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Social Media, Education and Euroscepticism

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Abstract

We study how the advance of nationalistic and sovereigntist ideas in Europe relates to the new technologies of political communication, education, and their interaction. Using both European-wide and national surveys, we find a strong relationship between exposure to online political activity and Euroscepticism only among less educated individuals. When distinguishing between different forms of online political activity we also find that it is not the use of the internet per se that matters, but the specific use of social networks, like Twitter or Facebook, for obtaining information about politics. Our results turn out to be robust to the use of instrumental variables intended to capture the speed of connection available and the relative easiness of using internet and social media.

Key words: Euroscepticism, Internet, Social Media, Education

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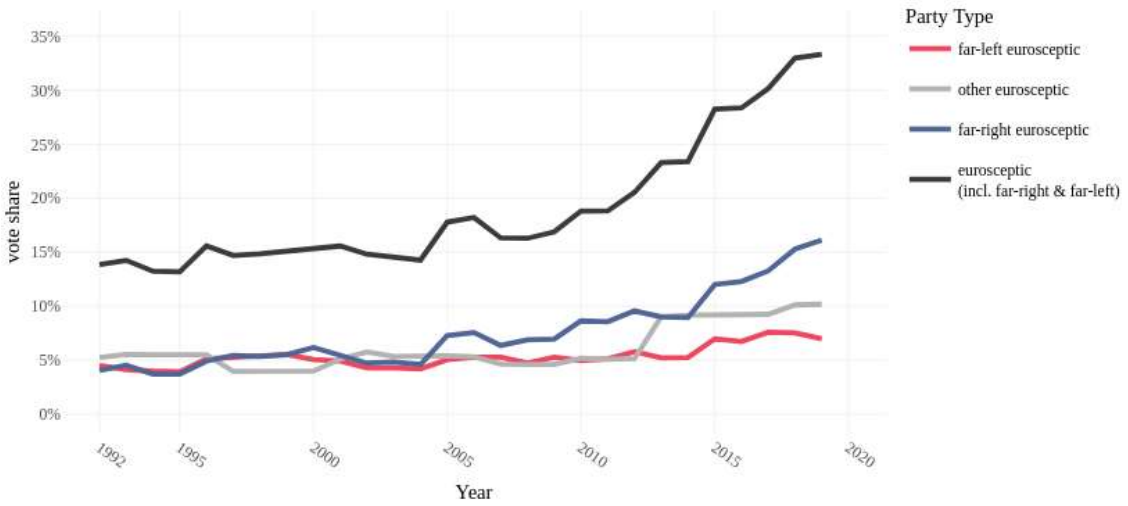
1. Introduction

The popular sentiment towards European institutions has changed enormously along the last three decades, especially after the turn of the millennium. The support for Eurosceptic parties has more than doubled since the early 1990s, with the combined vote share of parties proclaiming themselves Eurosceptic reaching almost the 34 per cent in 2019. Figure 1 displays this explosive dynamic, driven mostly by anti-establishment parties on the far-right of the spectrum. The last time we saw a comparable diffusion of anti-establishment movements in the continent was in the mid-1930s, right before the collapse of the Weimer Republic (Dalio et al., 2017 and Hopkin and Blyth, 2018).



Note: Data from ParlGov, European Countries; Classifications The PopuList, link: https://popu-list.org/.

Figure 1. Share of Eurosceptic, far right and far left parties' votes weighted by population size

The turn of the millennium also witnessed significant changes in the mass media space and in political communication technologies that affected the process of opinion formation. Citizens generally draw on information from the mass media to form political opinions. This is also the case for European integration. When the coverage is negative or framed in divisive terms, public support for European integration drops (Norris 2000). The growing relevance of political information online and the emergence of 'social' media have increased the exposition of voters to divisive messages (Maldonado, 2017). In some cases, as revealed recently by Frances Haugen, social media algorithms consciously privilege the most divisive content to amplify traffic on the networks. As a matter of fact, during the 2016 UK's referendum campaign, the leave side dominated the day-to-day volume of tweets. Overall, along the last three weeks leading up to the vote, support for leaving on the platform outstripped support for remaining by a factor of four (Bauchowitz and Hänska, 2017). Similarly, from October 2018 to May 2019 before the EU parliamentary elections, eighty-five per cent of all shared Facebook's posts originated from all German political parties stem from AfD (Diehl et al., 2019).

Social media do not bear sole responsibility for the rapid spread of Euroscepticism. Animosity against European integration has been certainly aided by the worsening economic outlook and increasing inequality. The 2008–2009 global financial crisis and the following 2010–2011 European debt crisis resulted in job losses and significant drops in pensions, subsidies, and transfer payments, contributing to the progressive deterioration of the income distribution (European Parliament, 2015). This generated a diffuse sense of anxiety, especially

among the most vulnerable sectors of the population, and increased the space for populist Eurosceptic political platforms designed to match the emerging demand of social justice (Algan et al., 2017).

Several studies have linked political support for nationalistic or populist movements to economic shocks and insecurity. Gozgor (2021) finds increases in total populism and right-wing populist voting behavior in Europe from 1980 to 2020 to be strictly related to increased global economic uncertainty. Higher penetration of Chinese imports has been found to be associated to support for Brexit in Britain and to the emergence of nationalist parties in continental Europe (Colantone and Stanig, 2016a, 2016b and 2018). And in Sweden, increased labor-market insecurity has been linked empirically to the rise of the far-right Sweden Democrats (Dal Bo et al., 2019).

Although online politics and social media are unlikely to be the sole, or even the main, driver of the diffusion of sovereigntist sentiments, we posit that they can represent a key facilitator, especially among those less educated and less politically sophisticated individuals that are on average more susceptible to negative news (Schuck and De Vreese 2006, and De Vreese et al. 2010). Analyses of the 2016 referendum that paved the way to the exit of the United Kingdom from the European Union (EU), reveal a clear polarization of the vote along educational lines. A significant share of those with a lower level of education voted to leave, while citizens with the highest educational credentials voted remain in vast majority (Hobolt, 2016). This educational divide is not a distinctive British feature. The data from the 8th round of the European Social Survey (ESS), held in the same year of the Brexit referendum, reveal that the share of respondents that would vote for leaving the EU in case of a hypothetical referendum decreases consistently with the educational achievements. Almost half of the respondents having completed only the primary education cycle would be in favor of an exit from the EU while this figure drops down to around ten percent for respondents holding a master or an equivalent post-tertiary title.

We employ the 8th and 9th rounds of the ESS data to show that, in line with our hypothesis, exposure to political information online reinforces sovereigntist and Eurosceptic preferences only among individuals with relatively low levels of education. For instance, we find that the correlation between exposure to political information online and being in favor for their own country leaving the EU is statistically significant only for individuals that underwent less that twelve years of education, roughly equivalent to the first two educational cycles in most European countries.

