

Institutions matter: The impact of the covid-19 pandemic on the political trust of young Europeans

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Abstract

In this paper, we study the short-run evolution of political trust during the recent covid-19 pandemic using survey data for a sample of young individuals living in Germany, France, Italy, and Spain. In particular, we analyze whether pre-pandemic perceptions and experiences of citizens about various dimensions of local governments and institutional quality had any mediating effect on the evolution of political trust after the outbreak of the covid-19 pandemic. The results show a relative increase in political trust of about 9% in regions with high institutional quality (75th percentile) compared with regions with low institutional quality (25th percentile) over the period 2019–2020. This divergence can be associated with either a better performance of policymakers in high-quality institutions regions, or to more positive attitudes toward politicians by citizens that, before the pandemic, believed to live in regions with efficient institutions. Overall results are not affected by the inclusion of regional fixed effects or by possible differential evolution of political trust according to a large set of observable regional characteristics.

KEYWORDS

COVID-19, Europe, institutions, political trust, regional differences

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1 | INTRODUCTION

Recent research in economics (Alesina & Giuliano, 2015; Nunn, 2020) has highlighted that major economic, political, military, climatic, or health shocks might have important and very persistent effects on contemporary economic outcomes by causing institutional changes and by favoring the evolution of certain cultural traits, such as trust. Indeed, not only trust levels are highly heterogeneous across countries, but also across regions within countries (Tabellini, 2010) and higher levels of trust have been found to favor economic development through various channels, for example, by promoting innovation, trade, and financial development or by influencing the organization of firms and the labor market (Algan & Cahuc, 2013). Trust levels are ingrained in local communities since they are, to a large extent, the by-product of history and given the role of the family in transmitting trust attitudes (Bisin & Verdier, 2001), the latter tend to be slow moving over time; however, this does not rule out the possibility that the contemporaneous environment, in its economic, social, or political facets, can significantly influence trust levels, or some of its key components (Algan & Cahuc, 2013). In particular, recent research has shown that trust in political institutions¹—which is typically understood as trust in political parties, in parliament or government, or trust in politicians as political actors—may be negatively affected by the occurrence of large negative economic shocks, such as important recessions or large increases in unemployment (Algan et al., 2017; Kroknes et al., 2015; Stevenson & Wolfers, 2011, among the others). Interestingly, Aksoy et al. (2020) have recently documented, for a large panel of countries, that individuals exposed to a pandemic shock during youth tend to have lower trust in political institutions in later stages of life; moreover, authors find that this effect is largely driven by individuals who experienced a pandemic under a “weak” government, that is, less able to cope with the effects of the pandemic.

The existence of high levels of political trust is therefore of paramount importance to promote the functioning of a vibrant democracy and to foster economic development, as highlighted by a rich literature in political science (Listhaug & Ringdal, 2008; Marien & Hooghe, 2011; Norris, 1999). Indeed, as documented in Algan et al. (2017), the deterioration of trust in political institutions is often associated with the rise of populist parties and politicians who, despite their antielitist rhetoric, favor policies that are against the interests of population at large (Funke et al., 2020; Magud & Spilimbergo, 2021) and, when in opposition, sometimes succeed in steering the political discourse of traditional parties toward more populist political platforms (Acemoglu et al., 2013).²

In this study, we analyze whether the burst of the covid-19 pandemic affected the level of trust in political institutions in the short term for a unique representative survey of young people, aged between 18 and 35, belonging to the four largest EU countries, namely Germany, France, Italy, and Spain, observed during the years 2019, that is, before the outbreak of covid-19, and 2020, during the first wave of covid-19. In particular, we investigate whether citizens' pre-pandemic perception and experiences on the quality of their local governments and institutions had any mediating effect on the evolution of political trust during the outbreak of the covid-19 pandemic. Indeed, the effect of pandemics on trust in political institutions is not a priori clear. As already noted, Aksoy et al. (2020) find a decline in the level of trust in political institutions for people that experienced a pandemic in their “impressionable years,” particularly under “weak governments.” Authors explain their result by noting that pandemics are very demanding for governments and politicians at various levels; if they fail to act promptly against the pandemics, or if they are perceived to have done so, people may put the blame on incumbents, but also on politics and political institutions at large. By way of contrast, political scientists have also found in the past some evidence which is consistent with a “rally around the flag” hypothesis (Baum, 2002; Mueller, 1970). According to

¹Hardin (1998) refers to political trust as the “citizens' assessments of the core institutions of the polity and entails a positive evaluation of the most relevant attributes that make each political institution trustworthy, such as credibility, fairness, competence, transparency in its policy-making, and openness to competing views.” In turn, Zmerli and Newton (2007) argue that political trust is akin “to the concept of legitimisation, which has more profound importance for the system of government than trust in particular political leaders or the government of the day.”

²Furthermore, individuals who lose trust in politics find it more acceptable to evade taxes and break the law than those with high levels of political trust, as noted by Marien and Hooghe (2011); by way of contrast, as noted by Khan (2016), when political institutions are highly trusted, government officials are typically more likely to exert discretion whenever necessary, which in turns might lead to higher government efficiency (Baldi et al., 2016; Khan, 2016).

this hypothesis, during hard times, like wars or other sort of emergencies, people can display relatively more unity and tend to express that compactness by declaring to have more trust in incumbents or, more generally, in political institutions. A deterioration in political trust following the outbreak of covid-19 thus would emerge if the “rally around the flag” effect is not large enough to counterbalance the negative effects of the pandemics, in terms of spread of the disease, death tolls and their possible social and economic consequences. However, heterogeneity in the quality of local institutions might have contributed to alleviating the impact of covid-19 and different variations in political trust might be observed depending on the quality of local institutions. Yet, it is important to acknowledge that there is an inherent asymmetry of information between politicians and citizens about how well national and local governments and institutions have coped with the outbreak of a pandemic (Nunn et al., 2018). Indeed, people might attribute death tolls, difficulties in finding emergency beds, or a tough recession either to a poor performance of institutions and politicians at large, or simply to bad luck, and these two attitudes might in turn depend on their previous perceptions about the quality of government. In other words, also citizens’ perceptions about the quality of local institutions might have played a key role in mediating the effect of the outbreak of covid-19 on trust in political institutions.

In this study, we empirically evaluate the role played by the quality of local government on the evolution of political trust during the first wave of the covid-19 pandemic by employing the European Quality of Government (EQI) index created by the Gothenburg University (Charron et al., 2018) whose aim is to assess the quality of government at the local level (NUTS-2) as perceived and experienced by citizens. The index, which is organized on three pillars—namely quality of services (health, police force, and public education), impartiality of institutions, and perceived as well as experienced corruption—is based on experiences and perceptions of a representative sample of EU citizens and it is the only measure that seeks to provide an evaluation on the quality of governments and institutions at the local level for the EU.

It is also important to acknowledge that in Germany, Spain, and Italy (and to a lesser extent France) regional governments have important degrees of autonomy (Rodríguez-Pose & Burlina, 2021), so that not only may the EQI index capture the quality of government-provided services, but also the quality of regionally provided ones. Moreover, while we acknowledge that, during the current pandemic, in most EU countries the bulk of decisions were taken by national governments (Rodríguez-Pose & Burlina, 2021), we believe that focusing on the quality of institutions at the local level is appropriate for the current study because of the significant differences that exist, within countries, in the efficiency of providing, at the local level, public services that are under the responsibility of national governments; moreover, in some countries, regional governments, even during the pandemic, retained important roles in the provision of health services, industrial policies and so on and so forth.³

More specifically, in the econometric analysis, we test whether, during the outbreak of covid-19, individuals living in regions with higher scores in the EQI index witnessed a larger change in political trust, after controlling for regional fixed effects at the highest level of disaggregation (NUTS-3), as well as for individual characteristics that might affect political trust (age, education, work status, self-confidence in their economic prospects, etc.). We measure the impact of government quality by interacting a dummy for the year 2020 with the EQI index.

However, even controlling for regional fixed effects—which account for any time-invariant observable and unobservable characteristic of each NUTS-3 region and its effects on political trust—might not be enough to ensure a correct identification. Therefore, we also control for a very rich set of regional geographic, socioeconomic, health-related and demographic characteristics, at various levels of aggregation (generally, at the NUTS-3 or NUTS-2 level, depending on the available information) as in Durante et al. (2021). Such controls are included in the model as interactions with 2020 year dummy. Indeed, to better identify the mediating role played by the (perceived) government quality, we need to take into account how local characteristics interact with the development of the pandemic, to keep constant the effect that these local characteristics might have played in 2020 on changes in

³See also Rodríguez-Pose and Burlina (2021) who report lower excessive deaths in EU regions with more formal autonomy.

political trust beyond the role played by the (perceived) government quality. Moreover, we also control for regional (or country) time-varying variables, such as country-level stringency indexes to mobility, regional excess mortality rate and regional number of Google searches for “recession,” which should capture regional differentials in expectations of recession at the time of the interview. Finally, as an additional proxy for the severity of the pandemic, we also include the road distance from the centroid of each NUTS-3 region to the municipality of Codogno, where the first known case in Lombardy—which was the hearth of the first outbreak of the covid-19 pandemic in the four countries considered in this study—happened.

