The European Trust Crisis and the Rise of Populism

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Abstract

We study the implications of the Great Recession for voting for anti-establishment parties, as well as for general trust and political attitudes, using regional data across Europe. We find a strong relationship between increases in unemployment and voting for non-mainstream, especially populist parties. We also find a correlation between the increases in unemployment and a decline in trust in national and European political institutions, while we find smaller or no effects of unemployment on interpersonal trust. The correlation between unemployment and attitudes towards immigrants is muted, especially for their cultural impact. In an effort to advance on causation, we extract the component of increases in unemployment stemming from the pre-crisis structure of the economy, and in particular construction share in regional value added which is strongly related both to build-up and the burst of the crisis. Crisis-driven economic insecurity is a substantial driver of populism and political distrust. An important policy implication from the European economic crisis is that national governments and the EU should focus not only on structural reforms, but also at protecting trust of their citizens from economic insecurity.

In recent years, the West has seen an unexpected rise of nativist populism culminating in the United Kingdom's (UK) vote to exit the European Union and the election of Donald Trump as the US President in 2016 – as well as a strong showing of Marine Le Pen in the French Presidential elections in 2017. In continental Europe, the first significant successes of populist politicians took place even before – with the parties like Freedom Party in Austria, AfD in Germany, Golden Dawn in Greece, Jobbik in Hungary, Five Star movement in Italy, Law and Justice in Poland, Swedish Democrats in Sweden, UKIP in the UK gaining substantial ground since 2012. In France, Marine Le Pen's National Front came first in the 2014 European elections and in the first round of 2015 regional elections.

The rise of populism in the European Union (EU) is important for many reasons. The EU is a historically unprecedented supranational unification project (Spolaore (2013)). It has been quite successful in both preserving political peace in Europe and in integrating into the European democratic model the "periphery" countries of Southern and Eastern Europe (Gill and Raiser (2012)). However, the recent economic crisis has demonstrated a number of shortcomings in the design of European economic and political institutions. As we demonstrate below, many Europeans appear dissatisfied with local and EU politicians and institutions.

There are two potential explanations of the decline of trust in European Union (EU), the rise of Eurosceptic populists, and the electoral success of far-left and far-right parties. The first one is a cultural backlash against progressive values, such as cosmopolitanism and multiculturalism, and a shift towards national identity. Almost all populist parties share a criticism of European supranational integration and call for a return to supremacy of nationalism. The second explanation emphasizes economic insecurity, stemming from medium-term impact of globalization and technological progress (outsourcing, increased competition from low-wage countries, automation) and/or the sharp increase in unemployment in Europe in the aftermath of the recent economic crisis.

The unemployment rate increased from 7% (7.5%) in 2007 to 11% (12%) in 2013 in the EU (Euro Area). In 2017–a decade after the start of the crisis–unemployment remains quite high (in spite of a general downward trend in labour force participation). Unemployment dynamics have been highly uneven. After a short-lived spike in 2008-2009, unemployment in Germany fell to pre-crisis levels; in Greece and Spain, it climbed above 20 percent. There has also been substantial heterogeneity in unemployment dynamics *within* the periphery and the core (often associated with Germany and neighbouring economies) and even within countries. For example, in 2016 and 2017 the national unemployment rate in the UK was at 5 per cent – lower than in 2007. However, in a *median* NUTS2 region unemployment rate was two percentage points higher than before the crisis. In Northern Greece unemployment in 2012-2014 hovered around 30%, while in the Aegean and

Ionian Sea islands it fluctuated between 15% and 21%, as tourism offered a buffer to the crisis. Likewise, the unemployment in the twenty main Italian regions in 2012-2015 ranged from 6%-7% in the North (Trento, Veneto, Friuli-Venezia) to above 20% in the South (Campania, Calabria, and Puglia).

The differential impact of the crisis is key to understand the rise of anti-establishment, often populist parties, and the accompanying sizable drop of trust towards political parties, the European Union, and the domestic legal system. Globalization in general and the EU project in particular, have been successful in promoting growth but have not done as well in terms of assuring that the gains from this growth have been shared broadly. Large parts of the society feel left behind and have risen against the establishment, national and European institutions. The recent vintage of populism unites extreme right and extreme left politicians in their criticism of the elites and the cross-border integration that these elites represent. In some cases, the rise in unemployment fuels support for far-left parties (such as Podemos in Spain) and in other – for far-right nationalistic and xenophobic parties (as in Hungary and the Netherlands). Sometimes, rising unemployment is accompanied by increased voting for *both* radical left and ultra-right nationalistic parties, that increasingly coordinate (as for example the coalition between Syriza and Independent Greeks in the government since January 2015).[1]

In this paper, we first conduct a before-after descriptive analysis of the evolution of unemployment, voting and trust-beliefs across Europe before and after the crisis, showing that the economic crisis has moved in tandem with a political trust crisis and the rise of populist anti-establishment vote.

Second, we study the relationship between unemployment and voting for anti-establishment (far left, far right, populist and Eurosceptic) parties at the subnational level. We compare regions that greatly suffered from the crisis with those that weathered the crisis relatively well – controlling for general pan-European or country-group trends. We find that increases in unemployment are followed by rising voting shares for anti-establishment, especially populist parties. A major finding of our analysis is that it is the change in unemployment–rather than its level–that correlates with voting for non-mainstream parties, a result that echoes the findings of the literature on the role of economic losses on self-reported well-being and happiness.

Although our methodology accounts for time-invariant regional factors and unobserved country-group dynamics, the estimates may still pick up some unobserved or hard-to-account-for

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[1] In line with the evident "convergence" of radical-left and extreme-right nationalistic parties and agendas, we find that the spike in unemployment fuels support for both left and right anti-establishment parties.

regional time-varying variables. We thus develop a two-stage-least-squares (2SLS) approach that extracts the component of regional unemployment stemming from industrial specialization of the regional economy, and in particular the share of construction and real estate. Since construction and real estate played a major role both during the build-up and the burst of the crisis, we use the pre-crisis share of construction (real estate and housing) as an "instrument" for regional unemployment. The 2SLS estimates that isolate the component of unemployment stemming from industrial specialization on voting for non-mainstream parties are statistically significant implying considerable effects: a one-percentage point increase in unemployment rate is associated with a 2-3 percentage point increase in voting for the anti-establishment parties.

We also use the vote of the citizens of the United Kingdom in the June 2016 referendum to stay or leave the European Union as an "out-of-sample" test of the Europe-wide results. In line with our previous estimates, the analysis shows that *increases* in unemployment during the period 2007-2015 (rather than the level of unemployment in 2015) are strong predictors of Brexit vote – both in OLS and 2SLS specifications that also use the pre-crisis share of construction across the 379 electoral districts to instrument for the subsequent spike in regional unemployment.

Third, we explore the mechanisms behind the unemployment–populism nexus examining the impact of the recession on political and general trust, as well as on the beliefs on the role of immigrants using individual-level survey data from the European Social Surveys (ESS). There is a statistically and economically significant relationship between the change in regional unemployment and a decline in trust towards the European and national parliament and political parties. An increase in regional unemployment of 5 percentage points (roughly one standard deviation) implies a 3.5 percentage points drop in trust towards the country's parliament (roughly a third of a standard deviation). Unemployment also correlates significantly with distrust towards national courts, while there is no correlation with trust towards police. The relationship between regional unemployment and interpersonal trust is much weaker and not always statistically significant. 2SLS estimates are similar; the component of regional unemployment coming from the pre-crisis share of construction is a significant correlate of distrust in the European and national political institutions.

Fourth, we exploit the individual-level nature of the data to understand the underlying forces. We do not find much heterogeneity. The results hold for both men and women, for younger and older cohorts. The relationship between unemployment and distrust in political institutions is stronger for non-college graduates, a result in line with the findings of Autor *et al*. (2016, 2017), Che *et al*. (2016) and Colantone and Stanig (2016), who relate populist voting and political

polarization to depressed wages among unskilled workers fuelled by rising competition from low/middle income countries.

Our evidence is consistent with the studies that link the rise of populism in Europe to economic factors. However, while parallel papers studying the origins of the recent populist spike focus on the impact of medium term technological factors and rising competition from emerging low-income countries (e.g., Autor *et al.* (20016, 2017), Becker *et al.* (2017)), we stress the role of the Great Recession. In addition to studying unemployment's impact on voting we also try to uncover the mechanisms using survey data on Europeans' general and institutional trust, political attitudes and beliefs towards immigration. The latter results allow us shed light on the relative importance of economics vs. cultural explanations of the recent rise of populism. We find that the recent crisis has resulted in more negative attitudes towards immigrants; however, this anti-immigrant sentiment is related to the immigrants' economic impact rather than their cultural identity.[2]

I.   Related Literature

Our paper is related to several strands of the literature, first and foremost, to the research on the political economy of populism that studies the origins and implications of populist parties and policies (see Gidron and Bonikowski (2013) and Mudde and Katwesser (2017) for reviews and Taggart (2000) for a general introduction). Dornbusch and Edwards (1991) discuss macroeconomic populism in Latin America, while Rodrik (2017) provides a generic discussion of the recent rise of populist parties and interprets it in the light of economic theory. Recent theoretical works on the political economy of populism include Acemoglu *et al.* (2013), Mukand and Rodrik (2017), Guiso, Herrera, and Morelli (2017), Di Tella and Rotemberg (2016). A number of recent empirical works study populism's correlates/origins in specific contexts. Becker, Fetzer, and Novy (2017) search for the main correlates of Brexit vote across UK districts looking at dozens of socio-economic indicators; they find that low levels of education and low income, historical reliance on manufacturing and to a lesser extent unemployment are significant correlates, while immigration is not much related. Colantone and Staning (2016) show that globalization in general–and import competition from China in particular–is a strong correlate of Brexit vote. This is in line with Autor *et al.* (2016, 2017) and Che, *et al.* (2016), who show rising political polarization and higher likelihood for Trump voting in US counties that were affected the most from China's entrance to the WTO.[3] Colantone and Stanig (2017) uncover a similar link between import competition and support for nationalistic right-wing parties across EU regions. Similarly, Dippel, Gold, and Heblich (2016)

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reveal a link between import competition from China and voting for extreme-right parties in Germany over the period 1997-2009. While this fast-growing strand of the literature focuses on medium-term origins of political populism-extremism (mostly related to trade and immigration)[4], we examine the impact of the deep economic crisis that has hit Europe during 2008-2009 (alongside the United States and other industrial countries) and the subsequent crisis in the European periphery (mostly over 2009-2013).

In line with conventional wisdom and case-study evidence, we show that large economic downturns fuel political polarization.[5] In this regard, our work relates to empirical studies quantifying recovery after severe (typically short-term) economic downturns, banking, currency, and balance of payment crises. Recent work by Rogoff (2016) and Fatas and Summers (2016) connect sluggish recoveries to pre-crisis trends. Our main finding–that the sharp increase in political extremism and the associated drop of trust in political institutions are strongly correlated with the severity of the economic downturn–offers a plausible mechanism explaining the considerably long-term consequences of economic crises. Our results thus complement the findings of Funke *et al*. (2016), who, studying 20 advanced economies over 1870-2014, document with panel regressions that financial crisis increase political polarization, raise fragmentation in the parliament, and spur political unrest.

The papers closest to ours are the parallel studies of Guiso et al. (2017), Inglehart and Norris (2016) and Dustmann *et al* (2017)[6]. Guiso et al. (2017) study the demand and supply of populism both empirically and theoretically. They document a link between individual-level economic insecurity and distrust in political parties, voting for populist parties, and low electoral participation. They also show how in response to economic insecurity parties shift their agenda to cater to voters' preferences. Inglehart and Norris (2016) also use survey-level data and argue that the rise of populism is driven by cultural rather than economic factors. Unlike these two studies, we use actual region-level voting data rather than self-reported information from surveys (that have quite much smaller regional coverage and may be subject to reporting biases). Also, we focus on the crisis impact, in particular the sizable rise in regional unemployment after the 2008-2009 global financial crisis. Moreover, we develop an instrumental variable approach to identify causal effects and

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[4] Recent works examining the impact of immigration on voting for extremist/nationalistic parties and attitudes include Hatton (2016), Becker and Fetzer (2016), Mayda *et al*. (2016), and Barone *et al*. (2016). Dinas *et al*. (2016) study the link between refugee flows and voting for far-right parties in Greece.

[5] Stock (1984) presents cross-county regression evidence that rising indebtedness of American farmers in the run of the 20th century was related to political unrest and voting for populist candidates. Bromhead, Eichengreen, and O' Rourke (2014) connect voting with the severity of economic contraction in the inter-war period (1919-1939). Studying 171 elections in 28 countries, they find that the depth and duration of the crisis are related to the rise of far-right parties.

[6] Hernandez and Kriesi (2016) report cross-country evidence of a link between the severity of the Great Depression and the electoral losses of incumbent parties.

associate regional industrial specialization and especially the pre-crisis boom of construction to the rise in anti-establishment voting in the aftermath of the crisis. In contrast to Inglehart and Norris (2016), we find that economic insecurity explains a substantial share of the rise in populism when controlling for time-invariant factors.[7] Our divergence with the latter paper stems from two main reasons. First, we look at the effect of within-region variation of unemployment on institutional trust and populism, accounting for all time-invariant factors that affect beliefs and the economy. Our analysis shows that voting for non-mainstream parties (and BREXIT) and political distrust are linked to *changes* (increases) in unemployment during the crisis rather than the *level* of unemployment. We show that individuals are mostly sensitive to economic changes, and especially economic losses. Besides, Inglehart and Norris (2016) by focusing on *individual-level* variables, they do not capture the overall impact of economic insecurity that an increase in unemployment imposes to all categories of citizens, including those who have a job (through depressing wage growth and undermining life-time incomes). Second, we take a different perspective on what we consider as cultural values and attitudes compared to Inglehart and Norris (2016). While they explain the rise of populism by attitudes such as institutional distrust, we associate distrust directly with unemployment. We show that, since economic insecurity increases populist voting and spurs distrust in political institutions and dissatisfaction with democracy, the changes in the latter variables cannot be considered as independent drivers of the former.[8]

In concurrent work, Dustmann *et al*. (2017) also use ESS data and uncover that unemployment (and GDP) shocks at the regional level are accompanied by a trust deficit (defined as the ratio of political to general trust). Dustmann *et al*. (2017) further show that regional unemployment is systematically linked to non-mainstream vote in European Parliament elections. These results nicely complement our findings from national (parliamentary and presidential) elections that are way more important, as the European Parliament has rather limited authority. Moreover our sample sample is noticeably larger (for voting outcomes we have 220 regions vs. 132 in Dustmann *et al*. (2013)). We also uncover a link between pre-crisis construction' share and post-crisis voting suggesting that the pre-crisis boom before the crisis in many European regions is

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[7] Our results are also consistent with DeVries (2017) who argues that recent rise of populism was accompanied by the shift from left-right to cosmopolitan-parochial divide: the regions with a larger increase in unemployment are more likely to have a negative attitude to immigrants because of their impact on the economy not because of their alien cultural identity (see also Hobolt and De Vries (2016)).

[8] The same caveat holds for most of the variables considered as independent by Inglehart and Norris (2016) such as attitudes towards immigration, demand for authority and political orientation. Unemployment affects these beliefs directly. We also check the changes in attitudes to immigrants and find no evidence of cultural backlash; it is only the economic role of immigrants that results in a more negative sentiment towards them.

related to the recent spike of populism. The associated 2SLS estimates suggest that the component of changes in regional unemployment stemming from pre-crisis industrial specialization is a significant correlate of voting and trust.

Our paper also contributes to the large body of research linking trust (as well as civicness, social capital, and beliefs) with economic performance (see Algan and Cahuc (2013), Guiso, Sapienza and Zingales (2011), Durlauf and Fafchamps (2005), Fernandez (2014) for detailed surveys of the theoretical and empirical literature). While there has been extensive research on the implications of trust and social/civic capital for various aspects of economic performance (e.g., Tabellini (2010), Algan and Cahuc (2010)), the literature on its origins is relatively thin. Building on Robert Putnam's influential work (Putnam 1994), empirical works uncover the long-run impact of important historical episodes, for example the culture of city-states in medieval Italy (Guiso, Sapienza, and Zingales (2016a)), the role of Africa's slave trades (Nunn and Wantchekon (2011)), and the role of communism and the secret police in Eastern Germany (Jacob and Tyrell (2010)).

Our paper contributes to the previous research in several ways. First, instead of looking at long-run determinants of trust and culture, we study the impact of the crisis. In this sense, our work is conceptually close to Ananiev and Guriev (2015) who provide evidence linking the severity of the 2009 crisis in Russia on general trust. Second, while the literature has focused on interpersonal trust, we look at trust in political institutions (courts, police, political parties, the European Union), a largely unexplored dimension that has only recently received attention from economists. We show that trust in institutions is much more volatile and influenced by the business cycles than interpersonal trust. We also link the rise of populism and political extremism to distrust in national and European political institutions – thus contributing to the research on the interactions between cultural norms/beliefs and institutions (see Alesina and Giuliano (2015) for a review and Bisin and Verdier (2017) for a recent theoretical exposition). We document that institutional trust is the critical element for understanding political preferences and voting behavior.

Third, our paper fits to the research agenda on the political economy of the European Union – and of political unions more generally (see Spolaore (2013) for an overview of the political science and economics research on the EU and Alesina and Spolaore (2005) for a textbook treatment of political integration). Until recently, policymakers and economists have focused on the long-term economic convergence – discussing the issues of debt, deficit, and inflation. However, the European crisis has shifted their attention to cultural differences across countries and regions.[9]

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[9] Papaioannou (2016, 2015) stresses the importance of divergence in the performance of national institutions (courts, bureaucracy, public administration); see also Alesina, Tabellini, and Trebbi (2017) on rising national institutional divergence since the inception of the euro.

Guiso, Sapienza, and Zingales (2016b) study historical data from the Eurobarometer Surveys documenting that the considerable cross-country gaps in supporting the European Union have closed. Convergence of EU support came partly from falling support in the South. Guiso, Herrera, and Morelli (2016) stress cultural differences between Northern and Southern European countries and argue that future integration (with common enforcement) is needed to confront the "cultural clash." However, in an important contribution Alesina, Tabellini, and Trebbi (2017) show that what is striking in the EU is the high degree of within-country (rather than cross-country) heterogeneity in beliefs and trust. Applying simple variance decompositions on various cultural proxies from the World Value Surveys during the period 1980-2007, Alesina, Tabellini, and Trebbi (2017) show that within-country variation dwarfs between-country variability, a pattern that is similar across US states. They show that the degree of cultural heterogeneity across and within EU countries was similar to that in the US, an allegedly efficient and well-functioning political and currency union. Our paper complements this work by studying the crisis and subsequent recovery period. We find that the crisis has stopped the process of cultural convergence. The rise in unemployment has been accompanied by a fall in political trust and a rise in political extremism and populism, therefore creating additional strains within the EU.

Finally, our finding that it is changes in the economic situation, and not the level of it, that matters is related to the "happiness" literature and the well-known Easterlin paradox of a small correlation between income and happiness (Easterlin (1974, 2013), Kahneman and Deaton (2010)). Individuals are mostly sensitive to changes in income –rather than income levels; and this effect is transitory as individuals adapt rather quickly their expectations and habits to the new income level (see Clark *et al*. (2012) for a literature review on the adaptation and habituation effect for explaining well-being). And research in psychology reveals a strong asymmetry in the way positive and negative economic growth are experienced, individual well-being being much more sensitive to income losses (De Neve (2015)). We find a similar relationship between unemployment and institutional trust and political attitudes.

II.   Data and Descriptive (Before-After) Analysis
II.A Data Description
We use three main types of data. First, we compile regional unemployment and output statistics at NUTS-2 from Eurostat. We also use Eurostat to extract information on sectoral shares of six broad industries (construction, agriculture, finance, government, manufacturing, and trade-commerce) in gross value added. The data cover 215 regions in 26 countries[10]. For analytical purposes, we group

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[10] There are gaps in the data that result in an unbalanced panel. .

countries in four categories. The North comprises of Denmark, Finland, Iceland, Ireland, Sweden and the United Kingdom. The South includes Cyprus, Greece, Italy, Portugal and Spain. The Centre consists of Austria, Belgium, France, Germany, the Netherlands and Switzerland. The former Transition economies group in Eastern Europe is composed of Bulgaria, Czech Republic, Estonia, Hungary, Poland, Romania, Slovakia and Slovenia.

Second, we collect voting data for parliamentary and presidential elections using country-specific electoral archives. We then obtain information on political parties' orientation using the Chapel Hill Expert Survey and other online resources (which in turn follows Hix and Lord (1997) and Derksen). Unfortunately, the Chapel Hill Expert Survey while it details main party attributes, does not cover all parties. We have thus identified and classified the remaining parties based on their platforms from their websites. We focus on four main aspects of anti-establishment politics: (i) Extreme right, often nationalistic, parties, such as the Golden Dawn in Greece and the National Front in France; (ii) Radical left parties, such as Podemos in Spain and Syriza in Greece; (iii) Populist parties, such as the Party for Freedom in the Netherlands and UKIP in the UK (iv). Eurosceptic and separatist parties, such as the Five Star Movement in Italy and True Finns in Finland. These four components are non-mutually exclusive (with the exception of radical left and far right). Most populist parties appear also as Eurosceptic (partial correlation of 0.72). The correlation of euroscepticism with extreme right and radical left is 0.45 and 0.52, respectively. The correlations between populist and far right and radical left are 0.53 and 0.61, respectively[11].

After matching the electoral data with parties' political orientation, we calculate the percentage of votes to parties with each of the four "extremist" orientation dimensions over the total valid votes at each election for each region. We also sum the votes of all types of non-mainstream parties, classified as far right, radical left, populist and eurosceptic/separatist. We also study the dynamics of turnout, defined as the percentage of voters over registered. [We will use in the paper "anti-estasblishment" and "extremist" interchangingly. However, we should stress than not all policies advocated by these parties are "extremist". And in many of these parties, there are moderate elected officials.]

Third, we use individual-level data on trust and beliefs-attitudes from the European Social Survey (ESS), conducted biennially, from 2000 until 2014. ESS consists of biennial cross-sectional

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[11] The CHES database contains much information on parties' political platform that we do not use, the reason being incomplete coverage. Another limitation is that our classification does not reflect small movements in political ideology of mainstream parties or the election with mainstream parties of radical candidates in the parliament. However, if non-extremist parties also take in some issues extremist views or embrace populist polices, then our estimates will be conservative (Colantone and Stanig (2017), Inglehart and Norris (2016)). Guiso *et al.* (2017) develop an elegant model of the response of established parties to voter's beliefs and the emergence of new parties.

surveys, covering 32 European nations. We exclude Israel, Russia, Turkey and Ukraine. We also drop Croatia and Lithuania, as there are no surveys before the crisis and Luxembourg that lacks a post-crisis survey. There have been seven rounds (in 2002, 2004, 2006, 2008, 2010, 2012 and 2014)[12]. The (pseudo)-panel is not balanced, as the ESS study has not been carried in all countries for all waves. Our ESS sample covers 183 NUTS-2 regions in 24 countries.

