects biographical information on corporate directors and top managers in executive positions in publicly listed firms (and hence all large TLC companies in Europe) since 1999.[17] The data provide information on these managers' years of entry in and exit from the position as well as their date of birth. For each of these individuals, we integrate this dataset with information on the managers' municipality of birth.[18]

We are able to assign a precise birthplace to 230 of such managers out of 298. Overall, these managers originate from 161 different European municipalities. Appendix Table B.4 reports the number of managers with identified birthplace by country, while Figure 4 reports the geographical distribution of such birthplaces. Larger dots correspond to larger cities. One can clearly see that, not only country capitals and large cities, but also a large number of smaller cities typically feature among managers' birthplaces. Based on these data, we compute, for each municipality/year in our data, minimum log distance from the municipality of birth of a manager in office. Ultimately, we are able to assign a valid distance to 98 percent of the population-weighted municipality X electoral year observations in our data.

Table 3 reports estimates of the first stage equations. Each observation is a municipality X election year. As said, in all specifications we include municipality and country X year fixed effects. We also include in the model a set of baseline municipality characteristics interacted with unrestricted year effects. The availability of municipal-level information in ESPON varies depending on the variable considered. While for virtually all municipalities in the sample we have information on a restricted set of characteristics (population, per capita GDP and urban/rural status), information on a wider set of characteristics (employment structure by one digit industry, unemployment to working age population ratio, fraction of population below 15 and above 60 years old) is missing for up to 30 percent of the sample, with a few countries missing entirely. For this reason, in the paper we adopt the specification with the inclusion of the restricted set of characteristics as our baseline specification. However, we also present results from specifications that include all available characteristics (with a dummy for missing values, so to preserve the same sample size). All regressions are weighted by municipality population and standard errors are clustered by country.

[17] Collectively over 90 percent of the observations refer to CEOs, CFOs, Presidents, Vice Presidents and Chairmans, as well as top Executive and Managing Directors and Chief Officers in a range of key functions (e.g., marketing, strategy, legal, sales, etc.).

[18] We did so by using a combination of publicly available sources and data from the consulting firm Korn Ferry that provided us with access to information in their database.

In column (1) we present estimates of model (2). In practice, we regress municipality coverage on the municipality's log distance from the closest manager's birthplace in office (D_{mct}) as well as its interaction with the growth rate in the country's coverage ($D_{mct}\,\Delta lnCov_{ct}$). Due to low managers' turnover (see Table B.4), the variable D_{mct} is highly persistent over time. Since we include municipality fixed effects, unsurprisingly we are not able to precisely identify its coefficient (in row 1). Hence, the variation that we exploit for identification stems primarily from the interaction term. The estimate of the coefficient on this term in row (2) is negative and statistically significant at conventional levels. This implies that, as a country moves from periods of high sectoral growth (on average 40 percentage points, i.e., what is observed in the early years) to zero growth (towards the end of the sample period), the gap in coverage between two municipalities one standard deviation (2.16) apart in terms of distance from a manager's birthplace reduces by around 2.3 percentage points (=-0.027 X 0.40 X 2.16). At the bottom of the table we report Sanderson and Windmeijer (2016) first stage F-statistics for the validity of the instruments. At 14.60, the value of the statistics indicates that we can safely reject that the instrument is weak.

4.2. 2SLS Estimates

We now turn to 2SLS estimates. Columns (1) and (3) of Table 4 report estimates of equation (1). Similar to Table 1, we use as dependent variable the fraction of the municipality's votes accruing to populist parties, according to the two definitions. The top panel refers to overall populism, the middle panel to right-wing populism and the bottom panel to left-wing populism. Independent of the measure used, we find a positive effect of mobile Internet coverage on support for populist parties, with estimates that are statistically significant at conventional levels and on the order of 23 to 28 percentage points. Estimates reported in the middle and bottom panel of the Table show that the effect is almost entirely driven by right-wing populist parties, with effects on support for left-wing populist parties smaller in magnitude and never statistically significant at conventional levels. To put these numbers in context, this implies that the rise in continent-wide coverage from 68 to 97 percent is responsible for an increase in populist vote of between 6.7 (=0.23 X 0.29) to 8.1 (=0.28 X 0.29) percentage points, depending on the classification used. This is between 35 and 39 (=0.081/0.23 and =0.067/0.171) percent of the observed increase in these parties' vote share.[19] Corresponding calculations for right-wing populist parties suggest that mobile Internet contributed to between 38 and 42 percent of their rise in support.

We next turn to model (3) which includes both the main effect of coverage as well as its interaction with the regional unemployment rate. We use the regional unemployment rate

[19] Of course these magnitudes refer to the effect of signal availability. Perhaps a more interesting parameter refers to the effect of mobile phone usage. The latter is not available at such fine grained geographical resolution, which prevents us from estimating this coefficient directly. However, back of the envelope calculations suggest that mobile phone usage increases the probability of voting for a populist party by between 20 and 24 percentage points.

as this is one of the few geographically detailed and time-varying measures of economic deprivation that is available throughout the period for the whole of Europe, and because some of the literature reviewed in the Introduction finds evidence that this was a major driver of populist vote in Europe.[20] Throughout we measure the regional unemployment rate in each electoral year as the average across all years since the previous election and we always express it relative to its overall mean (across electoral years and countries). This implies that one can interpret β_1 in equation (3) as the effect of coverage at mean unemployment, similar to the coefficient in equation (1). In columns (2) and (3) of Table 3, we report estimates of the corresponding first stage equations. Here we regress both coverage as well as its interaction with the unemployment rate on both the two instruments as well as their interaction, in turn, with the unemployment rate. First stage estimates of the main effect on coverage, in rows (1) and (2) of column (2), are similar to those in column (1) and remain statistically significant at conventional levels. In column (3), we focus on the interaction between unemployment and coverage. The coefficient of interest is in row (4) of column (3). This is also negative and highly statistically significant. The conditional Sanderson and Windmeijer (2016) F-statistics at the bottom of the Table show evidence of strong first stages for both coverage and its interaction with the unemployment rate.

2SLS estimates of model (3) are reported in columns (2) and (4) of Table 4. As expected, estimates of the main effects are similar to the corresponding ones in columns (1) and (3), with a positive and statistically significant effect of coverage at average unemployment on vote for overall and for right-wing populist parties. Independent of the measure of populism used, we also find a positive and precisely identified coefficient on the interaction between coverage and unemployment. A one standard deviation increase in the region's unemployment rate (0.06) leads to an additional effect of coverage on support for populist parties of between 10.8 (=1.807 X 0.06) and 11.2 (=1.859 X 0.06) percentage points, depending on the measure considered. As shown in the middle panel, this effect is exclusively loaded on right-wing populism. In sum, Table 4 presents clear evidence that mobile Internet fostered support for right-wing populist parties and that this effect was enhanced under economic deprivation. We find no evidence of an effect at the mean or in more deprived areas on support for left-wing populist parties.

Although in Section 2 we have shown that right-wing populist parties are more communitarian in the various dimensions measured in CHES than other parties, it is useful to directly investigate the effect of mobile Internet on support for communitarian parties (independent of whether defined as populist or not). We do so in Table 5 where, for brevity, we only focus on the model with the interaction with the unemployment rate (3). Similar to Table 2, here we use as dependent variable the fraction of the municipality's votes accruing to parties holding extreme policy positions on the various dimensions of communitarianism versus universalism (columns 1 to 5), plus the traditional measures

[20] All specifications obviously also include the main effect of the unemployment rate, although for brevity we do not report associated coefficients in the tables.

of left- versus right- alignment on ideology and economic issues (columns 6 and 7) from CHES. Again, we report separate results for communitarian parties in the top panel and universalistic parties in the bottom panel. There is clear evidence that 3G and 4G mobile signal increased support for communitarian parties, both on average (row 1) and even more so in more deprived areas (row 2). To put these numbers in context, this implies that the rise in continent-wide coverage from 68 to 97 percent is responsible for an increase in extreme communitarianism of between 4.6 (=0.29 X 0.158) to 5.9 (=0.29 X 0.203) percentage points depending on the measure used. Again, we find a strong and positive effect of the interaction with local deprivation, with an additional effect of between 5.6 to 6.7 percentage points for a one standard deviation increase in the unemployment rate. In line with our hypothesis that mobile Internet contributed to the rise of identity politics and a realignment of voters away from the traditional axis of left/right-wing redistribution, we find no effect of mobile Internet on positions on economic issues, neither at the mean nor additionally in areas with high unemployment. In the bottom panel of the Table we present estimates of the effect of 3G and 4G coverage on support for parties at the extreme left-tail of the distribution. By and large, we find effects that are considerably smaller than those found for right-wing extremism and statistically insignificant at conventional levels. These results point to a highly asymmetric effect of mobile Internet on support for communitarian versus universalistic values in Europe over the period considered, which seems inconsistent with theories of technology-induced polarization that some authors have claimed having been at play in the USA.

We performed a variety of robustness checks for our results. For brevity we focus on the model with the interaction (3). First, results are very similar to the ones in Table 5 if we define extremism based on the top and bottom quartile (rather than deciles) of the CHES variables. This is shown in Appendix Table A.2, separately for right-wing/communitarian and left-wing/universalistic parties.

Second, in Appendix Tables A.3 and A.4 we investigate the sensitivity of our estimates to different measures of local deprivation, separately for right-wing/communitarian and left-wing/universalistic parties. Here, as in the subsequent tables, we present separate results for populist vote in the first two columns and for parties embodying extreme positions in CHES in the remaining ones. In panel A of Table A.3 we document similar results when we use average NUTS2 unemployment throughout the period, as opposed to a time-varying measure of unemployment as in Table 4. This suggests that the estimated heterogeneous effects in Table 4 come from variation in coverage in areas with different underlying levels of deprivation, rather than variation in economic conditions at given mobile Internet coverage. This distinguishes our results from existing studies that focus on changes in local unemployment as drivers of populism (e.g. Algan et al., 2017). In the Table we also present results where we stratify the sample using alternative measures of economic deprivation and social exclusion, namely the regional poverty rate (panel B) and the Gini Index (panel C). These variables are only available at one point in time over the period. Point estimates are qualitatively similar to those in panel A, although by and

large statistically insignificant. The results in Table A.4 also confirm that there is no effect of mobile Internet on support for left-wing populist and universalistic parties, either at the average or in more deprived areas. Overall, these results suggest that mobile Internet was a major driver of right-wing populist and communitarian vote in the face of economic discontent.

As a third and final check, we have performed regressions where we include a measure of fixed broadband take up among the control variables. The concern here is that fixed and mobile Internet availability could move in parallel, and that the effect we uncover is due to the former rather than the latter. An additional concern is that the economically more backward regions may have lower fixed broadband penetration, and that the effect of unemployment interacted with coverage may reflect heterogeneity in broadband availability, rather than economic deprivation per se. Unfortunately, we have no corresponding measure of the technical availability of broadband signal by municipality. So, we use as a control the ratio between the number of broadband subscribers and total population in a certain region and year. Results, not reported but available upon request, leave our conclusions effectively unchanged.

We have also investigated various dimensions of heterogeneity based on municipal characteristics. Results are reported in Tables A.5 and A.6 for right-wing and left-wing parties, respectively. Results in Table A.5 suggest that the effect of mobile Internet on support for communitarian and right-wing populist parties was lower in areas with an ageing population and stronger in peripheral areas around urban centers (proxied by high population and low per capita income). The former is consistent with elderly voters being less exposed to social media than younger voters. The latter is consistent with economic grievances amplifying the effect of mobile Internet on communitarianism. Moving to the effects on left-wing parties in Table A.6, we do not detect clear gradients based on municipality traits. If anything, there is some evidence (e.g., on GAL-TAN) that greater communitarianism in some areas came at the expense of reduced universalism.

4.3. Testing the Validity of the Exclusion Restriction

An obvious concern with the 2SLS estimates in the previous section is that the instruments may capture latent trends in populism and communitarianism in areas with different trends in coverage. In particular, given that managers are likely not born at random across municipalities, one might speculate that distance from a manager's birthplace captures spurious co-determinants of both coverage and populism.

In an attempt to probe our exclusion restriction, we perform a variety of checks. First, if the concern is that distance from a manager's birthplace captures spurious correlation between coverage and voting, one will expect the 2SLS estimates to be affected by the inclusion of municipality controls. We show however that results are essentially unaffected by the inclusion of varying sets of controls. In particular, in panel A of Appendix Tables A.7 and A.8 we start by reporting a specification with no municipality controls other than

municipality and country X year fixed effects. In panel B we report our baseline specification, which includes the interaction between year dummies and log income, population and urban/rural status, as in Tables 4 and 5. In panel C we control explicitly for log distances to the largest cities in the country, in the NUTS2 region and in the NUTS3 province, all interacted with time effects. As managers are likely to be born in large cities (see Appendix D), these variables capture some of the potential spurious correlation between the instrument and the outcome variables. In panel D we further saturate the model with the inclusion of additional municipality controls (employment structure by one digit industry, population age structure and unemployment to working age population ratio) also interacted with year dummies. Finally, as an additional robustness check, in panel E we interact our set of baseline municipality controls as in panel B with year X country (as opposed to year only) dummies. Irrespective of the specification used, 2SLS estimates remain virtually unchanged, both in magnitude and significance.[21]

Second, to further ease concerns that our instrument captures spurious correlates of trends in voting and in coverage, we also present regression results where we increasingly restrict the set of municipalities in the sample. In particular we restrict the sample to municipalities for which the closest managers' birthplace is not a large city. As shown in Figure 4 and more in detail in Appendix D, while managers are more likely to originate from large cities, still a significant fraction (over 50 percent) come from municipalities ranked below the top 10 in the country by their population, and on average these municipalities have less than 5,000 individuals. Appendix Tables A.10 and A.11 report 2SLS estimates of model (3), where we restrict the sample to municipalities for which the closest managers' birthplace is not one of the top 10 (top panel) or top 20 (bottom panel) largest municipalities in the country. Evidence in Appendix D shows that, once we exclude the largest municipalities in a country, distance from the closest managers' birthplace is uncorrelated with municipality characteristics, boosting confidence that the instrument is as good as randomly assigned. Of course, by reducing the size of the sample, we lose variation and hence the estimates become less precise. Nevertheless, point estimates of the coefficient on both the main effect and the interaction term in Appendix Table A.10 remain very similar to those in Tables 4 and 5 and, for the main effect only, statistically significant at conventional levels for all outcomes. At the same time, results in Appendix Table A.11 confirm the absence of any significant effect of mobile Internet on support for left-wing populist parties.

As a third and final check for our identification assumption, we perform random permutations of managers' birthplaces. Given that managers are more likely to be born in large relative to small municipalities, we perform a stratified randomization within quartiles of the birthplaces' population distribution.[22] For each of these randomly generated samples

[21] Corresponding first stage estimates of the regressions in panels A to E are reported in Appendix Table A.9.