Overall results suggest that, just after the outbreak of the covid-19 pandemic, the probability that individuals declare to have trust in political institutions increases by about 9% in regions with high institutional quality (75th percentile) compared with regions with low institutional quality (25th percentile). This differential effect is not trivial, given that, on average, 70% of individuals in our sample declare to have some political trust. We also find that this effect is largely explained by two pillars of the EQI index, namely the perception of corruption and the impartiality of institutions, rather than by the quality of public services per se.

Such findings can be interpreted in two ways. First, we might argue that, in regions characterized by higher levels of local government quality, the pandemics and its consequences have been addressed more efficiently, so that citizens put less blame on politicians; in addition, a possible “rally around the flag” effect might also explain the increase in political trust in high quality of institutions regions. Alternatively, since the EQI index is partially based on subjective perceptions, our results might also reflect the possibility that individuals living in regions with high perceived government quality simply did not blame politicians for the consequences of the pandemics. This would be exactly consistent with Nunn et al. (2018), who find that government turnover after a recession is less likely in high-trust democratic countries. Wrapping up, our data are consistent with the idea that the perceived quality of institutions has played a key role in providing the “antibodies” to prevent possible collapses of people’s confidence in politics associated to the pandemic crisis, at least in the short run.

Overall findings are robust to a series of sensitivity checks. First, we verify that they do not simply capture differential pre-trends in political trust in high-EQI regions, by using information from the European Social Survey (ESS) over the period 2010–2018 (i.e., the parallel trend assumption required by the D-i-D design is satisfied). Second, we perform a placebo analysis and we confirm our results after randomly allocating the EQI indicator across individuals and NUTS-2 regions.⁴ Finally, we perform heterogeneity analysis and we find that our results are higher in magnitude for the youngest individuals.

This study speaks to different strands of literature, the first being the one analyzing the role played by shocks on the evolution of trust and other cultural traits (Alesina & Giuliano, 2015; Nunn, 2020). Within this literature, Nunn and Wantchekon (2011) analyze the effects of the slave trade on current levels of trust in Africa; in turn, Buggle and Durante (2021) show how the emergence of trust and cooperative behavior in Europe is associated with climate variability at the local level, similarly to Giuliano & Nunn (2021), who find a strong association between past intergenerational climate variability and current cultural persistence.

This study is also related to the large literature in economics and political science that explores the role of shocks on the evolution of political trust. Among others, Roth et al. (2011) find that the 2008 financial crisis was associated, in Europe, with a significant reduction in citizens’ trust in government and parliament, especially in Greece, Spain, Ireland, and Portugal, while Stevenson and Wolfers (2011) highlight how countries that have experienced a more significant increase in unemployment are those that have suffered the greatest reduction in the level of public trust in institutions (see also Nunn et al., 2018); similarly, Campante et al. (2020) study the impact of the Ebola scare in the United States on the behavior of voters and politicians during the midterm elections.⁵

⁴Moreover, we also test for the existence of unobservable bias due to unbalancing of individual-level covariates using the test proposed by Pei et al. (2019).

⁵See also, among the others, Roth et al. (2011) on inflation and political trust; Kroknes et al. (2015) on the 2008–2010 crisis on political trust in Europe.

Finally, this study fits in the literature on the interplay between the evolution of covid-19, individual behavior, trust, and social capital at the regional level. Within this framework, Durante et al. (2021) study the role played by social capital on compliance with containment measures and social distancing during the first wave of the covid-19 pandemics in Italy. Using data on mobility across Italian provinces, authors find that social capital played a primary role in reducing mobility, both before and after the government-mandated lockdowns. Daniele et al. (2020) apply a randomized survey flow treatment design for a representative sample of individuals living in four EU countries and show that covid-19 has led to a reduction in trust in institutions, as well as a lower support for tax-funded social spending and a lower trust in European Institutions. Moreover, Oksanen et al. (2020) suggest that countries with lower institutional trust before the pandemic experienced more deaths and implemented restrictions later.⁶

In turn, Rodriguez-Pose and Burlina (2021) examine the geography of excess mortality during the first 6 months of the covid-19 pandemic and find that excess mortality is mainly concentrated in a limited number of highly connected, colder regions with a lot of air pollution and an “underfunded” healthcare system. They also find that institutions (both formal and informal) have played a non-negligible role.⁷

This study contributes to the aforementioned stream of literature in different ways. While there are some recent papers that have sought to assess the impact of covid-19 on political trust using surveys taken during the pandemic, ours is, to the best of our knowledge, the first study to use representative surveys for the largest EU countries conducted before and during the pandemics. Moreover, this is the first paper to explore the role of perceived quality of local government at the regional level on the evolution of political trust during the covid-19 pandemic. The study most closely related to ours is that of Aksoy et al. (2020); however, while it examines the impact of having experienced a pandemic during young-hood on political trust in adult-hood, we focus on the short-term effects of the current covid-19 pandemic on political trust as mediated by the (perceived) quality of local government.

The rest of the paper is organized as follows. Section 2 describes the data, while Section 3 presents the identification strategy. In Section 4 we report the main results, some robustness checks as well as some tests for the validity of the research design, while further robustness checks are shown in Appendix A1. Finally, Section 5 concludes.

2 | DATA AND DESCRIPTIVE STATISTICS

Data for the study come from a series of international surveys carried out by IPSOS for the “Giuseppe Toniolo Institute of Higher Education.” The main objective of the surveys is to provide a comprehensive and detailed source of information on the new generations living in different European countries. In particular, for the purposes of our research, we rely on a repeated cross-sections database for the years 2019 and 2020.

In 2019, the IPSOS survey focuses on issues related to political participation and expectations of young Europeans and includes rich information related to perceptions on the future of individual's country of residence, the future of the European Union, trust in political institutions, political positioning, social engagement and so on. On the other hand, in the wake of the covid-19 pandemic, the 2020 international questionnaire was “ad hoc” created to monitor the health, relationships and living conditions of young Europeans. Thus, for the year 2020, the survey contains additional information on the perception of the covid-19 risk, the use of the internet, as well as on the use of online services, social networks and, more generally, on communication during the pandemic. Moreover, the survey includes a set of questions concerning expectations about the future in general, the future of Europe, and trust in institutions.

⁶See also Schraff (2020), Bol et al. (2021), Falcone et al. (2020), and Esaiasson et al. (2020).

⁷There is also a series of papers on the performance of populist governments during the covid-19 pandemics which tends to find somewhat conflicting results. See, for instance, Kavakli (2020) and Wondreys and Mudde (2020), among the others.

As far as it concerns the composition and characteristics of our sample, the database contains interviews of young people who live in four different countries: Italy, Spain, France, and Germany.⁸

The pre-pandemic data refer to 2019 and are the result of a survey involving 4000 individuals (1000 for each country), while the 2020 post-pandemic data are the result of a survey of 5000 individuals (1000 for Spain, France, and Germany and 2000 for Italy). Both surveys were carried out using casual stratified sampling, with the strata being defined using the following variables: age, gender, geographical origin, the size of the municipality, education level, marital status, and labor market condition. More specifically, in both years the strata were constructed to obtain, for each country, a representative sample of the population.⁹ To this end, we used sample weights,¹⁰ which were constructed from the population distribution according to Eurostat data from 2019. To sum up, our sample consists of 9000 young individuals aged 18–34 and observed in 2019 and 2020, representative of the population in each of the four countries included in the survey.

The sociodemographic information (at the individual level) contained in both surveys are related to age, gender, NUTS-3 region of residence, educational qualifications, size of the household and worker status of individuals; in addition, we also consider a proxy related to insecurity/confidence in one's own abilities and in the future (self-confidence).¹¹

The political trust indicator in 2019 is based on a question on the importance that individuals attribute to vote for political elections, while in 2020 we rely on a direct question on trust in political parties within the framework of the covid-19 pandemic. An alternative political trust indicator adopted in the robustness analysis refers to the 2019 question, "I consider the act of voting to be consistent with my values," and to the 2020 question explicitly asking about individuals trust in the national government during the pandemic.¹² In the next subsections, as well as in Appendix A, we explain in detail the definition of all variables that have been included in the different model specifications.

2.1 | Quality of institutions data

With regard to the quality of institutions, we consider the European Quality of Government Index (EQI) at the NUTS-2 level that is provided by the European Quality of Government Institute of Gothenburg University, funded by the European Commission. Government quality is defined as a multidimensional concept and is based on three main pillars: quality/effectiveness, impartiality, and corruption.

The quality pillar is created from individual-level questions on the quality of public education system, public health system, and police force. The impartiality pillar is based on questions related to "advantages that certain people have in the public education system, the health system, the police force and the tax authority,"¹³ while the third pillar, that is, corruption, corresponds to the definition of "public abuse for private gain." The corruption indicator includes two components: perceived corruption and experienced corruption. The first component reflects answers to questions on perceived corruption in public schools, health system and police, on whether "People in my area must use some form of corruption to just get some basic public services," as well as "Corruption in my area is used to get access to special unfair privileges and wealth" and "Elections in my area are clean from

⁸Although the survey also includes a sample of young people living in the United Kingdom, we decided not to consider them since UK data are not fully reliable for reasons associated with the Brexit process.