The ESS team interviews residents, regardless of their nationality, citizenship, language, or legal status. On average, each country-round survey covers approximately 2,000 individuals. While the sample is small, ESS asks questions on beliefs along various dimensions, such as the role of immigrants and minorities, trust towards courts and the police, beliefs on the role of government. We focus on general trust and trust towards political institutions (politicians, national parliament, the European Parliament, the United Nations, national courts, and the police). We also examine related questions, reflecting respondents' self-identified position on the left-right scale, satisfaction with democracy, beliefs on whether the EU has gone too far. Since the variables have different scales, we standardize them to range between 0 and 1, with higher values indicating more trust. For the baseline analysis, we average the data across NUTS2 regions for each ESS country-round, though we also use the data at the individual level when we examine heterogeneity.

The Data Appendix provides details on coverage. Table 1 presents summary statistics for the main variables at the regional level, distinguishing between the pre-crisis period (2000-2007) and the post-crisis period (2008-2016). Below we provide a descriptive analysis of the patterns trying to detect whether or not there is "structural break" at the crisis.

## II.B Before-After Crisis Dynamics

II.B.1 Regional Unemployment

Figure 1a plots the evolution of unemployment (for individuals aged between 15 and 64 years old) between 2000 and 2016. Before the crisis unemployment was below 10% cross all country-groups. Differences were moderate with unemployment in the South and former Transition hovering around 8%-9%, in the Centre at 6.5%-7%, and the North around 5%-6%. Unemployment increased during the global financial crisis (2008-2010) across all (groups) countries. But, the spike in the Core was moderate while at the same time, in the South the unemployment rates doubled. In Greece, the unemployment rate (across 14 NUTS2 areas) jumps from 9% in 2007 to 27% in 2013 and then falls to 23%-25%. Mean (median) unemployment across Spain's 20 NUTS-2 regions jumps from 7.5% (8.9%) in 2007 to 23.6% (25.7%) in 2013 and then drops somewhat to around 20%.

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[12] Data from the 2016 survey will be available in the fall of 2017.

The histogram of regional unemployment (the before-crisis period ranges between 2000 and 2008, and the post crisis period ranges between 2009 and 2016) in Figure 1b illustrates the increase in the mean and variance. Compared to the pre-crisis distribution, the distribution of unemployment in 2013 has a long right tail, indicative of the very high unemployment rates observed at particular regions after the crisis. The standard deviation of NUTS-2 unemployment doubles (from 0.037 to 0.071); the effect again mostly comes from the South. Eight EU regions (six in Spain and two in Greece) exhibit unemployment rates exceeding 30% in 2013; ten other EU regions have unemployment rates between 25% and 30%.[13]
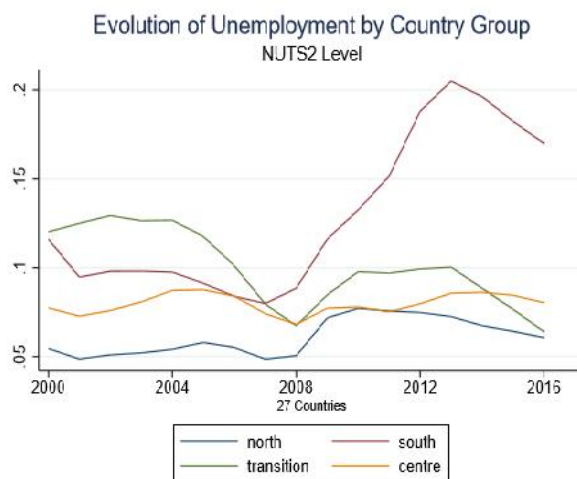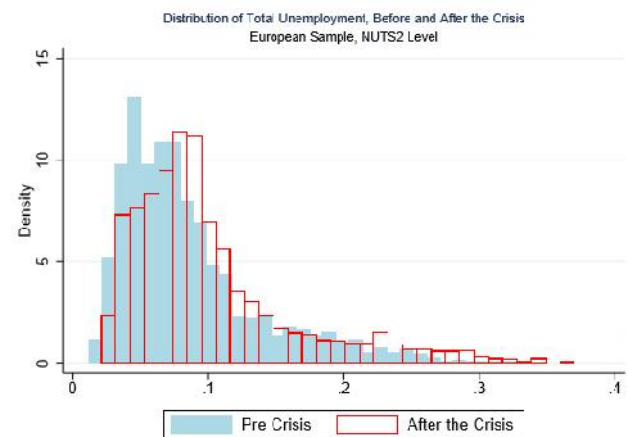
| Figure 1a | Figure 1b |

II.B.2 Voting

Table 1, Panel B reports the mean, median, and standard deviation of voting for extremist parties and political participation before and after 2008. Let's start with turnout. Mean (median) participation in parliamentary, presidential or general elections before the crisis was 70% (74%), while after the crisis it falls to 67% (68%). This drop mostly comes from the South where participation falls from 74% to 68% and former transition economies, where turnout drops from 57% to 52%. Participation falls slightly in the North and Centre.

Table 1 Panel B demonstrates the considerable increase in voting for extremist parties. The mean (median) share of extremist parties before the crisis (2000-2008) was 25% (20%); they climb

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[13] We focus on unemployment rather than on output as the latter is conceptually a less clean measure of the crisis' social costs. Moreover, regional GDP statistics are quite noisy, yielding biased (attenuated in the case of classical error-in-variables) estimates. In the Supplementary Appendix we show that changes in regional unemployment rates and changes in log regional output are closely correlated. Appendix Figure A1a graphs the association between unemployment and log GDP per capita, conditioning on region and general year fixed-effects. There is a statistically significant negative relationship between the two variables with few outliers corresponding to regions of former transition economies. Appendix Figure A1b plots the correlation of changes in regional unemployment to changes in the logarithm of GDP per capita over the crisis period. The graphical analysis paints a clearer picture regarding the loss of income and employment after the crisis across different country groups.

to 31% (32%) after 2008. Figure 2a plots the distributions. There is an evident shift of the mean and median values to the right; the shape of the distribution is also different in the second period, with an increased concentration in the range of medium and high percentage of extremist outcomes. The increase in the voting share of extremist parties is strong in the South; the change in the mean (median) is close to 6% and 12%. Voting for extremist parties also rises in the North, with the increases in the mean and in the median of 3% and 5.3%, respectively.
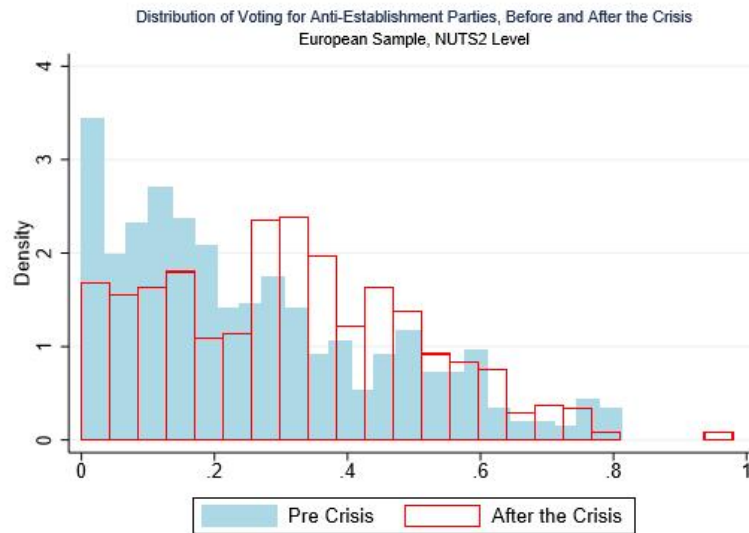
Figure 2a

Figures 2b-2e show that the voting share of all four types of non-mainstream parties has increased, though at a differential pace.
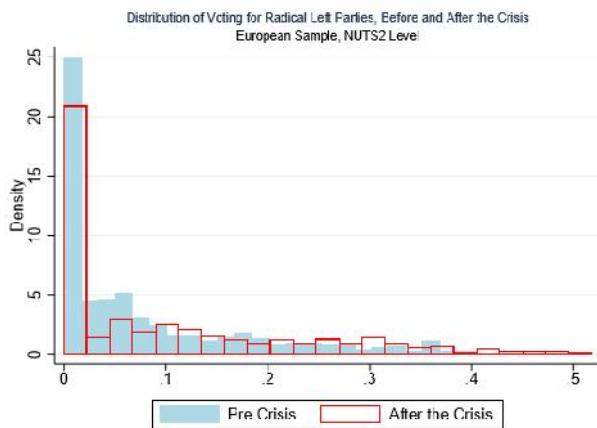
Figure 2b
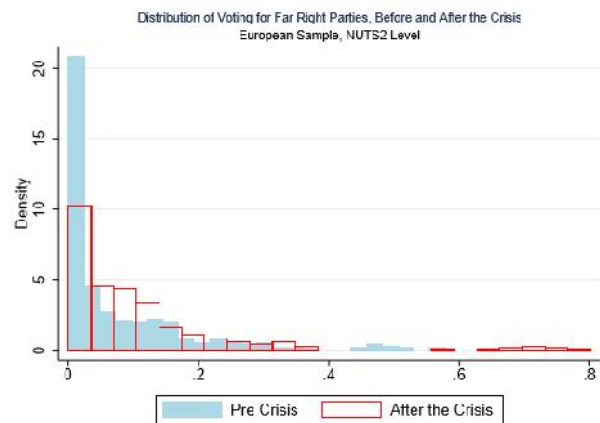
Figure 2c

Voting for radical left parties displays a small increase of just 1%, though there is considerable heterogeneity across countries (Figure 2b). It grows in Spain (Podemos), Greece (Syriza) and to a lesser extent in Portugal (*Bloco de Esquerda*,) and Finland (V*asemmisto*). And it falls in Slovakia (Communist Party of Slovakia), Italy (Communist Refoundation Party), and France (Workers' Struggle). Mean (median) voting for far-right parties goes from 7% (2%) to 10%

(7%). The rise of far-right parties mostly comes from the North and Centre (rather than the South and Eastern European countries), where the increase is around 5%-7%. The rise of far-right party voting is considerable in Hungary (increase of 8.5%) and Greece (increase of 5%). Voting for populist parties increases considerably (Figure 2d); the mean moves from 13 to 22 percent, while the median almost triples. This increase is strong in the South, the North, and Centre. Only in former transition countries the mean share for populist parties does not go up, as the sizable increase in Hungary, the Czech Republic, and Poland is offset by declines in Estonia, Romania, Slovenia and Slovakia. Eurosceptic parties are also on the rise (Figure 2e). The mean (median) vote increases by 6% (10%). This rise is strong in the South, where the mean and median increase by 15%, and in the North where the mean (median) increase from 12% (16%) to 22%.
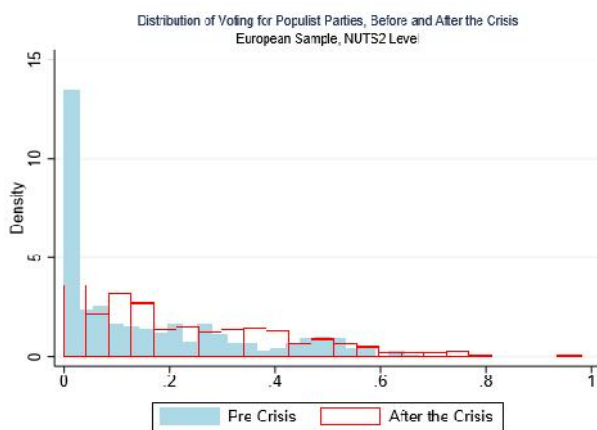
Figure 2d
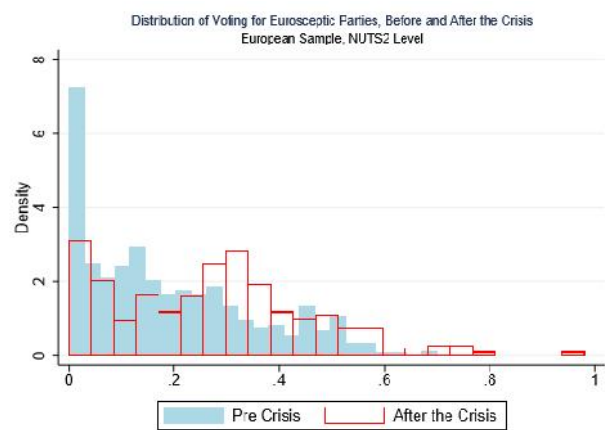
Figure 2e

II.B.3 Trust and Beliefs

Let us start with the evolution of general trust, presented in Figure 3a. If anything, interpersonal trust across European regions somewhat increased, since the crisis. Though the increase in the mean and median is small, this pattern applies with all proxy measures of general trust (see Table 1-Panel C). The slight increase is present both in the countries of the European core and in the periphery.
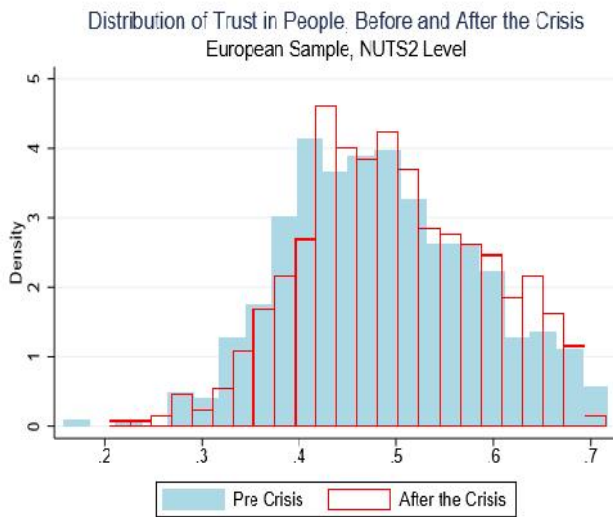
Figure 3a
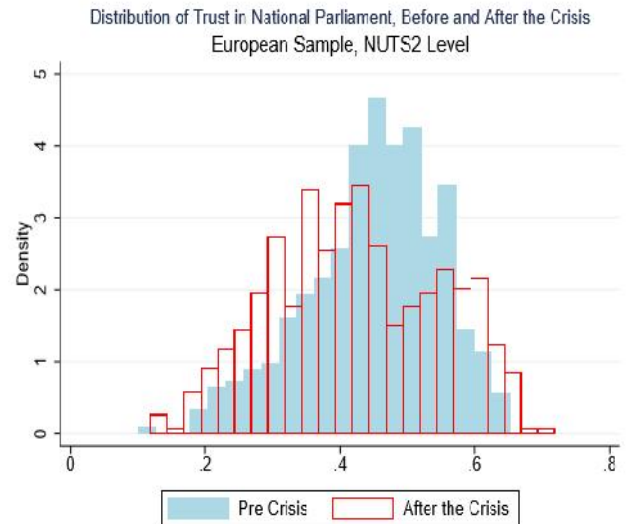
Figure 3b

The situation with trust in political institutions is quite different. There is a sharp decline in the trust in national political system in the post-crisis period. The mean value of trust towards the national parliament falls by 3 points (from 45 to 42 points on the 0-100 scale), roughly half of the pre-crisis standard deviation. As Figure 3b shows, after 2008 the distribution moves to the left. There is also a significant drop in a similar question reflecting trust towards politicians. Figure 3c shows that distrust is not limited to the political system; it extends to the legal system, though to a lesser extent. South drives this result. In former transition countries, there is no movement, while in the countries of the European core trust towards national courts slightly increases. Interestingly, trust towards the police moves in the opposite direction increasing with the crisis (Figure 3d), a pattern driven by transition economies and the core, but being absent in the South (there trust towards the police remains flat). Distrust towards political parties and national courts reflect a general dissatisfaction with the functioning of democratic institutions, driven mostly by the South, where mean satisfaction falls from 0.55 to 0.42. [In the Centre, North, and former transition countries satisfaction with democracy slightly increases on average.]
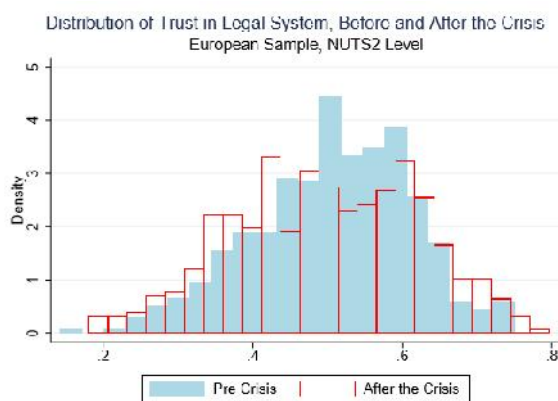

Figure 3c
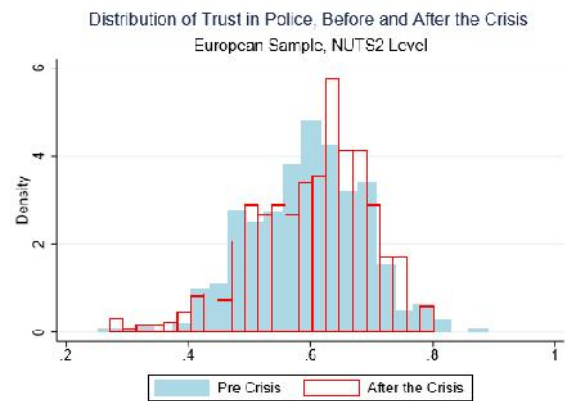
Figure 3d

To measure the change in trust towards the European Union, we use the ESS question on the trust in the European Parliament. There is a significant decline (Figure 3e); median drops from roughly a third of the pre-crisis standard deviation. The deterioration in trust towards the EU is considerable in the South (from 0.54 to 0.5), but present in all groups of countries. Distrust towards the EU increases in all EU countries except for Belgium, Netherlands and Denmark (where it stays flat) and Sweden where it falls modestly. The post-crisis distribution of trust in the European Parliament has a long left tail. As Europeans' trust towards the EU is falling, their views on whether the EU should go further or whether it has gone too far have, on average, also change (Table 1, Panel C). We also tabulate the distribution of trust towards the United Nations (Figure 3f). Distrust in the UN may capture anti-globalization sentiment or an overall dissatisfaction with international institutions, but it does not have the European angle. There is some decline in trust towards the UN, but it is smaller relative to the drop in trust towards the EU. The sizable drop in trust towards the EU and domestic institutions is in line with the Eurobarometer Survey data based study of Frieden and Foster (2017), who also document large drops in political trust in EU-debtor countries.
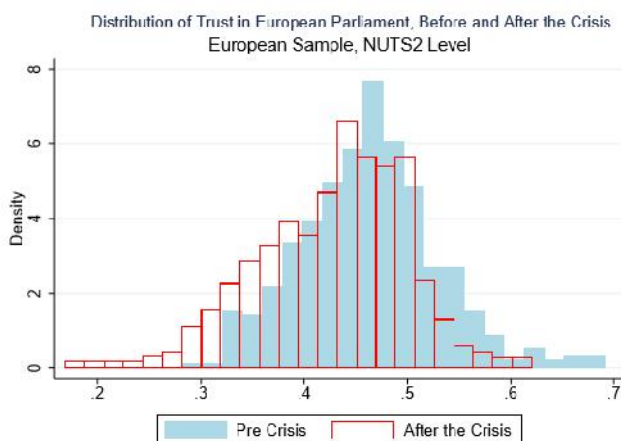
Figure 3e
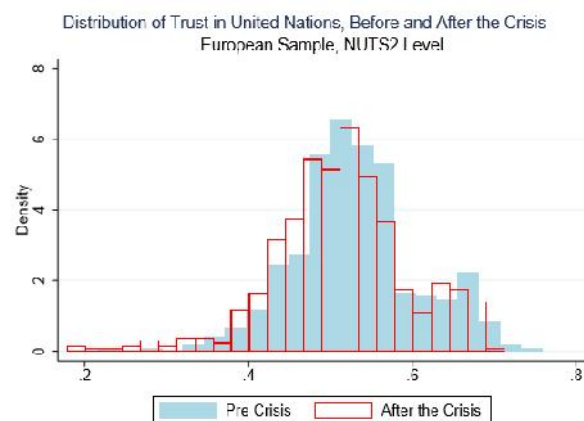
Figure 3f

We also examined political positioning on the left-right scale and closeness to a particular party. There is no indication that Europeans are, on average, moving to the left or to the right (Figure 4a). Yet, there is a clear shift of the distribution on the question on whether respondents feel close to a particular party, with a larger share responding that they do not (Figure 4b).
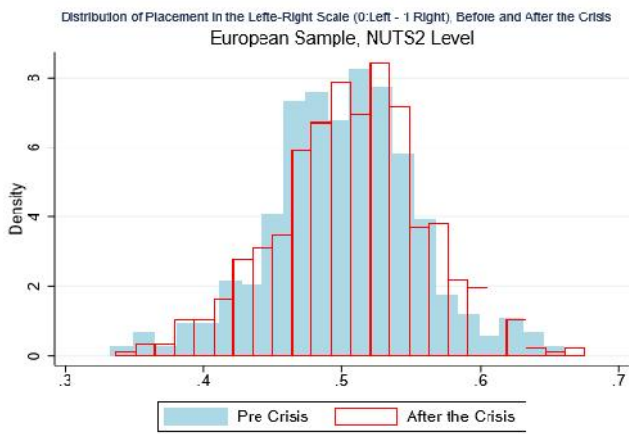
Figure 4a
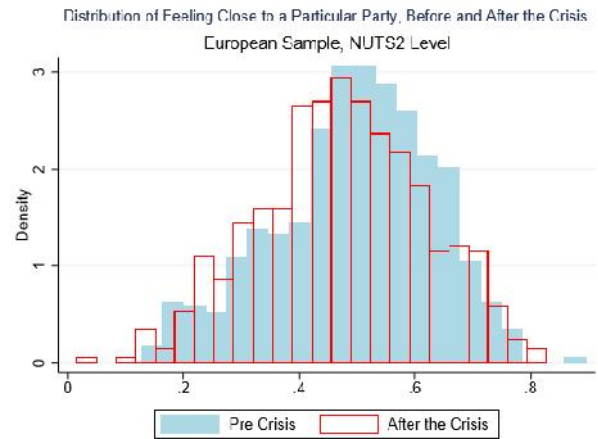
Figure 4b

Given extremist, nationalistic, and populist parties often embrace an anti-minority and anti-immigration agenda, we examined the evolution of variables reflecting European's beliefs on immigration. Table 1, Panel D, gives means and medians before and after the crisis. ESS data show no major change in attitudes towards the immigrants – or even a more welcoming stance. On average, Europeans are more likely to allow immigration of the same or different race (increase of 2 percentage points from 59 and 51 percent, respectively). They appear also ready to welcome immigrants from poorer countries. They still believe that immigrants make the country a better place to live (two percentage points increase from 48 percent before the crisis. Figures 5a and b plot the change in the distribution of the belief that immigrants enrich the country's cultural life that of the belief that immigrants are good for the country's economy.
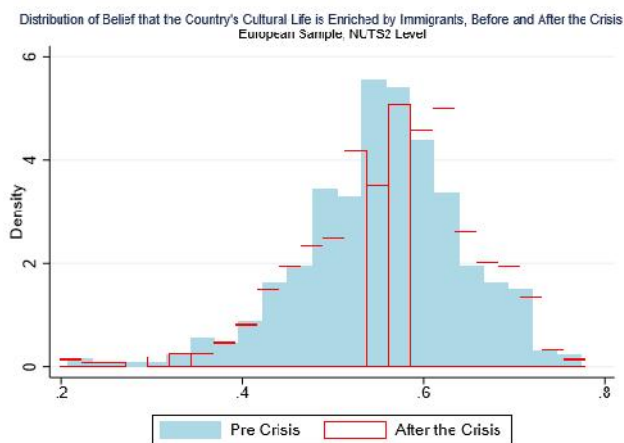
Figure 5a
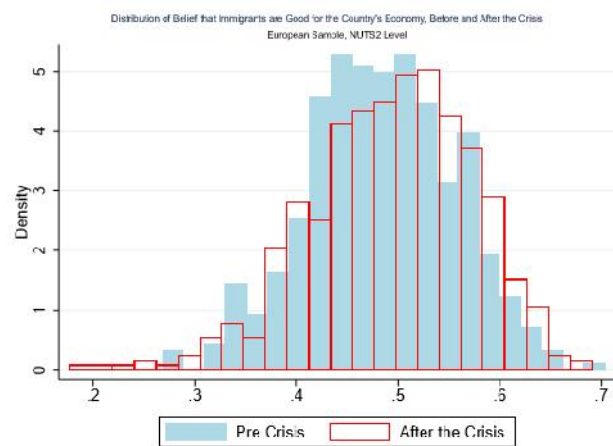
Figure 5b

III. The European Crisis and the Rise of Populism

In this Section, we analyse the role of unemployment on voting for non-mainstream (populist, far right, radical left, and Eurosceptic) parties and on turnout. First, we report the within-region correlations that assess whether the European crisis and the rise of anti-establishment vote are

related. Second, we discuss an instrumental-variables approach that aims to identify causal effects and then report the 2SLS estimates. Third, we carry out an "out-of-sample" test of the link between the crisis and populist voting, associating regional differences in unemployment across the United Kingdom during the crisis (during 2007-2014) and voting for Brexit in the June 2016 referendum.