[22] In particular, we start with the complete list of managers' employment spells and we retain information on the first and last year in office. To each of these managers we randomly assign a fictional birthplace (with replacement, namely we allow the data to select the same municipality of birth as the actual one

we compute 2SLS estimates of equation (3) and we compare them with our baseline estimates reported in Tables 4 and 5. If population size drives the effects that we uncover, one will expect our 2SLS estimates to be undistinguishable from the ones resulting from this randomization procedure. By converse, evidence that our 2SLS estimates lie in the tails of the empirical counterfactual estimates distribution will weigh in favour of a causal interpretation, as one would rule out that the results are simply the effect of a specific realization from a distribution of municipalities of a certain population class. Results for the main effect and the interaction term (for right-wing parties only) are reported in the top and bottom panels of Figure A.3, respectively. One can see that the empirical estimates of both the coefficients on the main effect and the interaction term are still on average positive, but lie closer to zero than our 2SLS estimates. Although this might suggest some mild role for selection of managers' birthplaces in explaining our results, it is notable that our point estimates typically lie above the 80th percentile of the empirical distribution for the coefficient on the main effect, and typically above the 90th percentile for the coefficient on the interaction term. This suggests that managers' birthplaces in the data happen to have specific characteristics that affect both coverage and outcomes, and that we precisely ascribe to managers' clout over local infrastructural investment decisions. Note also that, similar to the inference in Tables 4 and 5, we can never reject lack of effects of coverage on positions on economic issues. In sum, a number of tests reported in this section lend support to our interpretation of the 2SLS estimates identifying causal effects.

5. Individual-Level Evidence on Mechanisms

In the previous section we have shown that a substantial fraction of the increase in voting for right-wing populist parties in Europe can be ascribed to the spread of mobile Internet, an effect that is enhanced in the face of economic exclusion. We have also shown evidence that this increase went hand-in-hand with a rise in support for parties promoting highly communitarian values. One interpretation for this finding is that mobile Internet and social media promoted tribalistic attitudes among voters, which in turn fed into new political demands, successfully intercepted by right-wing populist parties.

For a story that focuses on such psychological mechanism to hold, one will expect the communitarian dimensions of these parties' platforms to be salient to voters. Related, and more important, one will expect to find an effect of mobile Internet on voters' views and ideologies, and in particular an increased sense of in-group belonging and out-group animosity. In the rest of this section we provide direct micro-level evidence on the congruence between voters' positions and party platforms along dimensions of communitarianism, and

as well as the same municipality to feature more than once). Given that the population distribution is highly skewed across municipalities, with large municipalities accounting for a large fraction of a country's population (see Appendix D), of course the number of municipalities varies markedly across quartiles. In particular, the top quartile includes very few, highly populated municipalities. It follows that this procedure is much more likely to select the actual birthplace of managers in office if such birthplace is large compared to the case when this is small. In sum, our procedure will end up assigning fictional birthplaces to existing managers, especially to those born in small municipalities.

we document a shift in voters' ideology in the direction of increased communitarianism in areas with mobile Internet, an effect that is compounded by local economic disadvantage.

We use individual-level survey data from the Integrated Values Surveys (IVS) over the period 2007-2017. This dataset combines information from two large-scale cross-national surveys, the European Values Study (Gedeshi et al., 2021) and the World Values Survey (Haerpfer et al., 2021). A major advantage of these data is that, alongside a wide set of individual socio-demographic characteristics, they report information on respondents' voting intentions as well as their ideological stance on a variety of policy issues.

In an attempt to mimic the information in CHES, we focus on several dimensions of voters' ideology and attitudes in IVS that proxy for the divide between Green, Alternative, Libertarians (GAL) and Traditionalists, Nationalists and Authoritarians (TAN): (1) Nationalism, (2) attitudes towards individual freedoms and civil rights and (3) identification with the local as opposed to the global community. Similar to the information in CHES, we also consider variables capturing (4) voters' attitudes towards migration, (5) intolerance towards minorities, (6) opposition to EU enlargement (as opposed to integration, which is recorded in CHES but not in the IVS) and (7) ideological leaning on the left-right scale. We also include (8) a measure of left/right-wing orientation on economic issues, measured as support for redistribution and for government's intervention in the economy. As these indicators are often derived from multiple questions in IVS, we first perform a principal component analysis on the various dimensions' sub-components and we use the predictions based on the first principal component as an outcome variable. As in the analysis in the previous sections, we express all variables so that higher values correspond to higher communitarianism, and we also express them in terms of their standard deviation for ease of interpretation. Appendix Table B.5 reports the exact definition of such variables based on the questions in IVS.

The IVS data also provide information on respondents' place of residence, although only at the level of regions (NUTS2 or sometimes NUTS1) as opposed to municipalities. For each country, hence, we define consistent regions across surveys and we assign geographical variables (e.g. mobile Internet coverage, as well as a variety of local baseline characteristics) to each individual based on the region of residence. The data allow us to identify respondents across 245 regions in 21 countries (all countries in the main analysis with the exception of Luxembourg).

As a first step, Appendix Table A.12 reports individual-level regressions of voting intentions on attitudes. In particular, for each individual, we assign an indicator variable equal to one if the individual's reported closest party is labelled as populist according to the definitions above. As for all the other regressions using IVS, we weight regressions by sampling weights. The regressions also include country X year effects as well as individual controls, although results are largely insensitive to the inclusion of individual controls.[23] Again, we show results for both definitions of populism and separately for

[23] Individual controls include: age, gender, education, marital status, foreign-born status, income levels, a dummy for unemployed and a dummy for Catholic.

right- and left-wing parties. Importantly, along most of the dimensions analyzed, populist parties' voters tend to display more communitarian values than the rest of voters, with positive and statistically significant differences in terms of nationalism (1.3 to 1.4 increase in the probability of voting for a populist party for a one standard deviation increase in nationalism), opposition to immigration (2.9 to 3.4 percentage points), opposition to minorities (2 to 2.2 percentage points) and to EU enlargement (2.4 to 2.8 percentage points). As shown in the remaining columns of the Table, unsurprisingly, communitarian voters disproportionately support right-wing populist parties. Similar to what observed for party platforms in CHES, voters embracing universalistic values (less nationalistic, more in favor of individual freedoms) are slightly more likely to vote for left-wing populist parties, although the opposite happens for those favoring EU enlargement. We also find evidence that supporters of populist parties as slightly more in favor of redistribution and government intervention in the economy compared to supporters of traditional parties, although the difference is modest and there is no appreciable difference between right- and left-wing populist parties. In sum, the data reveal a substantial congruence between parties' platforms and voters' views and ideology, with right-wing populist parties, which garnered considerable consensus in Europe over the last two decades, attracting voters with pronounced communitarian views.

We now turn to the effect of mobile Internet on such views and ideology. Before doing so, we investigate the effect of 3G and 4G coverage on self-reported support for populist and extremist parties in IVS, using the specification in model (3). This exercise helps us validate the results on administrative data. 2SLS regression results are reported in Table 6. We include country X year fixed effects, region fixed effects and the interaction between baseline area characteristics and year dummies. We also control for the whole array of socio-demographic characteristics. Again, we weight the regressions by sampling weights and we cluster standard errors at the level of country. Recall that the IVS only provides a coarse aggregation for geographies, so coverage is measured at the regional as opposed to the municipal level. Consistent with this, our instrument is defined as the (population-weighted) average of log distance from the closest managers' birthplace across the region's municipalities. The higher level of aggregation explains why the Sanderson and Windmeijer (2016) F-statistics at the bottom of the Table are lower than in Table 3. This is particularly true for the main effect, while we still find a F-stat on the interaction term above the rule of thumb critical value of 10. This means that, while one should place some confidence in the identification of the gradient in coverage as a function of local unemployment rate, one should be cautious in drawing strong inference on the effect of coverage at average unemployment.

As shown in Table 6, results based on individual survey data reveal remarkably consistent patterns with the results in Tables 4 and 5, with greater coverage being associated to greater support for extremist and populist parties, although with estimates systematically below standard statistical significance levels. More remarkable, we see clear positive gradients in the effect of coverage as a function of the unemployment rate, with magnitudes not

dissimilar from the ones found using administrative data. Results are also loaded exclusively on right-wing as opposed to left-wing populism. Results (not reported but available upon request) show no evidence of significant effects on reported abstention/null vote or on the fraction of those not responding to this question. In sum, the survey data provide very strong evidence in support of our finding that mobile Internet fuelled right-wing populist support among European voters.

In Table 7 we then turn to the direct effect of mobile Internet on voters' attitudes in IVS. 2SLS estimates of the effect of mobile Internet at average unemployment are by and large statistically insignificant, with the exception of opposition to immigration, which appears to be positively and significantly affected by 3G and 4G signal. The effect is sizeable, with an implied effect of the rise in coverage over the period (from 68 to 97 percent) on an increase in opposition to migration of 27 percent (=0.928 X 0.29) of a standard deviation. As said, though, these estimates must be taken with some caution due to the low F-tests on the first stage. More strikingly, we find a positive effect on the interaction term in all dimensions of communitarianism and the F-tests are typically above standard significance levels. To put these effects in context, we find that the increase in coverage over the period predicts a differential increase in reported nationalism between two areas one standard deviation apart in terms of unemployment rate (0.06) of around 0.16 (=9.411 X 0.29 X 0.06) of a standard deviation. Magnitudes are between one third and two thirds as large for the other outcomes, with the exception of self-reported ideology that appears to be unaffected by mobile Internet. When we turn to economic ideology, we find evidence of a negative effect on the interaction term, meaning an increase in support for redistribution and government intervention in the economy in areas with high unemployment.

We can attempt to quantify how much of the change in voting outcomes due to mobile Internet is explained by the effect of Internet on attitudes.[24] These calculations are likely to be conservative estimates of the mediating effect of attitudes, given that we only measure a limited set of dimensions. Still, we find that around 20 percent of the effect of mobile Internet on support for right-wing populist parties can be attributed to increased voters' communitarianism in areas with greater mobile Internet access.

An interpretation of these findings is that by fostering fear, outrage and animosity towards out-group members, mobile Internet and social media changed voters' sense of identity, leading them to embrace communitarian as opposed to universalistic values and increasing support for policy positions and ideologies demanding closed rather than open societies. A slightly different interpretation, also consistent with the psychological mechanisms highlighted in the Introduction and with our evidence, is that social media have increased the effectiveness and persuasiveness of tribalist political messages, enabling right-wing populist parties to mobilize voters' support in favor of more communitarian policies

[24] In practice, we use regression coefficients from Table 7 to derive the effect of mobile Internet on attitudes. We combine these with information on the gradient in populist vote as a function of attitudes (Table A.12) to derive the predicted effect of mobile Internet on populist vote mediated via changes in attitudes. We finally standardize these numbers to the estimated effect of mobile Internet on voting outcomes from Table 6.

in areas in reach of mobile phone signal.

6. Alternative Mechanisms

Our findings also allow us to evaluate and rule out a number of alternative explanations for the role of social media in explaining the rise of populism in Europe.

A first hypothesis is that the success of European populist parties is ascribable to increased participation of disaffected voters (Mudde and Kaltwasser, 2017). Indeed, others have shown that Internet can increase grass-root participation and ultimately mobilize voters, especially in support of anti-elite parties (Campante et al., 2018). An alternative hypothesis is that this technology discouraged voters supporting moderate and non-populist and non-extreme parties, consistent with evidence that Internet reduced turnout (Gavazza et al., 2019). These papers, though, refer specifically to fixed broadband and to a period prior to the widespread availability of social media. In order to directly analyze these mechanisms, we focus on the 13 out of 22 countries for which we have municipality-level information on number of eligible voters. This allows us to express the fraction of votes for populist and extremist parties in relation to the total number of such voters as opposed to total votes cast. It also allows us to compute measures of turnout at the local level. Results are reported in Appendix Table A.13, where the last column refers to a regression with turnout as dependent variable. Even with this measure of vote shares, our results remain unchanged compared to Tables 4 and 5. More interestingly, we find a negative but small and statistically insignificant effect of 3G and 4G mobile coverage on turnout. Overall, there is little evidence that mobile Internet mobilized voters - if anything the opposite is true but the effect is insignificant - and there is no indication that our results are driven by compositional effects working through changes in turnout.

Another explanation for the systemic change in European politics over the last decade is that voters disillusioned with traditional parties turned en masse to new and untested parties (e.g., Hobolt and Tilley, 2016). By reducing barriers to entry in the political marketplace, new communication technologies may have favored the emergence of such new parties. Newer parties may also have been more agile on the Internet than traditional parties, and hence particularly effective at using social media to promote their political platforms. These are two potential alternative mechanisms for the effect of mobile Internet on the rise of European populism, as populist parties are on average younger than traditional parties. However, these explanations do not withstand empirical scrutiny. Table A.14, in particular, presents regressions where the dependent variable is now the fraction of votes for new parties (defined as parties created in 2000 or after). The estimates in column (1) suggest that mobile Internet coverage did not favor newly created parties per se. In the following columns we present separate results for newly created populist and non-populist parties. The results indicate that it is only new populist parties that benefitted from the arrival of mobile Internet and social media. If anything, this increase in support comes at the expense of support for new non-populist parties. Results are robust

to using different cutoffs to define newly created parties and only hold for right-wing populist parties. In sum, Table A.14 suggests that it was not their being new, but rather the values they promoted, that made populist parties particularly well-suited to benefit from the introduction of mobile Internet.

A further counter-argument against the hypothesis that populist parties garnered consensus because of the novelty of their platform or their greater agility on social media comes from our evidence that mobile Internet favored right-wing but not left-wing populist parties. As these parties are equally new, for this mechanism to hold, one will expect the effects to be symmetric, which is not what we find. This finding also allows us to rule out an alternative explanation, i.e., that specific features of populist parties' message or platform, such as their tendency to oversimplify the political message or capitalize on fake news, saw them favored on social media, as these media are particularly suitable for short, anonymous and unscrutinized communication (Zhuravskaya et al., 2020). Again, this argument would likely predict that the diffusion of social media should have produced a similar rise in populism to the left and to the right, which is not what we find. While mobile Internet made voters more supportive of right-wing populist and communitarian parties, left-wing populism and universalism have not at all increased. This finding lends support to the idea that social media have an asymmetric effect on voters' beliefs, and that the main channel of influence is to strengthen in-group bias and scapegoating of minorities and outsiders.

7. Conclusions

Mobile Internet has transformed social interactions, contributing to the diffusion of social media and changing the mode and content of political communication. In this paper we have shown that an important political effect of these new technologies has been to increase support for parties with extreme right-wing and communitarian positions on social and cultural issues, primarily in areas with high unemployment. This result is consistent with a large body of evidence in social psychology about the effects of social media. Online interactions occur primarily between like minded individuals, and by their own nature strengthen in-group bias and animosity against out-groups, especially when individuals feel under threat. It is therefore not surprising that we find that the diffusion of these media has exacerbated communitarian perspectives and enhanced the effectiveness of protectionist and nationalist propaganda by right-wing political extremists, particularly in areas that did not benefit from economic progress. It is also important to emphasize that we find no effect of mobile Internet on support for extreme universalistic parties. This suggests that, in Europe, this technology did not lead to increased voters' polarization, at least along the communitarian/universalistic divide.