⁹Also Luppi et al. (2021) used the "Rapporto Giovani" international data set. For more details, see <https://www.rapportogiovani.it/osservatorio/>

¹⁰Sampling weights were calculated as the ratio of the proportion in the population and the proportion of the sample in each stratum. The interviews were conducted using the CAWI method (Computer-Aided Web Interviewing).

¹¹For more details, see Appendix A.2.

¹²In Appendix A2 we explain in more detail how the political trust and control variables are built.

¹³The impartiality pillar reflects the ideas of the theory of impartial government proposed by Rothstein and Teorell (2008).

corruption.” Experienced bribery, on the other hand, is based on direct questions about whether a public official asked the respondent or family members to pay a bribe, or if the respondent or family members have voluntarily paid a bribe.

The EQI is the only institutional quality indicator available for European NUTS-2 regions, whereas additional measures are available at the country level (see, among others, Eurobarometer Data on Corruption in Institutions, World Bank Worldwide Governance Indicators and Doing Business data, as well as World Economic Forum—Global Competitiveness Index Data). In particular, in our main analysis, we use the most recent EQI index available for the pre-2019 period, that is, the EQI 2017,¹⁴ while previous releases of the index are used in the robustness analysis.

Figure 1 shows the distribution of the EQI index at NUTS-2 region level in Europe, while Figure 2 shows a comparison between the lowest (Calabria, red), the highest (Bavaria, green), and the average EQI value (Europe, blue) observed in 2017. Both figures highlight a significant institutional quality heterogeneity across European regions.

2.2 | Eurostat and ESS data

Most variables used in our analysis have been provided by Eurostat.¹⁵ These include time invariant pre-pandemic (2018) macroeconomic indicators, like per capita GDP of NUTS-3 regions, the NEET (neither in employment nor in education or training) rate¹⁶ and the employment rate in high-tech sectors for NUTS-2 regions. Figure 3 shows the substantial heterogeneity in per capita GDP at the NUTS-2 region level across European countries. Moreover, we account for the different degrees of accessibility to broadband of NUTS-2 regions in 2018.

Concerning covid-19-related information, we consider time-invariant 2018 information for the percentage of people over 65 years of age, the share of women over the entire population for NUTS-3 regions, the number of air passengers, and the number of physicians per 100 thousand inhabitants for NUTS-2 regions. Moreover, we use the total mortality rate in 2019 and 2020 for NUTS-3 regions.

With regard to sociodemographic variables, we include time-invariant 2018 values for population density at NUTS-3 level, the number of households with an Internet connection and a variable that takes into account the amount of time the population spends on social networks (NUTS-2).

In addition, to verify the existence of parallel trends in the pre-pandemic period, we also used 2010–2018 data on Political Trust from the ESS. The ESS is a biennial cross-national and cross-sectional survey of attitudes and behavior established in 2001, whose samples are representative of all persons over 14 years old that are resident in each country. The question concerning political trust included in the ESS is “How much do you trust political parties,” and possible answers range from 0 “No trust at all” to 10 “Complete trust.”¹⁷ From ESS we also recover some time-invariant geographical controls, like a dummy for NUTS-3 urban versus rural regions, ruggedness, area, and distance from the coast of the centroid of the various NUTS-2 regions.

¹⁴The latest version of the indicator was released in 2021.

¹⁵The main source of our Eurostat data is “Eurostat Regions Database” available at <https://ec.europa.eu/eurostat/web/regions/data/database>

¹⁶German data (both from Eurostat and other sources) are often only available at the Länder level which are comparable with other European NUTS-2 regions.

¹⁷For the purposes of our analysis, with the aim of obtaining a summary indicator to implement our parallel trend analysis, we use a dummy that has value one if trust in the parties is greater than or equal to 6, and zero otherwise. In the ESS there are also other questions related to political trust, such as trust in parliament. In Appendix A3 we provide more details about the ESS variables included in the parallel trend analysis (<https://www.europeansocialsurvey.org>)

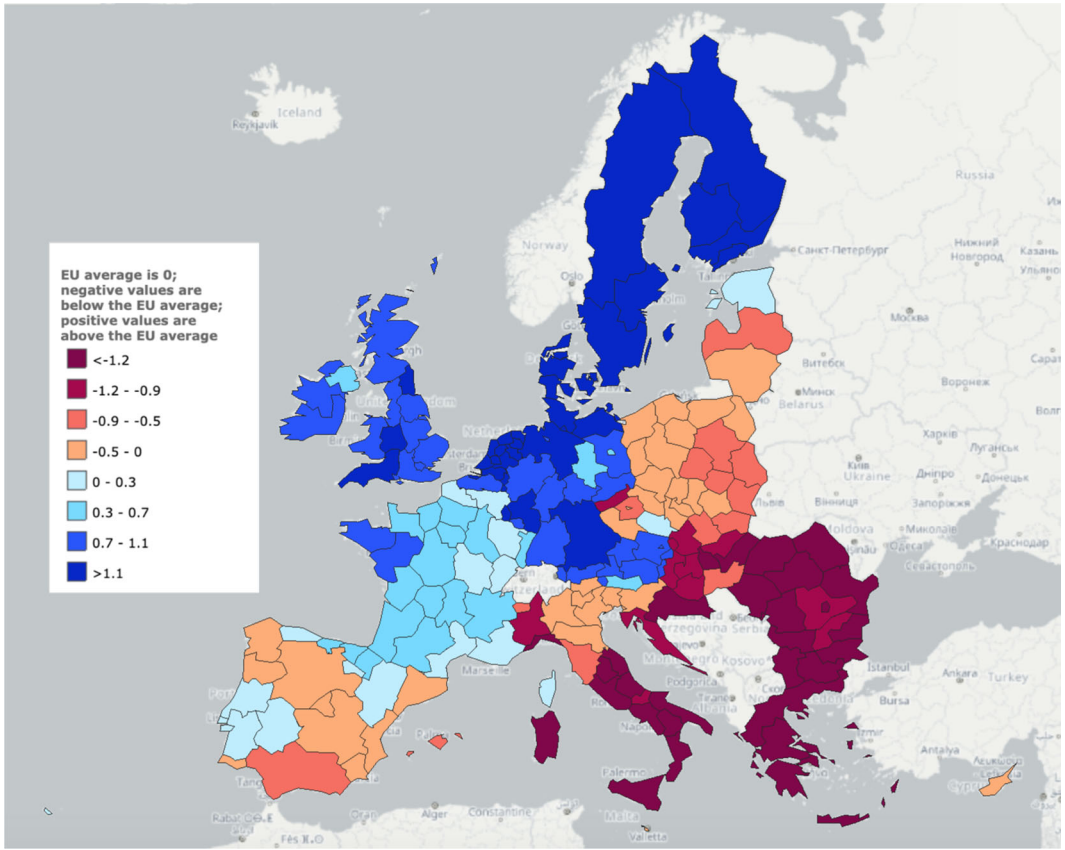


FIGURE 1 Map of the European 2017 EQI index at the NUTS-2 region level [Color figure can be viewed at wileyonlinelibrary.com]

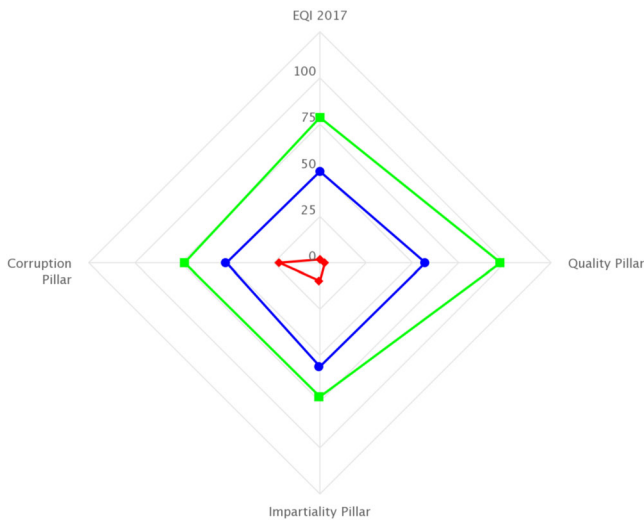


FIGURE 2 European 2017 EQI index: a comparison between the Italian region of Calabria and the German region of Bavaria [Color figure can be viewed at wileyonlinelibrary.com]