III.A OLS estimates

We examine the role of unemployment with the four types of anti-establishment vote and turnout rate using two (closely related) approaches that exploit within-NUTS2 region variation[14].

First, we run panel fixed effects specifications that explore within-region variation over time. We use the full sample period that extends from 2000 till the mid of 2017 (including the recent elections in France, Netherlands, Bulgaria and the United Kingdom).[15] Table 2 reports the results. In Panel A we include year dummies to account for general trends in unemployment and voting patterns across the EU. As there are not many elections in a given year, we also run specifications with four sub-period dummies. We split the sample into two pre-crisis periods (2000-2003, 2004-2008) and two post-crisis periods (2009-2012 and 2013-2017). Panel B presents the results. In Panel C we interact the period dummies with the four country-group category dummies, so as to allow for differential dynamics in unemployment and voting across the South, Centre, East and North of Europe.

Second, we carry out difference-in-differences estimations that associate post-vs-pre-crisis differences in the various electoral outcomes with analogous differences in regional unemployment. Specifically, we average all observations after the crisis (2009-2017) and before the crisis (2000-2008) and then estimate the model in differences (dropping 2008 altogether or assigning it to the post crisis period does not change the results in any way).[16] Table 3 presents these estimates. In Panel A we do not include any controls, while in Panel B we add country-group dummies that account for differential pre-post crisis changes in unemployment and voting.

Let us first discuss the within-region correlation between the composite anti-establishment vote (i.e. the vote for far right, far left, populist and Eurosceptic parties) and unemployment. The coefficient on unemployment is significant in all panels of Table 2. There is a one-to-one

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[14] Ideally, we would want to run the specification at the electoral district level to account for strategic voting and other election-related unobserved issues (proportional or majoritarian system). However, we lack data on output-unemployment at the electoral district. As Colantone and Stanig (2017) show, NUTS2 regions include (in most countries) more than one electoral districts.

[15] The specification is as follows: $y_{r,c,t} = \beta U_{r,c,t} + a_r + d_t + \varepsilon_{r,c,t}$. Here y denotes non-mainstream party vote in NUTS region r in country c in year (period) t and U denotes regional unemployment rate.

[16] The difference specification reads: $\Delta y_{r,post-pre} = a + \beta \Delta U_{r,post-pre} + \varepsilon_r$, where Δy and ΔU denote changes in regional non-mainstream party vote and unemployment over the post-crisis period (mean over 2017-2009) and the pre-crisis period (mean over 2008-2001).

relationship between unemployment and the anti-establishment voting. The before-after specification in Table 3 column (1) also yields a significant and similar in magnitude estimate. The link between unemployment and anti-establishment voting is strongest in the South, considerable in the North and Transition economies (the magnitude is 0.5); and it is absent in the Centre (the results by the four country groups are available on request). Figure 6a illustrates the before-after correlation, distinguishing between NUTS2 districts across the main macro regions.
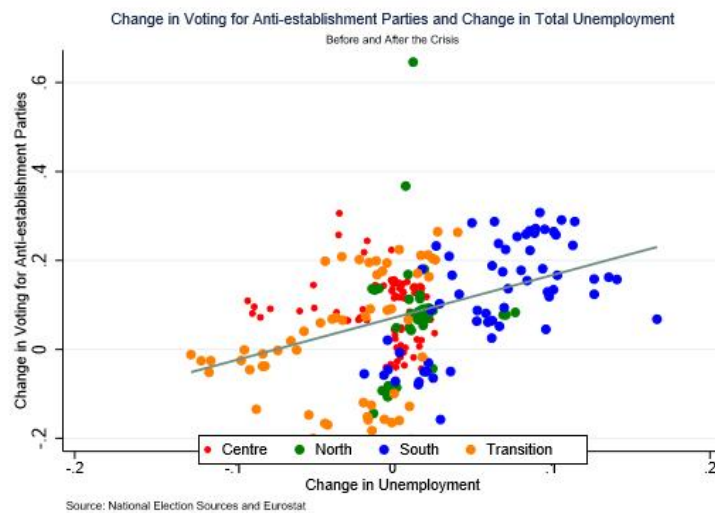
Figure 6a

In columns (2) and (3) we assess separately the role of unemployment in voting for far-left and far-right parties. The results in Table 2's Panels A and B point out that higher unemployment are mostly related to voting for the far left parties. The coefficient at the unemployment rate in the regression with voting for far-right parties is small and not statistically significant, while it is significant in the far-left party share models. A similar pattern emerges in Panel A of Table 3.
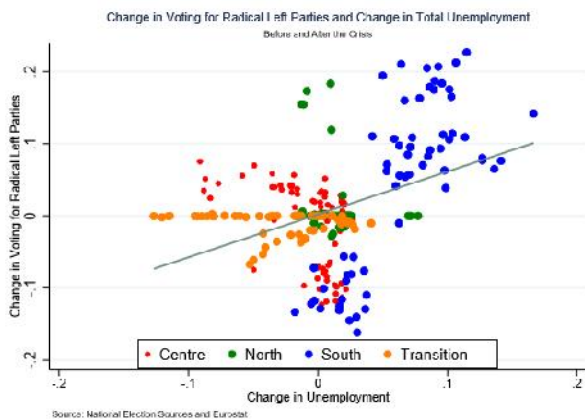
Figure 6b
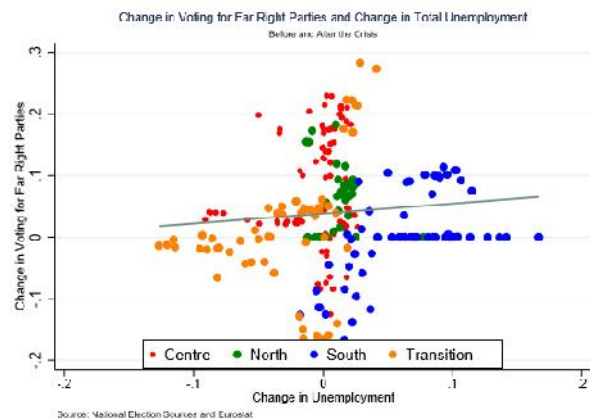
Figure 6c

The results change when we add country-group specific period effects (in Panel C of Table 2 and Panel B of Table 3). The estimates are now comparable in magnitude (both in the panel and difference specifications), but the coefficients for far-left and Eurosceptic parties are no longer

significant; the coefficient at unemployment is statistically significant in the voting for far-right and populist parties. We examine further the relationship between unemployment and specific types of anti-establishment vote in each of the four main macro regions (results are available on request though they are visualized in the figures). The link between unemployment and the far right vote is present in all country groups; it is stronger in the South and somewhat weaker in the East. In contrast, the relationship between unemployment and the far left vote is quite heterogeneous. It is strong in the South (with the rise of Podemos in Spain and Syriza in Greece), insignificant in the North and Centre, and negative and significant in former transition economies, where people seem to turn their back in communist parties leaning towards right-wing nationalists.

In column (4) we assess the relationship between unemployment and voting for populist parties. In all specifications, the coefficients on unemployment are positive and highly significant. The results from the before-after crisis estimations are also highly significant (Table 3), as shown also in Figure 6d. The standardized "beta" coefficient is around 0.4 in the panel specifications and 0.5 in difference specifications. A one percentage point increase in unemployment is associated with one percentage point increase the populist vote. When we estimate the models by country groups, we find a strong effect in the South. The correlation is also present in the East and the Centre; it is not significant only in the Northern European countries.
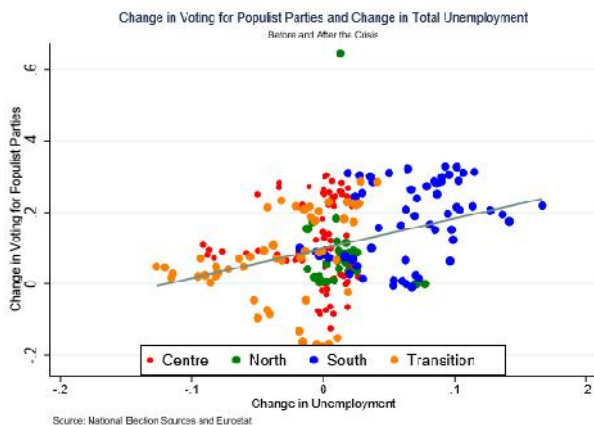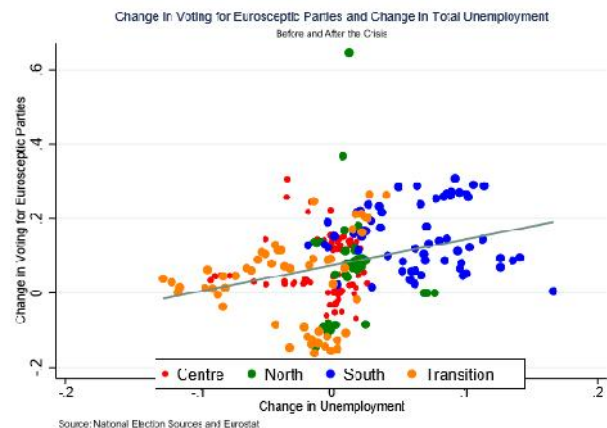
Figure 6d   **Figure 6e**

In column (5) we focus on the voting share of parties with an explicit anti-European or separatist agenda. The coefficients on unemployment in Table 2's Panels A and B and in Panel A of Table 3 are statistically significant; the magnitude of the coefficient is again close to 1. This pattern is illustrated in Figure 6e. While the positive relationship between unemployment and the Eurosceptic vote pertains in all four macro regions, once we account for differential macro-region time trends the panel estimates do not yield statistically significant results.

In column (6) we report results on turnout. The coefficient at unemployment rate is negative and significant; an increase in unemployment of 5 percentage points (roughly one standard deviation) is associated with a decrease in turnout of 2.5 percentage points (around 0.2 of standard deviation). The difference specifications yield less clear, though similar, results. The correlation is strong in in Panel A, but once we account for different trends in the North, South, East, and Centre the coefficient loses significance[17]. There is however substantial heterogeneity, as the correlation between the changes in non-participation and the changes in unemployment rate is quite strong in the East, present in the South, but absent in the North and the Centre.

III.B Instrumental Variables Estimations

The OLS estimates linking unemployment with voting do not necessarily imply a causal relationship. By exploiting within-region variation, we control for all time-invariant features shaping voting for non-mainstream parties and unemployment. However, we cannot rule out that some omitted time-varying regional factors drive the correlation. Reverse causation is in principle another concern, though few would argue that it was the rise in populist and Eurosceptic voting (and the decline in political trust, discussed in the next section) that led to the downturn of 2008-2010 and the deep recessions in the European periphery. Another concern is error-in-variables that is likely to be non-negligible. Unemployment statistics are noisy; they do not account well for part-time employment and workers marginally attached to the labor force. Moreover, official statistics miss activities in the shadow economy, which are not small in the South and the East.

To estimate the causal effects of the crisis on voting for non-mainstream parties, we develop an instrumental variables approach that uses the share of construction in regional value added as an "excluded instrument". [We use the same approach in the next section for estimating the causal effect of unemployment on trust, beliefs and attitudes]. Construction (and real estate) played a key role both in the build-up to the 2008-2009 financial crisis and in its severity. The role of construction in fuelling the crisis had a global dimension, and it was not simply a US phenomenon (see for example Fernandez-Villaverde, Garicano, Santos (2013), Fernandez-Villaverde and Ohanian (2009), Lane (2014), and Reis (2015)). The rise of construction and real estate services was important in the pre-crisis boom in Spain, Ireland, Portugal, Greece, the United Kingdom, Cyprus, and some Eastern European countries as well, contributing among others to misallocation and higher inflation (e.g., Gopinath, *et al*. (2017)).

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[17] Using individual-level survey data form ESS, Guiso *et al*. (2017) estimate "selection" models t(Heckprobit) hat jointly associate unemployment with turnout and voting. They also find that unemployment and economic insecurity are negatively correlated with turnout.

Our identification strategy is based on two assumptions. First, the share of construction in the regional economy affects unemployment, even when accounting for other sectoral shares. We test this assumption below and show that this is indeed the case. Second, the share of construction should affect voting (trust, beliefs and attitudes) only via its impact on unemployment. While directly testing this "exclusion restriction" is not possible, it seems reasonable that the primary impact of changes in regional specialization on voting and attitudes is via unemployment, especially in the short term that we focus on. [Below we discuss some alternative mechanisms and provide evidence that they are unlikely to be important in our setting.] In the before-after difference specifications the pre-crisis share of construction in regional value added should affect voting (and, in the next section, trust and attitudes) via its impact on regional unemployment.

The share of construction in regional value added is quite low (mean-median 6.5%-7%). Together with agriculture, it is the less important broad sector of the economy in our sample of European regions (see Table 1). For comparison the mean share of finance, manufacturing, trade, and government exceed 20%. So, swings in construction are less likely to be endogenous to unobserved features that may affect voting and trust. Moreover, there is substantial variability in the share of construction; the range across the 227 regions goes from 2.35% to 15.25% in 2007. The within-country variation is also substantial. Construction share in Greece ranges from 6% to 13%; in Germany from 2.5% to 7.2%; in Italy from 4.7% to 8.4%; and in Belgium from 2.6% to 7.5%.

III.B.1 First-Stage Results. Construction Share and Regional Unemployment.
We start the 2SLS analysis with an examination of the "first stage" relationship between unemployment and the share of construction in regional value added. Table 4 reports various specifications associating unemployment and construction. Panel A reports panel (region fixed-effects) specifications with year constants (in columns (1)-(2)) and country-group specific year effects (in (3)-(4)). The coefficient on the share of construction is highly significant in all specifications. The most conservative estimate (in (4)), where we allow for different trends across the main country groups and also control for regions' industrial composition implies that a 1 percentage point increase in the share of construction is associated with a 0.9 drop in unemployment. This translates into a standardized "beta" coefficient of around 0.3.[18] Figures 7a-b plot the correlation between construction share and unemployment controlling for region and period fixed effects (as well as shares of all sectors of the economy). The relationship is strong and significant in each of the four country-groups.

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[18] Appendix Table 2 reports specifications using lagged values of construction and other-than-construction industry shares. The results are similar.

In Table 4-Panel B we focus on the crisis period. The dependent variable is the difference in regional unemployment before and after the financial crisis. As before, for the post-crisis we take the average over 2001 -2008 and for the pre-crisis we use the 2000-2007 mean. The main independent variable is the pre-crisis share of construction. As industrial shares are noisy and there are gaps in the Eurostat data, we use the 2004-2007 mean (though in Appendix Table 3 we show that using the 2007 or even earlier single year values yields similar though somewhat attenuated coefficients). We find that a higher pre-crisis share of construction is associated with an increase in regional unemployment since 2009. The coefficient on the pre-crisis share of construction is statistically significant implying that regional specialization in construction in the booming 2002-2007 years contributed to the drop in economic activity and associated rise in unemployment post 2008-2010. The estimate (standardized beta) in column (4) is 0.8 (0.32) quite similar to the panel specifications in the full panel, implying economically sizable effects[19]. Figures 7c-d plot the correlation between changes in unemployment during the crisis and the pre-crisis share of construction, also conditioning on regional sectoral composition.
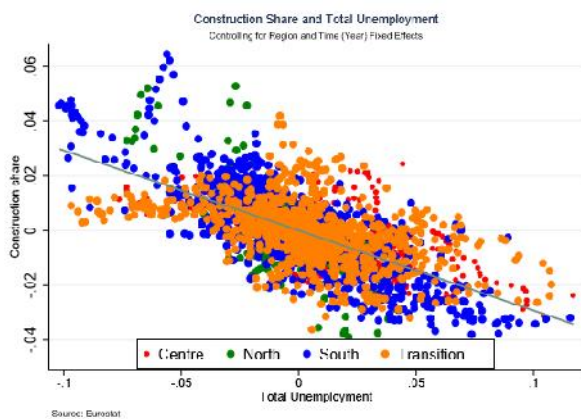
Figure 7a
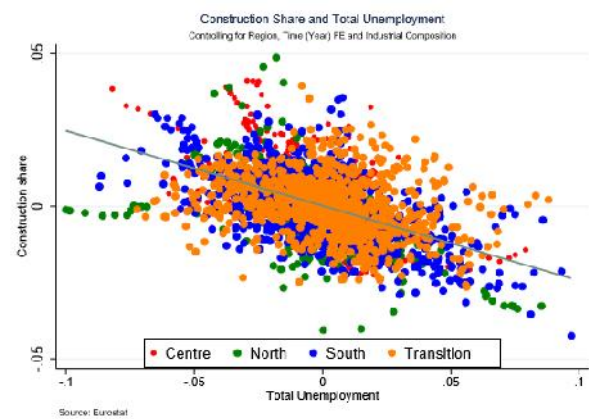
Figure 7b

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[19] In Appendix Table 4 we regress changes in unemployment over various periods (2016-2008, 2015-2008, 2014-2008, 2013-2008, and 20120 to the pre-crisis share of construction in regional value added (conditional on other sectoral shares and country-group fixed-effects). The initial share of construction always enters with a negative coefficient that is larger (and more precisely estimated) when we look at the immediate aftermath of the crisis. The coefficient on initial construction share when we focus on changes in unemployment over 2012-2008 is 0.66; then is steadily declines to 0.41 over 2015-2008 and to 0.27 over 2016-2008. As the European economies rebound from the deep recession of 2009-2012, the role of the pre-crisis share of construction weakens. Likewise, we associated 5-year, 6-year, and 7-year changes in regional unemployment to initial share of construction in regional value added. Initial construction enters with a significantly positive coefficient only when we look at post-pre crisis windows. When we examine the association before the crisis or in 2016-2015 there is no systematic link between changes in unemployment and construction share.
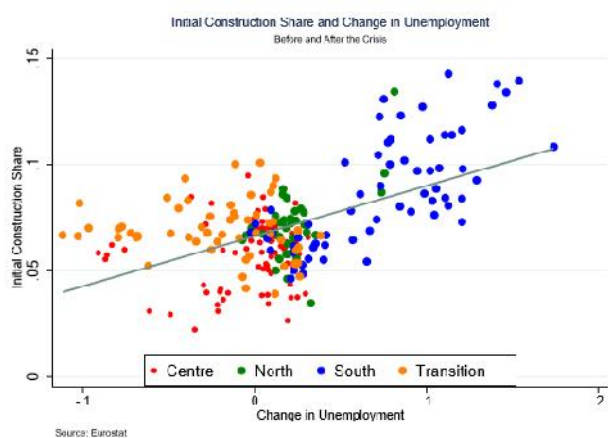
Figure 7c
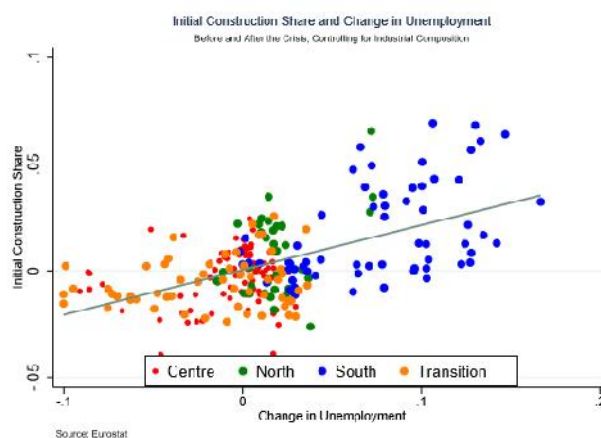
Figure 7d

III.B.2 Reduced-Form. Construction Share and Extremist Voting

We now turn to the "reduced-form" specifications that associate voting patterns with the share of construction. Table 5 reports the panel estimates. As the region fixed effects account for time-invariant regional features that may shape voting and industrial composition, variation comes from within-region changes. There is a strong and significant relationship between the share of construction in the regional economy and the vote share of the anti-establishment parties. This result holds in all specifications. The coefficient in Panel C's column (1) implies that one percent increase in the share of construction is associated with three percentage point increase in anti-establishment vote. The effect is strongest for the populist parties (coefficient around 3), followed by Eurosceptic parties (around 2) and far left and far right parties (with the magnitude between 1 and 1.7). There is no significant effect of construction share on the turnout rate.