Our findings also allow to rule out a number of often discussed alternative explanations for the role of social media on the success of right-wing populist and communitarian parties in Europe, such as effects on turnout, the emergence of new parties or specific features of

populist parties' message or rhetoric. We close, however, with a few words of caution about the generalizabilty of our results and with some remaining open questions. Our analysis refers to a period of very rapid growth in the availability of mobile Internet coverage and associated use of smartphones and social media. It is possible that the effects we uncover are associated to the very fast transition to these technologies and that such effects will not persist over time. Online platforms' moderation of content and fact-checking in particular might offset the tendency of these technologies to promote tribalistic attitudes. In addition, the decade 2007-2017 is special in many respects, and not just because of the rise of social media. As argued by Guriev and Papaioannou (2020), many other phenomena, such as pressure from immigration, globalization and labor-saving technologies, fuelled discontent and may have contributed to the rise of populism. Indeed, our evidence that the effects were stronger in areas at greater economic disadvantage, seems to lend some credibility to this interpretation. An even more nuanced story is that mobile Internet exacerbated and amplified the political effects of specific economic shocks, those hurting the least educated (Acemoglu and Restrepo, 2020; Autor et al., 2020). If these individuals were inherently more socially conservative than the average population, they might have been particularly susceptible to communitarian messages and to right-wing propaganda (Bonomi et al., 2021). It is possible that our results hence capture the effect of social media at this specific economic juncture or among specific groups, and that such media would have produced different effects absent sources of economic discontent. An obvious question that arises, though, is why other major economic changes that also occurred during this period - such as increasing income inequality and wealth concentration, or welfare state retrenchments imposed by the sovereign debt crisis - issues which the left is typically considered better equipped at dealing with - were not reflected in mobile Internet and social media favoring left-wing parties at the same rate. Understanding the role of new communication technologies - if any - on the rise of left-wing populism remains next on the agenda.

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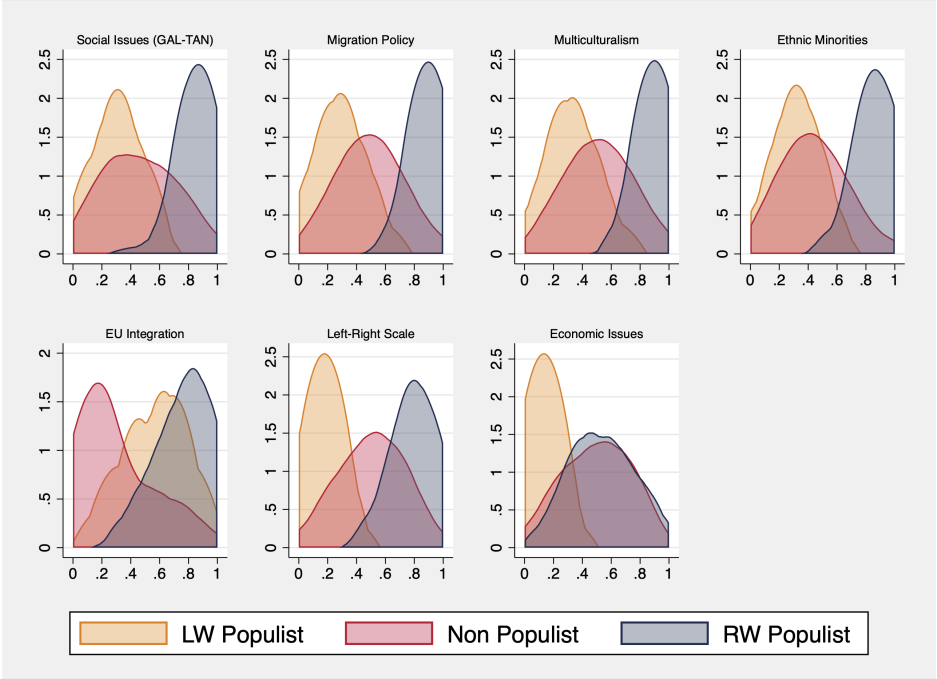
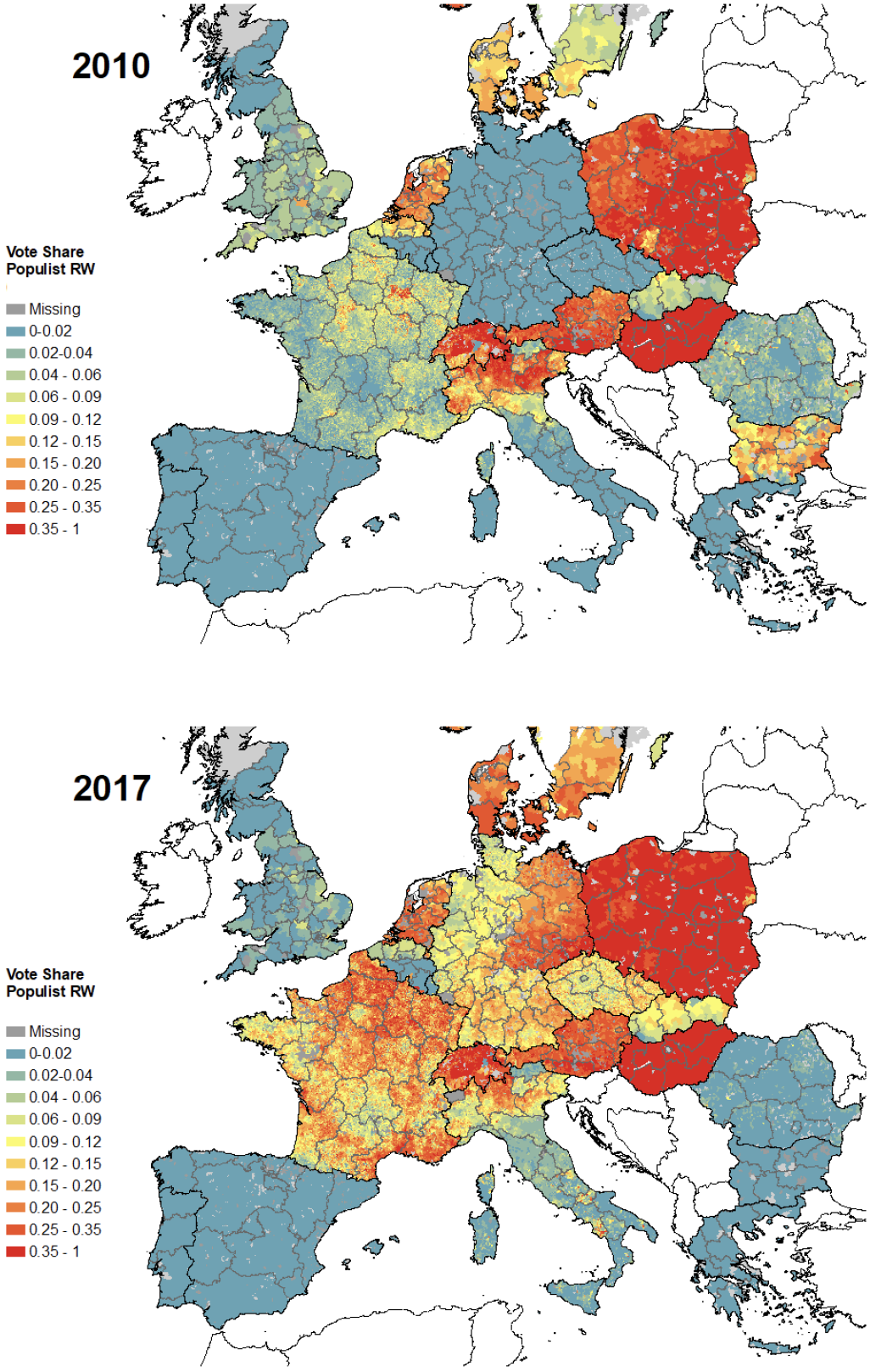
Figure 1 Distribution of Ideology and Policy Positions: Populist vs. Non-Populist Parties (Rooduijn et al.)



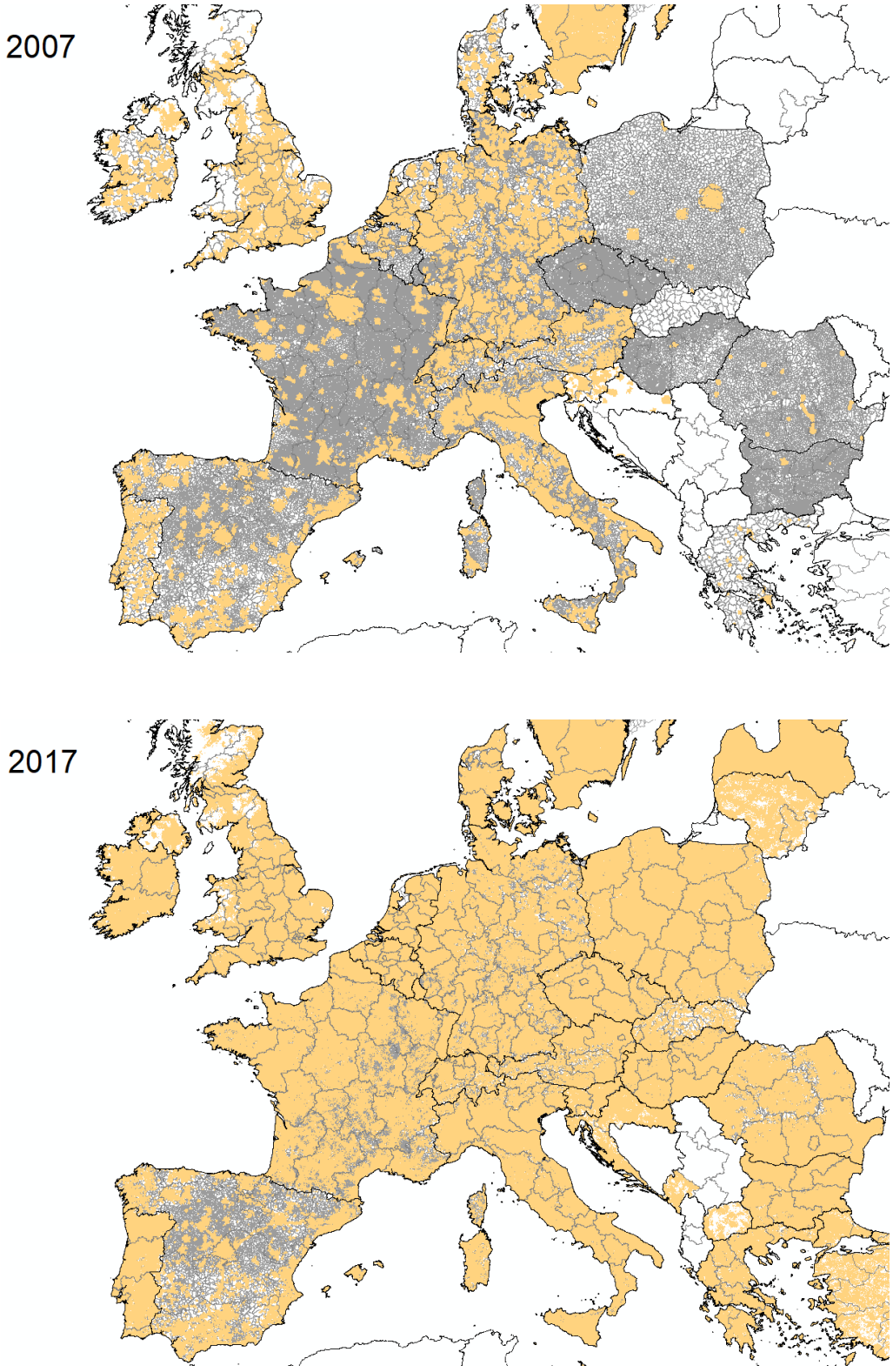
Notes: The Figure reports kernel density estimates of the distribution of each variable in CHES separately for right-wing, left-wing and non-populist parties, as defined by Rooduijn et al. (2019). Epanechnikov kernels with bandwidth 0.125.

Figure 2 Trends in Right-Wing Populist Vote across European Municipalities (Rooduijn et al.), 2010-2017



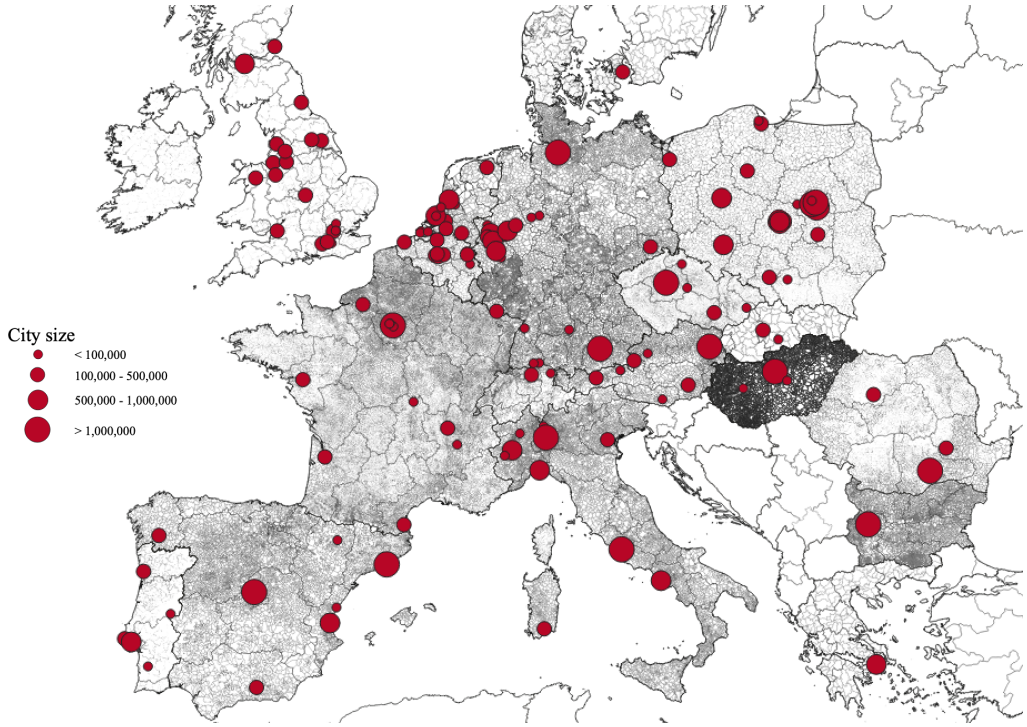
Notes: The Figure reports the fraction of votes cast in the closest preceding election in support of right-wing populist parties as defined in Rooduijn et al. (2019) in each European municipality. The data refer to the years 2010 and 2017.

Figure 3 Trends in 3G/4G Mobile Internet Coverage across European Municipalities, 2007-2017



Notes: The Figure reports the area of each municipality covered by 3G or 4G signal in 2007 and 2017.

Figure 4 Telecommunication Managers' Birthplaces



Notes: The Figure reports information on the municipality of birth of Telecommunication managers ever in office in the 22 European countries between 2007 and 2017. The size of the dots correspond to the size of each municipality.