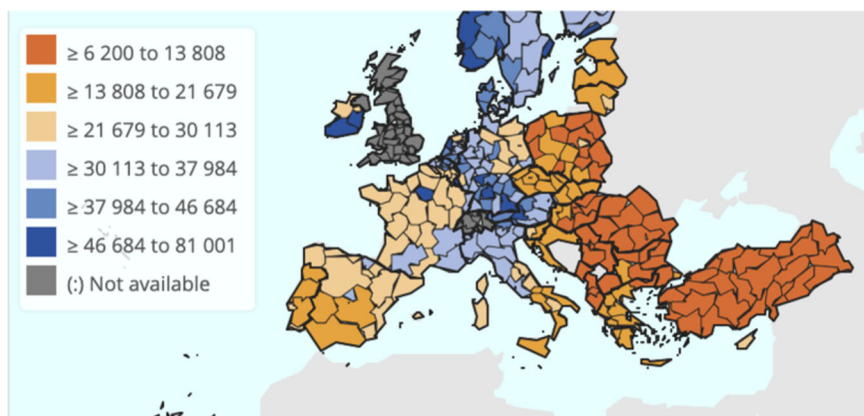


FIGURE 3 Map of the European 2018 GDP per capita at the NUTS-2 region level [Color figure can be viewed at wileyonlinelibrary.com]

2.3 | Google Trends and other data

To evaluate people sentiment on economic crisis during the pandemic, we consider the number of times people searched for the item “recession” on Google Trends over the same time span covered by the survey in 2019 and 2020.¹⁸

Turning to other control variables, we measure the geodetic distance of each NUTS-3 region centroid from Codogno (the Italian city where the first wave of covid-19 started) by using the Q-GIS software.¹⁹ Moreover, we include a country-level indicator on the stringency of different measures adopted to limit the pandemic. In particular, we recover data from the Oxford Covid-19 Government Response Tracker (OxCGRT), which collects information on governments policy responses, such as school closures, travel restrictions, and mask use among others.²⁰

Descriptive statistics for variables included in the model are presented in Table 1.

3 | IDENTIFICATION STRATEGY

To identify the role played by the quality of local institutions on the evolution of political trust (Y), we estimate various versions of the following equation, where i denotes individuals and $c(r)$ denotes NUTS-3 (NUTS-2) region at year t :

$$Y_{ict} = \beta(EQI_r \times Post_t) + \delta X_{ict} + \gamma W_{c(r)} \times Post_t + \eta Z_{c(r)t} + \mu c + \tau t + \epsilon_{ict}. \quad (1)$$

The coefficient of interest β is associated with the interaction of the pandemic dummy variable ($Post_t$), equal to one in 2020, and the EQI_r index, which varies at the NUTS-2 level. This coefficient should capture the differential

¹⁸More specifically, we consider for Italy: recessione, for France: récession, for Germany: rezession, and for Spain: recesión.

¹⁹Durante et al. (2021).

²⁰This indicator is available from March 2020, that is, from the outbreak of the covid-19 pandemic. For the previous year, that is, 2019, we assign a value of zero to this variable, as none of the countries involved in the study had restrictive measures in place.

TABLE 1 Descriptive statistics

Variables	Mean	Std. dev.	Min	Max	Obs.
Political trust	0.70	0.46	0	1	9000
EQI index	-0.06	0.91	-2.089	1.399	9000
Age	27.16	4.51	18	34	9000
Woman	0.49	0.50	0	1	9000
Woman, share (NUTS-3)	104.75	2.18	96.9	109.3	9000
Individuals living alone	0.17	0.38	0	1	9000
Self-confidence	0.71	0.45	0	1	9000
Education	2.01	0.71	1	3	9000
Workers status	0.54	0.50	0	1	9000
Air passengers (NUTS-2)	24,746.88	26,741.61	0	10,531	8949
Broadband access (NUTS-2)	87.98	5.34	74	97	9000
Mortality rate (NUTS-3)	0.03	0.06	0.01	0.07	9000
Distance from Codogno (NUTS-3)	701.48	424.06	11.42	3034.52	9000
GDP per capita (NUTS-3)	33,155.69	16,383.44	15,000	180,900	9000
People over 65 years of age (%) (NUTS-2)	0.21	0.03	0.11	0.29	9000
Physicians per 100,000 inhabitants (%) (NUTS-2)	392.69	57.40	259.75	831.58	8997
NEET rate (NUTS-2)	0.16	0.08	0.05	0.39	9000
Urban area (NUTS-3)	0.50	0.50	0	1	9000
Population density (NUTS-3)	936.84	2514.94	8.7	21,069.80	9000
High tech employment (rate) (NUTS-2)	3.71	1.84	0.80	7.9	9000
Area (NUTS-3)	4469.99	3927.15	13	21,766	8989
Ruggedness (NUTS-2)	1.52	0.99	0.047	7.44	8985
Distance from the coast (NUTS-2)	135.28	113.04	12.52	419.23	8985
Social networks use (NUTS-2)	49.41	7.19	30	64	9000
Stringency index (country)	23.41	27.49	0	69.91	9000
Google Trends search (topic: recession) (NUTS-2)	54.62	20.35	0	100	9000

Note: Data set from IPSOS, international surveys (2019, 2020), Giuseppe Toniolo Institute of Higher Education. The sample consists of young adults between 18 and 34 years of age. Here, as in all other analyses, sample weights are applied. The mortality rate variable is derived from EUROSTAT weekly data at the NUTS-3 level. For this and other variables, Eurostat provides data at the NUTS-3/NUTS-2 level for all countries, except Germany, whose data are available only at the NUTS-1 level.

Abbreviation: EQI, European Quality of Government Index.

change, in 2020 relative to 2019, in political trust of individuals living in regions characterized by a high level of local institutional quality with respect to those with low levels of institutional quality.

In turn, $X_{i,t}$ represents a vector of controls for individuals' observable characteristics that may affect political trust, such as age, sex, educational qualification, worker status, self-confidence and whether the individual lives or not alone, while $W_{c(t)}$ is a vector of time-invariant variables defined at regional level (at different levels of

aggregation, depending on the available information) accounting for different geographic, economic, socio-demographic, internet-related and covid-related characteristics.²¹ Regional controls measured in 2018 are interacted with the pandemic dummy ($W_{c(r)} \times Post_t$) to account for possible different evolution in political trust associated with regional characteristics that might be correlated with the level of institutional quality. Time-varying regional NUTS-3 (NUTS-2 or country) characteristics are represented in the vector $Z_{c(r)t}$ that includes a proxy for “fear” of a recession in each region, regional mortality rate as well as a measure of the degree of stringency of pandemic containment rules at the country level.

Finally, μ_c and τ_t are NUTS-3 region and time fixed effects respectively. The regional fixed effects control for any unobservable time-invariant heterogeneity that could be correlated with both political trust and the quality of local institutions, while τ_t is the 2020 dummy that should capture macroeconomic shocks that are common to all individuals.

The identification assumption that allows us to interpret β causally in Equation 1 is that, conditionally on individual controls, regional time-varying controls $Z_{c(r)t}$ and regional fixed effects, the differential change in political trust in 2020 in high institutional quality regions is not related to factors others than those we control for by means of the $W_{c(r)} \times Post_t$ interaction term. Moreover, we test the robustness of our identification strategy in two ways. First, we verify that political trust was not on a different trend in high-quality versus low-quality of institutions regions in the pre-pandemic period. Because our survey was never carried out before 2019, we evaluate parallel trends over the 2010–2018 period by using information from the ESS database. Furthermore, we undertake a placebo test that supports our empirical results.

4 | EMPIRICAL RESULTS

Estimates on the effect of covid-19 pandemic on political trust in European regions characterized by different levels on institutional quality are shown in Table 2, based on a sample of young individuals between 18 and 34 years of age.

The first column shows the baseline specification which includes, together with the interaction term between the pandemic dummy and the institutional quality index, a full set of NUTS-3 and time fixed effects. Columns (2)–(6) report estimates obtained after progressively augmenting the baseline model with a richer set of controls. In particular, covid-related, geographic, socio-economics and Internet-related controls (measured in the pre-pandemic period) enter the model interacted with the pandemic dummy to account for possible different evolution in political trust associated with regional characteristics that might be correlated with the level of institutional quality.²²

Our coefficient of interest is significantly positive, thus suggesting that the covid-19 pandemic has increased political trust for individuals living in high institutional quality regions, compared with those living in low-quality ones. The estimated coefficient of the interaction term between the pandemic dummy and the institutional quality index reported in Table 2, column (6) implies an increase in political trust of 8.9% in regions with high institutional quality (75th percentile) relative to regions with low institutional quality (25th percentile).²³

²¹Geographic controls include, among others, population density, urban versus rural areas, surface area, ruggedness; economic ones are per capita GDP, NEET rate, unemployment rate, high-tech employment rate; sociodemographic and Internet-related variables are people at poverty risk, number of physicians per 1000 inhabitants, number of households with Internet connection, people over 65 on total population while covid-related characteristics are the distance from Codogno, where the first outbreak of covid-19 case happened in February 2020.

²²Among the geographic controls, the distance from the Italian municipality of Codogno is included as the latter is the first known covid-19 outbreak in the four countries in the sample. However, since it is possible that the virus circulates faster within, rather than between countries, we alternatively include the distance from the first known covid-19 outbreak in each of the four countries, namely Codogno, Madrid, Heisberg, and Les Contamines Montjoie for Italy, Spain, Germany, and France, respectively. Geodetic distances of each NUTS-3 region centroid from region-specific epicenters are calculated with the Q-GIS software. Results are fully robust to this alternative specification.