One may wonder whether some other-than-construction industrial share correlates with voting patterns. We thus re-estimated all specifications in Table 5 adding as controls the share of all main sectoral shares. Appendix Table 5 reports the panel estimates that associate voting patterns for non-mainstream parties and turnout with the shares in regional value added of construction, agriculture (incl. forestry, fishing, and mining), trade, government, and finance (with manufacturing serving as the omitted category)[20]. Two main patterns emerge. First, the construction share enters in all specifications with a negative coefficient that is usually statistical significant. This implies that the impact of construction on voting for extremist parties is also significant once we condition for the potential role of other sectors in voting. The coefficient on regional construction share in explaining voting for extremist parties in column (1) of Panel C is -3.9, quite similar to the analogous estimate in Table 5. Second, no consistent pattern emerges regarding the link between voting for non-mainstream parties and the share of other than construction sectoral

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[20] We also re-estimated the panel specifications using lagged values of construction and other sectors. The results are similar and not reported for brevity.

shares in regional value added. For example, the coefficients at the share of finance and the share of government services are not statistically significant in all specifications.

We also estimated "reduced-form" before-after crisis specifications; these specifications, reported in Table 6, associate *changes* in voting patterns before and after the crisis with the pre-crisis share of construction (conditional also on country-group constants and/or the shares of all other industries in regional value added). The merit of these specifications is that the pre-crisis share of construction is unlikely to be related to changes in voting patterns, except for its impact on regional unemployment – established in Table 4's Panel B (see Figures 7c-d). The pre-crisis share of construction in regional value added is correlated with changes for voting for the composite measure of anti-establishment parties, while it is unrelated to changes in turnout. Figures 8.a-f illustrate the "reduced-form" relationship between pre-crisis share of construction and changes in voting for non-mainstream parties and turnout.
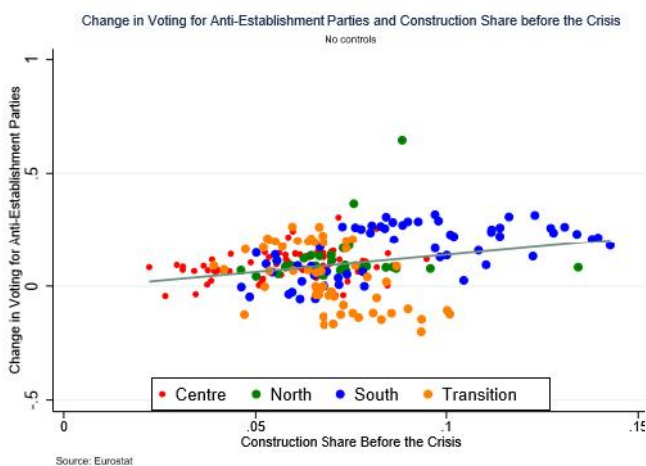
Figure 8a
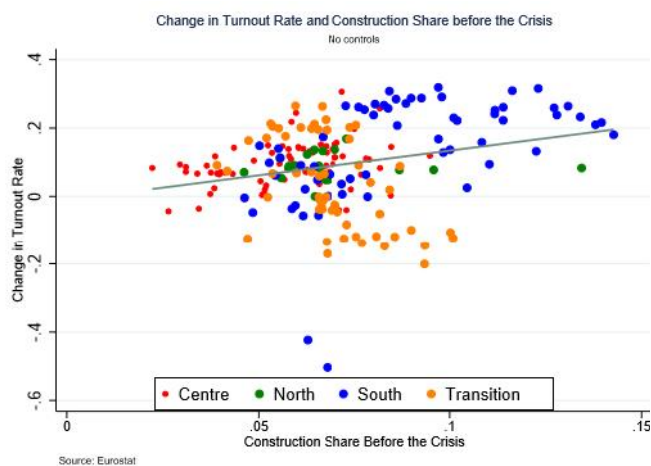
Figure 8b
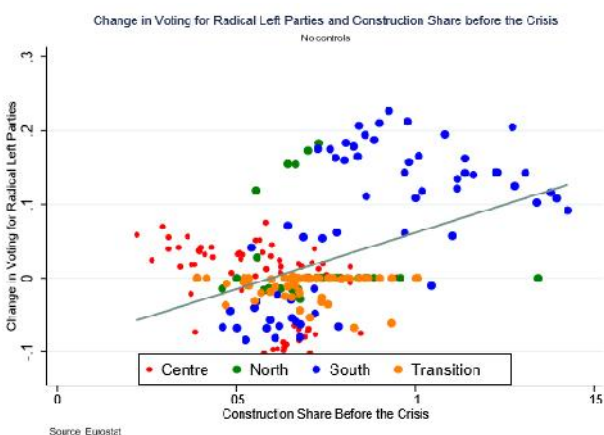
Figure 8c
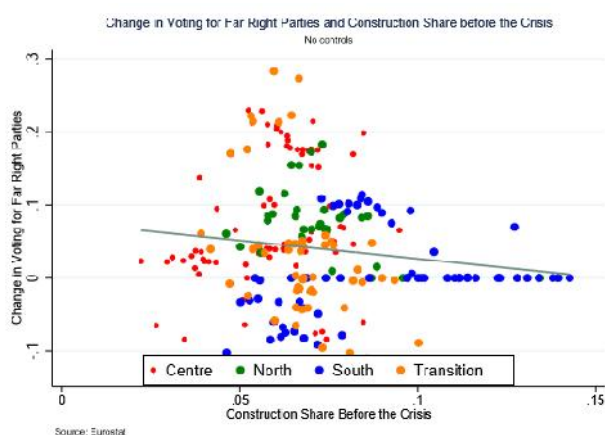
Figure 8d
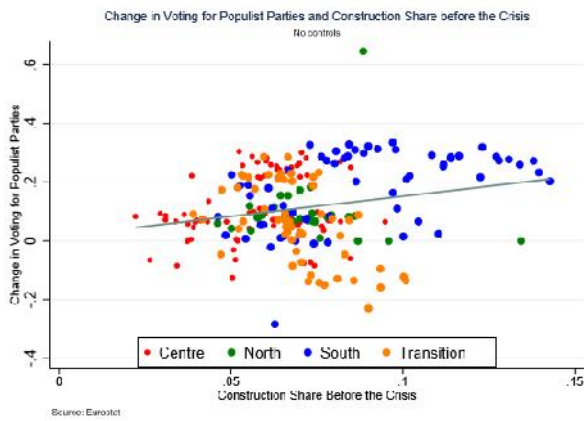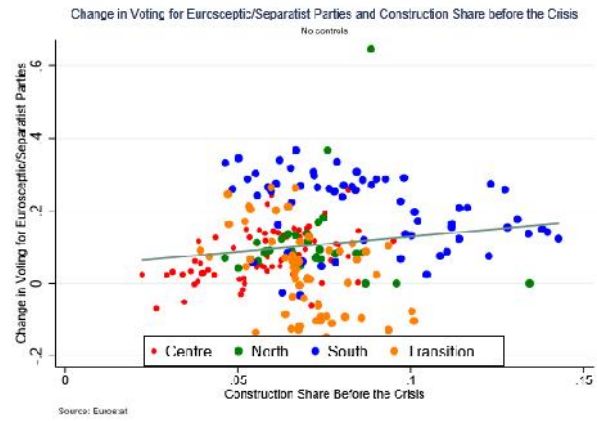
| Figure 8e | Figure 8f |

III.B.3 2SLS

Table 7 gives 2SLS estimates that combine the "reduced-form" estimates with the first-stage relationship. Panel A presents 2SLS panel fixed effects estimates, controlling for period dummies (the results with year dummies are similar). In Panel B, we control for the share in regional value added of agriculture, finance, commerce, and government services. Panel C and D are similar but include country-group-specific period dummies that account in a flexible way for differential trends in unemployment, regional specialization, and voting across Northern, Eastern, Northern, and Central Europe[21].

In all specifications unemployment (instrumented by the share of construction in regional value added) has a statistically significant effect on the anti-establishment vote. The coefficient is somewhat higher than in the OLS estimates. A one percentage point increase in unemployment is associated with 2 to 3.9 percent increase in the aggregate voting share of anti-establishment parties. As in the reduced form estimates, the effect is strongest for the populist parties followed by Eurosceptic and far left parties. We find no significant impact of unemployment on the turnout rate.

The difference-in-differences specifications in Table 8 yield similar although somewhat smaller estimates. A five percent higher share of construction before the crisis is associated with an increase in the vote share of the anti-establishment parties by 7.5 to 10 percentage points. The effect mostly stems from a link between pre-crisis construction share and increases in voting for far left and populist parties and to a lesser extent on Eurosceptic parties. Appendix Table 6 reports otherwise identical specifications; but since the rise of populist and far left/right parties occurred after the peak of the crisis, we associate changes in the anti-establishment voting from 2013-2017 to 2007-2004 with the corresponding changes in unemployment instrumented with the pre-crisis

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[21] The Kleibergen-Paap Wald F-test of the first stage is 26, 14, 20 and 16, implying a good fit. The critical values of the Stock and Yogo (2002) tabulations on weak instruments are 16.38 and 8.96 for the 10% and 15% level.

construction share. The 2SLS coefficients are similar implying that the impact of the crisis is a strong correlate of voting for non-mainstream political parties.

III.B.4 Threats to Identification

The uncovered "reduced form" link between the share of construction in regional value added and voting patterns (in Table 6) and the strong relationship between construction and unemployment (in Table 5) do not necessarily imply a causal nexus between construction – unemployment – non-mainstream voting. A necessary condition is that construction should not affect voting directly or via other-than-unemployment channels. It is challenging establishing this. Yet, we believe that it is reasonable that at least in the short-run the link between construction and voting should work via unemployment.

An alternative likely mechanism regards corruption; perhaps construction, a sector more dependent on government connections, promotes to graft, which in turn affects voting for non-mainstream parties (see De Vries and Solaz (2017) for an overview of works on the electoral consequences of corruption). As the ESS includes three corruption perception questions (though only in the 2004 round), we examined whether there is a link between the share of construction and corruption, failing, however, to detect any significant cross-regional correlation[22].

Another probable mechanism regards education. If regions specializing in construction or experiencing increases in construction have lower levels of human capital (as construction is not a skill-intensive sector), then the 2sls estimate may pick-up the role of education (which is related to higher values of trust and lower shares of non-mainstream voting). We thus estimated specifications controlling for time-varying regional mean education using data from Eurostat that reports educational attainment shares. While education and voting patterns exhibit a strong negative cross-sectional correlation, once we add region fixed-effects the correlation loses significance. The same applies with construction; while construction and education are strongly correlated across regions, the within-region correlation weakens and becomes insignificance. Likewise, the pre-crisis share of completed tertiary education is unrelated to subsequent changes in unemployment and voting. Since the within-region correlations between construction, education, and voting are weak, the 2sls estimates are similar. Conditional on (changes in) education, there is a significant correlation between the component of regional unemployment stemming from construction and voting for non-mainstream parties.

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[22] The 2004 round ESS questions ask respondents: (i) How often a public official has asked a favour/bribe in return for a service in the past 5 years; (ii) How wrong it is for a public official to ask for favour/bribe in return for a bribe; and (iii) How often has the respondent offered a favour/bribe to a public official in the past 5 years.

A related concern regards the potential link between construction and immigration, as quite often immigrants from low/middle income countries work in construction in the United Kingdom, Germany, France, and other countries. We estimated 2sls models controlling for the share of ESS respondents who were not born in the country and who are not part of a country's majority ethnicity group. We also used Eurostat data on net migration and controlled for regional migration patterns. Construction is not much related to immigration and, as such, the 2sls estimates are unaffected.

Taken together, the OLS and the 2SLS panel and difference post-pre crisis specifications imply that the rise of unemployment during the Great Recession and the component of the crisis stemming from the 2008 share of construction has a large causal effect on the rise of populism.

III.C Unemployment and Brexit

III.C.1 Motivation

One of the quintessential examples of the rise of populism in Europe was the results on the UK referendum on leaving the European Union (the so-called "Brexit vote"). The June 23 2016 referendum resulted in a majority (52%) of leaving the EU. There is no clear definition of the pro-Brexit and anti-Brexit party alignment and this vote seems to have broken traditional party lines. The ruling Conservative Party was split between "Leavers" and "Remainers". The situation was similar, though less stark in the Labour party. And while many politicians of the Labour Party were active in the Remain campaign, its leader was lukewarm on remain and Brexit did well in traditional labour electoral districts. We thus carry out a separate analysis of Brexit vote in an "out-of-sample" fashion. As in our earlier analysis at the EU level, we consider the relationship between the Brexit vote outcomes in the UK's 379 electoral districts and the change in unemployment in these districts before and after the crisis[23]. Table 9 gives the results.

III.C.2 OLS estimates

Table 9, column (1) shows the correlation between the Brexit vote share and unemployment rate in 2014 (both are expressed in percentage points). The coefficient at unemployment rate is marginally significant; its magnitude is rather moderate. An increase in unemployment of one standard deviation (2 percentage points) results in an increase of the "Leave vote" by 1 percentage point. The share of variation explained by unemployment is tiny. In (2) we add dummies for Greater London, Scotland and Wales – three major anti-Brexit macro regions (with England being the omitted macro region). The magnitude and significance of the coefficient on unemployment increases. The statistically significant (although economically small) relationship between unemployment and

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[23] Recent empirical studies examine the role of various socio-economic variables, such as unemployment, output, immigration, and dependency on EU funds on BREXIT. See, among others, Los *et al.* (2016), Becker, Fetzer, and Novy. (2017), Colantone and Stanig (2016), and Arnorsson and Zoega (2016).

Brexit vote is consistent with the findings of Becker, Fetzer, and Novy (2017) thorough analysis of the correlates of Brexit.

The relationship is much stronger for the *change* in unemployment before and after the crisis. In columns (3) and (4) we report regressions where the independent variable is the difference in the district's unemployment rate averaged out over the 2008-14 and 2002-06 periods, respectively. [Average increase in the unemployment in the UK electoral districts was 2 percentage points.]. The results for the change in unemployment are much stronger than those for unemployment level, a result consistent with our earlier findings. An increase in the unemployment change by one standard deviation (one percentage point) results in 4-5 percentage points increase in the Brexit vote. Unemployment performs stronger in changes than in levels in specifications where both variables are included as independent variables (results available upon request). Figures 9a-b provide an illustration. The relationship between unemployment and Brexit vote has a positive slope, but the effect is weak and noisy. In contrast, the correlation between changes in unemployment and Brexit vote is much steeper and more precisely estimated.
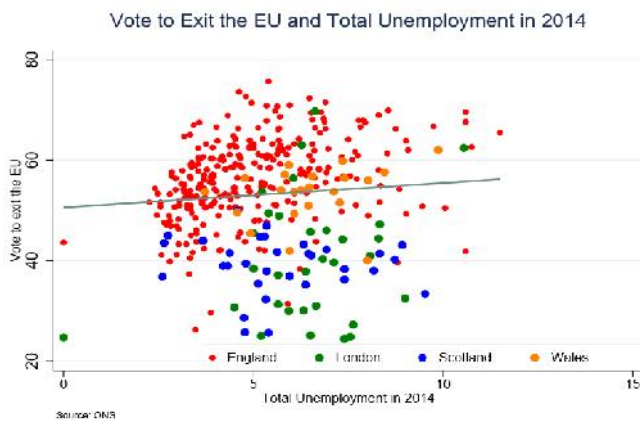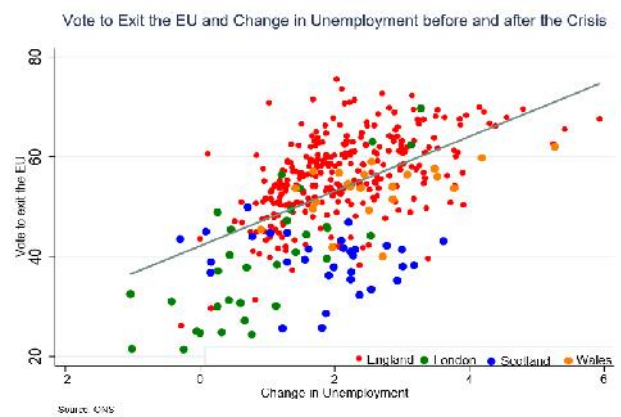
| Figure 9a | Figure 9b |

III.C.3 2SLS estimates on the Brexit

In an effort to approximate the causal impact of the change in unemployment over the crisis on the Brexit vote, we instrument the change in unemployment (over 2008-2014) with the pre-crisis share of construction sector. To reduce noise and to smooth yearly fluctuations we average the share of construction in districts' employment for the period 2005-08 (the results are similar when we use the 2007). Construction share is on average 9 percent, range from 3% to 15%. As shown in columns (5)-(6), there is strong first-stage fit, as the pre-crisis share of construction is correlated with changes in unemployment. A one standard variation in the pre-crisis share of construction (two percentage points) accounts for 2.5-3 percentage point change in unemployment (a quarter or a third of its standard deviation).

The "reduced-form" relationship, reported in (7)-(9), is also significant. An increase of two percentage points in the construction share is associated with 4-5 percentage point increase in the Brexit vote (with and without socio-demographic district-level controls). Columns (10)-(12) report 2SLS coefficients. The change in regional unemployment instrumented by the pre-crisis share of construction is highly significant correlate of BREXIR. The magnitude is large: each percentage point of an increase in unemployment implies 12-18 percentage point increase in the Brexit vote.

IV. Unemployment, General and Political Trust, and Political Beliefs

We now examine the link between regional unemployment and trust, attitudes, and beliefs using the European Social Survey data. The descriptive analysis (Section 3) revealed that at the European level the large post-2008 increase in unemployment has been accompanied by a substantial rise in distrust towards political institutions, although general (interpersonal) trust has not moved much. In this section, we examine whether the economic and trust crises are related.

IV.A Approach and Specification

As before, we assess the impact of the economic crisis on trust and on others attitudes and beliefs, employing two related approaches. First, using all ESS rounds we estimate panel fixed-effects specifications that account for all region-level time-invariant factors that affect trust (as well as other beliefs and attitudes) and unemployment. This is key as the literature on the origins of trust and culture more generally, has established the importance of very slow changing local factors, including geography (e.g., Alesina, Giuliano, and Nunn (2013), Buggle and Durante (2017)) and history (Tabellini (2010), Nunn and Wantchekon (2011)). Second, we estimate difference specifications that associate changes in trust-beliefs-attitudes with changes in unemployment before and after the crisis[24]. Since most European countries recover from the recessions by 2012, we estimate the difference specifications using two alternative post-crisis periods: 2008-2014 and 2008-2012. We also present the graphical before-after analysis, using average values for 2010, 2012, and 2014 for the post-crisis period and average values from 2004, 2006, and 2008 for the pre-crisis period[W] report estimates across the full sample but we also comment on the results when we estimate the regressions separately for the four country groups (North, Centre, East, and South).

IV.B OLS Estimates

Table 10 presents OLS panel fixed effects estimates. In Panel A we include ESS round dummies and in Panel B we include country-group ESS round fixed effects to account for differential trends

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[24] Unfortunately, as the ESS database does not cover all countries in all rounds, we miss some important cases, such as Italy and Greece.

across the main European macro regions[25]. Table 11 reports difference specifications over the period 2008-2012 in Panel A and over period 2008-2014 in Panel B.[26] These specifications include country-group constants; since the model is expressed in differences, the country-group fixed effects account for differential time trend.

IV.B.1 General Trust

We start our analysis studying the association between regional unemployment and general interpersonal trust. Table 10's columns (1)-(3) report the panel estimates with the three measures of interpersonal trust. The coefficients on unemployment are statistically significant in Panel A, though they become more imprecise when we include country-group-time fixed effects. The estimate in Panel B column (1), implies that a 10 percentage point increase in regional unemployment is associated with a fall in overall trust of about 0.11, roughly one standard deviation (The standardized "beta" is -0.065). The within-region association between unemployment and general trust is negative across all country groups; though it is significant only in East European countries and to a lesser extent in the South (group-specific results are available upon request).

The before-after specifications in Table 11 hint that unemployment and general trust are to some extent related. The 2008-2014 specifications yield significantly negative coefficients, though the coefficients in the 2008-2014 difference specifications are smaller in absolute value and statistically insignificant. It seems that the significance is to some extent driven by Bulgaria and Slovakia, where there is no link between unemployment and general trust. When we omit these two countries from the 2014-2008 specifications so as to have the same sample in the two Panels the coefficient on unemployment in columns (1), (2), and (3) becomes -0.147, -0.0288, and, -0.724, respectively. The coefficient on regional unemployment is significant at the 10% level only in (3). Figures 10a-10b illustrate the before-after correlation between general trust (and whether people are helpful) and unemployment, when we pool all observations post crisis (2010, 2012, and 2014) and pre-crisis (2004, 2006, and 2008). The slope of the regression line is small and statistically indistinguishable from zero, pointing out that the link between regional unemployment and general trust is weak.

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[25] We have also estimated specifications with region fixed effects and country-year fixed effects that account for differential trends on unemployment and trust. Yet, since there is not much variation on unemployment and beliefs within countries in a given year, this approach yields in general noisy and much more attenuated coefficients.

[26] Compared to the specifications in 2012-2008, in the 2014-2008 specifications we lose 4 regions from Slovakia and 6 regions from Bulgaria.
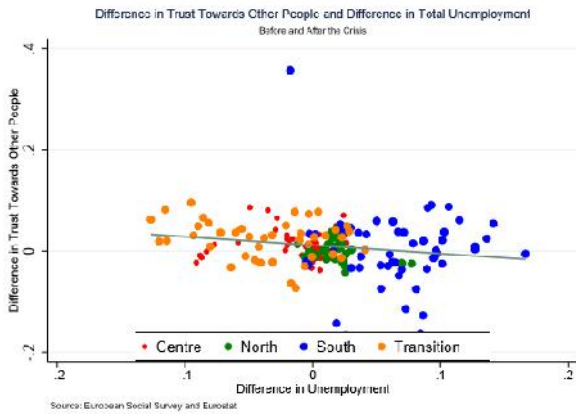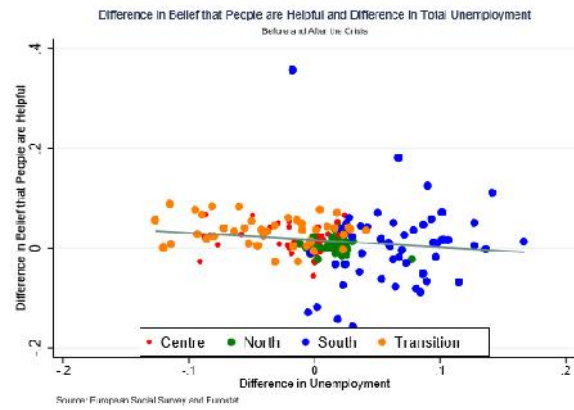
Figure 10a   **Figure 10b**

IV.B.2 Trust in Political Institutions

Given the impact of unemployment on voting for extremist parties, we examine its role on trust towards political institutions. Columns (4)-(8) in Table 10 and Table 11 report the estimates.