Table 1 Trends in Populist Vote across Europe, 2007-2017

	Populism		Right-wing Populism		Left-wing Populism	
	Rooduijn et al. (1)	Norris (2)	Rooduijn et al. (3)	Norris (4)	Rooduijn et al. (5)	Norris (6)
Trend	0.171***	0.230***	0.091***	0.132***	0.041**	0.098***
	(0.028)	(0.024)	(0.022)	(0.027)	(0.017)	(0.023)

Notes: The Table reports estimated coefficients from regressions of each dependent variable on a linear year trend (divided by 11). All regressions include country fixed effects and are weighted by country population. Columns (1) and (2) refer to total populist vote, as defined by Rooduijn et al. (2019) and Norris (2020), respectively. The remaining columns refer to right- and left-wing populist vote. Clustered standard errors by country in brackets. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table 2 Trends in Communitarianism and Universalism across Europe, 2007-2017

	Social Issues (GAL-TAN) (1)	Restrictive Migration Policy (2)	Opposition Ethnic Minorities (3)	Opposition Multi-culturalism (4)	Opposition EU Integration (5)	Left-Right Ideology (6)	Left-Right Economics (7)
				Extreme Communitarianism			
Trend	0.052***	0.077***	0.070***	0.066***	0.099***	0.083***	-0.006
	(0.016)	(0.019)	(0.020)	(0.017)	(0.016)	(0.018)	(0.017)
				Extreme Universalism			
Trend	0.012	0.027*	0.016	0.016	0.003	0.022*	0.031*
	(0.010)	(0.015)	(0.011)	(0.013)	(0.037)	(0.013)	(0.017)

Notes: The Table reports estimated coefficients from regressions of each dependent variable on a linear year trend (divided by 11). All regressions include country fixed effects and are weighted by country population. Each column refers to a separate dimension defined in CHES, with higher values corresponding to more communitarian ideologies/positions. The top (bottom) panel refers to votes for parties holding positions in the top (bottom) decile of the respective continent-wide distribution. Clustered standard errors by country in brackets. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table 3 First Stage Estimates

	Coverage (1)	Coverage (2)	Unemployment× Coverage (3)
Distance	0.008	0.008	0.000
	[0.005]	[0.005]	[0.000]
Distance × $\Delta ln\, Cov_{ct}$	-0.027***	-0.018***	-0.003***
	[0.005]	[0.006]	[0.001]
Distance × Unemployment		0.089	-0.004
		[0.090]	[0.007]
Distance × $\Delta ln\, Cov_{ct}$ × × Unemployment		0.179*	-0.090***
		[0.104]	[0.031]
F-test Sanderson-Windmeijer (SW)	14.60	12.96	12.92
Municipality FE	✓	✓	✓
Country × Year FE	✓	✓	✓
Municipality controls × Year FE	✓	✓	✓
Observations	243,125	243,125	243,125

Notes. Column (1) of the Table reports first stage estimates of equation (1), where we regress coverage on the two instruments. Columns (2) and (3) report regressions of coverage and its interaction with NUTS2 unemployment rate on the instruments as well as their interactions with the unemployment rate. All regressions include municipality and country X year fixed effects plus baseline municipality characteristics X year fixed effects. Baseline municipality characteristics include: population, log per capita GDP, dummy for urban status, plus dummies for missing values of all these variables (which are set to an arbitrary number when missing). Columns (2) and (3) additionally control for the NUTS2 unemployment rate. All regressions weighted by municipality population. Clustered standard errors by country in brackets. Conditional Sanderson and Windmeijer (2016) F-statistics are reported at the bottom of the Table. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table 4 Mobile Internet and Populist Vote

	Rooduijn et al.		Norris	
	(1)	(2)	(3)	(4)
	Populism			
Coverage	0.229***	0.290***	0.276***	0.350***
	[0.063]	[0.070]	[0.078]	[0.100]
Unemployment×Coverage		1.859***		1.807**
		[0.513]		[0.717]
	Right-wing Populism			
Coverage	0.132	0.157	0.175**	0.161*
	[0.088]	[0.096]	[0.075]	[0.085]
Unemployment × Coverage		1.255***		1.622**
		[0.352]		[0.670]
	Left-wing Populism			
Coverage	0.023	0.072	0.102	0.189
	[0.038]	[0.062]	[0.071]	[0.113]
Unemployment× Coverage		0.185		0.280
		[0.315]		[0.284]
Municipality FE	✓	✓	✓	✓
Country × Year FE	✓	✓	✓	✓
Municipality controls × Year FE	✓	✓	✓	✓
Observations	243,125	243,125	243,125	243,125

Notes. The Table reports 2SLS estimates of equations (1) and (3). The dependent variable is the fraction of votes accruing to populist parties, as defined by Rooduijn et al. (2019) (columns 1-2) and Norris (2020) (columns 3-4). The upper panel refers to total populist vote, the middle panel to right-wing populist vote and the bottom panel to left-wing populist vote. See also notes to Table 3.***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table 5 Mobile Internet and Vote for Communitarian/Universalistic Parties

	Social Issues (GAL-TAN) (1)	Restrictive Migration Policy (2)	Opposition Ethnic Minorities (3)	Opposition Multi-culturalism (4)	Opposition EU Integration (5)	Left-Right Ideology (6)	Left-Right Economics (7)
				Extreme Communitarianism			
Coverage	0.158**	0.190**	0.194**	0.203**	0.180*	0.192*	-0.022
	[0.067]	[0.084]	[0.088]	[0.091]	[0.103]	[0.101]	[0.038]
Unemployment × Coverage	1.293***	1.217***	1.117***	1.344***	1.271**	1.340**	-0.116
	[0.364]	[0.387]	[0.377]	[0.459]	[0.494]	[0.505]	[0.497]
				Extreme Universalism			
Coverage	-0.049	0.067	0.091*	0.057	-0.133*	0.041	0.068
	[0.036]	[0.058]	[0.051]	[0.040]	[0.073]	[0.047]	[0.067]
Unemployment × Coverage	-0.158	0.047	0.106	0.013	-0.433	-0.019	0.109
	[0.166]	[0.268]	[0.268]	[0.307]	[0.267]	[0.131]	[0.165]
Municipality FE	✓	✓	✓	✓	✓	✓	✓
Country × Year FE	✓	✓	✓	✓	✓	✓	✓
Municipality controls × Year FE	✓	✓	✓	✓	✓	✓	✓
Observations	235,816	235,816	235,816	235,816	235,816	235,816	235,816

Notes: The Table reports 2SLS estimates of equation (3). The dependent variable is the fraction of votes accruing to parties holding extreme communitarian (top panel) and universalistic (bottom panel) positions along the dimensions identified in CHES. See also footnotes to Tables 2 and 3. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table 6 Mobile Internet and Individual Voting Intentions

	Populism		Right-Wing Populism		Left-Wing Populism	
	Rooduijn et al.	Norris	Rooduijn et al.	Norris	Rooduijn et al.	Norris
	(1)	(2)	(3)	(4)	(5)	(6)
Coverage	0.144	0.116	0.076	0.107	0.003	0.009
	[0.132]	[0.189]	[0.107]	[0.173]	[0.023]	[0.040]
Unemployment × Coverage	2.470***	2.456***	1.735***	2.272**	0.204	0.183
	[0.566]	[0.806]	[0.314]	[0.833]	[0.184]	[0.308]
SW Coverage	6.171	6.171	6.171	6.171	6.171	6.171
SW Unemployment × Coverage	12.01	12.01	12.01	12.01	12.01	12.01
Region FE	✓	✓	✓	✓	✓	✓
Country×Year FE	✓	✓	✓	✓	✓	✓
Regional controls×Year FE	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓
Observations	71,160	71,160	71,160	71,160	71,160	71,160

Notes. Columns (1) and (2) of the Table reports 2SLS estimates of equation (3) where the dependent variable is a dummy for whether an individual in the Integrated Value Surveys reports the intention to vote for a party that is classified as populist, as defined by Rooduijn et al. (2019) and Norris (2020), respectively. The remaining columns refer to right- and left-wing populist vote. All regressions are weighted by sampling weights and include region fixed effects, country X year fixed effects, regional controls X year fixed effects and individual level characteristics (age, gender, education, marital status, income in bands, and dummies for being unemployed, born in the country of residence and self-identified Catholic). Clustered standard errors by country in brackets. Conditional Sanderson and Windmeijer (2016) F-statistics are reported at the bottom of the Table. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

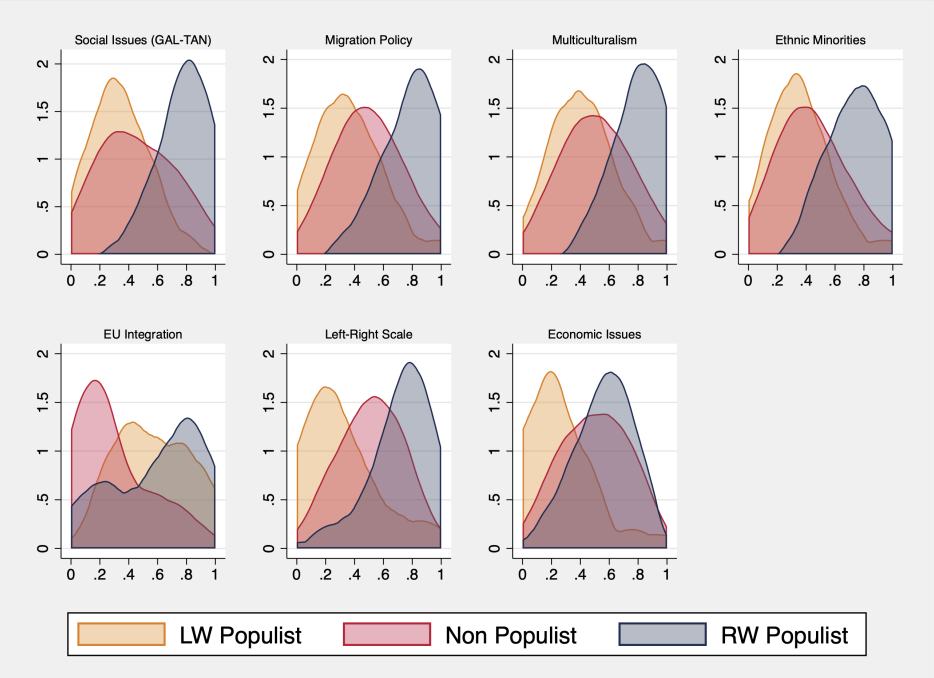
Table 7 Mobile Internet and Individual Attitudes

	Nationalism	Individual freedoms	Local vs. Global	Opposition to Immigration	Dislike Minority Neighbors	Opposition to EU Enlargement	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Coverage	0.236	0.462	-0.905	0.928**	-0.329	0.349	0.398	1.363
	[0.534]	[0.732]	[0.730]	[0.332]	[1.027]	[0.572]	[0.538]	[1.097]
Unemployment × Coverage	9.411***	4.496	6.702***	4.115**	3.464	4.909***	1.345	-14.900**
	[2.766]	[2.685]	[2.351]	[1.706]	[3.898]	[1.701]	[2.479]	[5.782]
SW Coverage	1.623	2.230	1.722	1.825	1.591	1.752	2.097	6.261
SW Unemployment × Coverage	9.520	19.47	11.27	12.36	8.029	11.93	14.57	12.78
Region FE	✓	✓	✓	✓	✓	✓	✓	✓
Country×Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Regional controls×Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Observations	55,189	58,372	60,023	57,867	56,216	55,102	50,921	64,671

Notes. The Table reports 2SLS estimates of equation (3) based on individual-level data from the Integrated Value Surveys. The dependent variables in each column are voters' attitudes. See also footnotes to Table 6. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

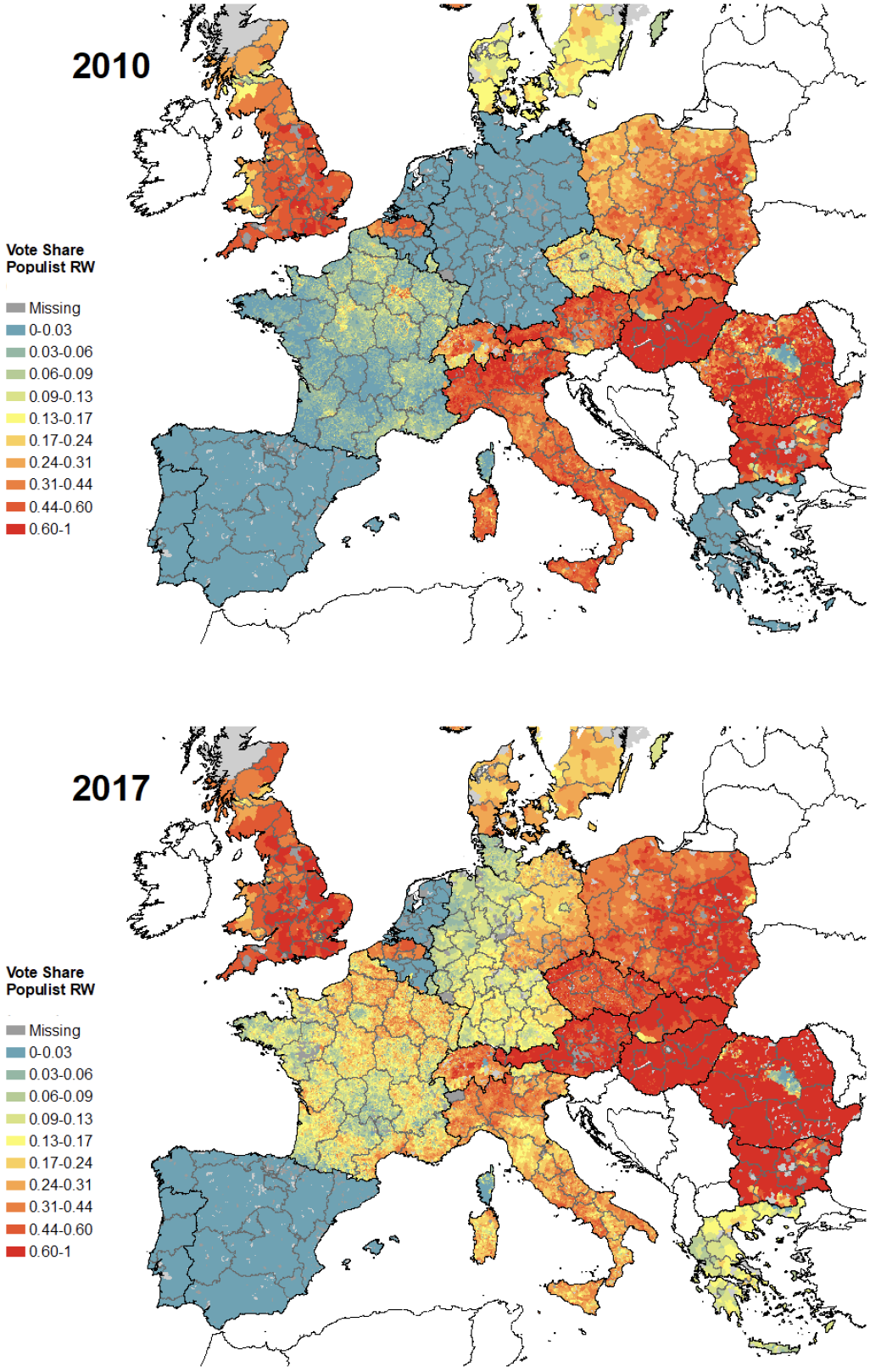
A. Appendix

Figure A.1 Distribution of Ideology and Policy Positions: Populist vs. Non-Populist Parties (Norris)