²³The political trust differential was calculated by multiplying the coefficient of interest reported in column (6) by the difference between the EQI value at the 75th and 25th percentile of its distribution. The number obtained should therefore be interpreted as the differential evolution in political trust in 2020 with respect to 2019 between a region at the 75th percentile of the EQI distribution relative to a region at the 25th percentile of the EQI distribution.

TABLE 2 Impact of covid-19 pandemic on political trust across regions with different institutional quality

Dep. Var: Political Trust	(1)	(2)	(3)	(4)	(5)	(6)
<i>Qual.Inst.2017 × Post</i>	0.0599***	0.1135***	0.1060***	0.1169***	0.0763***	0.0813**
	(0.0203)	(0.0208)	(0.0204)	(0.0199)	(0.0272)	(0.0329)
NUTS-3 FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Google Trends controls (TV)		Yes	Yes	Yes	Yes	Yes
Stringency index × Post		Yes	Yes	Yes	Yes	Yes
Personal controls (TV)			Yes	Yes	Yes	Yes
Mortality rate (TV)				Yes	Yes	Yes
Covid related controls×Post				Yes	Yes	Yes
Geographic controls × Post					Yes	Yes
Socioeconomic controls × Post						Yes
Internet-related controls × Post						Yes
Observations	8938	8931	8931	8880	8837	8837
R ²	0.1441	0.1489	0.1619	0.1623	0.1625	0.1629

Note: The variable *Qual.Inst.2017 × Post* is the diff-in-diff interaction term between the EQI 2017 Indicator and the 2020 year dummy. TV stands for time varying. Personal controls include: age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at the individual level for the level of self-confidence. Covid related controls include the percentage of over 65 aged people, share of women over the entire population, number of air passengers, and number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion, and the share of high tech firms, while Internet-related controls are the number of households with Internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

**Significant at 5%.

***Significant at 1%.

To better understand the role played by the quality of local institutions as a mediating factor on the evolution of political trust during the outbreak of the covid-19 pandemic, we conduct a more detailed analysis by considering a different release of the EQI index and by analyzing its components.

In the first column of Table 3 we report estimates of the model that includes a full set of controls where the EQI index is measured in 2013. Indeed, according to the European Quality of Government report (2017), index differentials across European regions in 2017 are slightly lower with respect to the past;²⁴ nevertheless, all previous findings are confirmed.

We further analyze this issue by considering the different EQI pillars: quality, impartiality, perception of corruption and corruption experience. Estimates reported in Table 3 highlight that our main results are driven by EQI components related to impartiality²⁵ and to the individuals' perception of corruption and corruption

²⁴Anyway, as evident from Table A6 in Appendix A3, the correlation between the various editions of the EQI (i.e., 2010, 2017, and 2021) is very high.

²⁵This subindicator is based on questions about whether there are any special advantages in reserving access to public health care or to the public education system. In addition, there are questions about whether police forces and tax authorities treat all people equally. For more information, see the data section or Appendix A.

TABLE 3 Impact of covid-19 pandemic on political trust across regions with different institutional quality for past EQI index as well as different components of the 2017 EQI index

Dep. var: Political Trust	(1)	(2)	(3)	(4)	(5)
<i>Qual.Inst.2013 × Post</i>	0.0640*** (0.0190)				
<i>Quality Pillar × Post</i>		0.0033 (0.0294)			
<i>Impartiality Pillar × Post</i>			0.0892*** (0.0210)		
<i>Subj. Corruption Pillar × Post</i>					0.0731** (0.0316)
NUTS-3 FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Google Trends controls (TV)	Yes	Yes	Yes	Yes	Yes
Stringency index × Post	Yes	Yes	Yes	Yes	Yes
Personal controls	Yes	Yes	Yes	Yes	Yes
Mortality rate (TV)	Yes	Yes	Yes	Yes	Yes
Covid related controls × Post	Yes	Yes	Yes	Yes	Yes
Geographic controls × Post	Yes	Yes	Yes	Yes	Yes
Socioeconomic controls × Post	Yes	Yes	Yes	Yes	Yes
Internet-related controls × Post	Yes	Yes	Yes	Yes	Yes
Observations	8837	8837	8837	8837	8837
R ²	0.1633	0.1624	0.1631	0.1625	0.1629

Note: The variable *Qual.Inst.2013 × Post* is the diff-in-diff interaction term between the EQI 2013 Indicator and the 2020 year dummy. TV stands for time varying. Personal controls include age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at the individual level for the level of self-confidence. Covid-related controls include the percentage of over 65 aged people, the share of women over the entire population, the number of air passengers, and the number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion, and the share of high tech firms, while Internet-related controls are the number of households with Internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

**Significant at 5%.

***Significant at 1%.

experience.²⁶ Estimates shown in columns (3) and (5) suggest that impartiality of institutions and the perception of corruption significantly act as mediating factors on the pattern of political trust during the outbreak of the covid-19 pandemic. Thus, the more citizens perceive institutions to be impartial and corruption to be low, the more they tend to increase their political trust in times of pandemic. Moreover, estimated coefficients are similar in magnitude with respect to those obtained with the main EQI index.

To extend the analysis, we check whether the impact of the pandemic outbreak on political trust varies according to the age of individuals. In columns (1) and (2) of Table 4 we report estimates of the more

²⁶This pillar is constructed from questions related to perceived corruption in the public school system, the public healthcare system, and the police force. In addition, some questions that contribute to the formation of the subindicator are related to whether people in their area of residence have to use forms of corruption to gain access to basic public services, privileges and wealth and whether political elections are clean of corruption.

TABLE 4 Impact of covid-19 pandemic on political trust across regions with different institutional quality for different age groups

Dep. var: Political Trust	≤25 years (1)	>25 years (2)
<i>Qual. Inst.2017</i> × <i>Post</i>	0.1259* (0.0640)	0.0981** (0.0423)
NUTS-3 FE	Yes	Yes
Year FE	Yes	Yes
Google Trends controls (TV)	Yes	Yes
Stringency index × <i>Post</i>	Yes	Yes
Personal controls (TV)	Yes	Yes
Mortality rate (TV)	Yes	Yes
Covid related controls × <i>Post</i>	Yes	Yes
Geographic controls × <i>Post</i>	Yes	Yes
Socioeconomic controls × <i>Post</i>	Yes	Yes
Internet-related controls × <i>Post</i>	Yes	Yes
Observations	3142	4982
R ²	0.2022	0.2099

Note: The variable *Qual.Inst.2017* × *Post* is the diff-in-diff interaction term between the EQI 2017 Indicator and the 2020 year dummy. TV stands for time varying. Personal controls include: age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at individual level for the level of self-confidence. Covid-related controls include the percentage of over 65 aged people, share of women over the entire population, number of air passengers and number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion, and the share of high tech firms, while Internet-related controls are the number of households with Internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

*Significant at 10%.

**Significant at 5%.

extended specification based on two different subsamples, namely individuals below and above the 25 years threshold, that is, people aged 18–25 and 26–34, respectively. The coefficient of interest (*Qual Inst.* × *Post*) is statistically significant in both cases and is larger in magnitude for the subsample of youngsters. This result is in line with Aksoy et al. (2020) view that living in a region with high institutional quality seems to be a discriminating factor, in terms of crisis impact, especially for the youngest, since they are in their most “impressionable years” and are more likely to reduce their level of political trust after the pandemic.

4.1 | Parallel trends, placebo, and other robustness analysis

The validity of our identification strategy crucially relies on the assumption that, in the absence of the covid-19 pandemic, political trust for treated individuals (i.e., those who live in a region with high EQI index) would have followed the same trend of untreated units (i.e., those who live in a region with low EQI index).