Political Trust. Let us first consider the trust towards politicians and trust in the national parliament. The panel estimates in Table 10, Panel A, yield negative and highly significant coefficients, showing a strong link between unemployment and political distrust. The coefficients drop by half when we include ESS-round dummies, to account for Europe-wide and global trends, but they retains statistical significance. This implies that while a sizable part of the negative association between unemployment and political trust stems from comparing countries in the Core with the Southern and Eastern Europe, the link is present in all groups of countries. A 5 percentage point increase in unemployment is associated with a 1.5 percentage point drop in political trust, a considerable effect as the latter's standard deviation is 11 percentage points (see Table 1). The standardized "beta" coefficients are around -0.15, more than twice as large as the corresponding coefficients with the proxies of general interpersonal trust. The specifications in Table 11 also yield highly significant estimates. The spike in unemployment is accompanied by a sizable rise in political distrust. Figures 10c-10d give a graphical illustration of the before-after patterns in regional unemployment and political trust, when we average the variables over 2010-2014 (post-crisis) and over 2004-2008 (pre-crisis). The regression line is steep; and the correlation is present in all groups of countries.
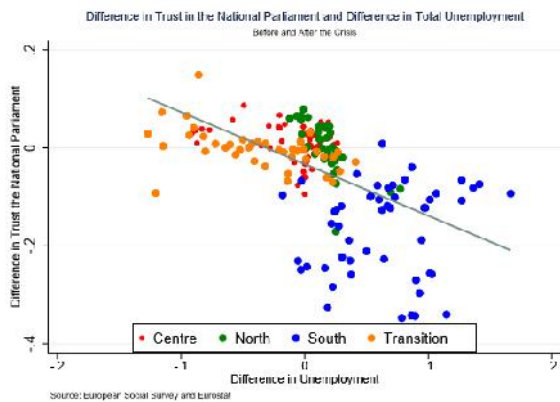
Figure 10c
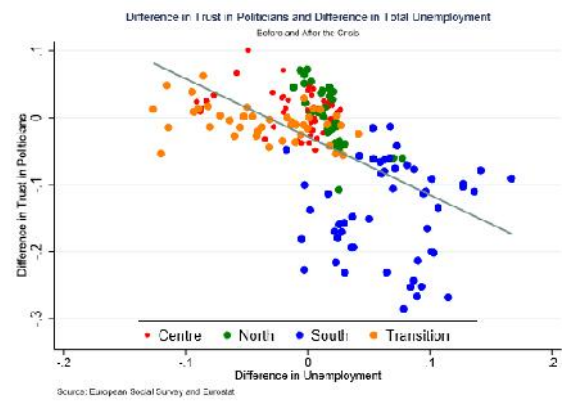
Figure 10d

Trust towards the Legal System and the Police. The analysis further shows that unemployment is also related to distrust towards the legal system (column (6)). The panel coefficient in Table 10's Panel A is highly significant. The coefficient decreases in magnitude and loses statistical significance once we add country-group-time effects (in Panel B), suggesting that the link is driven by the considerable variability between Core and Periphery countries. When we estimate separate models in the various country groups, we get significantly negative estimates in Transition and Northern countries (and positive but insignificant estimates in the Centre and the South). The difference specifications are not crystal-clear, as the coefficient at unemployment is negative and significant in the 2008-2012 model (130 regions in 17 countries), but is insignificant in the 2008-2014 specification (119 regions in 14 countries). Overall, there seems to be a relationship between the severity of the crisis and distrust towards the legal system, though this relationship is less strong than the one for the distrust towards politicians. Figure 9e provides an illustration.
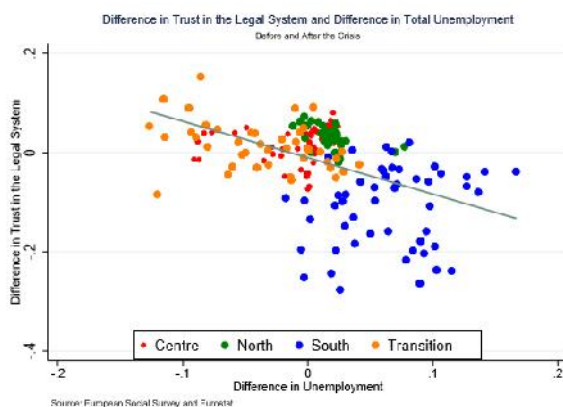
Figure 10e
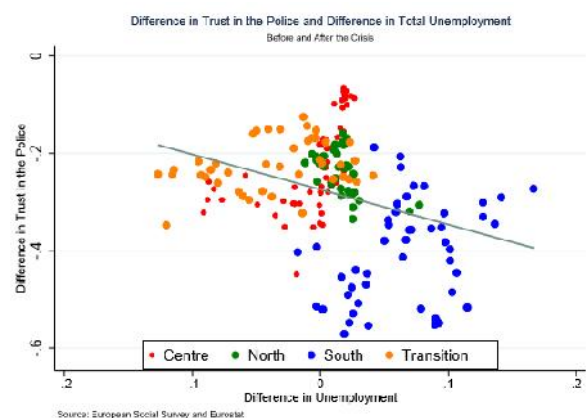
Figure 10f

In contrast to the link between the change in unemployment and the change in trust in the legal system, there is no significant relationship between the intensity of the crisis and trust towards

the police. This applies to both the panel (Table 10) and the difference (Table 11) specifications. Figure 10f illustrates the post-pre crisis association between unemployment and trust towards the police. The slope is negative, but the correlation is quite noisy.

IV.B.3 Trust towards the European Union

As shown in the earlier section, unemployment is related to the rise of Eurosceptic parties. In an effort to shed light on the underlying forces, we use the ESS question on trust towards the European Parliament as a proxy of the anti-EU sentiment. ESS also asks Europeans on their trust towards the UN. As the UN is an institution of global–rather than European–governance, we use the trust in the UN as a placebo for the impact of the crisis on the trust towards international institutions.

The estimates in column (8) of Table 10's Panel A yield a negative within-region correlation between unemployment and trust towards the European parliament (coefficient -0.33). In contrast there is no systematic link between unemployment and trust towards the United Nations (column (9)), implying that the estimates in column (8) do not capture an overall resentment on international institutions, but an EU-specific effect. When we add the country-group-year dummies (in Panel B), the coefficient becomes insignificant, as most of the variation comes from the different views on European Parliament across the main European macro regions. The negative correlation between regional unemployment and trust in the European Parliament is quite strong in Eastern European countries, but is not significant in the Core and in the South (results not shown). The difference specifications in Table 11 are similar; changes in trust towards the EU are strongly related to changes in regional unemployment. There is no robust correlation between changes in unemployment and changes in trust towards the United Nations. Figures 10g-10h illustrate these patterns when we pool observations post- and pre-crisis, so as to maximize the sample. There is an evident negative relationship between changes in unemployment and changes in trust towards the EU, but not in the UN.
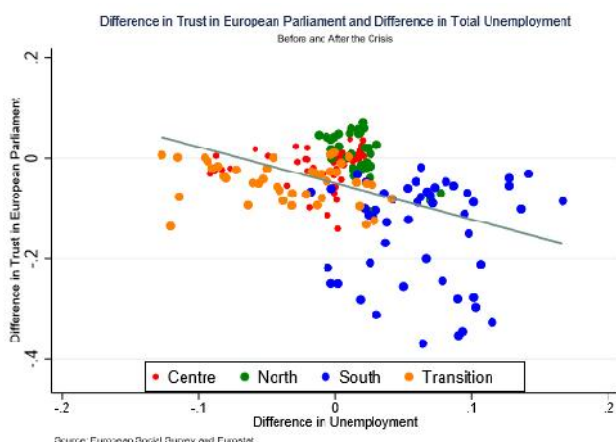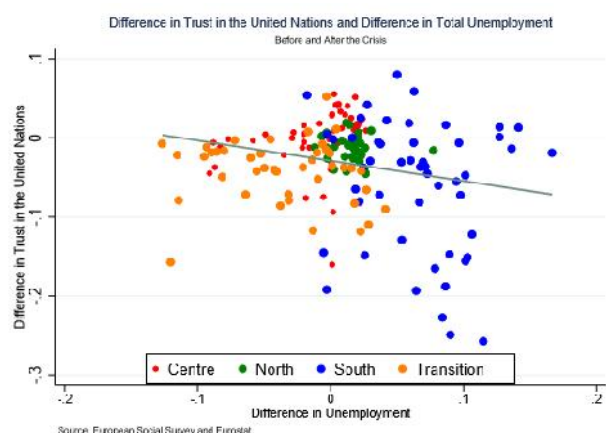

Figure 10g   **Figure 10h**

IV.B.4 Political Attitudes

To further understand Europeans' reaction to the crisis, we also examine the within-region correlation between unemployment and political attitudes and beliefs.

The specifications in column (10) shows that the regional unemployment is strongly correlated with people's dissatisfaction with the way democracy works. The standardized "beta" coefficient that quantifies the change in satisfaction with democracy to a one standard deviation increase in unemployment is -0.26 (when one controls for country-group ESS Round Fixed-Effects), three to four times larger than the corresponding "beta" for interpersonal trust. This pattern is present in all country groups and is especially strong in the Core and former Transition economies (results not reported). The specifications in Table 11 reveal an almost one-to-one link between changes in regional unemployment and changes in satisfaction with democracy. Figure 10.i provides a graphical illustration of the post-pre crisis association of satisfaction with democracy and unemployment. The correlation is negative and present in all groups of countries.

ESS also asks respondents on their satisfaction with the government, the state of the economy, and their life. These variables are correlated. Regional unemployment correlates strongly with all these variables, and especially with dissatisfaction with the economy and with the government. So the patterns shown in Tables 10 and 11 (and Figure 10i) do not necessarily imply that Europeans residing in regions with high unemployment necessarily have "non-democratic beliefs". Yet, there seems to be a metastasis from economic disparity and dissatisfaction with the economy and the government to a more general dissatisfaction with democracy and the inability of institutions to protect people against economic risks during the crisis.

We then examine whether unemployment has moved people to the left or to the right of the political spectrum. As shown in column (11), there is not much evidence of a relationship between unemployment and self-reported left-right political orientation. This applies both in the panel and the difference specifications. It is also illustrated in the before-after scatterplot in Figure 10j. This is due to considerable heterogeneity across countries. In some countries, unemployment is related to a significant move to the "right" (e.g., Poland and to a lesser extent France and Germany), while in others, unemployment moves voters to the "left" (e.g., Portugal). We also examine related questions, where individuals are asked whether they support more redistribution or whether they prioritize security, again failing to detect robust patterns (results not shown for brevity).
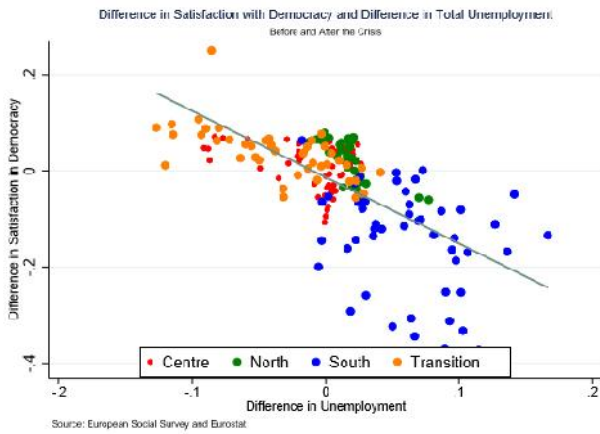
Figure 10i
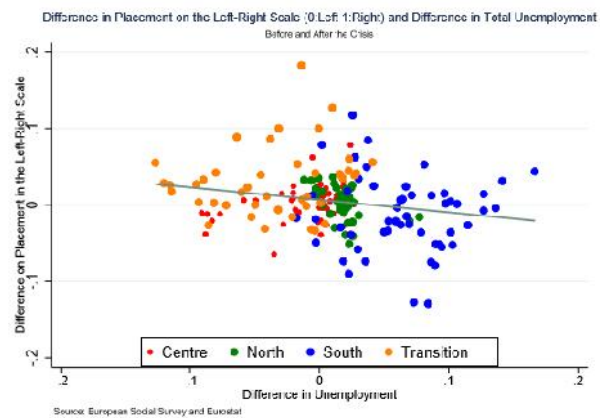
Figure 10j

The specifications in column (12) show that the unemployment-distrust link reflects a feeling of crisis-hit Europeans that no political party is close to them. This pattern is quite strong in the Core countries (Central and Northern Europe) and in transition economies; interestingly, it is absent in the South where people seem to align closely to far-left and far-right parties. The standardized "beta" coefficient (-0.15) is implying an economic effect that is as strong as the one with distrust towards politicians and the national parliament (though more noisy). The difference specifications yield significant association in the period 2012-2008, though the coefficient turns insignificant over 2014-2008. Figure 10k graphs the association when we pool all post crisis ESS waves to construct regional averages of closeness to political parties and unemployment and the ESS wave for 2006, 2006, and 2008 to calculate the pre-crisis mean. The before-after crisis correlation coefficient in this sample that maximizes coverage in negative and highly significant.

We also examine the impact of unemployment on beliefs on the future of European integration using a question that reads: "*Now thinking about the European Union, some say European unification should go further. Others say it has already gone too far. Using this card, what number on the 0-10 scale (where higher numbers indicate that unification should go further and lower numbers indicating that unification has already gone too far, best describes your position?*". The coefficient at unemployment is small and in significant. On average, changes in unemployment are related neither with the view that the EU has gone too far nor with attitudes that the EU unification should proceed more aggressively. This non-result masks heterogeneity. In the South, the correlation is significantly positive: in response to the crisis, Southern Europeans hope for *deeper* integration. In contrast, in the North and in the Centre, the within-region correlation is negative and significant, pointing out that in more crisis-hit regions of the European Core, respondents believe that the EU integration project has gone too far. Figure 10l illustrates the overall weak and noisy before-after association, stemming from heterogeneity across the main EU broad regions.
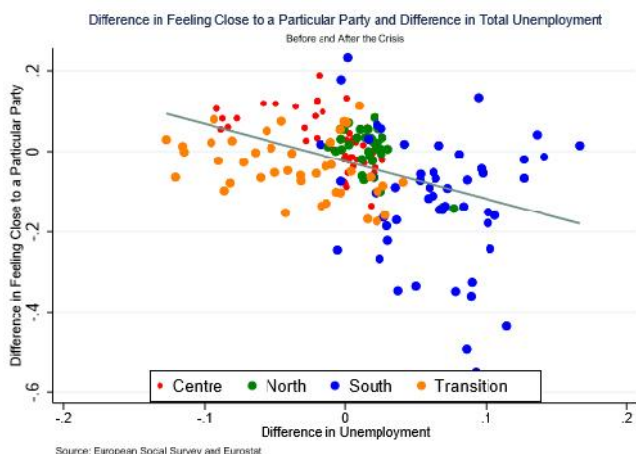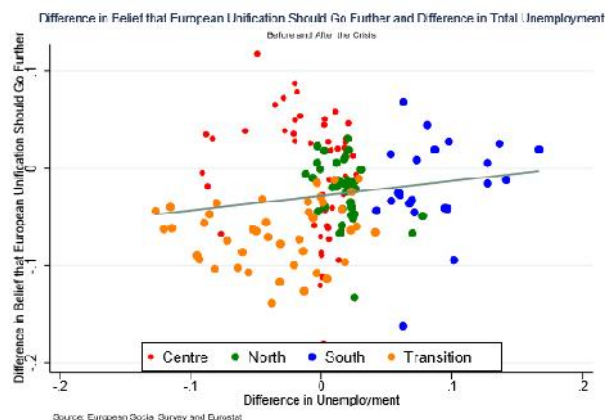
Figure 10k   **Figure 10l**

IV.B.5 Attitudes towards immigrants.

We now examine whether unemployment has affected attitudes towards immigrants. This is important, since "safeguarding" the country from immigration is a crucial element of the populist rhetoric across many non-mainstream EU parties, mostly of the far-right, that have risen in popularity (for example Marine Le Pen's Front National in France, UKIP in the UK, Golden Dawn in Greece). Tables 12 and 13 report panel fixed-effects and before-after difference specifications. For completeness, the Tables give results with all immigration-related ESS questions.

Let us start with the panel specifications in Table 12-Panel A. Unemployment and attitudes towards immigration are only weakly correlated. The estimates in columns (1)-(3) yield a negative within-region correlation between unemployment and respondents favoring immigration from people of the same race/ethnic background as the majority of the country population (in (1)), of different-than-the majority racial/ethnic group (in (2)), and from poor non-EU countries (in (3)). Interestingly, there is a small "racial bias", as the unemployment coefficients are larger in absolute value, for immigrants from different than the majority ethnic/racial group and non-EU countries. Yet, the coefficients are not statistically significant. The specification in column (4) uncovers a positive relationship between unemployment and European's views that immigration has a negative impact on the economy. The standardized "beta" coefficient is -0.39. In contrast, specification (5) yields no association between unemployment and respondents' views on immigrants' role in country's cultural life, suggesting that economic–rather than cultural–explanations are at play.

When we add the country-group-year dummies (in Panel B), the negative correlations between regional unemployment and attitudes towards immigration become statistically significant for both preferences for protecting the country from immigrants and beliefs regarding their negative impact on the economy. The standardized "beta" coefficient is around -0.2. Panel B further reveals

the strong economic insecurity component of anti-immigration sentiment. The coefficient at the regional unemployment is negative and highly significant in column (4) when Europeans are asked to express their views on immigrants' impact on the economy. The effect of the regional unemployment is close to zero and statistically insignificant when the question is whether immigrants contribute positively or negatively to country's cultural life. A similar pattern emerges from the before-after specifications in Table 13. Differences in regional unemployment during the crisis are related to views that immigration harms country's economic life, but are unrelated to views on immigrants' role on cultural life. This suggests that the relationship between immigration and support for populist parties is mainly fueled by economic factors. At the same time, these results are not consistent with the hypothesis that the Great Recession resulted in a *cultural* backlash against immigrants. It seems that the link between unemployment and anti-immigration attitudes stems from the recession that has affected primarily political distrust and to a lesser extent interpersonal trust.

IV.C Identifying Causal Effects

To approximate the causal effects of the crisis on trust-beliefs and account for endogeneity concerns (related mostly to time-varying omitted variables and error-in-variables), we run 2SLS specifications. As in the previous section, we use the share of construction in regional value added as an "excluded instrument" in the panel specifications and the pre-crisis share of construction in the difference specifications. Tables 14 and 15 report 2SLS panel specifications and 2SLS difference specifications, respectively. In line with the previously established strong first-stage, the Kleibergen-Paap F-statistics is 24 and 22.5 in the panel estimates and 32 and 27 in the difference specifications, well above weak-instrument thresholds (e.g., Staiger and Stock (1997)).

IV.C.1 Interpersonal Trust

The 2SLS panel estimates in Panel A yield significant negative coefficients at regional unemployment. Interestingly, the estimates are quite similar to the OLS coefficients, suggesting that either endogeneity is not a major concern or that upward sources of bias cancel with attenuation stemming from (classical) error-in-variables. When we add country-group-specific time trends the coefficients decline in absolute value and become statistically indistinguishable from zero. The 2SLS difference specifications are again quite similar to the OLS estimates; the second stage coefficient at the change in regional unemployment is negative, but statistically indistinguishable from zero in the period 2008-2012, while it is passes significance confidence levels in 2008-2014. So there is a weak-to-moderate link between the component of regional unemployment stemming from regional industrial composition, and the share of construction to general trust.

IV.C.2 Trust towards Political Institutions

The 2SLS specifications linking the share of construction with unemployment and in turn with trust towards politicians or the country's parliament pointing to a causal link. The 2SLS coefficients are negative and highly significant in all specifications. The estimates in Panel B imply that an increase in regional unemployment of 5 percentage points (roughly one standard deviation)–stemming from a relatively high share in construction–is associated with a 3.5 percentage points drop in trust towards the country's parliament (roughly a third of a standard deviation). Again, 2SLS coefficients are comparable to the corresponding OLS estimates. The 2SLS coefficient at the change in unemployment is also highly significant in Table 15.