To study whether the specific use of social media matters, we further employ several rounds of the Italy's Multipurpose Household Survey (MHS) that allows us to distinguish generic exposure to political information online and exposure mediated through social media. We find that it is not the use of internet per se that is associated with distrust in EU institutions but the specific use of social media by lower-educated individuals. Overall, our results confirm the existence of a strong association between sympathy for Eurosceptic ideas and exposure to online political activity documented by Galston (2018), Hendrickson and Galston (2017), and Alcott and Gentzkow (2017), among the others, but move one step forward characterizing the exact conditions under which exposure to online political activity matter.

In discussing our findings, we acknowledge that causality is hard to establish because our explanatory variables measuring the exposure to internet and social media are likely to be endogenous. Anti-EU activists and other politically motivated citizens might in fact be more prone to make use of internet (and social media) to get access to political (and politically biased) information and propaganda, and later share this material within their communities (Neumann and Gregorowictz, 2010). We deal with this issue following Campante et al. (2018) and instrumenting the exposure to online politics and social media using a series of variables intended to capture the speed of connection available to the respondent and therefore the relative easiness of using internet and social media to get access to political information. We show that our results are robust to the use of these instrumental variables.

The remaining of this paper is organized as follows. Section 2 reviews the literature on the linkage between online politics and diffusion of divisive messages, such as regaining national sovereignty. It also discusses the way in which education can affect this linkage. Section 3 presents the datasets that we employ. Section 4

outlines our empirical strategy and reports the main empirical findings. Section 5 discusses the results of the robustness checks. Section 6 concludes.

2. Related Literature

There is an emerging consensus in the cognitive and social sciences literature on the effects that the growing importance of political activities mediated through the internet, especially through social media, can have on partisan divisiveness. Several recent contributions find that exposure to political information online plays often an influential role in fostering the diffusion of divisive ideas, and aids polarization and political sectarism (Barret et al, 2021, Van Bavel et al, 2021, and Finkel et al, 2020).

In a randomized experiment, Alcott et al. (2020) find that deactivating Facebook for the four weeks before the 2018 US midterm election and reducing online activity while increasing offline activities such as watching TV alone and socializing with family and friends, led to a significant reduction of both factual news knowledge and political polarization and to an increased subjective well-being. It did not reduce divisiveness based strictly on party identity, however. This is consistent with the view that people are seeing political content on social media that does tend to make them more upset, angrier at the other side and more likely to develop stronger and divisive views on specific issues.

It is the very design of the automated systems that run the platforms the main responsible for the amplification of divisive content. Social media technology employs popularity-based algorithms that tailor content to maximize user engagement thereby generating self-reinforcing feedback loops. Maximizing engagement in turn increases polarization, especially within homogeneous networks or groupings of like-minded users. Levy (2021) find that Facebook's content-ranking algorithm may limit users' exposure to news outlets offering viewpoints contrary to their own — and thereby increase polarization.

The consequences of this heightened partisan animosity include the unprecedented diffusion of conspiracy theories, an increase in political violence and the erosion of trust in elections and in traditional democratic institutions. In Europe, the consolidation of digital media aided a massive circulation of populist messages that question the political legitimacy of the European Union and diffuse mistrust in its chief institutions (Alonso-Muñoz and Casero-Ribolles, 2020). Several studies document the extensive use of social media propaganda by part of Eurosceptic and sovereigntist movements before and after Brexit (see e.g., Galpin and Hans-Jörg, 2017, and Zappettini and Maccaferri, 2021).

But are the effects of exposure to sovereigntist political propaganda online homogeneous across different social groups? This paper investigates whether low education, an individual characteristic commonly found to predict Euroscepticism, become a more potent driver of Eurosceptic beliefs when it co-exists with a reliance on social media as a news source. Our hypothesis is that education reduces exposition to negative feedback loops on social media since higher educated individuals are on average less sceptic towards the European integration project.

Furthermore, highly educated individuals are likely to discern more easily between mainstream and false news (Guess et al, 2020).[1]

Recent empirical literature shows the existence of a clear correlation between educational level and preferences towards European integration. Across Europe, those with less education are consistently found to be more Eurosceptic than those with higher education (Hooghe and Marks, 2005; Lubbers and Scheepers, 2010), and this gap has significantly widened over time (Lubbers and Jaspers, 2011).

Many reasons have been called upon to explain this evidence (for a detailed literature review, see Hakhverdian et al., 2013). From a purely economic perspective, one of the seminal explanations of the phenomenon asserts that higher educated individuals are likely to be more favorable to integrated labor markets, and therefore less Eurosceptic, because they face less competition and insecurity (Gabel and Palmer 1995).[2] Analogously, cognitive, creative, and functional skills predominantly transmitted in formal education might enable individuals to remain flexible and to successfully interact in an internationalized environment (Rosenau et al. 2004). From a more sociological perspective, in a wide variety of national contexts and time periods, low education has been repeatedly shown to be a powerful predictor of ethnic exclusionism and nationalism. Inglehart and Baker (2000), for example, argue that through their education individuals acquire the ability to cope with abstract and extensive political communities such as the EU.

3. The Data

This section presents the datasets that we employ; the 8th and 9th rounds of the European Social Survey and several iterations of ISTAT Multi-purpose Survey of Italian Families on 'Aspects of Everyday Life' (Indagine Multiscopo sulle Famiglie). The discussion of our empirical strategy and of the main results is the object of Section 4.

3.1 European Social Survey

The European Social Survey (ESS) is a multi-country survey that monitors changing public attitudes and values within Europe and develops a series of European social indicators, including attitudinal indicators. The survey covers at least 23 countries and over 40,000 individuals per round (see www.europeansocialsurvey.org). The key topics covered by the ESS include social trust; political interest and participation; socio-political orientations; social exclusion; national, ethnic and religious allegiances; climate change, energy security and energy preferences; welfare; human values; demographics and socioeconomics. More importantly for our aims, the survey also investigates the attitude towards the EU and, only from the 8th round on, it includes a series of questions on online political activity, to assess whether the respondent posted or shared anything about politics online, for example on blogs, via email or on social media.

[1] As discussed by Fortunato and Panizza (2015), education generally improve the functioning of democratic institutions by increasing informational flows and developing the cognitive skills that are necessary to effectively participate in a representative democracy.

[2] As a matter of fact, increased exposure to immigrants appears to induce more negative attitudes towards immigration among low-educated workers or those working in economically declining sectors (e.g. Mayda, 2006; Pecoraro and Ruedin, 2016 and 2020).