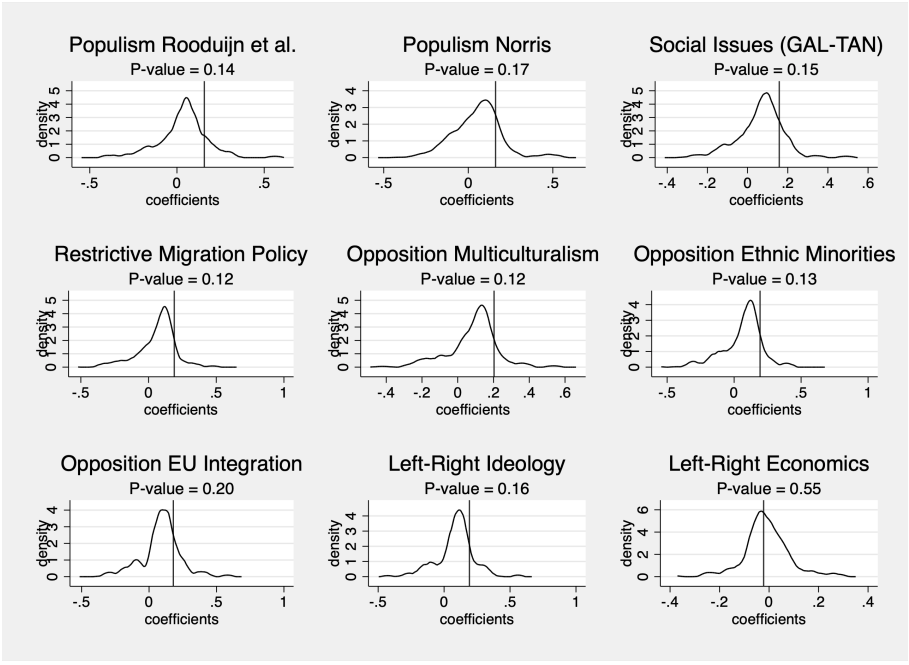
Notes: The Figure reports kernel density estimates of the distribution of each variable in CHES separately for right-wing, left-wing and non-populist parties, as defined by Norris (2020). Epanechnikov kernel with bandwidth 0.125.

Figure A.2 Trends in Right-Wing Populist Vote across European Municipalities (Norris), 2010-2017

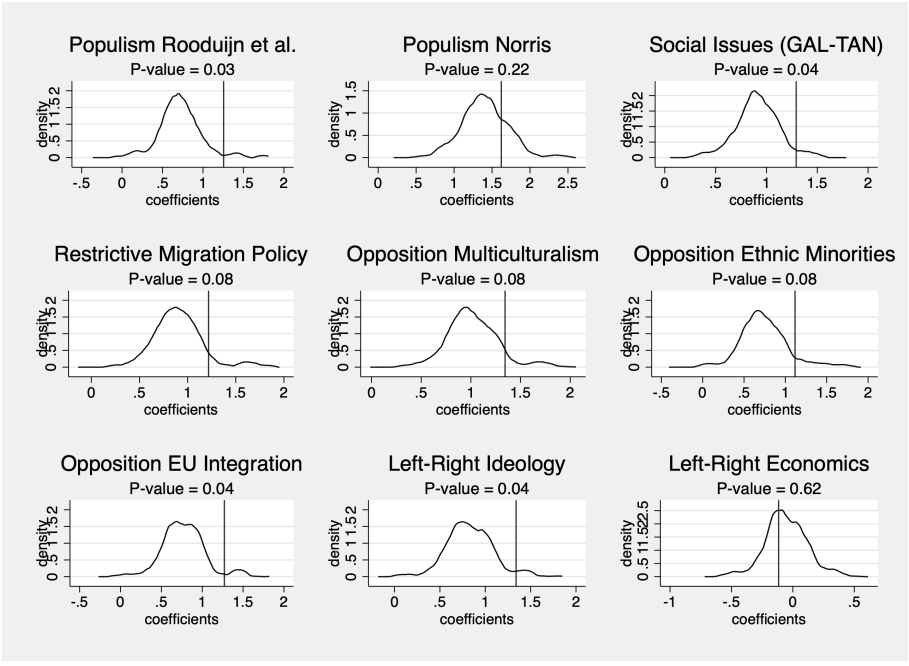


Notes: The Figure reports the fraction of votes cast in the closest preceding election in support of right-wing populist parties as defined in Norris (2020) in each European municipality. The data refer to the years 2010 and 2017.

Figure A.3 Empirical Distribution of Model Estimates based on Randomization of Managers' Birthplaces



(a) Main Effect



(b) Interaction Term

Notes: Panel (a) reports the empirical distribution of the 2SLS estimates of the coefficient β_1 in equation (3) based on 400 random permutations of managers' birthplaces, alongside the estimates obtained in Tables 4 and 5 (denoted by vertical lines). Panel (b) reports the corresponding results for the 2SLS estimates of the coefficient β_2 in equation (3). See text for the exact procedure.

Table A.1 Correlates of Trends in Right-Wing Populist Vote and Mobile Internet Coverage

	Populism		Coverage
	Rooduijn et al.	Norris	
	(1)	(2)	(3)
Urban × trend	0.152**	0.193**	-2.420***
	(0.065)	(0.070)	(0.637)
Per capita GDP 2006× trend	-0.309**	-0.144	-1.874**
	(0.120)	(0.087)	(0.831)
Log pop density × trend	-0.098*	-0.108**	-0.725***
	(0.047)	(0.037)	(0.172)
% Unemployed × trend	14.281***	10.727*	3.104
	(4.242)	(5.614)	(8.210)
% Population ≥60 × trend	-0.485	-0.371	16.087***
	(1.280)	(1.335)	(3.541)
% Population ≤15× trend	1.350	0.420	1.204
	(1.055)	(0.709)	(2.117)
Country × Year FE	✓	✓	✓
Municipality FE	✓	✓	✓
Observations	210,405	210,405	214,235

Notes: Columns (1) and (2) of the Table report coefficients from a regression of the municipality-level share of votes accruing to right-wing populist parties (according to the two definitions used) on baseline municipality controls interacted with a linear year trend. Column (3) reports results from a similar regression where the dependent variable is mobile Internet coverage. All regressions include country X year fixed effects and municipality fixed effects and are weighted by municipality population. Clustered standard errors at the country-level in brackets.***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.2 Mobile Internet and Vote for Communitarian/Universalistic Parties - Alternative Definition

	Party Positions						
	Social Issues (GAL-TAN) (1)	Restrictive Migration Policy (2)	Opposition Ethnic Minorities (3)	Opposition Multi-culturalism (4)	Opposition EU Integration (5)	Left-Right Ideology (6)	Left-Right Economics (7)
	Communitarianism						
Coverage	0.208**	0.145*	0.168*	0.080	0.251**	0.154*	-0.159
	[0.091]	[0.079]	[0.087]	[0.117]	[0.114]	[0.088]	[0.093]
Unemployment × Coverage	1.352***	0.609	0.545	0.455	2.008***	0.486	-1.361
	[0.406]	[1.073]	[0.993]	[1.084]	[0.541]	[1.052]	[1.317]
	Universalism						
Coverage	-0.024	0.084	0.188	0.026	-0.255	0.080	0.093
	[0.087]	[0.086]	[0.193]	[0.050]	[0.185]	[0.127]	[0.120]
Unemployment × Coverage	0.186	-0.301	-0.254	-0.392	-0.662	-0.034	0.393
	[0.423]	[0.560]	[0.535]	[0.468]	[0.448]	[0.596]	[0.602]
Observations	235,816	235,816	235,816	235,816	235,816	235,816	235,816

Notes: The Table reports similar results to those in Table 5 where the top (bottom) panel refers to votes for parties holding positions in the top (bottom) quartile, as opposed to decile, of the respective continent-wide distribution. See also notes to Table 5. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.3 Mobile Internet and Vote for Right-Wing Populist and Communitarian Parties - Alternative Measures of Local Deprivation

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Right-Wing		Extreme Communitarianism						
			Panel A: Trait = Avg. Unemployment						
Coverage	0.134***	0.199***	0.112***	0.138***	0.144***	0.150***	0.103**	0.114**	-0.007
	[0.043]	[0.044]	[0.026]	[0.035]	[0.036]	[0.035]	[0.041]	[0.042]	[0.026]
Trait × Coverage	0.982	0.756	1.134**	0.795	0.713	0.941*	1.132**	1.298**	-0.064
	[0.631]	[0.771]	[0.433]	[0.478]	[0.512]	[0.497]	[0.503]	[0.542]	[0.409]
			Panel B: Trait = Poverty Rate						
Coverage	0.171**	0.285***	0.136***	0.170**	0.178**	0.192**	0.130	0.142*	-0.001
	[0.066]	[0.060]	[0.042]	[0.060]	[0.065]	[0.068]	[0.077]	[0.075]	[0.046]
Trait × Coverage	2.211	2.427*	1.734	1.737	1.918	2.058	1.980	2.216	0.283
	[1.334]	[1.209]	[1.063]	[1.110]	[1.235]	[1.301]	[1.352]	[1.454]	[0.488]
			Panel C: Trait = Gini Index						
Coverage	0.397	0.369	0.285	0.299	0.322	0.334	0.277	0.318	-0.007
	[0.038]	[0.057]	[0.035]	[0.040]	[0.041]	[0.043]	[0.043]	[0.044]	[0.027]
Trait × Coverage	5.361	5.865	4.686	4.261	4.759	4.923	4.680	5.264	-0.316
	[4.126]	[5.169]	[3.967]	[4.390]	[4.615]	[4.677]	[4.680]	[4.972]	[1.353]

Notes. Columns (1) and (2) of the Table report results from specifications similar to those in columns (2) and (4) of Table 4, middle panel, while columns (3) to (9) report results from specifications similar to those in columns (1) to (7) of Table 5, top panel. Each panel refers to specifications where coverage is interacted with a different measure of local deprivation. Panel A refers to the average NUTS2 unemployment over the period; Panel B to the poverty rate; and Panel C to the Gini Index. See also notes to Table 4. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.4 Mobile Internet and Vote for Left-Wing Populist and Universalistic Parties - Alternative Measures of Local Deprivation

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Left-Wing		Extreme Universalism						
					Panel A: Trait = Avg. Unemployment				
Coverage	0.015	0.030	-0.073**	0.013	0.018	0.009	-0.021	-0.008	-0.004
	[0.024]	[0.034]	[0.029]	[0.016]	[0.016]	[0.014]	[0.027]	[0.019]	[0.024]
Trait × Coverage	0.082	0.160	0.040	-0.060	0.047	-0.136	-0.728**	0.097	0.176
	[0.402]	[0.469]	[0.163]	[0.302]	[0.289]	[0.301]	[0.326]	[0.239]	[0.315]
					Panel B: Trait = Poverty Rate				
Coverage	0.033	0.067	-0.065*	0.017	0.030	0.010	-0.043	-0.016	-0.006
	[0.040]	[0.067]	[0.033]	[0.031]	[0.030]	[0.024]	[0.038]	[0.024]	[0.034]
Trait × Coverage	0.345	0.648	0.031	0.088	0.332	-0.015	-0.831	-0.067	0.048
	[0.495]	[0.648]	[0.216]	[0.383]	[0.366]	[0.406]	[0.615]	[0.372]	[0.442]
					Panel C: Trait = Gini Index				
Coverage	0.243	0.099	-0.095	0.041	0.081	0.022	-0.095	0.024	0.037
	[0.190]	[0.095]	[0.065]	[0.078]	[0.072]	[0.056]	[0.091]	[0.082]	[0.105]
Trait × Coverage	4.863	2.103	-0.879	0.798	1.563	0.520	-1.824	0.658	0.925
	[3.380]	[1.671]	[1.073]	[1.382]	[1.252]	[1.000]	[1.745]	[1.543]	[1.943]

Notes. Columns (1) and (2) of the Table report results from specifications similar to those in columns (2) and (4) of Table 4, bottom panel, while columns (3) to (9) report results from specifications similar to those in columns (1) to (7) of Table 5, bottom panel. Each panel refers to specifications where coverage is interacted with a different measure of local deprivation. Panel A refers to the average NUTS2 unemployment over the period; Panel B to the poverty rate; and Panel C to the Gini Index. See also notes to Table 4. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.5 Mobile Internet and Vote for Right-Wing Populist and Communitarian Parties - Heterogeneous Effects by Municipality Characteristics

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Right-Wing		Extreme Communitarianism						
	Panel A: Trait = Baseline Unemployment								
Coverage	0.128	0.214**	0.127**	0.179**	0.190**	0.184**	0.131	0.152*	-0.042
	[0.228]	[0.275]	[0.208]	[0.240]	[0.255]	[0.252]	[0.254]	[0.267]	[0.089]
Trait × Coverage	2.180**	3.131***	1.600**	1.796**	1.952**	2.082**	2.157*	2.164*	1.468**
	[0.997]	[1.041]	[0.661]	[0.814]	[0.886]	[0.936]	[1.059]	[1.068]	[0.555]
	Panel B: Trait = Share population below 15 years old								
Coverage	0.173**	0.113**	0.123***	0.145***	0.154***	0.147***	0.103*	0.124**	-0.077***
	[0.063]	[0.052]	[0.038]	[0.045]	[0.044]	[0.050]	[0.057]	[0.058]	[0.024]
Trait × Coverage	0.265	0.292	0.244	0.233	0.198	0.273	0.252	0.279	-0.149
	[0.066]	[0.060]	[0.042]	[0.060]	[0.065]	[0.068]	[0.077]	[0.075]	[0.046]
	Panel C: Trait = Share population above 60 years old								
Coverage	0.165**	0.148**	0.142***	0.173***	0.171***	0.175***	0.132*	0.157**	-0.067***
	[0.060]	[0.066]	[0.048]	[0.051]	[0.053]	[0.058]	[0.067]	[0.069]	[0.022]
Trait × Coverage	-0.485***	-0.385	-0.353	-0.434*	-0.421*	-0.453	-0.355	-0.395	0.121
	[0.162]	[0.271]	[0.240]	[0.242]	[0.236]	[0.264]	[0.259]	[0.297]	[0.137]
	Panel D: Trait = Log Population								
Coverage	0.101***	0.104**	0.116***	0.077*	0.098**	-0.071*	0.175**	0.119	0.130**
	[0.051]	[0.046]	[0.039]	[0.033]	[0.037]	[0.037]	[0.043]	[0.043]	[0.036]
Trait × Coverage	0.045***	0.020	0.022	0.024*	0.025	0.031	0.021	0.023	-0.010
	[0.014]	[0.014]	[0.018]	[0.014]	[0.014]	[0.019]	[0.015]	[0.019]	[0.009]
	Panel E: Trait = Log per capita Income								
Coverage	0.130	-0.035	0.032	0.076	0.059	0.126*	0.067	0.113	-0.025
	[0.087]	[0.130]	[0.072]	[0.072]	[0.088]	[0.064]	[0.073]	[0.077]	[0.058]
Trait × Coverage	0.016	-0.142	-0.076	-0.052	-0.076	-0.020	-0.020	-0.030	-0.021
	[0.125]	[0.128]	[0.076]	[0.080]	[0.086]	[0.075]	[0.065]	[0.083]	[0.062]