It is also interesting to check the "reduced-form" specifications (reported in Appendix Table). These estimates show that regions with a high construction share experienced a sizable drop in political trust during the crisis period. Figures 11.a-d below illustrate these patterns.
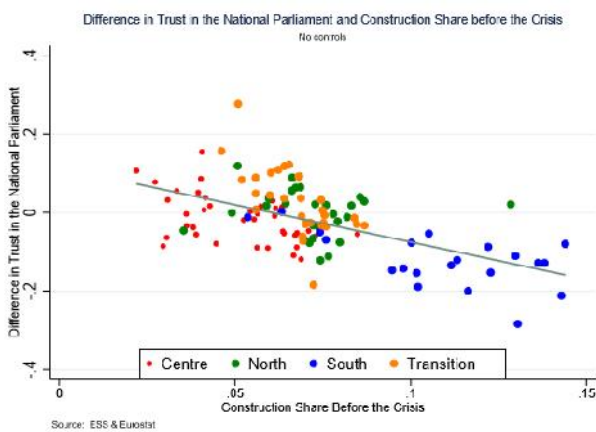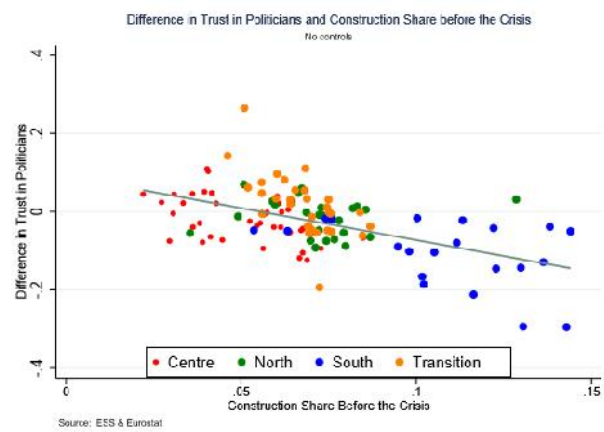
| **Figures 11a** | **Figures 11b** |

The 2SLS panel and difference-in-difference specifications show that the intensity of the crisis has affected not only trust towards the political institutions, but also the trust in the legal system – although to a smaller extent. The 2SLS coefficient in column (6), Panel A of Table 14, is negative and significant at the 5% confidence level. The coefficient's magnitude (-0.65) is comparable, though larger in absolute value, to the OLS panel specifications (-0.44). Once we add country-group-time dummies (Panel B), the 2SLS coefficient becomes smaller (-0.30) and statistically insignificant – exactly as in the respective OLS estimation. Yet, in the before-after specifications in Table 15 changes in unemployment (instrumented with the pre-crisis construction share) has a highly significant negative effect on the trust in the legal system. Figures 11.e-f illustrate the significant "reduced-form" correlation between the pre-crisis construction share and the drop in trust towards the country's legal system during the crisis. In contrast to distrust to the legal system, the 2SLS analysis establishes no systematic link between unemployment and the trust towards the police. The panel

specifications yield insignificant second stage coefficients at unemployment when trust in the police serves as the dependent variable. The same applies in the before-after 2SLS specifications that also produce noisy and insignificant estimates. As Figures 11c-d show the "reduced-form" relationship between the pre-crisis construction share and the change in trust in police is weak and noisy.
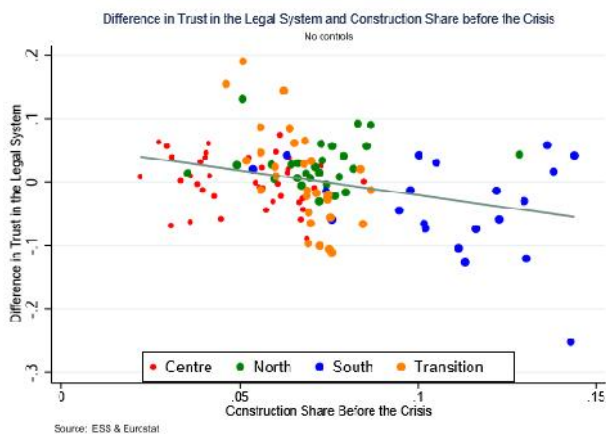
Figure 11c
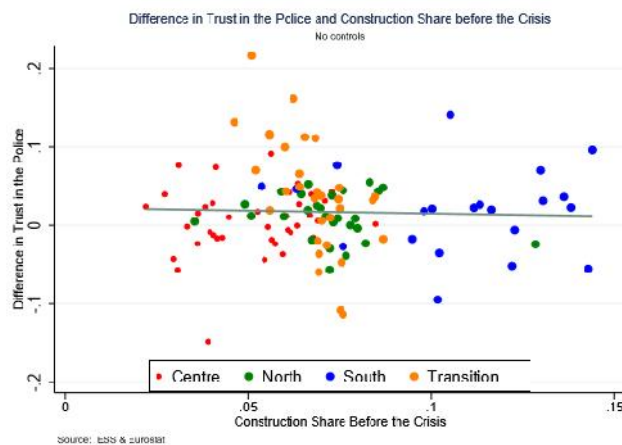
Figure 11d

IV.C.3 Trust towards the European Union

In columns (8) and (9) we examine the link between unemployment and trust towards the EU (more specifically, trust in the European Parliament). The 2SLS coefficient at unemployment in the panel specifications is negative and highly significant; its magnitude (-0.8) is considerably larger in absolute value than the analogous OLS estimate (which was also more imprecise). The estimate implies that a 5 percentage point construction-driven increase in regional unemployment is related to 4 percentage point drop in trust towards the European Parliament; this is a considerable effect, as it corresponds to 0.66-0.75 of a standard deviation. In contrast, there is no link between the construction component of regional unemployment and trust towards the United Nations. The difference 2SLS specifications yield similar patterns: a significant relationship between the changes in unemployment coming from the pre-crisis construction share and distrust towards the European Parliament. The "reduced-form" scatterplots in Figures 11e-f illustrate these patterns.
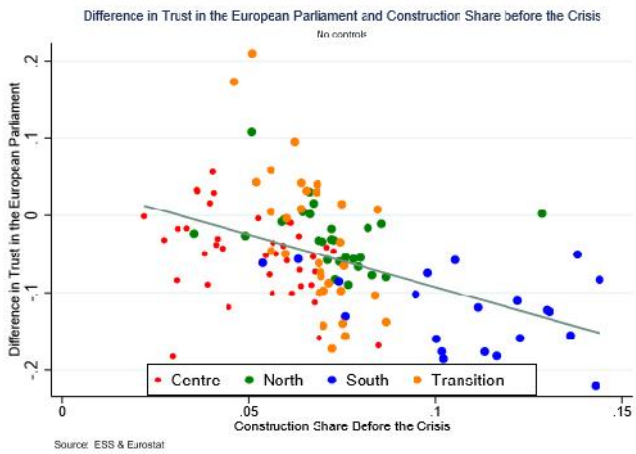
Figure 11e
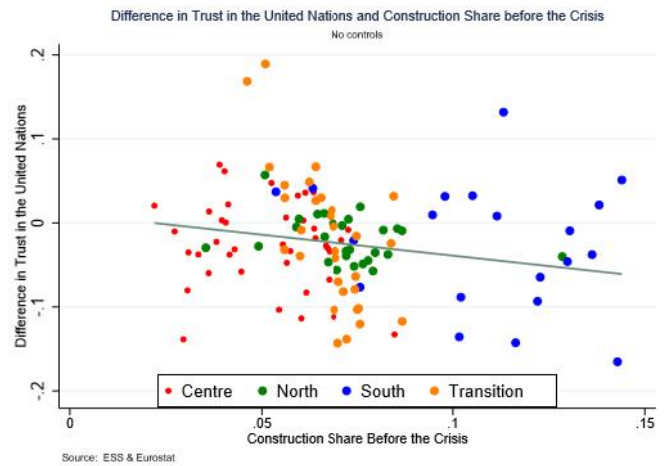
Figure 11f

IV.C.4 Political Views

The 2SLS panel estimates show that unemployment is related to dissatisfaction with the functioning of democracy in the country. The coefficients are large, implying considerable effects. Yet, we should stress here (again) that unemployment is also related to dissatisfaction with the government and economic uncertainty and a general feeling of dissatisfaction with life; these effects are strongly correlated with each other. Hence it is hard to isolate the "pure" impact of unemployment on support for democratic institutions from these related issues.

The link between unemployment and left-right political self-orientation is again weak. The 2SLS coefficient on unemployment in the panel specifications that utilize information from all countries and periods is small and statistically indistinguishable from zero. The before-after specifications are less clear; while the 2SLS coefficient is insignificant in the period 2008-2012, it turns significant in 2008-2014, pointing out that perhaps the crisis is pushing individuals to the right.

The panel estimates further show that there is a relationship between construction-driven unemployment and disconnect with the political system (column (12)). In contrast, the 2SLS coefficient on beliefs that European integration went too far are small, change sign, and never pass statistical significance level thresholds.

IV.C.5 Attitudes and Beliefs on Immigration

Tables 16 and 17 report 2SLS panel and before-after difference estimates examining the role of construction driven swings in unemployment on attitudes towards immigration. The 2SLS coefficients are all negative implying that unemployment is to some extent related to anti-immigration attitudes. Yet, the only robust and statistically significant coefficient in the more efficient panel estimates is on the questions asking Europeans on their whether immigration is harmful for the econ-

omy[27]. While we do find a strong causal impact of unemployment on beliefs that immigrants could harm the economy and local jobs, there is no relationship with the perceived impact of immigrants on the country's cultural life. This result is at odds with the cultural backlash theory for explaining the electoral fortunes of populist parties; on the contrary, these results imply the importance of economic insecurity as the main driver of populism.

IV.D Heterogeneity

The micro structure of the ESS dataset allows for a finer examination of the role of the crisis on beliefs, trust, and attitudes. We explore heterogeneity of the effect identified above in an effort to shed light on the mechanisms at play. Studying heterogeneity is useful, as various conjectures have been put forward to explain the rise of populist voting and the spike in political distrust. For example, district-level demographics and educational features seem to correlate with political extremism in the US and BREXIT vote (Autor *et al*. (2016, 2017) and Becker *et al*. (2017)). And the link between economic variables and beliefs is related to education (Foster and Frieden (2017)). We search for potential heterogeneity of the effects of the crisis on trust and attitudes, moving to the individual level (i.e., not using regional means by ESS survey) and running the specifications separately for subsamples divided by gender, age, and education.

Table 18 presents panel OLS estimates linking regional unemployment with individual-level responses on general trust (columns (1)-(3)), trust towards political institutions (column (4)-(9)), and political beliefs (columns (10)-(13)). Table 19 reports panel estimates focusing on attitudes towards immigration. In all specifications we include region (NUTS 2) fixed-effects and general ESS round dummies. The standard errors are adjusted for two-way clustering: at the NUTS2 level so as to account for serial correlation and at the country-year level to account for residual interrelations across all individuals in a given country-round.[28] Running the regressions at the individual level is also useful to assess the robustness of the benchmarks OLS panel estimates to the inclusion of respondent-level characteristics. Following Nunn and Wantchekon (2011) and Giuliano and Spilimbergo (2013), we control for age, age squared, gender, add education fixed effects, religion fixed effects, marital status and 51 occupation fixed effects. Panel A shows the results at the full sample that covers more than 100,000 individuals. These serve as the baseline estimates. Not surprisingly, the regressions in the full sample of respondents yield similar results to the regional level analysis. Regional unemployment correlates strongly with distrust in national politicians, local parliament, and the legal system and the European Parliament. Respondents' view on the future of the

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[27] The results are quite similar if we further control for the share of other than construction industries in regional value added. See Appendix Tables 8 and 9.

[28] This adjustment produces larger standard errors and more conservative inference as compared to clustering at the region-year level or only at one dimension.

EU is not related to unemployment. There is also a strong negative correlation between unemployment and satisfaction with democracy. Unemployment is also significantly related to the respondents' feelings that no party is close to them and–as documented earlier–not much linked to people's self-orientation on the political left-right axis. The only (small) difference compared to the regional analysis is that now there seems to be a negative link between unemployment and general trust.

In Panel B we separate by gender. The panel estimates imply no substantial differences. The coefficients are quite similar for male and female in all questions reported in Tables 18 and 19, the exception being the question on political self-orientation. There is some evidence that in response to rising regional unemployment women are moving slightly to the left of the political spectrum, a finding consistent with works showing women's higher than men sensitivity to social issues.

In Panel C we examine heterogeneity with regard to respondents' age. We consider three age groups: young (below 30 years), middle-age (31-60) and old (60 or older). These account for 14%, 52%, and 34% of the sample, respectively. We do not discover major differences on the impact of the regional unemployment on political trust and political beliefs between age categories (Table 18, columns (4)-(13)). Interestingly, there is heterogeneity on general trust (columns (1)-(3)); regional unemployment is unrelated to interpersonal trust in young cohorts. Young cohorts' views on immigrants are also not much affected by regional unemployment (Table 19).

In Panel D we distinguish between respondents with completed tertiary (college) and non-college education. Examining heterogeneity across this dimension is useful, as the combination of skilled-biased technical change (related to automation and computerization) and globalization (fall in tariffs, offshoring, etc) has hurt low-skill workers in industrial countries (see Autor (2014)) and seems to have contributed to voting for non-mainstream parties and candidates (Autor *et al*. (2016, 2017)). The correlation between regional unemployment and political distrust is uniformly strong for both college and non-college graduates (columns (4)-(9)). The same applies to political beliefs and attitudes (columns (10)-(13)). There is, however, heterogeneity in general trust (columns (1)-(3)). On the one hand, the coefficients for the college-educated are small and in general statistically indistinguishable from zero. On the other hand, the coefficient on the non-college graduates sample is much larger in absolute value and more precisely estimated, pointing out that regional unemployment does contribute to falling trust for the group of unskilled individuals.

IV.E Taking Stock

Taken together, the OLS and 2SLS results imply that economic factors do not affect generalized trust as much as trust in political institutions – at least in the context of the European economic cri-

sis.[29] This finding is consistent with the argument that the generalized social trust has a moral component inherited through education and socialization. In Uslaner's formulation, general trust is a "*moral commandment to treat people as if they were trustworthy*". Trust is a belief that others share our fundamental values (Uslaner (2002)), and people extrapolate from their experiences with specific individuals or from their educational and cultural background to extend trust to groups of people with similar characteristics. In contrast, the European economic crisis has deeply undermined trust in political institutions at the national and European level. The fact that we do find a rise in distrust towards the national and EU politicians (but not towards police and United Nations) suggests that citizens have blamed the inability to address the rise in unemployment on the inefficient national and European political institutions. This in turn has resulted in the rise of populist parties in Europe. The relationship between unemployment and distrust in legal system is also alarming, as an independent, impartial, and well-functioning legal-judicial system is a key pillar of modern capitalist societies and democracies (Hayek (1960)), guaranteeing freedom (La Porta *et al.* (2004)) and promoting development (La Porta *et al.* (2008)). These findings are also related to the large literature studying the interplay and interconnections between income/growth and democracy[30]. While the literature mostly focuses on cross-country comparisons between democracies and non-democracies, our results (that come from established democracies) point out that, democracy, or at least satisfaction with democracy, cannot survive without the belief that it delivers shared prosperity.

Finally, our results on the relationship between unemployment and attitudes to immigration help to shed light on the relative importance of the economic and cultural drivers of populism. The impact of unemployment on attitudes towards immigration is especially strong to voters' economic concerns. The crisis has shifted Europeans' views on the impact of immigrants on the economy, an effect that is especially strong for individuals without college degree that are perhaps affected the most by the negative consequences of globalization and technological improvements.

V. Conclusion

V.A Summary of the results

In this paper, we connect the European economic crisis of 2008-2012 with the rise of anti-establishment parties and the widespread decline in trust towards national and European political institutions. Our analysis, that exploits within-region variation across 26 European countries that

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[29] Ananyev and Guriev (2015) find a substantial effect of the Great Recession on generalized social trust in Russia, a country with very political institutions relative to the EU. This result is similar to the one documented by Dustmann *et al.* (2017) who link the ratio of political to interpersonal trust to unemployment.

[30] See for example Barro (1996), Persson and Tabellini (2006), Giavazzi and Tabellini (2005), Acemoglu et al. (2017) and Papaioannou and Siourounis (2008) for the effect of democratization on growth and Barro (1999), Acemoglu et al. (2008) and Papaioannou and Siourounis (2008) for the reverse link between development and democracy. Acemoglu *et al.* (2014) discuss the interplay between democracy, inequality, and fiscal policy.

have been hit and weathered the Great Recession in a differential manner, reveals that the economic, political and trust crisis in Europe are interconnected.

In the first part of our analysis, we describe the evolution of regional unemployment, voting for anti-establishment parties, general and political trust, and attitudes towards immigration before and after the crisis. The increased voting share of radical left, far right nationalistic, populist and Eurosceptic parties is accompanied by a notable decline in trust towards national institutions, politicians, parliament, and legal system, growing dissatisfaction with the working of democracy and an anti-EU sentiment. And while there is heterogeneity in voting for the far-left and far-right parties across the EU, the decline in political trust applies in almost all countries. However, and in contrast to the conventional wisdom, there is no rise of anti-immigration sentiment.

Second, we examine the role of the crisis, as manifested in the increase in regional unemployment, on voting for anti-establishment parties and turnout, exploiting the considerable within-region variation in the intensity and timing of the economic downturn. Within-region changes in unemployment are related to voting for anti-establishment parties, and in particular parties with a populist agenda (of either the far left or far right). The same patterns emerge once we conduct a pre-crisis vs. post-crisis difference-in-differences analysis. To push on causation, we used the pre-crisis share of construction in regional value added as an "instrument" for changes in unemployment during the Great Recession in the before-after specifications and the share of construction in the panel fixed-effects specifications. The share of construction, a labor intensive sector that played a key role both in the build-up and the aftermath of the crisis across Europe (and the world), is a significant correlate of regional unemployment. The 2SLS specifications show that the component of regional unemployment explained by construction share is also a significant correlate of voting for extremist parties. In contrast, unemployment and turnout are not significantly related.

In the third part, we use individual-level data from the European Social Surveys that measure Europeans' general and political trust, political attitudes, and beliefs on immigration to understand the underlying mechanisms. The increase of unemployment during the crisis has resulted in lower trust in national and European political institutions as well as in a rising distrust in the legal system. Interestingly, higher unemployment does not correlate with trust in the police. Unemployment is also strongly related with dissatisfaction on the working of democracy and a belief that no party is close to respondents. The impact of increase in unemployment on interpersonal trust is small and not always statistically significant. These patterns emerge from both panel fixed-effects OLS and pre-vs.-post-crisis difference-in-differences specifications. Also, the 2SLS specifications that use the pre-crisis share of construction as an instrument for change in unemployment also yield significant estimates thus supporting a causal interpretation; the magnitudes in the OLS and 2SLS

specifications are similar. These patterns imply that European voters have assigned the blame for the crisis to the national political and legal system and to European institutions, which most likely has in turn fueled the support for anti-establishment parties.

We also investigate the impact of the Great Recession (also instrumented by the pre-crises structure of the regional economy) on the attitude towards immigrants. Our analysis demonstrates that regions experiencing a larger increase in unemployment are more likely to reject immigrants on an economic basis. Yet, there is no effect of the crisis on the culture-driven opposition to immigration.

V.B Policy Implications

Our results imply that the loss of confidence in national and European political institutions and the rise of populism are strongly related to the effect of the crisis on jobs, and much less so to a cultural backlash, as many commentators, academics, and policy-makers have argued. This immediately leads to yet another rationale for the countercyclical macroeconomic policies preventing rising unemployment. Even a temporary increase in unemployment may result in a political fallout, which in turn would give rise to anti-market policies and would undermine long-term economic growth. In this case, a cyclical downturn (accompanied by an unemployment spike) may have adverse long-term impact.

The Great Recession coupled with the inability of European institutions and the indecisiveness of policy markets to cope with its devastating economic consequences, has led to a dramatic decline in the confidence of citizens in political and even legal institutions, putting democracy at risk. As the literature on culture and trust uncovers considerable inertia of large economic downturns (e.g., Giuliano and Spilimbergo (2013), Nagel and Malmendier (2011)), trust towards key democratic institutions of modern capitalist economies, might well have been damaged persistently for the generations, even after the economic recovery, especially among the young generations who have increasingly turned to populist parties.

There are important lessons and policy implications from the European crisis. The first one is the importance of reducing unemployment to restore confidence in democracy and trust in institutions. What can the European countries and the European Union do to fight unemployment? The most straightforward response is to implement growth-promoting policies. Besides supply-side interventions in labor, capital, and product markets, such policies include pan-European countercyclical fiscal policies. This entails revamping the EU budget, which remains dramatically small (about 1% of EU GDP). If the EU budget is to remain small, it urgently needs to redirect its priorities on research, innovation and public infrastructures to take the most of the presence of scale economies and cross-border positive externalities in Europe. The next Multiannual Financial

Framework (MFF), starting in 2018-19, goes into this direction by making employment and growth top priorities. Yet EU growth policies are only one part of the solution to combat unemployment. In most EU countries, high unemployment rates are concentrated among unskilled workers, who have suffered the most from technological change, outsourcing, and global competition. The European Union has created two funds within the EU budget, The European Social Fund and the European Globalization Adjustment Fund, to help and retrain workers who lose their jobs. But education and training remain mainly the responsibility of the member states that should substantially improve the quality of their education and life-long learning and training systems.

Finally, national governments and the EU should move beyond economics. It is vital to preserve trust and open-minded attitudes of their citizens that face increasing economic insecurity. As culture and institutions are strongly interconnected (e.g., Alesina and Giuliano (2015) for a review and Alesina, Algan, Cahuc, and Giuliano (2015) for an application to labor market institutions), maintaining general and political trust is a sine qua non condition for much-need reform (see Baldwin and Giavazzi (2015) for policy proposal from leading economists). If structural reforms and training are key for fighting unemployment, their effect might take some time to become effective and they cannot be the only way to support trust in institutions in the short run. European countries should also preserve trust from their citizens with better social security and safety nets for workers who are currently unemployed.[31] Insufficient investment to cushion economic shocks means that the trust of generations in political and legal institutions and democracy could be severely hampered for decades. Governments need the confidence of their citizens to successfully address policy challenges and to convince the public about the necessity of certain–a priori unpopular–policy choices. The loss of trust in political institutions might therefore explain the continuing economic stagnation in Europe.

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[31] The importance of social safety nets by times of crisis is illustrated in Appendix Figure A2 that illustrates the strong positive correlation between the change of trust in the European parliament before (2006-2008) and after (2012-14) the financial crisis and the change of social benefits per capita at the country level during the same period. The same positive correlation holds with trust in national parliament and satisfaction with democracy. While this finding is only based on cross-country variation (there are no comparable region-level data), it opens a new scope for research on public policy to protect trust and democracy in crisis times.

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Table 1. Summary Statistics

	Pre Crisis Period (2000-2008)				Post Crisis Period (2009-2017)			
	Obs. (1)	mean (2)	median (3)	St. Dev. (4)	Obs. (5)	mean (6)	median (7)	St. Dev. (8)
Panel A. Economic Variables. EUROSTAT								
Unemployment	2004	0.09	0.07	0.054	2142	0.10	0.08	0.062
Log Real GDP p.c.	1962	9.87	9.97	0.464	1580	10.04	10.07	0.385
Share of Construction	1962	0.07	0.07	0.021	1427	0.06	0.06	0.018
Share of Agriculture (incl. Forestry, Fishing)	1953	0.04	0.03	0.036	1420	0.03	0.02	0.026
Share of Finance	1962	0.21	0.21	0.058	1427	0.22	0.23	0.058
Share of Commerce	1962	0.24	0.23	0.056	1427	0.23	0.22	0.053
Share of Government	1962	0.23	0.22	0.060	1427	0.25	0.24	0.067
Share of Industry (Manufacturing)	1953	0.22	0.22	0.083	1421	0.20	0.20	0.089
Panel B. Voting Variables. Country-Specific Sources								
Voting Share of Anti-Establishment Parties	552	0.25	0.20	0.202	510	0.31	0.32	0.193
- Radical Left Parties	552	0.07	0.04	0.096	510	0.10	0.05	0.124
- Far Right Nationalistic Parties	552	0.07	0.02	0.106	510	0.10	0.07	0.135
- Populist Parties	552	0.15	0.07	0.176	510	0.23	0.18	0.188
- Anti-European and Separatist Parties	552	0.19	0.15	0.164	510	0.28	0.28	0.188
Participation Rate	543	0.70	0.74	0.136	431	0.67	0.68	0.131
Panel C. General and Political Trust and Political Attitudes. European								
Trust Other People	616	0.49	0.48	0.097	462	0.50	0.49	0.094
People Fair	616	0.55	0.56	0.091	462	0.56	0.56	0.088
People Helpful	616	0.47	0.47	0.099	462	0.49	0.49	0.093
Trust Country's Parliament	616	0.45	0.46	0.104	462	0.42	0.41	0.126
Trust Politicians	616	0.35	0.35	0.098	462	0.33	0.31	0.123
Trust Legal System	616	0.50	0.51	0.108	462	0.50	0.50	0.127
Trust Police	616	0.59	0.60	0.094	462	0.61	0.62	0.094
Satisfaction with Working of Democracy	616	0.46	0.46	0.065	462	0.42	0.43	0.073
Trust in European Parliament	616	0.53	0.52	0.074	462	0.51	0.51	0.085
Trust in the United Nations	616	0.53	0.53	0.108	462	0.52	0.50	0.125
Placement on Left-Right Scale	616	0.50	0.50	0.053	462	0.51	0.51	0.054
Feel Close to a Particular Party	616	0.49	0.50	0.138	462	0.47	0.48	0.145
European Unification Go Further	450	0.54	0.53	0.085	305	0.51	0.50	0.080
Panel D. Beliefs on Immigration. European Social Survey								
Homosexuals Should Live Free	616	0.69	0.72	0.108	462	0.74	0.77	0.118
Allow Immigrants of Same Race	616	0.59	0.59	0.096	462	0.61	0.61	0.101
Allow Immigrants of Different Race	616	0.51	0.51	0.105	462	0.53	0.54	0.118
Allow Immigrants from Poorer Countries	616	0.50	0.50	0.109	462	0.50	0.50	0.120
Immigrants are Good for Economy	616	0.49	0.49	0.072	462	0.49	0.49	0.082
Immigrants Improve Cultural Life	616	0.56	0.56	0.085	462	0.56	0.57	0.094
Immigrants Make Country a Better Place	616	0.48	0.48	0.076	462	0.50	0.51	0.087

The Table reports summary statistics (mean, median, and standard deviation) for the main variables employed in the empirical analysis distinguishing between the pre-crisis period (2000-2008) and the post-crisis period (2009-2017) at the regional level (EU NUTS-2). The Data Appendix gives detailed variable sources and definitions.