To measure Euroscepticism, we use two specific questions as recorded in the 8th and 9th rounds of the ESS, which were collected in 2016 and 2018. The first question allows us to measure the level of trust in European Parliament from 0 (no trust) to 10 (full trust); the second question is interested on whether respondents declare themselves in favor for their own country leaving the EU. These questions were asked in the 17 EU countries that participated to the 2016 and 2018 rounds of the survey.[3] While we keep the ordinal values from 0 to 10 for trust in European parliament, we construct the dummy variable EU exit equal to 1 if respondents would vote for his country to leave and 0 in the case of voting to remain member of European Union. As shown in Table A.1 in the Appendix, the average levels of trust in European parliament correspond to 4.26 among the full ESS sample in Panel I and to 4.33 among the sample of workers in Panel II, but these average values are not statistically different at the 95% confidence level. In addition, the average share of respondents in favor of leaving the EU is 19 per cent either based on the full ESS sample (Panel I) or on the sample of individuals in paid work (Panel II). The variance across countries is considerable (results not shown); residents from Ireland emerge as the least Eurosceptic (with a trust level in European parliament of at least 5 and around 8 per cent of the population in favor of leaving the EU, on average) while on the other side of the spectrum we find the UK (at least 3.7 and around 40 per cent, respectively).

The key correlates of Euroscepticism considered in our analysis are the level of education and exposure to politics online. The ESS contains detailed information on the number of years of education of the respondents. While we measure the exposure to politics online (labelled online politics below) with a dummy variable that takes value equal to 1 if the respondent declares to have posted or shared something about politics online, for example on blogs, via email or on social media such as Facebook or Twitter, during the last 12 months, and 0 otherwise. As shown in Table A.1, between one fifth of the respondents from the full sample (Panel I) and one quarter from the sample of employed (Panel II) have posted or shared something about politics online. In addition, on average, employed respondents appear to be more educated than those from the full sample (mean years of education is at least 13 in Panel I and more than 14 in Panel II), this difference being statistically significant at the 95% confidence level.

[3] Not all EU countries are covered by the ESS. For more details and to see which countries took part in each ESS round, please consult https://www.europeansocialsurvey.org/about/participating_countries.html on the official ESS website.

3.2 ISTAT Multipurpose Household Survey

The second dataset that we employ is the ISTAT Multipurpose Household Survey on 'Aspects of Everyday Life' which covers the Italian permanent resident population in private households by interviewing a sample of 20,000 households and 50,000 people. The survey provides information on the citizens' habits in different thematic areas including school, work, family and social life, spare time, political and social participation, health and lifestyle.

Interestingly, the ISTAT survey includes not only questions on trust in major EU institutions and on online participation in politics, but also distinguishes between the use of social networks to acquire information about politics and online political activities not mediated through these networks (e.g., consultation of websites linked to traditional media or blogs). It therefore allows us to refine the analysis based on ESS data and to assess also the impact on attitudes toward the EU of exposure to social media versus traditional media internet platforms (newspapers, televisions, etc.). We consider the years ranging from 2013 to 2016 (the latest available).

The key outcome variable here is represented by trust in European Parliament that ranges between 0 and 10, with higher values being associated with higher trust in the EU Parliament. As presented in Table A.2 in the Appendix, the average level of trust in European parliament over the period 2013-2016 is approximatively 3.75 in the sample of employed individuals (Panel B) and is slightly higher considering the full sample (Panel A), indicating that the average Italian is rather Eurosceptic. Attitudes towards the European parliament have deteriorated over the period 2013-2015 and then stabilized around its lowest value. The average level of trust among employed individuals was 3.90 in 2013, 3.75 in 2014 and 3.68 in 2015 and in 2016.

The ISTAT survey contains detailed information on the level of education of the respondents (i.e., the highest diploma achieved). It also offers the possibility of controlling for sex, age group, civil status, household type, and the urban dimension of the city of residence.

As anticipated above, with regards to the exposure to politics online, the survey distinguishes between acquiring information about politics through social networks, like Facebook or Twitter, and acquiring information about politics on internet but in other ways (e.g., through websites related to traditional media or blogs). This distinction allows us to investigate whether different ways of using internet in the political realm are associated with different attitudes towards the EU.

As shown in Table A.2, 23 per cent of the respondents from the full sample (Panel I) are exposed to politics online, and about 40 per cent of them rely on social media to get political information on internet. In parallel, the share of respondents exposed to politics online is higher among the sample of employed (Panel II), corresponding to 13 per cent and 22 per cent when exposure operates through social media and traditional websites, respectively. Moreover, among the full sample, half of the respondents have a compulsory education only (Panel I). Among the sample of employed (Panel II), the share of low-educated is much lower (31 per cent) and the majority holds a high school diploma as highest degree (47 per cent).

4. Empirical specification and Results

In this section we use econometric methods to check whether the partial correlations between our proxies for Euroscepticism (i.e., low trust in EU parliament and preference

for exit from EU), education and exposure to political information online (and their interactions) are consistent with our hypothesis.

4.1 Online politics, Education and Euroscepticism

We first consider ESS data and start by studying the cross-sectional correlation between Euroscepticism, exposure to online politics and education. To account for the qualitative nature of the observed dependent variables, we use ordered and binary probit models in which cross-sectional individual weights are incorporated to produce representative estimates of the surveyed population.

In estimating the relationship between Euroscepticism and our key explanatory variables, we control for the age, age squared, sex, and foreign-born status of the respondent, and civil status. Wilkinson (2018) observes that rural areas and smaller urban centers are increasingly uniform in terms of social conservatism and constitute the basis of support for anti-establishment movements in many western economies. We therefore also include dummy variables aimed at controlling for this dimension: whether the respondent is living in suburbs of big city, in a small city, in the countryside or in a village. We also use as a control variable the level of household income declared by the respondents and classified in deciles. All specifications include the 2018-round fixed effect and country fixed effects.

Columns 1, 3, and 5 in Panel A of Table 1 show that exposure to online politics is not significantly correlated with trust in European parliament when not controlling for possible interaction effects. In Panel B, the corresponding coefficient estimates are positive (at a significance level of 0.1 or less), indicating that exposure to online politics is positively and significantly correlated with the propensity to be in favor of leaving the EU. Our results also show that the propensity to be Eurosceptic (i.e., low trust in EU parliament or being in favor of leaving the EU) is associated negatively with years of education, meaning that more educated individuals tend to display more trust in European parliament and to disfavor the idea of leaving the EU.

These initial results assume that the coefficient estimates on education and exposure to online politics are independent of each other. Our working hypothesis, however, suggests the existence of an interaction between these variables. We expect the correlation between exposure to online politics and Euroscepticism to be strengthened when looking at poorly educated individuals.