To test if the parallel trend assumption holds, we recover data on political trust for the pre-pandemic period from the ESS. Figure 4 shows the pattern of average political trust observed over the period 2010–2018 (the latest

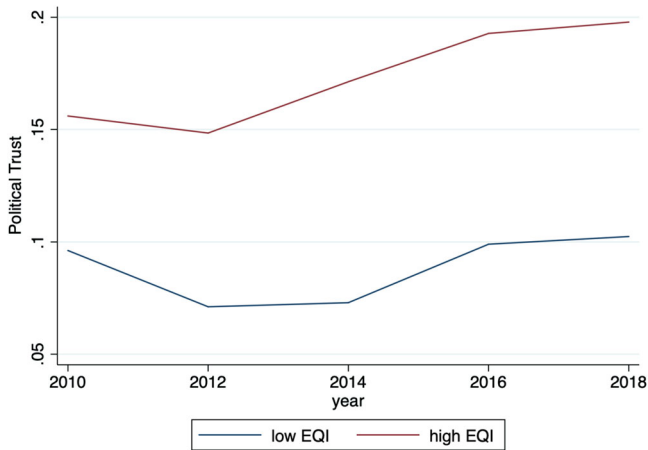


FIGURE 4 Parallel trend analysis [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

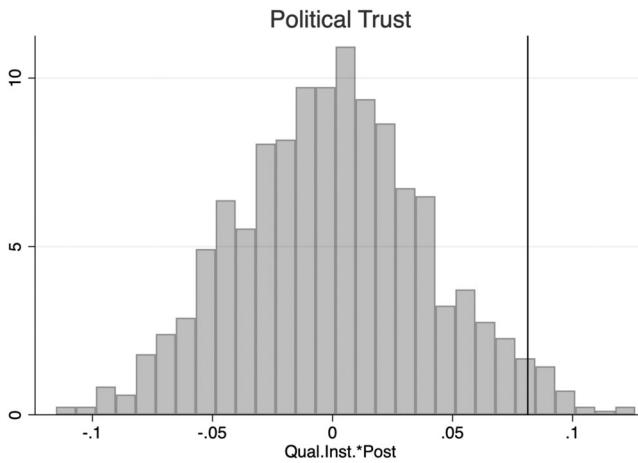


FIGURE 5 Placebo analysis. Random allocation of political trust

ESS available data) for individuals living in regions with high/low institutional quality, that is, with EQI index values above/below the sample median.

The downward trend observable in the 2010–2012 period is probably a direct consequence of the economic and financial crisis, which began in 2007 in the United States with the failure of the Lehman Brothers investment bank. Overall, the pattern of political trust seems to be very similar in the pre-pandemic period for treated and untreated individuals.²⁷

To further test the validity of our model, we randomly assign the 2017 EQI indicator across individuals and regions, preserving the original number of units in treated and control regions. Figure 5 shows frequencies of $Qual\ Inst. \times Post$ estimated coefficients obtained by estimating the specification reported in column (6) of Table 2 after reshuffling of the treatment 1000 times. The average of the estimated coefficients is centered at zero; moreover, the value obtained in our preferred specification (identified by the solid vertical line) is seldom realized

²⁷The parallel trends hold true even if we use different proxies for political trust.

TABLE 5 Test of main covariates balance

Dependent variable	Sex (1)	Age (2)	Education (3)	Worker status (4)	Family type (5)
<i>Qual.Inst.2017 × Post</i>	0.0005 (0.0259)	-0.0107 (0.0719)	-0.0586 (0.0639)	-0.0199 (0.0306)	-0.0029 (0.0289)
NUTS-3 FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Google Trends controls (TV)	Yes	Yes	Yes	Yes	Yes
Stringency index × Post	Yes	Yes	Yes	Yes	Yes
Personal controls (TV)	Yes	Yes	Yes	Yes	Yes
Mortality rate (TV)	Yes	Yes	Yes	Yes	Yes
Covid related controls × Post	Yes	Yes	Yes	Yes	Yes
Geographic controls × Post	Yes	Yes	Yes	Yes	Yes
Socioeconomic controls × Post	Yes	Yes	Yes	Yes	Yes
Internet-related controls × Post	Yes	Yes	Yes	Yes	Yes
Observations	8837	8837	8837	8837	8837
R ²	0.1144	0.1531	0.1064	0.2050	0.1901

Note: The variable *Qual.Inst.2017 × Post* is the diff-in-diff interaction term between the EQI 2017 Indicator and the 2020 year dummy. TV stands for time varying. Personal controls include age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at individual level for the level of self-confidence. Covid-related controls include the percentage of over 65 aged people, share of women over the entire population, number of air passengers, and number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion and the share of high tech firms, while Internet-related controls are the number of households with internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

out of the 1000 random replications and lies in the right tail of the simulated frequency distribution, thus providing evidence in favor of the validity of our identification design.

As an additional robustness check, we follow the approach proposed by Pei et al. (2019) and we estimate different models where some pre-determined variables capturing possible confounders and included in the main specification as control variables, are considered as alternative left-hand side variables (placebo outcomes). This approach aims to test for possible unbalancedness of pre-determined variables: if the balancing property holds, one should find a zero coefficient for the interaction variable. Pei et al. (2019) suggest that this test has more statistical power than simply including the predetermined covariates as right-hand side controls. Reassuringly, results reported in Table 5 show no significant relationship between the interaction variable *Qual.Inst. × Post* and the placebo outcomes.

Finally, we conduct a series of sensitivity checks. First, we verify that our findings are not driven by possible outliers; second, we confirm all results when we measure the quality of institutions as a dichotomous variable (high-quality vs. low-quality); third, we check that our findings are robust to the use of an alternative proxy for the degree of political trust; fourth, we control that the differential effect of the pandemic associated to different levels of regional institutional quality, holds true for all levels of institutional quality. These robustness checks are described in more detail in Appendix A1.

5 | CONCLUSIONS

In this study we explore the role played by the quality of regional institutions on the short-term evolution of political trust during the current covid-19 pandemic. The analysis is based on a survey conducted in 2019 and 2020 on two repeated cross-sections of young individuals living in France, Italy, Germany, and Spain. Main estimates suggest that, over the sample period, political trust increased by about 9% in regions with high institutional quality (75th percentile) compared with low institutional quality ones (25th percentile). In particular, by focusing on specific dimensions of institutional quality, our results suggest that such differential change in political trust is mainly associated to citizens' past perceptions of corruption and impartiality of local institutions, rather than to quality of service provision per se.

These findings, which are robust to a large battery of robustness checks, should be capturing the very short-term effects of the covid-19 pandemic on the levels of political trust, since the second survey was conducted during the first wave of the current pandemic. Indeed, these short-run results might also have important long-term implications, given that exposure to pandemics during "impressionable years" tends to have persistent effects on the degree of political trust even in later stages of life, possibly undermining the working of democratic systems.

While other studies have investigated the impact of the covid-19 pandemic on trust in politicians, this study is the first to show that the pre-existing perceived quality of political institutions may be a crucial mediating factor for the impact that a large shock, such as the covid-19 one, may have on the evolution of political trust. One important implication of this study is that a severe negative shock might leverage on pre-existing regional differentials in how citizens perceive the efficiency of political actors and institutions to further reduce their trust in politics. This in turn might lead to even more pessimistic views on how efficiently and honestly institutions are managed, possibly undermining confidence in mainstream political parties.

Our results can also have economic policy implications, since the pandemics are very likely to have had non-negligible intergenerational effects, with young people that may have borne the largest burden, at least from an economic point of view. Indeed, especially in countries like France, Italy, and Spain, firms have faced the fall in demand mostly by reducing hirings and by not renewing temporary contracts. Because the latter are much more widespread among young and low skilled individuals, the scars of the covid-19-induced recession are more likely to be severe for those groups (Causa & Cavalleri, 2020). Therefore, economic policies should explicitly aim to improve the employment prospects of young and low skilled individuals, especially those living in deprived areas, where (perceived) institutional quality might be lower. Indeed, our findings of a divergence in the level of political trust associated with the (perceived) quality of local institutions is yet another instance, together with globalization and technological progress, of the economic and political divergence across regions that has been characterizing both the EU and the United States in recent decades.²⁸ Moreover, such result fits well within the "geography of discontent" recently depicted by Rodríguez-Pose (2018), which was clearly visible in the geography of both the 2016 pro-Brexit vote and the 2019 European elections. If such regional divergence of regions where individuals feel to be "left behind" will not be reverted with appropriate regional policies that promote an increase in trust in political institutions, the stability of EU economies might be threatened in light of the close association between the fall in political trust and the rise of populist parties.

ACKNOWLEDGMENTS

We would like to thank the Toniolo Institute of Higher Education for providing us with the "Osservatorio Giovani" survey data. This study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

²⁸See Moretti (2012) and Rodríguez-Pose (2018) who have highlighted the growing disparities between regions in both the EU and the United States.

CONFLICTS OF INTEREST

The authors declare no conflicts of interests.

DATA AVAILABILITY STATEMENT

The data that have been used in this study can be classified into two categories. The first refers to data that are in the public domain, such as Eurostat (<https://ec.europa.eu/eurostat>), the European Social Survey (<https://www.europeansocialsurvey.org/>) or Google Trends. The second category is a series of surveys conducted by IPSOS on behalf of the Giuseppe Toniolo Institute of Higher Education (see the website, <https://www.rapportogiovani.it/>). The address of the Giuseppe Toniolo Institute of Higher Education is: ISTITUTO GIUSEPPE TONIOLO DI STUDI SUPERIORI Largo A. Gemelli 1, 20123 Milano; Tel. 02.72342816 - Fax 02.72342827) to whom we refer.

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How to cite this article: Bottasso, A., Cerruti, G., & Conti, M. (2022). Institutions matter: The impact of the covid-19 pandemic on the political trust of young Europeans. *Journal of Regional Science*, 1–27.