Table 2. Unemployment and Voting for Anti-Establishment Parties
Panel Fixed-Effects OLS Estimates. 2000-2017

	Anti-Establishment Parties (All Types)	Radical Left Parties	Far-Right Parties	Populist Parties	Anti-European Parties	Participation Rate
	(1)	(2)	(3)	(4)	(5)	(6)

Panel A. General Year Fixed-Effects

Unemployment	1.0577**	0.5578*	0.1897	1.1438***	1.0024***	-0.3219*
	(0.3810)	(0.2911)	(0.1777)	(0.3601)	(0.3326)	(0.1585)
standardized "beta"	0.321	0.317	0.093	0.370	0.335	-0.148
adj. R square	0.386	0.438	0.312	0.471	0.451	0.380
within R-squre	0.397	0.448	0.324	0.480	0.461	0.392

Panel B. General Period (4-year) Time Fixed-Effects

Unemployment	1.1386***	0.8129**	0.2193	1.0960***	0.9438**	-0.4299**
	(0.3396)	(0.3434)	(0.2014)	(0.3532)	(0.3991)	(0.1675)
standardized "beta"	0.345	0.462	0.107	0.355	0.316	-0.198
adj. R square	0.319	0.157	0.136	0.386	0.397	0.239
within R-squre	0.322	0.161	0.140	0.388	0.399	0.242

Panel C. Country-Group Period (4-year) Time Fixed-Effects

Unemployment	0.9666**	0.443	0.5183**	0.9256**	0.5535	-0.4926**
	(0.4419)	(0.3978)	(0.2188)	(0.4164)	(0.4493)	(0.1969)
standardized "beta"	0.293	0.252	0.253	0.300	0.185	-0.227
adj. R square	0.333	0.353	0.270	0.399	0.429	0.372
within R-square	0.342	0.361	0.279	0.407	0.436	0.381
Countries	23	23	23	23	23	22
Regions	225	225	225	225	225	220
Observations	1020	1020	1020	1020	1020	932

The table reports panel (region) fixed-effects OLS estimates. All specifications include NUTS2 constants (coefficients not reported). Panel A includes year constants (not reported). Panel B includes four period constants (not reported), corresponding to 2000-2004 (period 1), 2005-2008 (period 2), 2009-2012 (period 3), and 2013-2017 (period 4). Panel C includes country-group period specific period effects (constants not reported). Regional unemployment data come from Eurostat. Information on voting comes from various country-specific databases and the classification of parties' orientation is mostly based on the Chappell Hill Expert Survey. The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 3. Unemployment and Voting for Anti-Establishment Parties Before and After the Crisis
OLS Difference Specifications.
Post-Crisis Average [2017-2009] - Pre-Crisis Average [2000-2008]

	Anti-Establishment Parties (All Types)	Radical Left Parties	Far-Right Parties	Populist Parties	Anti-European Parties	Participation Rate
	(1)	(2)	(3)	(4)	(5)	(6)

Panel A. General Constant

Difference Unemployment	1.1317***	0.7445**	0.1112	1.0135***	0.9280***	-0.3008*
	(0.2853)	(0.3282)	(0.2348)	(0.3311)	(0.2741)	(0.1732)
standardized "beta"	0.444	0.508	0.066	0.387	0.382	-0.314
adj. R square	0.194	0.255	0.000	0.146	0.142	0.095

Panel B. Country-Group Constants

Difference Unemployment	1.3379**	0.5305	0.7223**	0.9725**	-0.034	-0.1579
	(0.5032)	(0.5126)	(0.3266)	(0.4373)	(0.3949)	(0.2605)
standardized "beta"	0.525	0.362	0.431	0.372	-0.014	-0.165
adj. R square	0.202	0.274	0.186	0.149	0.281	0.291
Countries	26	26	26	26	26	25
Regions	244	244	244	244	244	230

The table reports cross-sectional OLS estimates where the main variables are expressed in differences. The dependent variable is the change in the voting before and after the crisis across EU NUTS-2 regions. The independent variable is the change in regional unemployment before and after the crisis. For both the dependent and independent variable, we first take mean values over the period 2009-2017 [post-crisis] and over the period 2000-2008 [pre-crisis] and then take the difference. Panel A includes also a constant term (not reported). Panel B includes four macro-region constants for the North, South, Centre and East (not reported). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 4. Construction Share in Regional Value Added and Unemployment Dynamics

	(1)	(2)	(3)	(4)
	Panel A. Panel Fixed-Effects OLS Specifications.			
	Dep. Var.: Unemployment			
Share of Construction	-1.6926***	-1.3108***	-1.0158***	-0.9331***
	(0.2951)	(0.2381)	(0.2885)	(0.2538)
adj. R square	0.453	0.537	0.586	0.625
within R-squre	0.455	0.540	0.594	0.632
Countries	22	22	22	22
Regions	228	227	228	227
Observations	3254	3245	3254	3245
Region Fixed-Effects	Yes	Yes	Yes	Yes
Year Fixed-Effects	Yes	Yes	No	No
Country-Group Year Fixed-Effects	No	No	Yes	Yes
Other Industrial Shares	No	Yes	No	Yes
	Panel B. Difference Specifications.			
	Dep. Var.: Difference in Unemployment [2016-2009]-[2008-2000]			
Pre-Crisis Share of Construction [2007-2003]	1.2540***	1.4874***	0.6831**	0.6957***
	(0.3198)	(0.3408)	(0.2491)	(0.2259)
adj. R square	0.281	0.346	0.597	0.629
Countries	23	23	23	23
Observations/Regions	240	239	240	239
Country-Group Constants	No	No	Yes	Yes
Other Industrial Shares	No	Yes	No	Yes

The table reports panel (region) fixed-effects OLS estimates (in Panel A) and cross-sectional OLS estimates where the main variables are expressed in differences (Panel B) examining the within-region correlation between unemployment and the share of construction in regional value added. In Panel A the dependent variable is regional unemployment and the main independent variable is the share of construction in regional value added. Columns (1)-(2) include year fixed-effects and columns (3)-(4) include country-group year fixed-effects (constants not reported). Columns (2) and (4) include as controls the share in regional value added of agriculture (incl. fishing, forestry and mining), trade, finance, and government services (coefficients not reported). In Panel B the dependent variable is the change in regional unemployment before and after the crisis across EU NUTS-2 regions. We first take mean values over the period 2009-2017 [post-crisis] and over the period 2000-2008 [pre-crisis] and then take the difference. The main independent variable is the share of construction in regional value added before the crisis (mean value 2004-2007). Columns (3)-(4) include country-group constants (not reported). Columns (2) and (4) include as controls the pre-crisis share in regional value added of agriculture (incl. fishing, forestry and mining), trade, finance, and government services, averaged over the period 2004-2008 (coefficients not reported). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 5. Construction and Voting for Extremist Parties

	Anti-Establishment (1)	Radical Left (2)	Far-Right (3)	Populist (4)	Anti-European (5)	Participation (6)
Panel A. General Year Fixed-Effects						
Construction Share	-3.4478***	-0.9335***	-1.3602*	-3.3494***	-2.5700***	0.0781
	(0.7458)	(0.2922)	(0.6938)	(0.8093)	(0.7540)	(0.8350)
adj. R square	0.429	0.419	0.245	0.504	0.448	0.332
within R-squre	0.440	0.430	0.259	0.514	0.458	0.346
Panel B. General Period (4-year) Time Fixed-Effects						
Construction Share	-3.2610***	-1.4859***	-0.9179	-2.9779***	-2.4528***	0.2554
	(0.6212)	(0.4541)	(0.6658)	(0.5905)	(0.7474)	(0.8615)
adj. R square	0.295	0.181	0.110	0.345	0.353	0.124
within R-squre	0.298	0.185	0.114	0.348	0.356	0.129
Panel C. Country-Group Period (4-year) Time Fixed-Effects						
Construction Share	-3.8660***	-1.7215**	-1.3425**	-3.2677***	-1.9555**	-0.0296
	(0.9339)	(0.7749)	(0.4918)	(0.7271)	(0.8088)	(0.7333)
adj. R square	0.333	0.240	0.268	0.373	0.436	0.269
within R-squre	0.344	0.252	0.279	0.382	0.445	0.281
Countries	21	21	21	21	21	20
Regions	213	213	213	213	213	211
Observations	834	834	834	834	834	791

The table reports panel (region) fixed-effects OLS estimates, illustrating the "reduced-form" association between voting for anti-establishment parties (and electoral turnout) and the share of construction in regional value added. All specifications include NUTS2 constants (coefficients not reported). Panel A includes year constants (not reported). Panel B includes four period constants (not reported), corresponding to 2000-2004 (period 1), 2005-2008 (period 2), 2009-2012 (period 3), and 2013-2017 (period 4). Panel C includes country-group specific period effects (constants not reported), allowing the four period constants to differ across for main European regions (North, South, East, and Centre). Industrial share data come from Eurostat. Information on voting comes from various country-specific databases and the classification of parties' orientation is mostly based on the Chappell Hill Expert Survey. The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 6. Pre-Crisis Construction Share and Changes in Voting for Anti-Establishment Parties "Reduced-Form" Estimates

	Anti-Establishment Parties (All Types)	Radical Left Parties	Far-Right Parties	Populist Parties	Anti-European Parties	Participation Rate
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. General Constnat						
Initial Construction Share	1.5336**	1.5267**	-0.4981	1.3688	0.8393	-0.3304
	(0.7105)	(0.6016)	(0.4857)	(0.8956)	(0.6381)	(0.2991)
adj. R square	0.066	0.189	0.011	0.045	0.019	0.018
Panel B. Country-Group Constants						
Construction Share	1.4367	0.989	0.2007	1.067	-0.5533	0.1153
	(0.8891)	(0.8028)	(0.6172)	(0.8480)	(0.6179)	(0.2927)
adj. R square	0.139	0.272	0.137	0.108	0.310	0.271
Regions	23	23	23	23	23	22
Observations	228	228	228	228	228	212

The table reports cross-sectional OLS estimates, illustrating the "reduced-form" association between changes in voting for anti-establishment parties (and electoral turnout) during the crisis and the pre-crisis share of construction in regional value added. In both panels the dependent variable is the change in voting for anti-establishment political parties and turnout before and after the crisis across EU NUTS-2 regions. The independent variable is the share of construction in regional value added before the crisis, average value over 2004-2007. Panel A includes also a constant term (not reported). Panel B includes four macro-region constants for the North, South, Centre and East (not reported). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 7. Construction, Unemployment and Voting for Anti-Establishment Parties
Panel 2SLS Estimates. 2000-2017

	Anti-Establishment Parties (All Types)	Radical Left Parties	Far-Right Parties	Populist Parties	Anti-European Parties	Participation Rate
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. General Period Fixed-Effects. No Controls						
Unemployment	2.1985***	1.0018***	0.6188	2.0077***	1.6536***	-0.5625
	(0.5384)	(0.2459)	(0.5199)	(0.5291)	(0.6306)	(0.5110)
Kleibergen-Paap F-Stat	27.12	27.12	27.12	27.12	27.12	20.53
Other Industrial Shares	No	No	No	No	No	No
Panel B. General Period Fixed-Effects. Industrial Shares Controls						
Unemployment	2.7912***	1.2676***	0.5672	2.3517***	1.7693**	-0.5625
	(0.8951)	(0.4140)	(0.5820)	(0.7047)	(0.8089)	(0.5110)
Kleibergen-Paap F-Stat	20.85	20.85	20.85	20.85	20.85	20.53
Other Industrial Shares	Yes	Yes	Yes	Yes	Yes	Yes
Panel C. Country-Group Period (4-year) Time Fixed-Effects						
Unemployment	3.9991***	1.7808***	1.3887**	3.3802***	2.0228**	0.0299
	(0.9872)	(0.5976)	(0.6054)	(0.8856)	(1.0291)	(0.7235)
Kleibergen-Paap F-Stat	14.55	14.55	14.55	14.55	14.55	14.28
Other Industrial Shares	No	No	No	No	No	No
Panel D. Country-Group Period (4-year) Time Fixed-Effects						
Unemployment	4.1977***	2.0680***	1.2332**	3.2930***	1.9654**	-0.2861
	(1.0450)	(0.6971)	(0.4939)	(0.8041)	(0.8719)	(0.5592)
Kleibergen-Paap F-Stat	16.644	16.644	16.644	16.644	16.644	16.258
Other Industrial Shares	Yes	Yes	Yes	Yes	Yes	Yes
Countries	20	20	20	20	20	19
Regions	206	206	206	206	206	195
Observations	827	827	827	827	827	775

The table reports panel (region) fixed-effects 2SLS (two-stage-least-squares) estimates. The first-stage associates regional unemployment with the share of construction in regional value added. The second-stage associates voting for anti-establishment political parties (and turnout) to "instrumented" by the construction share regional unemployment. All specifications include NUTS2 constants (coefficients not reported). Panels A and B include four period constants (not reported), corresponding to 2000-2004 (period 1), 2005-2008 (period 2), 2009-2012 (period 3), and 2013-2017 (period 4). Panels C and D include country-group specific period effects (constants not reported), allowing the four period constants to differ across for main European regions (North, South, East, and Centre). Industrial share data come from Eurostat. The specifications in Panels B and D include as controls the share in regional value added of agriculture (incl. fishing, forestry and mining), trade, finance, and government services (coefficients not reported). Information on voting comes from various country-specific databases and the classification of parties' orientation is mostly based on the Chappell Hill Expert Survey. The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 8. Unemployment and Voting for Anti-Establishment Parties Before and After the Crisis
2SLS Difference Specifications.
Post-Crisis Average [2017-2009] - Pre-Crisis Average [2001-2008]

	Anti-Establishment Parties (All Types)	Radical Left Parties	Far-Right Parties	Populist Parties	Anti-European Parties	Participation Rate
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. General Constant						
Difference Unemployment	1.1964***	1.1926***	-0.3902	1.0674**	0.6537	-0.2551
	(0.3797)	(0.3976)	(0.3784)	(0.5135)	(0.4388)	(0.2370)
Cragg Donald F-Stat	92.01	92.01	92.01	92.01	92.01	87.99
Kleibergen-Paap F-Stat	16.28	16.28	16.28	16.28	16.28	17.04
Panel B. Country-Group Constants						
Difference Unemployment	2.0594**	1.4157*	0.2894	1.5304	-0.7899	0.1619
	(0.8502)	(0.7995)	(0.8109)	(0.9949)	(0.7525)	(0.4088)
Cragg Donald F-Stat	35.374	35.374	35.374	35.374	35.374	34.018
Kleibergen-Paap F-Stat	7.86	7.86	7.86	7.86	7.86	8.12
Countries	226	226	226	226	226	212
Regions	23	23	23	23	23	22

The table reports cross-sectional 2SLS (two-stage-least-squares) estimates. The first-stage associates changes in regional unemployment before and after the crisis with the pre-crisis share of construction in regional value added. The second-stage associates changes in voting for anti-establishment political parties (and turnout) to "instrumented" by the pre-crisis construction share changes in regional unemployment. The post-crisis values for voting and unemployment are averages over 2009-2017 and the pre-crisis values are averages over 2001-2008. Panel A includes also a constant term (not reported). Panel B includes four macro-region constants for the North, South, Centre and East (not reported). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 9. Unemployment, Crisis-Related Changes in Unemployment and BREXIT Vote
OLS Estimates

Dependent Variable	Leave the EU Votte				Change in Unemploymennt		Leave the EU Vote					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Unemployment [2014]	0.50*	1.35***										
	(0.30)	(0.23)										
Changes in Unemployment [2007-2014]			5.48***	4.31***						15.48***	17.35***	12.00***
			(0.45)	(0.43)						(2.04)	(2.76)	(1.44)
Pre-Crisis Construction Share [2005-2008]					0.16***	0.12***	2.44***	2.16***	1.90***			
					(0.03)	(0.03)	(0.28)	(0.24)	(0.22)			
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
adj. R square	0.01	0.43	0.29	0.53	0.08	0.17	0.19	0.52	0.56	-0.69	-0.93	0.41
Regions	379	379	379	379	370	370	370	370	370	370	370	370
First-Stage F-statistic										32.5	23.3	52.0

The table reports OLS and 2SLS across electoral district specifications examining the role of unemployment (in 2014), changes in unemployment (over 2008-2014), and the pre-crisis share of construction in the share of the vote to leave from the European Union (BREXIT). The dependent variable in columns (1)-(4) and (7)-(12) is the vote share for BREXIT in the June 2016 referendum. The dependent variable in columns (5)-(6) is changes in unemployment over the period 2014-2008. The specifications in even-numbered columns include as controls log population, male/female ration, median age, urbanization rate, share of whites in total population, and dummy variables for districts in Greater London, Scotland, and Wales. Standard errors adjusted for heteroscedasticity are reported below the point estimates. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 10: Unemployment, General and Political Trust, and Political Beliefs
Panel Fixed-Effects OLS Estimates. 2000-2014

	General Trust	People Fair	People Helpful	Trust Parliament	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right	Feel Close to a Party	Further Unification
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

Panel A. General ESS Round (Time) Fixed-Effects

	General Trust	People Fair	People Helpful	Trust Parliament	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right	Feel Close to a Party	Further Unification
Unemployment	-0.1867**	-0.0941*	-0.1629***	-0.6845***	-0.5903***	-0.4431***	-0.0393	-0.3337***	-0.0233	-0.9532***	-0.0654	-0.3975*	0.1058
	(0.0669)	(0.0567)	(0.0570)	(0.1504)	(0.1819)	(0.0916)	(0.0638)	(0.1137)	(0.0846)	(0.1466)	(0.0838)	(0.1992)	(0.1983)
stand. "beta"	-0.107	-0.057	-0.091	-0.324	-0.293	-0.208	-0.023	-0.248	-0.016	-0.450	-0.065	-0.153	0.067
adj. R square	0.851	0.855	0.849	0.759	0.807	0.807	0.803	0.449	0.656	0.744	0.652	0.655	0.689
within R-squre	0.0806	0.0297	0.1001	0.2426	0.2427	0.1068	0.0684	0.233	0.1088	0.2636	0.0262	0.0497	0.1549

Panel B. Country-Group ESS Round (Time) Fixed-Effects

	General Trust	People Fair	People Helpful	Trust Parliament	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right	Feel Close to a Party	Further Unification
Unemployment	-0.1142*	-0.1212*	-0.0346	-0.3027**	-0.3025***	-0.1087	0.1229	-0.0645	0.0516	-0.5500***	0.1210	-0.4638*	-0.1632
	(0.0668)	(0.0710)	(0.0728)	(0.1395)	(0.0788)	(0.1411)	(0.1324)	(0.1591)	(0.1277)	(0.1371)	(0.0728)	(0.2725)	(0.1288)
stand. "beta"	-0.065	-0.074	-0.019	-0.150	-0.143	-0.051	0.165	-0.05	0.04	-0.26	0.12	-0.18	-0.10
adj. R square	0.86	0.86	0.85	0.83	0.86	0.85	0.82	0.59	0.69	0.81	0.68	0.71	0.742
within R-square	0.123	0.0513	0.1431	0.4611	0.4693	0.3103	0.0712	0.4392	0.2198	0.4642	0.1179	0.2281	0.3188
Countries	22	22	22	22	22	22	22	22	22	22	22	22	20
Regions	182	182	182	182	182	182	182	182	182	182	182	182	154
Observations	1051	1051	1051	1051	1051	1051	1051	1051	1051	1051	1051	1051	709

The table reports panel (region) fixed-effects OLS estimates, associating general interpersonal trust, trust towards institutions, and political beliefs with regional unemployment. All specifications include NUTS2 constants (coefficients not reported). Panel A includes ESS Round (time) constants (not reported). Panel B includes country-group ESS Round (time) fixed effects (constants not reported), allowing the ESS Round (time) constants to differ across for main European regions (North, South, East, and Centre). Regional unemployment data come from Eurostat. Information on trust and beliefs come from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 11: Unemployment, General and Political Trust, and Political Beliefs before and after the Economic Crisis
Difference OLS Estimates

	General Trust	People Fair	People Helpful	Trust Parliamen	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right	Feel Close to a Party	Further Unification
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

Panel A. 2012-2008

	General Trust	People Fair	People Helpful	Trust Parliamen	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right	Feel Close to a Party	Further Unification
Unemployment	-0.0537	0.0251	-0.0765	-0.6484*	-0.7317***	-0.3795**	-0.122	-0.4369**	0.023	-0.7502*	0.1174	0.22	-0.1812
	(0.1442)	(0.1171)	(0.2018)	(0.3180)	(0.2427)	(0.1765)	(0.1639)	(0.1548)	(0.1287)	(0.4289)	(0.1947)	(0.4698)	(0.4073)
adj. R square	0.011	0.002	0.028	0.459	0.463	0.270	0.111	0.293	0.060	0.526	0.070	0.094	0.217
Regions	142	142	142	142	142	142	142	142	142	142	142	142	142
Countries	17	17	17	17	17	17	17	17	17	17	17	17	17