We test formally for the presence of an interaction between exposure to online politics and education by estimating the following model:

$$y_i * = \alpha + \beta\ online\ politics_i + \gamma\ E_i + \delta\ online\ politics_i \times E_i + \boldsymbol{C}_i\,\rho + \varepsilon_i.$$

$y_i *$ is the unobserved latent variable for attitudes towards the EU (which is tied to one or the other observed outcome of interest available in the ESS), and $online\ politics_i$ is the dummy variable on the exposure to politics on internet, while E_i represents the level of education (measured in years) and ε_i is the error term with a standard normal distribution, for individual i. $\boldsymbol{C}_i$ is a vector containing the different control variables along with income deciles, the 2018-round fixed effet and country fixed effects, as discussed above.

Columns 2, 4, and 6 in Table 1 overall show a positive and significant association between exposure to online politics and Euroscepticism (or, put differently, a negative

association with favorable attitudes towards the EU) after the introduction of the interaction term. Also, the existence of a negative association between education and Euroscepticism is confirmed. More interestingly, we find clear evidence of a positive (resp. negative) and significant coefficient estimate of the interaction term between exposure to online politics and education in Panel A (resp. in Panel B) suggesting that the interplay between these two factors is an important driver in shaping the attitudes towards the EU.

Table 1. Probit regressions of EU exit on online politics interacted with years of education

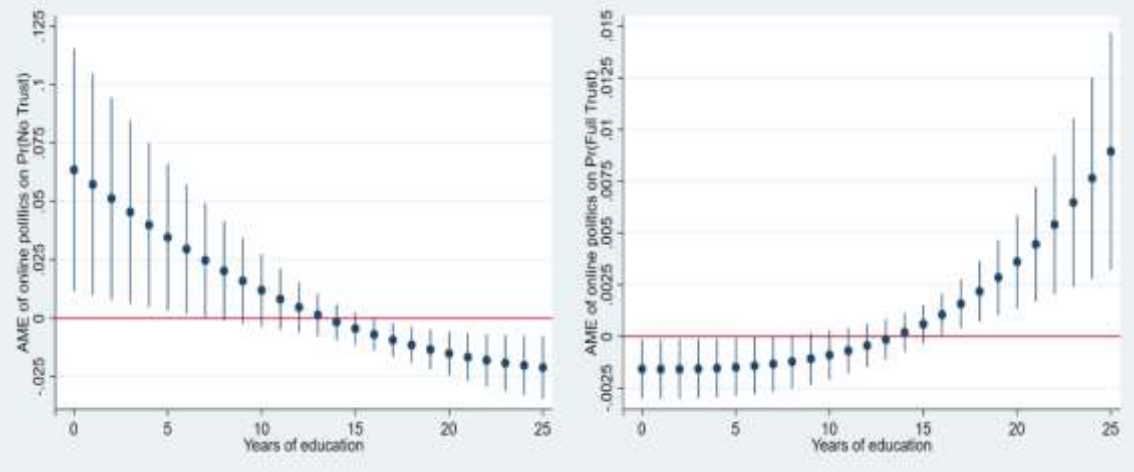
	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample				In Paid Work	
Panel A: Trust in European parliament						
online politics	0.010	-0.105	-0.003	-0.139*	0.028	-0.237**
	(0.017)	(0.067)	(0.018)	(0.075)	(0.022)	(0.099)
years of education	0.028***	0.026***	0.023***	0.021***	0.032***	0.028***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
online politics*education		0.008*		0.009**		0.018***
		(0.004)		(0.005)		(0.006)
control variables	yes	yes	yes	yes	yes	yes
country fixed effects	yes	yes	yes	yes	yes	yes
round fixed effect	yes	yes	yes	yes	yes	yes
household income (deciles)	no	no	yes	yes	yes	yes
Observations	60,719	60,719	49,399	49,399	27,270	27,270
Panel B: EU exit						
online politics	0.063**	0.432***	0.079***	0.502***	0.070*	0.603***
	(0.026)	(0.109)	(0.029)	(0.117)	(0.036)	(0.153)
years of education	-0.052***	-0.047***	-0.043***	-0.037***	-0.058***	-0.049***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)	(0.006)
online politics*education		-0.026***		-0.030***		-0.037***
		(0.008)		(0.008)		(0.010)
control variables	yes	yes	yes	yes	yes	yes
country fixed effects	yes	yes	yes	yes	yes	yes
round fixed effect	yes	yes	yes	yes	yes	yes
household income (deciles)	no	no	yes	yes	yes	yes
Observations	56,256	56,256	46,366	46,366	25,666	25,666

Source: European Social Survey, rounds 8 (2016) & 9 (2018), www.europeansocialsurvey.org
Notes: Ordered Probit (Panels A) and Probit coefficient estimates (Panel B); linearized standard errors in parentheses (data are weighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on a sample includes individuals from the following countries: Austria, Belgium, Czechia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, and the United Kingdom. The first dependent variable *trust in European parliament* in Panel A is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The second dependent variable *EU exit* in Panel B is coded as follows: 1, in favor of leaving the European Union; 0, in favor of remaining a member of the European Union. *Online politics* is coded as follows: 1, the respondent posted or shared anything about politics online during the last 12 months; 0, otherwise. Control variables: Sex, age, age squared, marital status, foreign born, and urban level. Full regression results are reported in Table A.3.1 (Panel A) and Table A.3.2 (Panel B) and in the Appendix.

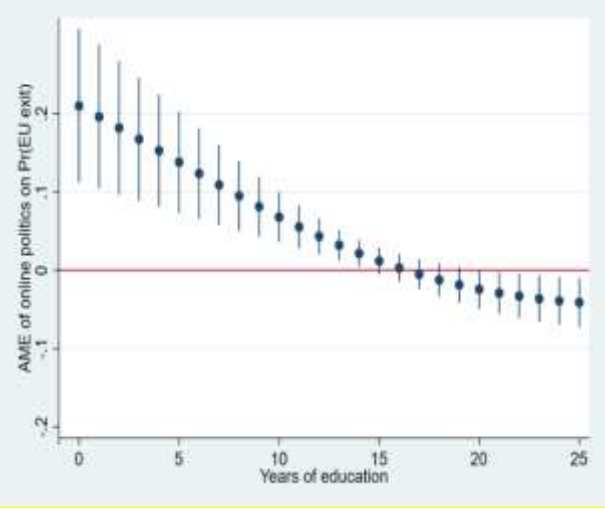
Figure 2 uses the results of the fourth column in Table 1 to plot the average marginal effects of exposure to online politics on our two outcomes for attitudes towards the EU at different levels of education. The horizontal axis measures variations in the number of years of education attained. Given the ordinal nature of the outcome variable in Panel A, the average marginal effects are only computed for its lowest and highest level. Accordingly, column (1) in Figure 2 presents the average marginal effects of exposure to online politics on Euroscepticism since the focus is on the lowest level of trust in European parliament (corresponding to the case of 'no trust'), in addition to the likelihood

of being in favor of an exit from the EU (Panel B). The reverse logic applies in column (2). Whatever the selected outcome, as shown in column (1), the average marginal effects are positive and statistically significant only for those individuals with relatively few years of education. Moreover, the average marginal effects of exposure to online politics on Euroscepticism are instead negative (and significant) for individuals with high educational attainment. The remaining figure in column (2) logically displays the opposite pattern.