<https://doi.org/10.1111/jors.12588>

APPENDIX A

Additional robustness checks

Table A1 shows additional robustness checks. In column (1) we report estimates of our more extended specification conducted after removing from the sample the 1% of observations with the highest/lowest EQI indicator values. In column (2) we drop the 1% observations with the highest/lowest per capita income. In column (3) we remove from the sample the 1% of individuals who had the highest/lowest degree of trust in political parties in the pre-pandemic period. The coefficients of interest in all specifications are statistically significant, thus confirming the stability of our results.

Table A2 shows estimates of a polynomial order specification. The rationale for this robustness check is to verify whether the differential impact of the pandemic on our outcome of interest does not change sign (i.e., turns negative) when the EQI indicator increases. Results show that the $Qual.Inst.^2 \times Post$ coefficient is not negative, as well as not statistically significant, thus suggesting that the differential effect of the pandemic on individual political trust, according to the level of regional institutional quality, does not change sign with the level of regional institutional quality.

In Table A3 we replicate the main analysis reported in Table 2 by using an alternative measure of Political Trust (II). Overall, our main results remain the same.²⁹

Following Guiso et al. (2017), we replicate the analysis by measuring the quality of institutions with a dichotomous indicator, namely a dummy equal to one if the EQI 2017 indicator is above the 75th percentile, and zero otherwise.³⁰

Results shown in Table A4 confirm our main results. In the most extended specification shown in column 5, estimates suggest that, in high-quality institutions regions, political trust increased by about 10.5% compared with low-quality ones.

Table A5 shows results obtained by measuring the quality of institutions with an alternative dummy, which takes on value 1 if the EQI 2017 indicator is above the 50th percentile, and zero otherwise. Again, all the coefficients are statistically significant and with a comparable magnitude to those reported in Table A4.

Construction of the dependent variables dummies

As explained in the Data section, our analysis is based on a survey conducted by Istituto Toniolo and IPSOS on a repeated cross section of young Europeans (aged 18–34) from the four largest countries: Italy, Spain, France, and Germany. More precisely, the two surveys (although having some questions in common) are focused on two different issues. The 2019 survey is focused on the political participation, while the 2020 one is focused on the covid-19 pandemic and its impact on youngsters' life. The Political Trust variable employed in the main specification is based on the question from the 2019 survey, "How important is it to you to vote?" and is built as a dummy taking value 0 if the response is "0—not at all important" and "1—unimportant," and 1 otherwise (i.e., if the response was 2, 3, or 4). For the year 2020, we use the question, "In light of the covid-19 pandemic, what is your level of trust in political parties?" and we assign value 0 to the Political Trust dummy if the answer to the aforementioned question is 4 or 5 (negative or very negative), and 1 otherwise (1, 2, 3).

To build the alternative Political Trust (II) variable used in the robustness analysis reported in Table A3 of Appendix A1, we consider the question from the 2019 survey, "I consider voting consistent with my values" and we create a dummy taking value 0 if the response is "0—not true at all" and "1—not true," and 1 otherwise (i.e., if the response was 2, 3, or 4). For the year 2020, we consider the question, "In light of the covid-19 pandemic, what is your level of trust in the national government?" and we assign value 0 to the

²⁹For more information on dependent variables, see the Data section and Appendix A2 Construction of dummy dependent variables.

³⁰The initial variable for the construction of this dummy, as well as the one used in the next table, is the EQI indicator. For more information on the variables, see the Data section and Appendixes A2 and A3.

**TABLE A1** Robustness analysis to extreme values

Dep. var: Political Trust	(1)	(2)	(3)
<i>Qual.Inst.2017 × Post</i>	0.0813**	0.0680**	0.0797**
	(0.0329)	(0.0306)	(0.0330)
NUTS-3 FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Google Trends controls (TV)	Yes	Yes	Yes
Stringency index × Post	Yes	Yes	Yes
Personal controls (TV)	Yes	Yes	Yes
Mortality rate (TV)	Yes	Yes	Yes
Covid-related controls × Post	Yes	Yes	Yes
Geographic controls × Post	Yes	Yes	Yes
Socioeconomic controls × Post	Yes	Yes	Yes
Internet-related controls × Post	Yes	Yes	Yes
Observations	8837	8553	8777
R ²	0.1629	0.1649	0.1631

Note: The variable *Qual.Inst.2017×Post* is the diff-in-diff interaction term between the EQI 2017 Indicator and the 2020 year dummy. TV stands for time varying. In column (1), we drop 1% tails of the EQI indicator; in column (2), we drop 1% tails of the GDP indicator, in column (3), we drop 1% tails of political trust indicator in the pre-pandemic period. Personal controls include age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at the individual level for the level of self-confidence. Covid-related controls include the percentage of over 65 aged people, the share of women over the entire population, number of air passengers, and number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion, and the share of high tech firms, while Internet-related controls are the number of households with Internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

**Significant at 5%.

TABLE A2 Robustness to polynomial order

Dep. Var: Political Trust	(1)
<i>Qual.Inst. × Post</i>	0.0837** (0.0340)
<i>Qual.Inst.² × Post</i>	0.0191 (0.0200)
NUTS-3 FE	Yes
Year FE	Yes
Full set of controls	Yes
Observations	8837
R ²	0.1630

Note: See notes to previous tables.

TABLE A3 Robustness to alternative measure of political trust

Dep. var: Political Trust II	(1)	(2)	(3)	(4)	(5)
<i>Qual.Inst.2017</i> × <i>Post</i>	0.0893***	0.0815***	0.0836***	0.0523**	0.0506*
	(0.0186)	(0.0192)	(0.0152)	(0.0229)	(0.0287)
NUTS-3 FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Google Trends controls (TV)	Yes	Yes	Yes	Yes	Yes
Stringency index × <i>Post</i>	Yes	Yes	Yes	Yes	Yes
Personal controls (TV)		Yes	Yes	Yes	Yes
Mortality rate (TV)			Yes	Yes	Yes
Covid-related controls × <i>Post</i>			Yes	Yes	Yes
Geographic controls × <i>Post</i>				Yes	Yes
Socioeconomic controls × <i>Post</i>					Yes
Internet-related controls × <i>Post</i>					Yes
Observations	8931	8931	8880	8837	8837
R ²	0.1227	0.1311	0.1353	0.1357	0.1360

Note: The variable *Qual.Inst.2017* × *Post* is the diff-in-diff interaction term between the EQI 2017 Indicator and the 2020 year dummy. TV stands for time varying. Personal controls include age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at the individual level for the level of self-confidence. Covid-related controls include the percentage of over 65 aged people, the share of women over the entire population, the number of air passengers, and the number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion, and the share of high tech firms, while Internet-related controls are the number of households with Internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

*Significant at 10%,

**Significant at 5%,

***Significant at 1%.

Political Trust (II) dummy if the response to the aforementioned question is 4 or 5 (i.e., negative or very negative), and 1 otherwise (1, 2, and 3).

Quality of institutions, Eurostat, ESS, and Google Trends data

A.3.1 | Quality of institutions—EQI

The European Quality of Government Index (EQI) is the only European indicator that seeks to measure the quality of institutions at the regional level. Planned by the European Commission (DG REGIO) and developed by a team of researchers at the University of Gothenburg, it was first produced in 2010. Subsequently, it was updated in 2013, 2017, and 2021. The construction of the EQI index is based on a citizen-survey of respondents across NUTS-1 and NUTS-2 European regions. For each region 400–450 respondents are considered. The index has a multi-dimensional design and the concept of Quality of Institutions and Government is based on three pillars: impartiality,

TABLE A4 Robustness to alternative measure of institutional quality (I)

Dep. var: Political Trust	(1)	(2)	(3)	(4)	(5)
<i>Top 75th Qual. Inst.2017 × Post</i>	0.2168**	0.2011**	0.1959**	0.1241**	0.1060**
	(0.0332)	(0.0324)	(0.0313)	(0.0363)	(0.0395)
NUTS-3 FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Google Trends controls (TV)	Yes	Yes	Yes	Yes	Yes
Stringency index × Post	Yes	Yes	Yes	Yes	Yes
Personal controls (TV)		Yes	Yes	Yes	Yes
Mortality rate (TV)			Yes	Yes	Yes
Covid related controls × Post			Yes	Yes	Yes
Geographic controls × Post				Yes	Yes
Socioeconomic controls × Post					Yes
Internet-related controls × Post					Yes
Observations	8931	8931	8880	8837	8837
R ²	0.1496	0.1624	0.1624	0.1627	0.1631

Note: The variable *Top 75th Qual.Inst.2017 × Post* is the diff-in-diff interaction term between a dummy for fourth quartile value of the EQI 2017 Indicator and the 2020 year dummy. TV stands for time varying. Personal controls include age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at individual level for the level of self-confidence. Covid-related controls include the percentage of over 65 aged people, the share of women over the entire population, the number of air passengers, and the number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion, and the share of high tech firms, while Internet-related controls are the number of households with Internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

**Significant at 5%.

corruption, and quality/effectiveness. In the Data section and also in the Empirical results section, we have already defined in more detail some characteristics of the indicator.³¹

Table A6 shows the correlation between EQI 2010, 2013, and 2017.