Notes. The Table reports similar specifications to those in Table A.3 where coverage is interacted in turn with different baseline municipality characteristics. Panel A refers to the unemployment to population ratio; Panels B and C to the fraction of the population below 15 years old and above 60 years old, respectively; Panel D to log population; Panel E to log per capita income. See also notes to Table 4. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.6 Mobile Internet and Vote for Left-Wing Populist and Universalistic Parties - Heterogeneous Effects by Municipality Characteristics

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Left-Wing		Extreme Universalism						
					Panel A: Trait = Baseline Unemployment				
Coverage	0.008	0.004	-0.074***	0.004	0.032	0.031	0.009	-0.001	0.004
	[0.025]	[0.024]	[0.019]	[0.022]	[0.035]	[0.035]	[0.034]	[0.023]	[0.023]
Trait × Coverage	-0.204	-0.318	-0.179	-0.192	-0.214	-0.318	-0.675	-0.296	-0.374
	[0.406]	[0.478]	[0.422]	[0.192]	[0.238]	[0.261]	[0.730]	[0.360]	[0.397]
					Panel B: Trait = Share population below 15 years old				
Coverage	0.096	0.029	-0.062**	0.011	0.036	0.026	-0.033	-0.001	0.009
	[0.076]	[0.031]	[0.023]	[0.025]	[0.031]	[0.028]	[0.045]	[0.021]	[0.027]
Trait × Coverage	0.229	0.093	0.051	0.013	0.069	0.067	-0.053	-0.024	0.022
	[0.165]	[0.079]	[0.202]	[0.041]	[0.058]	[0.056]	[0.111]	[0.035]	[0.060]
					Panel C: Trait = Share population above 60 years old				
Coverage	0.083	0.026	-0.058**	0.009	0.033	0.022	-0.025	-0.005	0.005
	[0.064]	[0.031]	[0.025]	[0.027]	[0.030]	[0.029]	[0.039]	[0.024]	[0.028]
Trait × Coverage	-0.115	-0.044	0.179***	0.031	-0.021	0.017	-0.008	-0.035	-0.041
	[0.226]	[0.087]	[0.043]	[0.049]	[0.073]	[0.058]	[0.124]	[0.056]	[0.066]
					Panel D: Trait =Log Population				
Coverage	0.098	0.039	-0.056**	0.019	0.062	0.029	-0.051	0.016	0.023
	[0.061]	[0.029]	[0.025]	[0.023]	[0.038]	[0.022]	[0.055]	[0.014]	[0.022]
Trait × Coverage	-0.003	-0.005	-0.019**	-0.006	0.001	-0.007	-0.015	-0.001	-0.005
	[0.016]	[0.005]	[0.008]	[0.004]	[0.012]	[0.004]	[0.018]	[0.004]	[0.004]
					Panel E: Trait = Log per capita Income				
Coverage	-0.018	-0.001	-0.099**	-0.024	0.072	0.025	0.093	0.009	-0.012
	[0.074]	[0.041]	[0.036]	[0.042]	[0.080]	[0.030]	[0.081]	[0.025]	[0.021]
Trait × Coverage	-0.150	-0.079	-0.073	-0.094*	-0.059	-0.055	0.176*	0.039	-0.025
	[0.115]	[0.064]	[0.047]	[0.054]	[0.067]	[0.042]	[0.090]	[0.060]	[0.046]

Notes. The Table reports similar specifications to those in Table A.4 where coverage is interacted in turn with different baseline municipality characteristics. Panel A refers to the unemployment to population ratio; Panels B and C to the fraction of the population below 15 years old and above 60 years old, respectively; Panel D to log population; Panel E to log per capita income. See also notes to Table 4. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.7 Mobile Internet and Vote for Right-Wing Populist and Communitarian Parties - Additional Specifications

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Right-Wing		Extreme Communitarianism						
					Panel A: no controls				
Coverage	0.134**	0.159**	0.123***	0.141***	0.141***	0.151***	0.126**	0.130**	0.006
	[0.053]	[0.067]	[0.035]	[0.042]	[0.044]	[0.043]	[0.053]	[0.050]	[0.029]
Unemployment × Coverage	0.887**	1.231	0.999**	0.771	0.680	0.925*	0.794*	0.959**	-0.284
	[0.407]	[0.750]	[0.387]	[0.452]	[0.526]	[0.458]	[0.405]	[0.414]	[0.398]
					Panel B: baseline controls × year				
Coverage	0.157	0.161*	0.158**	0.190**	0.194**	0.203**	0.180*	0.192*	-0.022
	[0.096]	[0.085]	[0.067]	[0.084]	[0.088]	[0.091]	[0.103]	[0.101]	[0.038]
Unemployment × Coverage	1.255***	1.622**	1.293***	1.217***	1.117***	1.344***	1.271**	1.340**	-0.116
	[0.352]	[0.670]	[0.364]	[0.387]	[0.377]	[0.459]	[0.494]	[0.505]	[0.497]
					Panel C: Baseline controls + distance from big cities × year				
Coverage	0.168	0.128	0.155*	0.186*	0.191*	0.193*	0.183	0.195*	-0.000
	[0.112]	[0.083]	[0.081]	[0.095]	[0.106]	[0.100]	[0.111]	[0.105]	[0.038]
Unemployment × Coverage	1.204***	1.524**	1.240***	1.139**	1.077**	1.261**	1.217**	1.237**	-0.023
	[0.375]	[0.661]	[0.379]	[0.459]	[0.449]	[0.516]	[0.547]	[0.552]	[0.500]
					Panel D: all controls × year				
Coverage	0.178	0.155	0.165*	0.192*	0.200	0.190*	0.183	0.184	-0.006
	[0.120]	[0.103]	[0.089]	[0.102]	[0.117]	[0.109]	[0.112]	[0.109]	[0.036]
Unemployment × Coverage	1.416***	1.695**	1.359***	1.205**	1.241**	1.356**	1.272*	1.275**	-0.069
	[0.431]	[0.602]	[0.435]	[0.490]	[0.498]	[0.568]	[0.610]	[0.604]	[0.457]
					Panel E: baseline controls × country × year				
Coverage	0.190	0.308***	0.170**	0.217**	0.229*	0.232*	0.207	0.205	-0.011
	[0.112]	[0.080]	[0.080]	[0.102]	[0.110]	[0.111]	[0.130]	[0.129]	[0.044]
Unemployment × Coverage	1.305***	1.802**	1.392***	1.406***	1.304***	1.603***	1.481**	1.513**	0.083
	[0.432]	[0.699]	[0.406]	[0.375]	[0.366]	[0.431]	[0.537]	[0.551]	[0.547]
Observations	243,125	243,125	235,816	235,816	235,816	235,816	235,816	235,816	235,816

Notes. Columns (1) and (2) of the Table report results from specifications similar to those in columns (2) and (4) of Table 4, middle panel, while columns (3) to (9) report results from specifications similar to those in columns (1) to (7) of Table 5, top panel. Panel A refers to specifications with no controls. Panel B reports our baseline specifications in Tables 4 and 5. Panel C additionally controls for log distance from the largest municipality in the country, NUTS2 region and NUTS3 province, all interacted with year dummies. Panel D additionally includes the interaction of year dummies with the following controls: employment structure by one digit industry, unemployment to working age population ratio, fraction of population below 15 and above 60 years old. Panel E includes the same baseline controls as in Panel B interacted with country X year dummies. All specifications include municipality plus country X year fixed effects. See also notes to Tables 4 and 5. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.8 Mobile Internet and Vote for Left-Wing Populist and Universalistic Parties - Additional Specifications

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Left-Wing		Extreme Universalism						
					Panel A: no controls				
Coverage	0.036	0.089	-0.056	0.032	0.039	0.022	-0.095*	0.025	0.035
	[0.036]	[0.062]	[0.033]	[0.029]	[0.029]	[0.027]	[0.052]	[0.030]	[0.039]
Unemployment × Coverage	0.039	-0.155	-0.135	-0.207	-0.058	-0.186	-0.146	-0.119	-0.086
	[0.292]	[0.341]	[0.209]	[0.261]	[0.272]	[0.267]	[0.369]	[0.171]	[0.202]
					Panel B: baseline controls × year				
Coverage	0.072	0.189	-0.049	0.067	0.091*	0.057	-0.133*	0.041	0.068
	[0.062]	[0.113]	[0.036]	[0.058]	[0.051]	[0.040]	[0.073]	[0.047]	[0.067]
Unemployment × Coverage	0.280	0.185	-0.158	0.047	0.106	0.013	-0.433	-0.019	0.109
	[0.284]	[0.315]	[0.166]	[0.268]	[0.268]	[0.307]	[0.267]	[0.131]	[0.165]
					Panel C: Baseline controls + distance from big cities × year				
Coverage	0.046	0.151**	-0.046	0.049	0.074***	0.048	-0.140*	0.034	0.053
	[0.034]	[0.056]	[0.040]	[0.037]	[0.021]	[0.028]	[0.072]	[0.040]	[0.049]
Unemployment × Coverage	0.243	0.207	-0.097	0.072	0.142	0.041	-0.528**	-0.107	0.035
	[0.245]	[0.240]	[0.181]	[0.297]	[0.243]	[0.288]	[0.234]	[0.129]	[0.182]
					Panel D: all controls × year				
Coverage	0.057*	0.138***	-0.045	0.039	0.055***	0.041	-0.117*	0.045	0.067
	[0.028]	[0.042]	[0.039]	[0.040]	[0.017]	[0.031]	[0.063]	[0.034]	[0.041]
Unemployment × Coverage	0.337	0.173	-0.171	0.035	0.089	0.030	-0.537*	-0.028	0.112
	[0.278]	[0.268]	[0.166]	[0.321]	[0.266]	[0.315]	[0.283]	[0.136]	[0.215]
					Panel E: baseline controls × country × year				
Coverage	0.057	0.140	-0.070**	0.073	0.070	0.048	-0.147	0.045	0.068
	[0.081]	[0.153]	[0.028]	[0.073]	[0.071]	[0.049]	[0.117]	[0.056]	[0.080]
Unemployment × Coverage	0.254	0.457	-0.355*	0.027	0.081	-0.038	-0.620	0.110	0.186
	[0.250]	[0.438]	[0.190]	[0.248]	[0.226]	[0.244]	[0.408]	[0.104]	[0.180]
Observations	243,125	243,125	235,816	235,816	235,816	235,816	235,816	235,816	235,816

Notes. Columns (1) and (2) of the Table report results from specifications similar to those in columns (2) and (4) of Table 4, bottom panel, while columns (3) to (9) report results from specifications similar to those in columns (1) to (7) of Table 5, bottom panel. Panel A refers to specifications with no controls. Panel B reports our baseline specifications in Tables 4 and 5. Panel C additionally controls for log distance from the largest municipality in the country, NUTS2 region and NUTS3 province, all interacted with year dummies. Panel D additionally includes the interaction of year dummies with the following controls: employment structure by one digit industry, unemployment to working age population ratio, fraction of population below 15 and above 60 years old. Panel E includes the same baseline controls as in Panel B interacted with country X year dummies. All specifications include municipality plus country X year fixed effects. See also notes to Tables 4 and 5. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.9 First Stage Estimates - Additional Specifications

	No controls		Baseline controls × year		Baseline controls + distance from big cities × year		All controls × year		Baseline controls × country × year	
	Coverage (1)	Unemployment× Coverage (2)	Coverage (3)	Unemployment× Coverage (4)	Coverage (5)	Unemployment× Coverage (6)	Coverage (7)	Unemployment× Coverage (8)	Coverage (9)	Unemployment× Coverage (10)
Distance	0.007	0.000	0.008	0.000	0.007	0.000	0.008	0.000	0.002	0.000
	[0.006]	[0.000]	[0.005]	[0.000]	[0.005]	[0.000]	[0.006]	[0.000]	[0.002]	[0.000]
Distance × $\Delta ln\, Cov_{ct}$	-0.030*	-0.003***	-0.018***	-0.003***	-0.017**	-0.003***	-0.012*	-0.003***	-0.012***	-0.003***
	[0.017]	[0.001]	[0.006]	[0.001]	[0.008]	[0.001]	[0.007]	[0.001]	[0.003]	[0.001]
Distance × Unemployment	0.166	-0.010***	0.089	-0.004	0.143*	-0.005	0.154*	-0.005	0.035	0.002
	[0.104]	[0.003]	[0.090]	[0.007]	[0.082]	[0.004]	[0.089]	[0.005]	[0.048]	[0.003]
Distance × $\Delta ln\, Cov_{ct}$ × × Unemployment	-0.029	-0.085***	0.179*	-0.090***	0.149	-0.093***	0.196**	-0.092***	0.271**	-0.096***
	[0.177]	[0.030]	[0.104]	[0.031]	[0.122]	[0.032]	[0.096]	[0.032]	[0.113]	[0.037]
SW	4.984	6.006	12.96	12.92	9.400	9.681	14.79	10.29	12.42	32.47
Observations	243,125	243,125	243,125	243,125	243,125	243,125	243,125	243,125	243,125	243,125

Notes. The Table reports estimates of the first stage equations similar to those in columns (2) and (3) of Table 3. Each pair of columns refers to specifications with different sets of controls, corresponding to those in Panels A to E of Tables A.7 and A.8. See also notes to Tables 3 and A.7. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.10 Mobile Internet and Vote for Right-Wing Populist and Communitarian Parties - Excluding Large Birthplaces

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Right-Wing		Extreme Communitarianism						
			Exclude top 10						
Coverage	0.239***	0.298***	0.194***	0.199***	0.247***	0.259***	0.242***	0.237***	0.073
	[0.069]	[0.094]	[0.051]	[0.058]	[0.072]	[0.069]	[0.079]	[0.078]	[0.131]
Unemployment × Coverage	2.162	2.204	1.731	1.902	2.333	2.485	2.265	2.069	0.367
	[2.399]	[2.488]	[2.022]	[1.860]	[2.280]	[2.500]	[2.558]	[2.572]	[0.541]
Observations	151,643	151,643	151,376	151,376	151,376	151,376	151,376	151,376	151,376
			Exclude top 20						
Coverage	0.171**	0.179*	0.140***	0.131**	0.159***	0.178**	0.166**	0.165**	0.051
	[0.059]	[0.087]	[0.036]	[0.044]	[0.048]	[0.058]	[0.062]	[0.062]	[0.104]
Unemployment × Coverage	2.206	2.676	1.749	2.028	2.371	2.616	2.369	2.193	0.370
	[2.435]	[2.535]	[2.045]	[1.911]	[2.311]	[2.554]	[2.595]	[2.615]	[0.550]
Observations	134,122	134,122	134,122	134,122	134,122	134,122	134,122	134,122	134,122

Notes. Columns (1) and (2) of the Table report results from specifications similar to those in columns (2) and (4) of Table 4, middle panel, while columns (3) to (9) report results from specifications similar to those in columns (1) to (7) of Table 5, top panel. The top (bottom) panel excludes municipalities gravitating around managers' birthplaces that are in the top 10 (20) of the country's municipality population distribution. See also notes to Tables 4 and 5. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.11 Mobile Internet and Vote for Left-Wing Populist and Universalistic Parties - Excluding Large Birthplaces