Panel A: Trust in European parliament



Panel B: EU Exit



Notes: Calculation from the fourth column of Table 1. The average marginal effects are plotted with the 95 per cent confidence intervals. The dependent and control variables are described in the note to Table 1.

Figure 2. Average marginal effects of online politics by years of education

4.2 The Medium Matters

Our main results are confirmed also when employing the ISTAT Multipurpose Household Survey. But using this dataset allows us to move one step further and analyze the association between different forms of online activity and Euroscepticism.

We run ordered probit regressions with robust standard errors (clustered at the individual level) on the four separate rounds of the survey and on the complete dataset running from 2013 to 2016. The dependent variable in this set of regressions is represented by the level of trust in the EU parliament as divided in 11 ordered categories, ranging from no trust (0) to complete trust (10) and thus very similar in the spirit of the ESS question used in the previous subsection. Put differently, the dependent variable can be thought of as a measure of propensity to exhibit positive attitudes toward the EU. The key independent variables are the level of education as divided in three categories (compulsory education, high school diploma, and Bachelor and higher tertiary degrees) and the type of exposure to politics on internet. Since this latter variable takes three values, we construct two dummy variables (the reference category corresponding to the situation where the respondent does not use internet to get information about politics): the dummy online politics w/o social media equals 1 if the respondent makes use of internet to get information about politics but not through social media (0 otherwise) while the dummy online politics via social media equals 1 if the respondent makes use of internet to get information about politics through social media (0 otherwise). We control for all the individual characteristics mentioned above and always include region fixed effects and year fixed effects (when using the dataset pooled over all available years).

Columns 1 and 3 of Table 2 show that while the use of social media to get information on politics is always negatively and significantly correlated with trust in the EU parliament (especially when the sample is restricted to employed individuals), the simple use of internet to get access to information not mediated through social media is in general positively associated with trust in the parliament. This is particularly interesting since it highlights the specific role that social media play to diffuse anti-establishment and divisive ideas as opposed to the effect of the simple (increased) access to information enabled by the world wide web. These results also show that levels of education below tertiary degrees tend to be associated with lower trust in European institutions.

Columns 2 and 4 of Table 2 confirm all the results even after the explicit introduction of interaction terms between different types of exposure to online politics and educational attainements. In line with our hypothesis, the coefficient estimated for the interaction term between the use of social media to get information about politics and the lowest educational attainment (completion of only compulsory schooling) is negative and in most cases strongly significant. Once again, this result suggests that exposure to social media among categories of lower-educated Italians is particularly effective in shaping attitudes towards Eurosceptic positions.

Table 2. Ordered probit regressions of trust in European parliament on online politics interacted with the level of education

	(1)	(2)	(3)	(4)
	Full sample		Sample of employed	
online politics w/o social media	0.048***	0.062***	0.045***	0.060***
	(0.008)	(0.016)	(0.011)	(0.019)
online politics via social media	-0.046***	-0.004	-0.083***	-0.012
	(0.010)	(0.020)	(0.013)	(0.024)
high school diploma	-0.183***	-0.169***	-0.211***	-0.192***
	(0.009)	(0.012)	(0.011)	(0.016)
compulsory school	-0.276***	-0.262***	-0.300***	-0.273***
	(0.009)	(0.011)	(0.013)	(0.016)
online politics w/o social media*h.s. diploma		-0.020		-0.009
		(0.019)		(0.024)
online politics w/o social media*compulsory school		-0.002		-0.026
		(0.025)		(0.033)
online politics via social media*h.s. diploma		-0.040*		-0.076**
		(0.024)		(0.030)
online politics via social media*compulsory school		-0.098***		-0.184***
		(0.031)		(0.042)
Control variables	yes	yes	yes	yes
Italian region fixed effects	yes	yes	yes	yes
year fixed effects	yes	yes	no	no
Observations	145,728	145,728	61,299	61,299

Source: Source: Multipurpose Survey on Households provided by https://www.istat.it

Notes: Ordered Probit coefficient estimates; robust standard errors in parentheses (data are unweighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on the full sample (employed, unemployed, or out of the labor force) and on the sample of employed, pooled from 2013 to 2016, where individuals below 18 years old are excluded. The outcome variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The dummy variable *online politics via social media* measures whether an individual does inquire about politics online through social media, such as Facebook or Twitter. The dummy variable *online politics w/o social media* measures whether an individual does inquire about politics online without using social media. Control variables: Sex, age group, marital status, household type, and urban level. Full regression results (for the pooled samples and for each year separately) are reported in Table A.4.1 (full sample), and Table A.4.2 (sample of employed) in the Appendix.

5. Robustness Analysis

Two main problems threaten the robustness of our results. The first is an omitted variable problem related to the potential endogeneity of education: if the level of education (or its interaction with exposure to online politics) is correlated with unobserved skills in computer and software use, related estimates from Table 2 would be plagued by an omitted variable bias. Indeed, low-educated individuals may exhibit poor knowledge about computer and internet, thus being more prone to misuse social networking sites to such an extent that they are unable to distinguish fake news from real news. Put differently, the possible correlation between low education and social media misuse may induce more exposure to sovereigntist propaganda.