Panel B. 2014-2008

	General Trust	People Fair	People Helpful	Trust Parliamen	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right	Feel Close to a Party	Further Unification
Unemployment	-0.2740**	-0.1453	-0.4597**	-0.9481***	-0.9270***	-0.1973	0.0114	-0.2814*	0.271	-1.0191***	0.2556***	-0.5944	-0.2234
	(0.0993)	(0.1465)	(0.1622)	(0.2491)	(0.1944)	(0.1902)	(0.2417)	(0.1575)	(0.1744)	(0.2170)	(0.0332)	(0.5690)	(0.3150)
adj. R square	0.11	0.045	0.128	0.432	0.376	0.141	0.051	0.25	0.025	0.53	0.081	0.074	0.161
Regions	132	132	132	132	132	132	132	132	132	132	132	132	132
Countries	15	15	15	15	15	15	15	15	15	15	15	15	15

The table reports cross-sectional OLS estimates, associating general interpersonal trust, trust towards institutions, and political beliefs with regional unemployment in before-after crisis differences. The dependent variable is the change in the various trust and beliefs variables over 2012-2008 in Panel A and over 2014-2008 in Panel B. The independent variable is the change in regional unemployment over 2012-2008 in Panel A and over 2014-2008 in Panel B. All specifications in both panels include macro-region constants for the North, South, Centre and East (not reported). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 12. Unemployment and Beliefs on Immigration
Panel Fixed-Effects OLS Estimates. 2000-2014

	Allow Immigrants			Immigrants' Role		
	Majority Race/Ethnic Group	Different Race/Ethnic Group	Poor Non-EU Countries	Economy	Cultural Life	Country Better/Worse
	(1)	(2)	(3)	(4)	(5)	(6)

Panel A. General ESS Round (Time) Fixed-Effects

Unemployment	-0.1627	-0.2562	-0.2714	-0.5554***	-0.0441	-0.1767*
	(0.1945)	(0.1661)	(0.1953)	(0.0800)	(0.0770)	(0.0907)
standardized "beta"	-0.088	-0.123	-0.127	-0.390	-0.026	-0.116
adj. R square	0.047	0.081	0.048	0.195	0.049	0.075
within R-squre	0.054	0.088	0.054	0.201	0.056	0.081

Panel B. Country-Group ESS Round (Time) Fixed-Effects

Unemployment	-0.3547*	-0.3973**	-0.4582**	-0.5226***	-0.0656	-0.1075
	(0.1913)	(0.1858)	(0.1928)	(0.1416)	(0.0773)	(0.1402)
standardized "beta"	-0.193	-0.191	-0.214	-0.367	-0.039	-0.071
adj. R square	0.178	0.199	0.133	0.280	0.082	0.130
within R-square	0.198	0.218	0.153	0.297	0.104	0.151
Countries	22	22	22	22	22	22
Regions	184	184	184	184	184	184
Observations	1053	1053	1053	1053	1053	1053

The table reports panel (region) fixed-effects OLS estimates, associating beliefs and attitudes towards immigrants with regional unemployment. All specifications include NUTS2 constants (coefficients not reported). Panel A includes ESS Round (time) constants (not reported). Panel B includes country-group ESS Round (time) fixed effects (constants not reported), allowing the ESS Round (time) constants to differ across for main European regions (North, South, East, and Centre). Regional unemployment data come from Eurostat. Information on attitudes and beliefs towards immigration come from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 13. Unemployment and Beliefs on Immigration before and after the Economic Crisis
Difference OLS Estimates

	Allow Immigrants			Immigrants' Role		
	Majority Race/Ethnic Group	Different Race/Ethnic Group	Poor Non-EU Countries	Economy	Cultural Life	Country Better/Worse
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. 2012-2008						
Unemployment	0.0893	-0.1668	-0.052	-0.3245	0.232	0.0565
	(0.3928)	(0.3252)	(0.3599)	(0.3492)	(0.3207)	(0.2648)
adj. R square	0.198	0.033	0.022	0.077	-0.017	0.009
Regions	142	142	142	142	142	142
Countries	17	17	17	17	17	17
Panel B. 2014-2008						
Unemployment	-0.5318***	-0.5870***	-0.6671***	-0.7716***	0.0199	-0.2486*
	(0.1760)	(0.1492)	(0.1799)	(0.2249)	(0.1748)	(0.1359)
adj. R square	0.378	0.241	0.169	0.285	0.025	0.112
Regions	132	132	132	132	132	132
Countries	15	15	15	15	15	15

The table reports cross-sectional OLS estimates, associating beliefs and attitudes towards immigrants with regional unemployment in before-after crisis differences. The dependent variable is the change in attitudes - beliefs variables over 2012-2008 in Panel A and over 2014-2008 in Panel B. The independent variable is the change in regional unemployment over 2012-2008 in Panel A and over 2014-2008 in Panel B. All specifications in both panels include macro-region constants for the North, South, Centre and East (not reported). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 14. Unemployment, General and Political Trust, and Political Beliefs
Panel Fixed-Effects 2SLS Estimates. 2000-2014

	General Trust	People Fair	People Helpful	Trust Parliamen	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliamen	Trust UN	Satisf. Democ	Left-Right	Feel Close to a Party	Further Unification
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel A. General ESS Round (Time) Fixed-Effects													
Unemployment	-0.2346***	-0.0972*	-0.2109***	-1.1344***	-0.9429***	-0.6512***	-0.1527	-0.8074**	-0.2257	-1.4496***	-0.1774	-0.8715*	0.1753
	(0.0879)	(0.0516)	(0.0480)	(0.2967)	(0.2331)	(0.1889)	(0.2135)	(0.3405)	(0.1795)	(0.3700)	(0.1113)	(0.5226)	(0.2225)
F-Stat	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	55.06
Panel B. Country-Group ESS Round (Time) Fixed-Effects													
Unemployment	-0.1592	-0.1639	-0.0837	-0.7258**	-0.6060**	-0.3026	-0.0663	-0.8261**	-0.2769	-1.2145***	-0.0338	-1.4469***	-0.0339
	(0.1458)	(0.1213)	(0.1241)	(0.3382)	(0.2555)	(0.2237)	(0.2431)	(0.3699)	(0.1995)	(0.3729)	(0.1207)	(0.4901)	(0.2332)
F-Stat	22.52	22.52	22.52	22.52	22.52	22.52	22.52	22.52	22.52	22.52	22.52	22.52	27.91
Controls	No	No	No	No	No	No	No	No	No	No	No	No	No
Countries	20	20	20	20	20	20	20	20	20	20	20	20	18
Observations	969	969	969	969	969	969	969	969	969	969	969	969	651

The table reports panel (region) fixed-effects 2SLS (two-stage-least-squares) estimates. The first-stage associates regional unemployment with the share of construction in regional value added. The second-stage associates general trust, trust towards institutions, and political attitudes to "instrumented" by the construction share regional unemployment. All specifications include NUTS2 constants (coefficients not reported). Panel A includes ESS Round (time) constants (not reported). Panel B includes country-group ESS Round (time) fixed effects (constants not reported), allowing the ESS Round (time) constants to differ across for main European regions (North, South, East, and Centre). Regional unemployment data and data on construction share come from Eurostat. Information on trust and beliefs come from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 15. Unemployment, General and Political Trust, and Political Beliefs before and after the Economic Crisis
Difference 2SLS Difference Estimates

	General Trust	People Fair	People Helpful	Trust Parliamen	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right Orientat.	Feel Close to a Party	Further Unification
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

Panel A. 2012-2008

	General Trust	People Fair	People Helpful	Trust Parliamen	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right Orientat.	Feel Close to a Party	Further Unification
Unemployment	-0.2685	0.2171	-0.1482	-1.7279***	-1.9117***	-1.2490**	-0.658	-0.8309*	-0.1762	-1.7173**	0.3446	0.3904	0.3637
	(0.3249)	(0.3403)	(0.2352)	(0.6705)	(0.6086)	(0.5344)	(0.4539)	(0.4925)	(0.4433)	(0.8446)	(0.2363)	(0.4409)	(0.8334)
F-Stat	31.82	31.82	31.82	31.82	31.82	31.82	31.82	31.82	31.82	31.82	31.82	31.82	31.82
Observations	130	130	130	130	130	130	130	130	130	130	130	130	130
Countries	17	17	17	17	17	17	17	17	17	17	17	17	17

Panel A. 2014-2008

	General Trust	People Fair	People Helpful	Trust Parliamen	Trust Politicians	Trust Legal	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right Orientat.	Feel Close to a Party	Further Unification
Unemployment	-0.6679***	0.6561***	0.7960***	-2.1427***	-2.0174***	-1.0658**	-0.5708	-1.7362**	-1.2131**	-1.8365***	0.6541**	-0.9638	-0.4132
	(0.1896)	(0.1213)	(0.2427)	(0.6024)	(0.5622)	(0.4207)	(0.4368)	(0.7267)	(0.5715)	(0.5414)	(0.2581)	(0.7062)	(0.5918)
F-Stat	27.09	27.09	27.09	27.09	27.09	27.09	27.09	27.09	27.09	27.09	27.09	27.09	27.09
Observations	119	119	119	119	119	119	119	119	119	119	119	119	119
Countries	14	14	14	14	14	14	14	14	14	14	14	14	14

The table reports cross-sectional 2SLS (two-stage-least-squares) estimates. The first-stage associates changes in regional unemployment before and after the crisis with the pre-crisis share of construction in regional value added. The second-stage associates changes in general trust, trust towards institutions, and political attitudes to "instrumented" by the pre-crisis construction share changes in regional unemployment. Panel A gives difference estimates over the period 2012-2008. Panel B gives difference estimates over the period 2014-2008. All specifications (in both panels) include macro-region constants for the North, South, Centre and East (not reported).). Regional unemployment data and data on construction share come from Eurostat. Information on trust and beliefs come from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 16. Unemployment and Beliefs on Immigration
Panel Fixed-Effects 2SLS Estimates. 2000-2014

	Allow Immigrants			Immigrants' Role		
	Majority Race/Ethnic Group	Different Race/Ethnic Group	Poor Non-EU Countries	Economy	Cultural Life	Country Better/Worse
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. General ESS Round (Time) Fixed-Effects						
Unemployment	-0.0448	-0.2492	-0.267	-0.6348***	-0.0777	-0.2074
	(0.2307)	(0.2386)	(0.2775)	(0.1849)	(0.1484)	(0.1431)
Kleibergen-Paap F-Stat	24.10	24.10	24.10	24.10	24.10	24.10
Panel B. Country-Group ESS Round (Time) Fixed-Effects						
Unemployment	-0.239	-0.4248	-0.5621*	-0.6405**	-0.2635	-0.145
	(0.3334)	(0.2982)	(0.3135)	(0.3183)	(0.2356)	(0.2176)
Kleibergen-Paap F-Stat	22.52	22.52	22.52	22.52	22.52	22.52
Countries	20	20	20	20	20	20
Regions	174	174	174	174	174	174
Observations	969	969	969	969	969	969

The table reports panel (region) fixed-effects 2SLS (two-stage-least-squares) estimates. The first-stage associates regional unemployment with the share of construction in regional value added. The second-stage associates attitudes towards immigration to "instrumented" by the construction share regional unemployment. All specifications include NUTS2 constants (coefficients not reported). Panel A includes ESS Round (time) constants (not reported). Panel B includes country-group ESS Round (time) fixed effects (constants not reported), allowing the ESS Round (time) constants to differ across for main European regions (North, South, East, and Centre). Regional unemployment data and data on construction share come from Eurostat. Information on beliefs-attitudes towards immigration comes from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 17. Unemployment and Beliefs on Immigration before and after the Economic Crisis
Difference 2SLS Estimates

	Allow Immigrants			Immigrants' Role		
	Majority Race/Ethnic Group	Different Race/Ethnic Group	Poor Non-EU Countries	Economy	Cultural Life	Country Better/Worse
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. 2012-2008						
Unemployment	1.1474**	0.1163	0.1941	-0.3464	0.3335	-0.1047
	(0.5244)	(0.6470)	(0.7574)	(0.6385)	(0.6962)	(0.5759)
Kleibergen-Paap F-Sta	31.82	31.82	31.82	31.82	31.82	31.82
Regions	130	130	130	130	130	130
Countries	17	17	17	17	17	17
Panel B. 2014-2008						
Unemployment	-0.6863***	-1.2291***	-1.6126***	-0.9253**	-0.2176	-0.4651*
	(0.2627)	(0.3055)	(0.4993)	(0.3918)	(0.3637)	(0.2635)
Kleibergen-Paap F-Sta	27.09	27.09	27.09	27.09	27.09	27.09
Regions	119	119	119	119	119	119
Countries	14	14	14	14	14	14

The table reports cross-sectional 2SLS (two-stage-least-squares) estimates. The first-stage associates changes in regional unemployment before and after the crisis with the pre-crisis share of construction in regional value added. The second-stage associates changes in attitudes towards immigration to "instrumented" by the pre-crisis construction share changes in regional unemployment. Panel A gives difference estimates over the period 2012-2008. Panel B gives difference estimates over the period 2014-2008. All specifications (in both panels) include macro-region constants for the North, South, Centre and East (not reported).). Regional unemployment data and data on construction share come from Eurostat. Information on beliefs-attitudes towards immigration comes from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 18: Unemployment, General and Political Trust, and Political Beliefs
2SLS Estimates with Regional Fixed-Effects and Time Fixed-Effects. 2000-2014

	General Trust	People Fair	People Helpful	Trust Parliament	Trust Politicians	Trust Legal System	Trust Police	Trust Eur. Parliament	Trust UN	Satisf. Democ	Left-Right Orientat.	Feel Close to a Party	Further Unification
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel A. Full Sample													
Unemployment	-0.3015***	-0.1672***	-0.2474**	-0.8248***	-0.6811***	-0.4909***	-0.1648*	-0.5454***	-0.1506	-0.9546***	-0.0772	-1.1357***	-0.158
	(-3.32)	(-2.87)	(-2.52)	(-4.41)	(-4.25)	(-3.77)	(-1.83)	(-3.70)	(-1.32)	(-5.53)	(-1.01)	(-4.44)	(-0.85)
Observations	103875	103448	103671	101481	102392	101509	103055	92932	93177	100605	90877	102237	61437
Panel B1. Males													
Unemployment	-0.3255***	-0.1698***	-0.2672***	-0.8552***	-0.6950***	-0.5590***	-0.1802	-0.5422***	-0.1286	-0.9752***	0.0044	-0.9691***	-0.117
	(-3.45)	(-2.85)	(-2.70)	(-4.51)	(-4.29)	(-3.98)	(-1.66)	(-3.65)	(-1.15)	(-5.41)	(0.0600)	(-3.63)	(-0.60)
	46780	46626	46693	46133	46352	46154	46601	43072	43560	45987	42148	46155	28391
Panel B2. Females													
Unemployment	-0.2718***	-0.1621**	-0.2272**	-0.7986***	-0.6654***	-0.4263***	-0.1483*	-0.5509***	-0.1748	-0.9333***	-0.1574**	-1.2896***	-0.193
	(-2.92)	(-2.48)	(-2.24)	(-4.31)	(-4.14)	(-3.48)	(-1.86)	(-3.68)	(-1.45)	(-5.55)	(-2.01)	(-5.15)	(-1.06)
Observations	57040	56767	56923	55295	55986	55303	56401	49815	49571	54569	48683	56029	33015
Panel C1. Young (Up to 30 Years)													
Unemployment	-0.1137	-0.0336	-0.1055	-0.5535**	-0.4431**	-0.4590***	-0.1373	-0.4120**	-0.1445	-0.7994***	-0.0607	-0.9867***	-0.1056
	(-1.27)	(-0.53)	(-1.35)	(-2.46)	(-2.28)	(-2.63)	(-1.09)	(-2.60)	(-1.11)	(-3.51)	(-0.64)	(-4.16)	(-0.71)
Observations	14488	14439	14460	13965	14190	14168	14415	13238	13380	14058	12327	14250	8712

Panel C2. Middle-Age (31-60 Years)

Unemployment	-0.2843***	-0.2245***	-0.2758**	-0.8522***	-0.7080***	-0.5018***	-0.2110**	-0.5804***	-0.1352	-1.0067***	-0.1143	-1.0512***	-0.1403
	(-3.02)	(-4.45)	(-2.58)	(-4.70)	(-4.40)	(-4.04)	(-2.16)	(-3.82)	(-1.15)	(-5.97)	(-1.48)	(-3.89)	(-0.79)
Observations	54331	54153	54242	53408	53731	53523	54013	49755	49922	53180	47921	53439	32537

Panel C3. Old (Over 60 Years)

Unemployment	-0.4470***	-0.1457	-0.2998**	-0.9288***	-0.7778***	-0.5333***	-0.1374	-0.5663***	-0.1809	-0.9763***	-0.0617	-1.3572***	-0.2363
	(-3.78)	(-1.43)	(-2.62)	(-4.97)	(-4.74)	(-3.83)	(-1.50)	(-3.44)	(-1.39)	(-5.67)	(-0.60)	(-4.34)	(-0.97)
Observations	35050	34850	34963	34101	34464	33811	34620	29932	29868	33361	30622	34542	20178

Panel D1. Attended College

Unemployment	-0.0996	-0.0307	-0.1428*	-0.7883***	-0.6388***	-0.3702**	-0.0279	-0.4264**	0.0386	-0.8687***	-0.0234	-1.2547***	-0.2134
	(-1.28)	(-0.42)	(-1.69)	(-4.71)	(-4.26)	(-2.48)	(-0.27)	(-2.59)	-0.39	(-4.42)	(-0.34)	(-5.33)	(-1.12)
Observations	29699	29643	29666	29332	29449	29421	29580	28028	28360	29415	27639	29299	19299

Panel D2. Have Not Attended College

Unemployment	-0.3595***	-0.2154***	-0.2756**	-0.8332***	-0.6881***	-0.5319***	-0.2070**	-0.5873***	-0.2105*	-0.9727***	-0.0974	-1.0480***	-0.1466
t-stat	(-3.43)	(-3.29)	(-2.47)	(-4.30)	(-4.14)	(-4.22)	(-2.14)	(-3.91)	(-1.69)	(-5.79)	(-1.17)	(-3.94)	(-0.79)
Observations	74171	73800	74000	72143	72937	72082	73469	64900	64813	71185	63231	72933	42134

The table reports OLS estimates, associating general interpersonal trust, trust towards institutions, and political beliefs at the individual level with regional unemployment. All specifications include NUTS2 fixed-effects and ESS round (time) fixed-effects (constants not reported). All specifications include as controls for age, age squared, gender, 5 education fixed effects, 8 religion fixed effects, marital status and 51 occupation fixed effects. Regional unemployment data come from Eurostat. Panel A reports results on the full sample of respondents. Panel B distinguishes between males (Panel B1) and females (Panel B2). Panel C distinguishes by three age groups, "young" (Panel A), "middle-age" (Panel B) and "old" (Panel C). Panel D distinguished by education, between college-graduates (Panel D1) and non-college graduates (Panel D2). Information on trust and beliefs come from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.

Table 19. Unemployment and Beliefs on Immigration

	Allow Immigrants			Immigrants' Role		
	Majority Race/Ethnic Group	Different Race/Ethnic Group	Poor Non-EU Countries	Economy	Cultural Life	Country Better/Worse
	(1)	(2)	(3)	(4)	(5)	(6)

Panel A. Full Sample

Unemployment	-0.4681**	-0.4870***	-0.5436***	-0.7209***	-0.1771**	-0.3345***
	(-2.35)	(-3.72)	(-3.66)	(-5.92)	(-2.08)	(-3.69)
Observations	101010	100836	100615	99430	99250	99091

Panel B1. Males

Unemployment	-0.4555**	-0.5003***	-0.5492***	-0.7891***	-0.1981**	-0.3511***
	(-2.21)	(-3.44)	(-3.34)	(-6.57)	(-2.30)	(-3.65)
Observations	45730	45635	45577	45464	45106	45112

Panel B2. Females

Unemployment	-0.4686**	-0.4615***	-0.5288***	-0.6587***	-0.1523	-0.3119***
	(-2.33)	(-3.55)	(-3.64)	(-4.92)	(-1.61)	(-3.38)
Observations	55229	55149	54987	53918	54094	53931

Panel C1. Young (Up to 30 Years)

Unemployment	-0.4739***	-0.3370***	-0.4207***	-0.4670***	-0.0422	-0.1544
	(-2.69)	(-2.72)	(-3.53)	(-5.93)	(-0.48)	(-1.47)
Observations	14206	14196	14187	14062	14128	14002

Panel C2. Middle-Age (31-60 Years)

Unemployment	-0.4470**	-0.4923***	-0.5241***	-0.7266***	-0.1770*	-0.3410***
	(-2.26)	(-3.55)	(-3.32)	(-5.85)	(-1.79)	(-3.39)
Observations	52951	52890	52816	52577	52533	52263

Panel C3. Old (Over 60 Years)

Unemployment	-0.5580**	-0.6374***	-0.7023***	-0.9328***	-0.3406***	-0.4751***
	(-2.39)	(-4.39)	(-4.06)	(-4.97)	(-3.00)	(-3.75)
Observations	33847	33744	33606	32785	32584	32821

Panel D1. Attended College

Unemployment	-0.4086*	-0.3240**	-0.3769**	-0.5872***	-0.0573	-0.2776***
	(-1.85)	(-2.29)	(-2.22)	(-4.61)	(-0.68)	(-2.82)
Observations	29127	29095	29045	29077	29285	28944

Panel H. Have Not Attended College

Unemployment	-0.4784**	-0.5348***	-0.5956***	-0.7689***	-0.2170**	-0.3600***
	(-2.41)	(-3.95)	(-4.07)	(-5.88)	(-2.26)	(-3.60)
Observations	71878	71736	71565	70347	69960	70142

The table reports OLS estimates, associating attitudes-beliefs on immigration at the individual level with regional unemployment. All specifications include NUTS2 fixed-effects and ESS round (time) fixed-effects (constants not reported). All specifications include as controls for age, age squared, gender, 5 education fixed effects, 8 religion fixed effects, marital status and 51 occupation fixed effects. Regional unemployment data come from Eurostat. Panel A reports results on the full sample of respondents. Panel B distinguishes between males (Panel B1) and females (Panel B2). Panel C distinguishes by three age groups, "young" (Panel A), "middle-age" (Panel B) and "old" (Panel C). Panel D distinguished by education, between college-graduates (Panel D1) and non-college graduates (Panel D2). Information on trust and beliefs come from the European Social Surveys (ESS). The Data Appendix gives detailed variable definitions and sources. Standard errors are adjusted for clustering at the country-level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% confidence level.