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Left-Wing		Extreme Universalism						
			Exclude top 10 municipalities						
Coverage	-0.039	-0.045	0.011	0.029	0.028	-0.006	-0.040	0.014	0.013
	[0.053]	[0.067]	[0.015]	[0.024]	[0.031]	[0.024]	[0.096]	[0.042]	[0.044]
Unemployment × Coverage	-0.178	-0.605	0.104	-0.092	-0.100	-0.018	-0.635	-0.198	-0.213
	[0.325]	[0.581]	[0.147]	[0.126]	[0.210]	[0.142]	[1.104]	[0.425]	[0.430]
Observations	151,643	151,643	151,376	151,376	151,376	151,376	151,376	151,376	151,376
			Exclude top 20 municipalities						
Coverage	-0.023	-0.031	0.021	0.046**	0.009	0.013	-0.038	0.049*	0.051*
	[0.027]	[0.045]	[0.020]	[0.019]	[0.021]	[0.021]	[0.063]	[0.026]	[0.028]
Unemployment × Coverage	0.038	-0.199	0.124	-0.006	0.076	0.045	-0.840	-0.032	-0.014
	[0.153]	[0.298]	[0.161]	[0.098]	[0.133]	[0.154]	[1.072]	[0.324]	[0.324]
Observations	134,122	134,122	134,122	134,122	134,122	134,122	134,122	134,122	134,122

Notes. Columns (1) and (2) of the Table report results from specifications similar to those in columns (2) and (4) of Table 4, bottom panel, while columns (3) to (9) report results from specifications similar to those in columns (1) to (7) of Table 5, bottom panel. The top (bottom) panel excludes municipalities gravitating around managers' birthplaces that are in the top 10 (20) of the country's municipality population distribution. See also notes to Tables 4 and 5. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.12 Individual Voting Intentions and Attitudes

	Populism		Right-Wing Populism		Left-Wing Populism	
	Rooduijn et al. (1)	Norris (2)	Rooduijn et al. (3)	Norris (4)	Rooduijn et al. (5)	Norris (6)
Nationalism	0.013***	0.014***	0.015***	0.024***	-0.003**	-0.004*
	[0.002]	[0.003]	[0.002]	[0.002]	[0.001]	[0.002]
Individual freedoms	-0.001	0.005	0.003	0.011***	-0.007***	-0.005**
	[0.003]	[0.003]	[0.002]	[0.003]	[0.001]	[0.003]
Local vs. global	0.002	0.007***	0.003	0.007***	-0.000	0.003
	[0.002]	[0.002]	[0.002]	[0.002]	[0.001]	[0.002]
Opposition to Immigration	0.034***	0.029***	0.033***	0.035***	0.002	0.002
	[0.002]	[0.003]	[0.002]	[0.003]	[0.001]	[0.002]
Dislike Minority Neighbors	0.022***	0.020***	0.021***	0.022***	0.000	-0.001
	[0.002]	[0.003]	[0.002]	[0.002]	[0.001]	[0.002]
Opposition to EU enlargement	0.024***	0.028***	0.021***	0.025***	0.004***	0.010***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.001]	[0.002]
Left-Right - Ideology	0.048***	0.023***	0.059***	0.060***	-0.017***	-0.040***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.001]	[0.002]
Left-Right - Economics	-0.008***	-0.023***	-0.004**	-0.008***	-0.005***	-0.017***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.001]	[0.002]
Country X Year FE	✓	✓	✓	✓	✓	✓
Individual Characteristics	✓	✓	✓	✓	✓	✓
Observations	31,705	31,705	30,967	28,635	27,504	25,072

Notes: Columns (1) and (2) of the Table report individual-level regressions of a dummy variable for whether an individual in the Integrated Value Surveys reports the intention to vote for a party that is classified as populist, as defined by Rooduijn et al. (2019) and Norris (2020), respectively, on individual attitudes. The remaining columns refer to right- and left-wing populist vote. All regressions are weighted by sampling weights and include country X year fixed effects and individual level characteristics (age, gender, education, marital status, income in bands, and dummies for being unemployed, born in the country of residence and self-identified Catholic). Clustered standard errors by country in brackets. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.13 Mobile Internet, Vote for Right/Left-Wing Populist and Communitarian/Universalistic Parties as a Fraction of Eligible Voters, and Voter Turnout

	Populism		Party Positions							Voter Turnout
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Right-Wing		Extreme Communitarianism							
Coverage	0.102*	0.127*	0.116**	0.123**	0.129**	0.128**	0.095	0.114*	-0.080***	
	[0.049]	[0.053]	[0.043]	[0.045]	[0.046]	[0.052]	[0.059]	[0.056]	[0.021]	
Unemployment × Coverage	1.022**	1.486**	1.116***	0.969**	0.847**	1.137**	1.003*	1.117*	-0.160	
	[0.335]	[0.606]	[0.363]	[0.416]	[0.371]	[0.499]	[0.528]	[0.519]	[0.494]	
	Left-Wing		Extreme Universalism							
Coverage	0.081	0.184	-0.046	0.046	0.064	0.043	-0.080	0.043	0.065	
	[0.060]	[0.115]	[0.030]	[0.049]	[0.045]	[0.035]	[0.054]	[0.040]	[0.060]	
Unemployment × Coverage	0.305	0.186	-0.160	0.020	0.145	-0.031	-0.426	-0.039	0.077	
	[0.335]	[0.343]	[0.154]	[0.260]	[0.226]	[0.292]	[0.283]	[0.127]	[0.213]	
					Voter Turnout					
Coverage										-0.052
										[0.053]
Unemployment × Coverage										-0.046
										[0.276]
Observations	200,526	200,526	200,526	200,526	200,526	200,526	200,526	200,526	200,526	200,526

Notes. Columns (1) to (9) top (middle) panel of the Table report specifications similar to those in Panel B of Table A.7 (A.8). Votes are expressed as fraction of eligible voters as opposed to total votes cast. The sample refers to the 13 countries for which information on the number of eligible voters by municipality is available. The last column reports a regression where the dependent variable is voter turnout. See also notes to Table 4. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table A.14 Mobile Internet and Vote for New Parties

New Parties (born after 2000):	Total	Populist		Non-Populist	
		Rooduijn et al.	Norris	Rooduijn et al.	Norris
	(1)	(2)	(3)	(4)	(5)
Coverage	0.119	0.205**	0.189*	-0.087	-0.070
	[0.144]	[0.077]	[0.093]	[0.095]	[0.145]
Unemployment × Coverage	0.035	1.070**	1.085*	-1.035**	-1.050*
	[0.726]	[0.466]	[0.621]	[0.408]	[0.520]
Observations	243,125	243,125	243,125	243,125	243,125

Notes. The Table reports specifications similar to those in Table 4 where the dependent variable is the fraction of votes for parties created after the year 2000. Columns (2) and (3) report results for newly created populist parties, using the two definitions by Rooduijn et al. (2019) and Norris (2020), respectively. Columns (4) and (5) report results for newly created non-populist parties. See also notes to Table 4. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

B. Data Appendix

Table B.1 List of Countries and Number of Municipalities

Countries	No. Municipalities
Austria	2,096
Belgium	208
Bulgaria	265
Czech Republic	5,878
Denmark	90
Finland	389
France	35,280
Germany	11,246
Greece	323
Hungary	3,139
Italy	8,079
Luxembourg	116
Netherlands	458
Norway	357
Poland	2,426
Portugal	304
Romania	3,121
Slovakia	77
Spain	7,996
Sweden	227
Switzerland	2,113
United Kingdom	376

Table B.2 List of Variables in CHES

GAL-TAN: position of the party in terms of a cultural dimension with Green, Alternative, Libertarian (GAL) at one extreme and Traditionalist, Nationalist, Authoritarian (TAN) at the other extreme. 0= Green, Alternative, Libertarian (GAL)...10= Traditional, Authoritarian, Nationalist (TAN).

IMMIGRATE POLICY: position on immigration policy. 0= Fully opposed to a restrictive policy on immigration...10= Fully in favour of a restrictive policy on immigration.

ETHNIC MINORITIES: position towards ethnic minorities. 0= Strongly supports more rights for ethnic minorities...10= Strongly opposes more rights for ethnic minorities.

MULTICULTURALISM: position on integration of immigrants and asylum seekers (multiculturalism vs. assimilation). 0= Strongly favors multiculturalism...10= Strongly favors assimilation.

POSITION: overall orientation of the party leadership towards European integration. 1= Strongly opposed... 7 = Strongly in favor.

LRGEN: position of the party in terms of its overall ideological stance. 0= Extreme left...5= Center...10= Extreme right.

LRECON: position of the party in terms of its ideological stance on economic issues. Parties on the economic left want government to play an active role in the economy. Parties on the economic right emphasize a reduced economic role for government: privatization, lower taxes, less regulation, less government spending, and a leaner welfare state. 0= Extreme left...5= Center...10= Extreme right.

Table B.3 Municipality Characteristics

	Average	Standard Deviation
Main Variables		
Populism (Rooduijn et al.)	0.21	0.19
Right-wing Populism (Rooduijn et al.)	0.11	0.15
Left-wing Populism (Rooduijn et al.)	0.05	0.08
Populism (Norris)	0.35	0.28
Right-wing Populism (Norris)	0.24	0.24
Left-wing Populism (Norris)	0.11	0.15
Social issues (GAL-TAN)	0.52	0.08
Restrictive Migration Policy	0.56	0.08
Opposition Multiculturalism	0.51	0.07
Opposition Ethnic Minorities	0.58	0.08
Opposition EU Integration	0.31	0.14
Left-Right Ideology	0.54	0.07
Left-Right Economic	0.51	0.07
3G/4G Mobile Internet Coverage	0.87	0.28
NUTS2 Unemployment Rate	0.09	0.06
Distance from closest Managers' Birthplace	171.40	478.51
Baseline Characteristics		
Population at baseline (2001 or 2006)	5,323	33,683
Per capita GDP 2006	21,383	12,432
Urban	0.87	0.33
Additional Characteristics		
% Population $\geq$15 unemployed 2001	0.04	0.02
% Employed services 2001	0.65	0.16
% Employed in manufacturing 2001	0.29	0.14
% Employed in agriculture 2001	0.06	0.12
% Population under 15 2001	0.16	0.07
% Population 60 and over 2001	0.17	0.08
Distance from first city in country	282.60	501.92
Distance from first city in region	46.91	48.96
Distance from first city in province	18.02	25.47

Notes. The Table reports descriptive statistics for the main variables used in the analysis by municipality. The top panel reports the fraction of votes accruing to populist (total and separate for right- and left-wing) parties according to the two definitions by Rooduijn et al. (2019) and Norris (2020), respectively. The following rows report vote-weighted averages of party positions along the dimensions identified in CHES. The last three rows of the top panel report the fraction of population covered by 3G or 4G signal, the NUTS2 unemployment rate and the average distance in kms from the closest managers' birthplace, respectively. The remaining rows of the Table report averages of baseline municipal characteristics from ESPON. The middle panel refers to the baseline set of controls in the regressions, while the bottom panel refers to the additional controls.

Table B.4 Telecommunication Managers - Descriptive Statistics

	Managers	Companies	Municipalities of Birth	Average Tenure (Years)
Austria	10	5	6	5.33
Belgium	9	4	8	7.00
Bulgaria	2	1	1	6.00
Czech Republic	12	4	7	5.21
Denmark	1	1	1	11.00
Finland	5	2	2	3.00
France	20	4	14	6.25
Germany	27	9	20	4.45
Greece	2	1	2	8.00
Hungary	3	2	3	4.33
Italy	13	3	10	3.90
Luxembourg	0	0	0	-
Netherlands	22	4	13	5.69
Norway	7	5	5	6.20
Poland	29	4	22	3.84
Portugal	12	3	6	6.08
Romania	3	2	3	4.00
Slovakia	2	2	2	7.50
Spain	13	8	7	10.16
Sweden	8	5	6	4.00
Switzerland	4	3	3	8.00
United Kingdom	26	5	20	2.65

Notes: The Table reports the number of top Telecommunication managers in office between 2007 and 2017, separately by country. Alongside, it reports the associated number of companies where these managers served and the number of municipalities of birth. The last column reports the average tenure at the company.

Table B.5 List of variables in IVS

Nationalism. PCA of the following variables: How proud are you to be a [country] citizen. 1= Very proud... 10= Not at all proud; How important to have been born in [country]. 1= very important...10= not at all important; How important to have [country nationality] ancestry. 1= very important...10= not at all important; How important to respect [country nationality] political institutions and laws. 1= very important...10= not at all important; How important to be able to speak [country language]. 1= very important...10= not at all important.

Individual freedoms. PCA of the following variables: How justifiable is: Homosexuality; Abortion; Divorce; Euthanasia. 1= never justifiable...10= always justifiable.

Local vs. Global. This is derived from two separate questions in EVS and WVS. For EVS, Which of these geographical groups would you say you belong to first of all? 1= locality or town where you live... 5= the world as a whole. We construct a variable which takes the value 1 if the respondents reports belonging to his/her locality or town. For WVS, How close do you feel: to own town/city; to your [county, region, district]; to [country]; to [continent]; to world. 1= very close...4= not close at all. We construct a variable which takes the value 1= if the respondents reports being closer to his/her city/town than to any other geography.

Opposition to Immigration. PCA of the following variables: How would you place your views on these scales? (labor market) Immigrants take away jobs from nationals. 1= take away... 10= do not take away; (Crime) Immigrants increase crime problem, 1= make it worse... 10= do not make it worse; (Welfare) Immigrants are a strain on welfare system. 1= are a strain... 10= are not a strain; (Concerned) Concerned with immigrants. 0= not at all... 5= very much.

Dislike Minority Neighbors. PCA of the following variables: Which ones of the following groups you would not like to have as neighbors: Immigrants; homosexuals; people of a different race; gypsies; muslims. 0= not mentioned, 1= mentioned.

Opposition to EU Enlargement. Some say that the European Union enlargement should go further. Others say it has already gone too far. Which best describes your position? 1= should go further... 10= has gone too far.

Left-Right - Ideology. In political matters, people talk of 'the left' and the 'the right'. How would you place your views on this scale, generally speaking? 1= left... 10= right.

Left-right - Economics. PCA of the following variables: How would you place your views on these scales? (Redistribution vs incentives) 1= incomes should be made more equal... 10=there should be greater incentives for individual effort. (Private vs public ownership) 1= private ownership of business and industry should be increased... 10= government ownership of business and industry should be increased. (Individuals vs. government responsibility) 1= individuals should take more responsibility for providing for themselves... 10= the state should take more responsibility to ensure that everyone is provided for.