Table 3: Ordered probit regressions of trust in European parliament on online politics interacted with the level of education, adding proxies for computer skills

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Full sample				Sample of employed			
	w/o computer skills		with computer skills		w/o computer skills		with computer skills	
online politics w/o social media	0.024**	0.027	0.010	0.019	0.024	0.026	0.014	0.023
	(0.012)	(0.022)	(0.013)	(0.024)	(0.015)	(0.027)	(0.017)	(0.029)
online politics via social media	-0.069***	-0.034	-0.089***	-0.054*	-0.099***	-0.045	-0.106***	-0.055
	(0.014)	(0.027)	(0.015)	(0.028)	(0.018)	(0.032)	(0.020)	(0.034)
high school diploma	-0.190***	-0.182***	-0.173***	-0.163***	-0.218***	-0.211***	-0.211***	-0.202***
	(0.012)	(0.017)	(0.013)	(0.018)	(0.015)	(0.022)	(0.016)	(0.023)
compulsory school	-0.261***	-0.251***	-0.223***	-0.210***	-0.280***	-0.257***	-0.253***	-0.226***
	(0.013)	(0.016)	(0.014)	(0.018)	(0.018)	(0.023)	(0.021)	(0.026)
online politics w/o social media*h.s. diploma		-0.012		-0.019		0.015		0.005
		(0.027)		(0.029)		(0.034)		(0.036)
online politics w/o social media*compulsory school		0.032		0.024		-0.022		-0.037
		(0.035)		(0.037)		(0.047)		(0.050)
online politics via social media*h.s. diploma		-0.023		-0.019		-0.042		-0.037
		(0.032)		(0.033)		(0.041)		(0.042)
online politics via social media*compulsory school		-0.120***		-0.132***		-0.191***		-0.190***
		(0.041)		(0.043)		(0.055)		(0.058)
proxies for computer skills	no	no	yes	yes	no	no	yes	yes
Control variables	yes	yes	yes	yes	yes	yes	yes	yes
Italian region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Test for joint significance of computer skills								
F-test			93.24***	93.58***			51.58***	52.17***
Observations	72,111	72,111	66,812	66,812	30,540	30,540	28,402	28,402

Source: Source: Multipurpose Survey on Households provided by https://www.istat.it

Notes: Ordered Probit coefficient estimates; robust standard errors in parentheses (data are unweighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on the full sample (employed, unemployed, or out of the labor force) and the sample of employed workers, pooled over 2015 and 2016, where individuals below 18 years old are excluded. The outcome variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The dummy variable *online politics via social media* measures whether an individual does inquire about politics online through social media, such as Facebook or Twitter. The dummy variable *online politics w/o social media* measures whether an individual does inquire about politics online without using social media. The proxy variables for self-assessed computer skills are derived from various operations that were performed in the last 12 months. Control variables: Sex, age group, education level, marital status, household type, and urban level. Full regression results are reported in Table A.5 in the Appendix.

The first, second, fifth and sixth columns of Table 3 show baseline estimates similar in the spirit of those displayed in the first four columns of Table 2: compulsory education and its interaction with online politics via social media are negatively associated with trust in the European parliament. To check the robustness of our results, we further control for indicators of self-assessed computer and software use that are available in this form only in 2015 and 2016.[4] *F* tests, reported in the third, fourth, seventh and eighth columns at the bottom of Table 3, indicate that their inclusion is jointly significant. At the same time, these additional regressions confirm our previous results. For instance, as presented in the fourth and eighth columns of the same table, the interactions between compulsory education and online politics via social media are still negative and significant when proxies for computer skills are taken into account.

The main issue with the estimates presented in Table 2, however, relates to the potential endogeneity of our variables measuring the exposure to internet and social media. One can argue that anti-EU activists and other politically motivated citizens might be more prone to make use of internet (and social media) to get access to political (and politically biased) information and propaganda, and later share this material within their communities. Within the digitized public sphere, it is not only the leaders that communicate with followers, but also followers communicate among each other. Voters are therefore not simply pushed but they also pull by engaging actively in digital media or keeping up the digital bonding that expresses support for the populist movement (Neuman, 2016).

To address this issue, following Campante et al. (2018), we instrument the exposure to online politics and social media using a series of variables intended to capture the speed of connection available to the respondent and therefore the relative easiness of using internet and social media to get access to political information. We employ the following variables as instruments: availability of a DSL connection (yes/no), availability of a smartphone connection (yes/no), availability of a SIM/USB connection (yes/no) and availability of an ISDN connection (yes/no). These four binary variables are available only in 2014, 2015 and 2016, therefore for the IV analysis we are unable to use the information contained in the previous round of the MHS Survey.

Over the period 2014-2016, more than half of the respondents from the full sample use a DSL connection, about a quarter a smartphone connection, at least 13 per cent a SIM/USB connection, and 2 per cent an ISDN connection. These figures are more or less similar to those computed from the labor-force sample or the sample of employed respondents (results not shown).

We run an ordered probit IV with two first-stage probit regressions in which the dependent variables are exposure to politics online either through traditional websites (online politics w/o social media) or via social media (online politics via social media). As in the regressions of Table 3 we consider as a dependent variable the level of trust in

[4] The variables for self-assessed computer skills are derived from various operations that were performed in the last 12 months: transfer files between computers and/or other devices such as digital camera, cell phone, or MP3 player (yes/no), install software or applications (yes/no), change the settings of any software, including operating systems or security programs (yes/no), connect and install peripherals like printers or modems (yes/no), compress or zip files (yes/no), copy or move a file or folder (yes/no), use software for word processing like e.g. Microsoft Word (yes/no), use "copy and paste" to copy or move information within a document (yes/no), create presentations or documents that include texts, images, graphics, tables (yes/no), use spreadsheets for calculation like e.g. Microsoft Excel (yes/no), use the advanced functions of the spreadsheets for calculation to organize and analyze data like e.g. sort, filter, use formulas, create graphics (yes/no), use software to edit photos, videos, audio files (yes/no) and write code in a programming language (yes/no).

the EU parliament. In order to investigate the differential impact of exposure to internet by education level, we split the sample between individuals having completed only compulsory education cycles (low educated) and those with high school diploma, Bachelor or higher tertiary degrees (high educated). In our regressions we also introduce region fixed effects and control for sex, age cohort, civil status, household type and the urban dimension of the city of residence.

Table 4 displays the results obtained running our ordered probit IV specification on the full sample (employed, unemployed and out of the labor force) and compares the results of the instrumented analysis with the estimates of the standard model.[5] We also tested specifications based on respondents in the labor force sample or only employed respondents, leading to substantively equivalent results (see Table A.6 in the Appendix). On the whole, we find that the main results are robust to the use of instrumental variables. In particular, we find that the use of internet (without mediation via social media) does not play any role in influencing trust in the European parliament. On the contrary, getting information about politics on internet through social networks (like Facebook or Twitter) is negatively and significantly associated with trust in EU but only for low-educated individuals.