A.3.2|Eurostat data

Our analysis includes information on some economic, geographic, and social characteristics observed at the NUTS-1, -2, and -3 levels taken from Eurostat. We provide a brief description of these variables in this section.³²

A.3.2.1. Mortality rate

In April 2020 Eurostat set up an exceptional data collection on total weekly deaths, to support the policy and research efforts related to covid-19. We used data for 2019 and 2020, taking into account only the periods before the implementation of the surveys (12 weeks) to have a snapshot of the difference in pre- and post-covid mortality rates in the various NUTS-3 regions, which is a proxy for assessing the impact of covid (https://ec.europa.eu/eurostat/cache/metadata/en/demomwk_esms.htm).

³¹However, for more information, see <https://ec.europa.eu/regionalpolicy/en/newsroom/news/2018/02/27-02-2018-european-quality-of-government-index-2017>

³²All variables reported in this section, except mortality rate, are time invariant.

TABLE A5 Robustness to alternative measure of institutional quality (II)

Dep. var: Political Trust	(1)	(2)	(3)	(4)	(5)
<i>Top 50th Qual. Inst.2017 × Post</i>	0.1579***	0.1493***	0.1731***	0.1161***	0.1084**
	(0.0371)	(0.0356)	(0.0319)	(0.0372)	(0.0439)
NUTS-3 FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Google Trends controls (TV)	Yes	Yes	Yes	Yes	Yes
Stringency index × Post	Yes	Yes	Yes	Yes	Yes
Personal controls (TV)		Yes	Yes	Yes	Yes
Mortality rate (TV)			Yes	Yes	Yes
Covid related controls × Post			Yes	Yes	Yes
Geographic controls × Post				Yes	Yes
Socioeconomic controls × Post					Yes
Internet-related controls × Post					Yes
Observations	8931	8931	8880	8837	8837
R ²	0.1473	0.1607	0.1625	0.1628	0.1630

Note: The variable *Top 50th Qual.Inst.2017 × Post* is the diff-in-diff interaction term between a dummy for median value of the EQI 2017 Indicator and the 2020 year dummy. TV stands for time varying. Personal controls include age, sex, educational attainment, worker status, an indicator for people living alone, as well as a proxy at individual level for the level of self-confidence. Covid- related controls include the percentage of over 65 aged people, the share of women over the entire population, the number of air passengers, and the number of physicians. Geographic controls are the population density, dummy rural/urban, ruggedness, area surface, distance from the coast, and distance from Codogno. Socioeconomic controls include the share of NEET, GDP per capita, broadband diffusion, and the share of high tech firms, while Internet-related controls are the number of households with Internet connection, amount of time spent on social network. Data are weighted with sample weights. Standard errors are clustered at the NUTS-2 region level.

**Significant at 5%.

***Significant at 1%.

TABLE A6 Correlation analysis for EQI index

Variable	EQI 2017	EQI 2013	EQI 2010
EQI 2017	1		
EQI 2013	0.938*	1	
EQI 2010	0.913*	0.953*	1

Note: For more information, see <https://www.gu.se/en/quality-government/>

A.3.2.2. Air transport passengers

The air transport regional data have been calculated using information collected at the airport level (in the frame of the regulatory data collection on air transport). Only airports with more than 150,000 yearly passengers are taken into account when aggregating the data at regional levels (NUTS-2) because they provide statistics detailed enough to prevent double counting. We consider the year 2018 (https://ec.europa.eu/eurostat/cache/metadata/en/reg_tran_esms.htm).

A.3.2.3. Over 65 on total population

Indicator of the percentage of people over 65 years of age in the total population living in a certain NUTS-2 region. We consider the year 2018 (https://ec.europa.eu/eurostat/cache/metadata/en/demo_r_gind3_esms.htm).

A.3.2.4. Women in the total population

Indicator of the percentage of women over the total population living in a certain NUTS-2 region. We consider the year 2018 (https://ec.europa.eu/eurostat/cache/metadata/en/demo_r_gind3_esms.htm).

A.3.2.5. Gross domestic product (GDP) per capita

GDP per capita at market prices is the final result of the production activity of resident producer units, divided by the population. We used data for 2018, the most recent year for which NUTS-3 level information is available for all countries in the survey (https://ec.europa.eu/eurostat/cache/metadata/en/reg_eco10_esms.htm).

A.3.2.6. Number of physicians per 100,000 inhabitants

Data refer to physicians available for providing healthcare services in the NUTS-2 region (https://ec.europa.eu/eurostat/cache/metadata/en/hlth_res_esms.htm).

A.3.2.7. Population-weighted NEET rate

Data refer to young people neither in employment nor in education and training—NEET, that is, early leavers from education and training. No statistics are available for this variable at the NUTS-3 level. We used data for the 2018, the most recent pre-pandemic year for which NUTS-2 level information is available for all of the states in the survey (https://ec.europa.eu/eurostat/cache/metadata/en/edat1_esms.htm).

A.3.2.8. High-tech employment rate

Data refer to the employment rate in high-tech industry and knowledge-intensive services (htec). However, no statistics are available for this variable at the NUTS-3 level. We used data for 2018, the most recent pre-pandemic year for which NUTS-2 level information is available for all countries in the survey (https://ec.europa.eu/eurostat/cache/metadata/en/htec_esms.htm).

A.3.2.9. Households with access to the Internet at home

Data refer to the households with access to the Internet at home at a NUTS-2 region level. The data are collected annually by the National Statistical Institutes and are based on Eurostat's annual model questionnaires on ICT (Information and Communication Technologies) usage in households and by individuals (https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm).

A.3.2.10. Social networks' frequency of use

Data refer to the time people spend on social networks (in hours) at a NUTS-2 region level. The data are collected annually by the National Statistical Institutes and are based on Eurostat's annual model questionnaires on ICT (Information and Communication Technologies) usage in households and by individuals (https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm).

A.3.2.11. Urban–rural area

The data refer to whether a certain NUTS-3 region is defined as urban, rural, or intermediate (<https://ec.europa.eu/eurostat/web/regions-and-cities>).

Figure A1 shows the 2019 NEET rate data at the NUTS-2 level for the European countries.

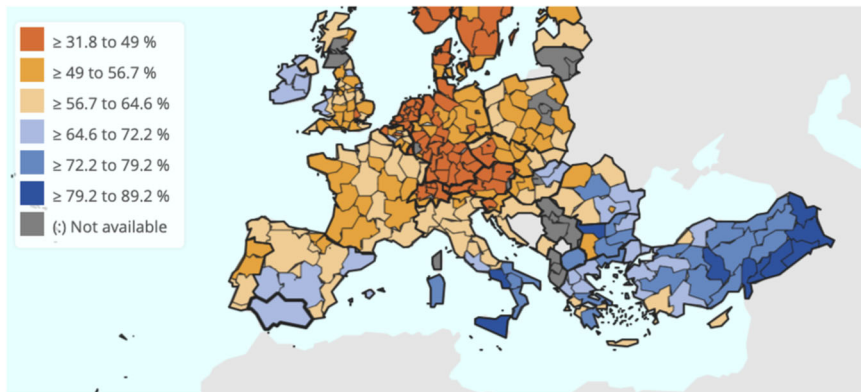


FIGURE A1 Map of the 2019 NEET rate data at the NUTS-2 level for the European countries [Color figure can be viewed at wileyonlinelibrary.com]



FIGURE A2 Google search rank for “recession” in NUTS-2 regions for Italy and Germany [Color figure can be viewed at wileyonlinelibrary.com]

A.3.3|ESS data

The ESS is a biennial cross-national and cross-sectional survey of attitudes and behavior established in 2001. ESS samples are representative of all persons aged 15 and over that are resident in each country.

In particular, we focus on the sample of individuals aged 18–34 from France, Germany, Italy, and Spain, representative of the reference population. With regard to ESS data, we build a dummy variable related to Political Trust to investigate the validity of the parallel trends assumption. This variable is based on the question, “How much do you trust political parties on a scale from 1 to 10?” We create a dummy that takes value 1 if trust is equal to or greater than 6 and 0 otherwise. In addition, from this source, we also use aggregate data at the NUTS-2 level related to geographical information such as distance from the coast (calculated from the centroid of the region), rural/urban dummy, ruggedness, and area³³ (<https://www.europeansocialsurvey.org/>).

A.3.4 |Google Trends data

In the data section we have provided a clear explanation of the construction of the data set regarding the research carried out at a NUTS-2 region level on the issue of recession in the year preceding the implementation of both surveys (2019 and 2020). In Figure A2 we give an example of how Google Trends ranks searches on the

³³Some information at both NUTS-2 and NUTS-3 levels contained in the ESS is derived from Eurostat (e.g., rural/urban dummy).



“recession” issue at the NUTS-2 level for Germany and Italy for the period from March 2019 to March 2020, that is, the year before the outbreak of the covid-19 pandemic. The dark blue color means that there has been more research in that area, while the light blue means the opposite.³⁴

³⁴Of course, in addition to the map, Google also offers data on the number of searches in the NUTS-2 region, which is what we used in the analysis.