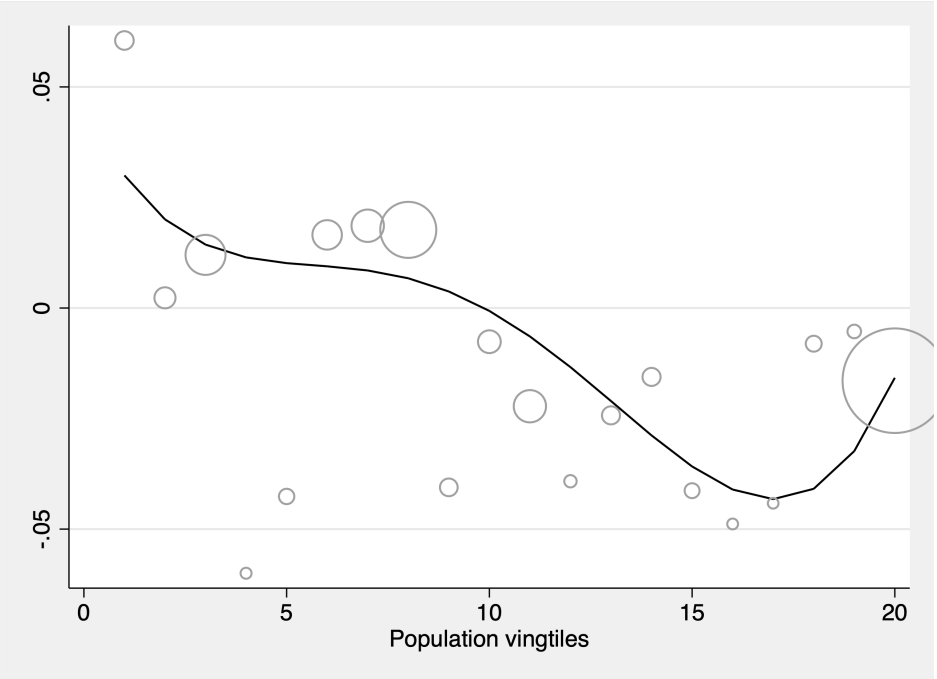
C. Comparison between OLS and 2SLS

OLS estimates of model (3) for voting outcomes at the level of municipality are reported in Appendix Tables C.1 and C.2. Similar to panels A to E of Tables A.7 and A.8, here we report specifications with no controls and with the inclusion of additional controls. Independent of whether one focuses on the main effect or on the interaction term, on right- versus left-wing populism, or on communitarianism versus universalism, typically OLS estimates are smaller in absolute value compared to the 2SLS estimates and not statistically significant at conventional levels.

This finding is consistent with measurement error in coverage leading to substantially attenuated estimates. As emphasized in the text, the quality of submissions is likely to vary considerably across operators and the data provide no information on the strength of the signal. Both sources of measurement error are likely to be particularly relevant when focusing on very fine geographies such as municipalities across all of Europe. A second potential source of bias might come from omitted variables. Simply based on observable characteristics, though, this seems not very plausible, as the OLS are largely insensitive to the inclusion of additional controls and evidence in Table A.1 suggests different correlates of the rise in populist vote and coverage.

A third plausible explanation for the difference between the OLS and the 2SLS estimates rests on the set of municipalities affected by our instrument (i.e., the compliers). Figure C.1 reports first stage estimates of the parameter γ_2 in equation (2), separately by population vingtiles. We superimpose to the data a fourth-degree polynomial that we fit based on a minimum distance estimator that reflects the precision of each individual estimate (i.e., we weight by the inverse of the standard error of each estimate). The Figure shows that the estimates of γ_2 are large and significant only in the sample of mid-sized municipalities, while we find not much of an effect of the instrument on coverage among small municipalities or the very large ones. This is consistent with a simple model where managers may incur a cost if discovered favoring their birthplace but can disguise their decision by appealing to market demand forces. This would suggest that one would not expect an effect in very small cities, where the ability to conceal favoritism is limited. On the other hand, large cities are likely to be covered irrespectively of managers' favoritism. For the 2SLS to be larger than the OLS, one will hence expect the effects of coverage on the population of compliers to be stronger than in the population at large. Indeed, previous literature (e.g. Storper, 2018) has argued that medium-sized cities and peri-urban centres in Europe have experienced a considerable worsening of economic prospects over the past decades and this this explains them turning to anti-EU parties (Dijkstra et al., 2020). This suggests that such areas may be particularly responsive to the rise in mobile Internet.

Figure C.1 Analysis of Compliers



Notes: The Figure reports estimates of the parameter γ_2 in equation (2), separately by population vingtiles. We superimpose to the data a fourth-degree polynomial that we fit based on a minimum distance estimator that reflects the precision of each individual estimate (i.e. we weight by the inverse of the standard error of each estimate). See also notes to Table 3.

Table C.1 Mobile Internet and Vote for Right-Wing Populist and Communitarian Parties - OLS estimates

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Right-wing		Extreme Communitarianism						
					Panel A: no controls				
Coverage	0.014***	0.004	0.010***	0.008**	0.008***	0.009***	0.007***	0.009***	-0.008*
	[0.003]	[0.011]	[0.003]	[0.003]	[0.003]	[0.003]	[0.002]	[0.003]	[0.004]
Unemployment × Coverage	0.163	-0.003	0.147	0.067	0.058	0.101	0.076	0.136	-0.152
	[0.113]	[0.096]	[0.093]	[0.086]	[0.084]	[0.077]	[0.080]	[0.105]	[0.096]
					Panel B: baseline controls × year				
Coverage	0.001	-0.007	0.001	-0.001	-0.001	-0.003	-0.003	-0.002	-0.006
	[0.006]	[0.007]	[0.006]	[0.006]	[0.006]	[0.005]	[0.006]	[0.007]	[0.003]
Unemployment × Coverage	0.192*	-0.009	0.172*	0.088	0.076	0.121	0.092	0.151	-0.143
	[0.110]	[0.113]	[0.092]	[0.086]	[0.078]	[0.078]	[0.077]	[0.104]	[0.105]
					Panel C: baseline controls + distance big cities × year				
Coverage	0.000	-0.006	0.000	-0.002	-0.002	-0.004	-0.004	-0.003	-0.005
	[0.005]	[0.006]	[0.006]	[0.005]	[0.005]	[0.005]	[0.006]	[0.007]	[0.003]
Unemployment × Coverage	0.213*	-0.031	0.184*	0.096	0.087	0.123	0.091	0.157	-0.161
	[0.116]	[0.117]	[0.096]	[0.086]	[0.087]	[0.079]	[0.078]	[0.103]	[0.104]
					Panel D: all controls × year				
Coverage	-0.001	-0.007	0.000	-0.001	-0.002	-0.004	-0.004	-0.003	-0.007**
	[0.005]	[0.006]	[0.005]	[0.005]	[0.006]	[0.006]	[0.006]	[0.006]	[0.003]
Unemployment × Coverage	0.215*	0.008	0.178*	0.100	0.098	0.133*	0.097	0.155	-0.139
	[0.110]	[0.099]	[0.093]	[0.077]	[0.074]	[0.071]	[0.066]	[0.090]	[0.094]
					Panel E: baseline controls × country × year				
Coverage	-0.003	-0.003	-0.003	-0.004	-0.004	-0.005	-0.005	-0.006	-0.002
	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]	[0.006]	[0.006]	[0.003]
Unemployment × Coverage	0.154	-0.083	0.151	0.122	0.094	0.136	0.131	0.179	-0.118
	[0.121]	[0.123]	[0.102]	[0.091]	[0.088]	[0.090]	[0.091]	[0.117]	[0.111]
Observations	243,125	243,125	235,816	235,816	235,816	235,816	235,816	235,816	235,816

Notes. The Table reports OLS estimates of equation (3). Specifications correspond to the ones in Table A.7. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

Table C.2 Mobile Internet and Vote for Left-Wing Populist and Universalistic Parties - OLS estimates

	Populism		Party Positions						
	Rooduijn et al.	Norris	Social Issues (GAL-TAN)	Restrictive Migration Policy	Opposition Ethnic Minorities	Opposition Multi-culturalism	Opposition EU Integration	Left-Right Ideology	Left-Right Economics
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Left-wing		Extreme Universalism						
					Panel A: no controls				
Coverage	-0.007**	-0.008*	-0.001	-0.000	-0.001	0.000	-0.006	-0.005	-0.006
	[0.003]	[0.004]	[0.002]	[0.004]	[0.002]	[0.002]	[0.003]	[0.004]	[0.004]
Unemployment × Coverage	0.237	0.233	0.086	0.190	0.101	0.112	-0.136*	0.074	0.193
	[0.158]	[0.176]	[0.074]	[0.185]	[0.101]	[0.086]	[0.078]	[0.071]	[0.149]
					Panel B: baseline controls × year				
Coverage	0.002	0.003	0.002	0.004	0.001	0.003	-0.003	0.005	0.007**
	[0.003]	[0.004]	[0.003]	[0.003]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Unemployment × Coverage	0.181**	0.148	0.055	0.128	0.078	0.094*	-0.093	0.028	0.115
	[0.086]	[0.105]	[0.053]	[0.122]	[0.075]	[0.053]	[0.079]	[0.048]	[0.084]
					Panel C: baseline controls + distance big cities × year				
Coverage	0.003	0.004	0.002	0.004*	0.002	0.003	-0.003	0.006*	0.007**
	[0.003]	[0.004]	[0.003]	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Unemployment ×	0.179**	0.143	0.056	0.129	0.080	0.097*	-0.097	0.035	0.122
	[0.077]	[0.092]	[0.047]	[0.110]	[0.066]	[0.047]	[0.088]	[0.040]	[0.071]
					Panel D: all controls × year				
Coverage	0.003	0.004	0.002	0.005	0.002	0.004*	-0.003	0.006*	0.008**
	[0.002]	[0.004]	[0.003]	[0.003]	[0.002]	[0.002]	[0.003]	[0.003]	[0.004]
Unemployment × Coverage	0.177*	0.136	0.050	0.129	0.076	0.085	-0.113	0.030	0.120
	[0.088]	[0.113]	[0.049]	[0.115]	[0.073]	[0.051]	[0.088]	[0.040]	[0.077]
					Panel E: baseline controls × country × year				
Coverage	-0.003	-0.003	0.001	0.001	-0.000	0.001	-0.000	0.003	0.002
	[0.002]	[0.003]	[0.003]	[0.003]	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]
Unemployment × Coverage	0.094	0.087	0.045	0.060	0.012	0.063	-0.027	0.012	0.074
	[0.063]	[0.072]	[0.051]	[0.101]	[0.067]	[0.041]	[0.076]	[0.034]	[0.044]
Observations	243,125	243,125	235,816	235,816	235,816	235,816	235,816	235,816	235,816

Notes. The Table reports OLS estimates of equation (3). Specifications correspond to the ones in Table A.8. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

D. Discussion of managers' birthplaces

In this Appendix we briefly discuss the characteristics of managers' birthplaces. Appendix Table D.1 presents the distribution of managers' birthplaces vis à vis the distribution of the resident population, as a function of the municipality population. We classify municipalities based on their population rank (relative to other municipalities in the country). We focus on municipalities of population rank, 1, 2-10, 10-20 and >20. Column (1) of the Table illustrates the well-known regularity that population is highly skewed to the right: top European municipalities have a population of more than 1 million, while those above rank 20 have an average population of around 4,000 people. As there are many more small municipalities relative to large ones, the majority of the European population (77 percent) lives in small municipalities (column 2). Column (3) illustrates the distribution of managers' birthplaces. Managers are more likely to be born in larger cities relative to the population at large. Still, more than 50 percent of managers' birthplaces in our sample rank above 10 in terms of population. Finally, column (4) presents the probability that a municipality features as a manager's birthplace. While there is a very high probability (53 percent) that a top city features as a manager's birthplace, the corresponding probability for small municipalities (i.e., those with rank above 20) is negligible (0.03 percent).

Although being a manager's birthplace is an extremely rare event among small municipalities, this does not necessarily imply that it is a random event and that distance from such birthplaces is randomly allocated across municipalities. To shed light on this, Appendix Table D.2 presents results of a regression of municipality's log distance from the closest manager's birthplace on our set of municipality characteristics. Regressions include country X year effects and, as before, they are weighted by municipality population while standard errors are clustered by country. We present regression results for the whole sample (column 1) as well as for increasingly restricted samples of municipalities that gravitate around (i.e., whose minimum distance refers to) managers' birthplaces of varying size, namely above population rank 1, 10 and 20. Column (1) of the Table clearly illustrates that, in the whole sample, municipalities further away from managers' birthplaces are smaller, poorer and less urban than those close by. There is also evidence in column (2) of systematic differences in the age structure of such municipalities. As we increasingly restrict the sample to municipalities that gravitate around smaller managers' birthplaces, most of the correlations disappear. In particular column (4) shows a substantial balance in covariates, i.e., no significant correlation with population, income, etc. At face value these results suggest that any concern about the non-random allocation of managers' birthplaces dissipates when restricting to increasingly smaller municipalities.

Table D.1 Distribution of Telecommunication Managers' Birthplaces by Size

Population Rank	Average Population (1)	Fraction Country Population (2)	Fraction Managers' Birthplaces (3)	Probability of being a Manager's Birthplace (4)
1	1,233	5.77	20.38	53.33
2-10	270	11.36	28.66	8.33
11-20	129	6.02	8.28	2.17
> 20	4	76.85	42.68	0.03

Notes: Column (1) of the Table reports the average municipality population (in thousands) separately by country-specific population ranking (top municipality; municipalities ranked 2 to 10; etc.). Column (2) reports the fraction of the population residing in each category. Column (3) reports the fraction of managers born in each category. Column (4) reports the probability that a municipality in each category is a manager's birthplace.

Table D.2 Correlation between log Distance from the Closest Manager's Birthplace and Municipality Characteristics

	All Municipalities (1)	Excluding Population Rank 1 (2)	Excluding Population Rank 1-10 (3)	Excluding Population Rank 1-20 (4)
Urban	-0.348	-0.397**	-0.327**	-0.364
	[0.294]	[0.186]	[0.151]	[0.210]
Per capita GDP 2006	-1.203***	-0.311	-0.088	-0.142
	[0.346]	[0.295]	[0.262]	[0.342]
Log pop density	-0.360***	-0.070*	-0.071**	-0.055
	[0.070]	[0.036]	[0.033]	[0.037]
% Unemployed	2.718	-1.356	0.458	1.287
	[4.429]	[1.007]	[1.058]	[2.356]
% Population $\leq$15	-1.110	-0.174	-1.394**	-1.120*
	[1.207]	[0.931]	[0.572]	[0.540]
% Population $\geq$60	-2.031**	-0.260	0.112	0.034
	[0.788]	[1.317]	[1.122]	[1.376]
% Employed Services	0.329	-1.034	-0.433	-0.740
	[0.613]	[0.644]	[0.582]	[0.741]
% Employed in Manufacturing	1.183	-0.035	0.364	0.060
	[1.031]	[0.907]	[0.779]	[0.843]
Observations	243,976	187,378	165,241	148,650

Notes. The Table reports results from regressions of the municipality's log distance from the closest manager's birthplace on baseline municipality characteristics. All specification include country X year fixed effects and are weighted by population size. Different columns refer to increasingly restricted samples that exclude municipalities gravitating around the largest municipalities in the country. Clustered standard errors by country in brackets. ***,**,*: statistically significant at 1%, 5% and 10%, respectively.

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