Table 4: Standard and IV Ordered Probit regressions of trust in European parliament on online politics by education

	(1)	(2)	(3)	(4)
	Standard ordered probit		IV ordered probit	
	Compulsory education	Higher education	Compulsory education	Higher education
online politics w/o social media	0.066***	0.064***	-0.048	0.009
	(0.022)	(0.011)	(0.070)	(0.080)
online politics via social media	-0.134***	-0.014	-0.216***	0.057
	(0.027)	(0.013)	(0.065)	(0.049)
control variables	yes	yes	yes	yes
Italian region fixed effects	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes
F test (dep. var. -> online politics w/o social media)			1284.04***	1253.75***
F test (dep. var. -> online politics via social media)			812.95***	1299.22***
Observations	53,192	55,004	52,917	54,910

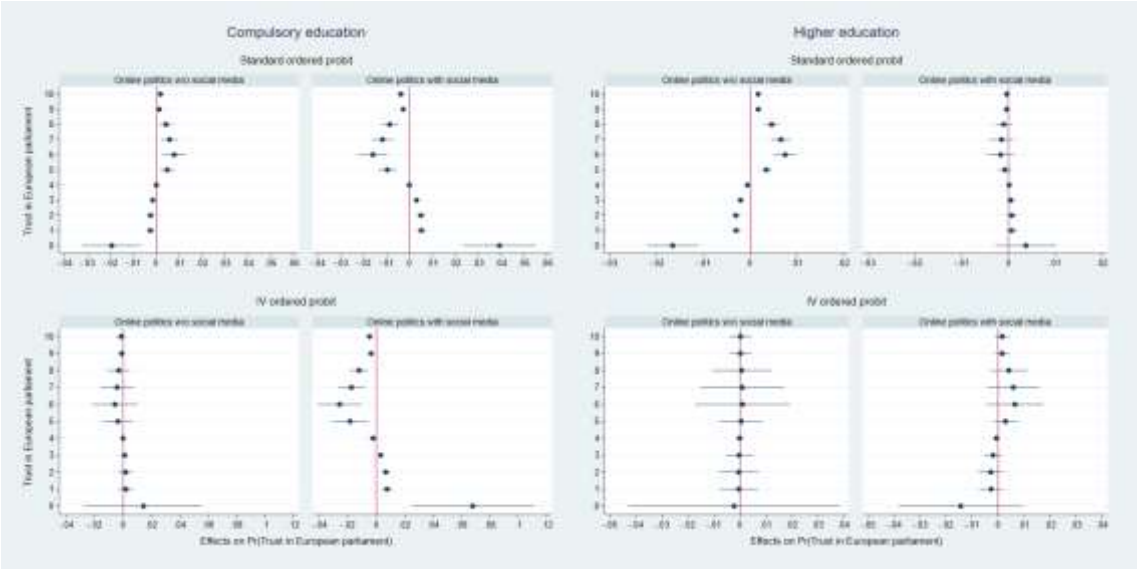
Source: Source: Multipurpose Survey on Households provided by https://www.istat.it

Notes: Standard and IV Ordered Probit coefficient estimates; robust standard errors in parentheses (data are unweighted). The IV ordered probit estimation involves two first-stage probit regressions. Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on the full sample pooled over 2014, 2015 and 2016, where individuals below 18 years old are excluded. The outcome variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The dummy variable *online politics via social media* measures whether an individual does inquire about politics online through social media, such as Facebook or Twitter. The dummy variable *online politics w/o social media* measures whether an individual does inquire about politics online without using social media. The control variables are sex, age groups, married, household type, and urban level. The instrumental variables are DSL connexion (yes/no), smartphone connexion (yes/no), SIM/USB connexion (yes/no) and ISDN connexion (yes/no); these four variables are

[5] The results presented in Table 4 also reports the values of the first-stage *F* statistics which are significant and relatively high, typically exceeding 10. Accordingly, the null hypothesis of weak instruments is always rejected using the *F* test on excluded instruments, casting out potential doubts on the validity of our instruments.

available in this form only in 2014, 2015 and 2016. We also tested specifications based on the labor force sample or the sample of employed individuals, leading to substantively equivalent results (see Table A.6 in the Appendix).

Derived from Table 4, Figure 3 allows us to visualize the average marginal effects of each type of internet use for political information on each category of trust in the European parliament. Among the low-educated, the average marginal effects of online political activity via social media are clearly negative for values of trust reaching at least the middle-scale position (these results hold for both the standard ordered probit and its IV version.) Interestingly, the average marginal effects estimated for the low-educated using the IV method tend to be higher than those estimated via the standard method. Put differently, standard estimates appear to underestimate the average marginal effects and could be considered as lower bounds of the true estimates.



Notes: Calculation from Table 4. The average marginal effects are plotted with the 95 per cent confidence intervals.

Figure 3. Average marginal effects of online politics by level of education

6. Conclusion

A vast strand of literature has documented the association between low education and aversion towards the European integration project. More recent contributions from social and cognitive sciences suggest that recent changes in political communication strategies and the diffusion of political information online favoured the diffusion of clear-cut and divisive messages, as abandoning the EU. This paper brings to the data the hypothesis that these two dimensions are not independent and tests whether the impact of exposure to political information online depends on the level of education of the citizens.

The paper examines how education, different uses of the internet to acquire information about politics, and their interactions, correlate with the diffusion sovereigntist ideas and distrust in EU institutions. Our results show that: (i) low education is associated with a higher propensity to be in favour of leaving the EU and to exhibit a lower trust in its institutions; and (ii) the interaction between education and exposure to online political activities is always negatively and

significantly correlated with Euroscepticism. The latter finding indicates that the exposure to online politics is associated with Eurosceptic attitudes and distrust in the European institutions mainly for low-educated citizens. Furthermore, the different types of internet use, i.e., the acquisition of political information through social media or via more traditional sources of information on the web, play an important role. We find that (iii) it is not the use of internet per se that is associated with distrust in EU institutions but the specific use of social media for political activity by lower-educated Europeans.

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Appendix

Table A.1: Summary statistics for the key variables in the ESS

	Panel I: Full sample			Panel II: Sample of individuals in paid work		
Variable	Mean	Linearized S.E.	Observations	Mean	Linearized S.E.	Observations
trust in European parliament	4.26	0.02	60,719	4.33	0.02	27,270
online politics (yes/no)	0.20	0.00	60,719	0.26	0.00	27,270
years of education	13.10	0.03	60,719	14.35	0.04	27,270
EU exit (yes/no)	0.19	0.00	56,256	0.19	0.00	25,666
online politics (yes/no)	0.20	0.00	56,256	0.25	0.00	25,666
years of education	13.23	0.03	56,256	14.46	0.04	25,666

Source: European Social Survey, rounds 8 (2016) & 9 (2018), www.europeansocialsurvey.org.
Notes: Data are weighted. Summary statistics are based on samples pooled over 2016 and 2018. The full sample gathers respondents who are employed, unemployed or out of the labor force. *Trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). *EU exit* is coded as follows: 1, in favor of leaving the European Union; 0, in favor of remaining a member of the European Union. Included countries are: Austria, Belgium, Czechia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, and the United Kingdom.

Table A.2: Summary statistics for the key variables in the MHS

	Panel I: Full sample			Panel II: Sample of employed individuals		
Variable	Mean	Standard S.E.	Observations	Mean	Standard S.E.	Observations
trust in European parliament	3.78	0.01	145,728	3.75	0.01	61,299
online politics w/o social media (yes/no)	0.14	0.00	145,728	0.22	0.00	61,299
online politics via social media (yes/no)	0.09	0.00	145,728	0.13	0.00	61,299
level of education						
bachelor and higher tertiary degrees	0.13	0.00	145,728	0.21	0.00	61,299

high school diploma	0.37	0.00	145,728	0.47	0.00	61,299
compulsory school	0.50	0.00	145,728	0.31	0.00	61,299

Source: Multipurpose Survey on Households provided by https://www.istat.it.
Notes: Data are unweighted. Summary statistics are based on samples pooled over 2013, 2014, 2015 and 2016, where individuals below 18 years old are excluded. The full sample gathers respondents who are employed, unemployed or out of the labor force. *Trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust).

Table A.3.1: Trust in European parliament (Panel A)

	(1)	(2)	(3)	(4)	(5)	(6)
	Full sample				In paid work	
online politics	0.010	-0.105	-0.003	-0.139*	0.028	-0.237**
	(0.017)	(0.067)	(0.018)	(0.075)	(0.022)	(0.099)
years of education	0.028***	0.026***	0.023***	0.021***	0.032***	0.028***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
online politics*education		0.008*		0.009**		0.018***
		(0.004)		(0.005)		(0.006)
women	0.074***	0.074***	0.092***	0.092***	0.101***	0.102***
	(0.012)	(0.012)	(0.014)	(0.014)	(0.018)	(0.018)
age	-0.048***	-0.048***	-0.049***	-0.049***	-0.042***	-0.042***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.005)	(0.005)
age squared	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
married	0.339***	0.338***	0.362***	0.360***	0.367***	0.364***
	(0.026)	(0.026)	(0.029)	(0.029)	(0.036)	(0.036)
foreign born	0.083***	0.084***	0.037**	0.038**	0.075***	0.076***
	(0.014)	(0.014)	(0.016)	(0.016)	(0.020)	(0.020)
suburbs of big city	-0.042*	-0.042*	-0.062**	-0.061**	-0.097***	-0.096***
	(0.025)	(0.025)	(0.028)	(0.028)	(0.036)	(0.036)
small city	-0.068***	-0.068***	-0.088***	-0.087***	-0.107***	-0.106***
	(0.021)	(0.021)	(0.023)	(0.023)	(0.030)	(0.030)
village	-0.120***	-0.120***	-0.150***	-0.150***	-0.199***	-0.198***
	(0.021)	(0.021)	(0.023)	(0.023)	(0.029)	(0.029)
home in countryside	-0.135***	-0.136***	-0.167***	-0.167***	-0.173***	-0.173***
	(0.035)	(0.035)	(0.039)	(0.039)	(0.053)	(0.053)
country fixed effects	yes	yes	yes	yes	yes	yes
round fixed effect	yes	yes	yes	yes	yes	yes
household income (deciles)	no	no	yes	yes	yes	yes
Observations	60,719	60,719	49,399	49,399	27,270	27,270

Source: European Social Survey, rounds 8 (2016) & 9 (2018), www.europeansocialsurvey.org

Notes: Ordered Probit coefficient estimates; linearized standard errors in parentheses (data are weighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. Included countries are Austria, Belgium, Czechia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, and the United Kingdom. The dependent variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). *Online politics* is coded as follows: 1, the respondent posted or shared anything about politics online during the last 12 months; 0, otherwise.

Table A.3.2: EU exit (Panel B)

	(1)	(2)	(3)	(4)	(5)	(6)
	Full sample				In paid work	
online politics	0.063**	0.432***	0.079***	0.502***	0.070*	0.603***
	(0.026)	(0.109)	(0.029)	(0.117)	(0.036)	(0.153)
years of education	-0.052***	-0.047***	-0.043***	-0.037***	-0.058***	-0.049***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)	(0.006)
online politics*education		-0.026***		-0.030***		-0.037***
		(0.008)		(0.008)		(0.010)
women	-0.118***	-0.118***	-0.126***	-0.126***	-0.158***	-0.160***
	(0.020)	(0.020)	(0.022)	(0.022)	(0.030)	(0.030)
age	0.050***	0.050***	0.051***	0.051***	0.054***	0.054***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.008)	(0.008)
age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
married	-0.218***	-0.214***	-0.203***	-0.199***	-0.197***	-0.192***
	(0.039)	(0.039)	(0.042)	(0.042)	(0.055)	(0.055)
foreign born	-0.133***	-0.135***	-0.066***	-0.068***	-0.082***	-0.084***
	(0.021)	(0.021)	(0.025)	(0.025)	(0.031)	(0.031)
suburbs of big city	0.063	0.063	0.068	0.067	0.116*	0.112*
	(0.043)	(0.043)	(0.047)	(0.047)	(0.060)	(0.060)
small city	0.099***	0.098***	0.114***	0.112***	0.159***	0.156***
	(0.033)	(0.033)	(0.036)	(0.036)	(0.047)	(0.047)
village	0.123***	0.122***	0.153***	0.151***	0.191***	0.187***
	(0.033)	(0.033)	(0.036)	(0.036)	(0.047)	(0.047)
home in countryside	0.183***	0.185***	0.232***	0.234***	0.240***	0.239***
	(0.053)	(0.053)	(0.057)	(0.057)	(0.077)	(0.077)
country fixed effects	yes	yes	yes	yes	yes	yes
round fixed effect	yes	yes	yes	yes	yes	yes
household income (deciles)	no	no	yes	yes	yes	yes
Observations	56,256	56,256	46,366	46,366	25,666	25,666

Source: European Social Survey, rounds 8 (2016) & 9 (2018), www.europeansocialsurvey.org

Notes: Probit coefficient estimates; linearized standard errors in parentheses (data are weighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. Included countries are Austria, Belgium, Czechia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, and the United Kingdom. The dependent variable *EU exit* is coded as follows: 1, in favor of leaving the European Union; 0, in favor of remaining a member of the European Union. *Online politics* is coded as follows: 1, the respondent posted or shared anything about politics online during the last 12 months; 0, otherwise.

Table A.4.1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	2013 to 2016		2013		2014		2015		2016	
online politics w/o social media	0.048***	0.062***	0.082***	0.121***	0.058***	0.073**	0.041**	0.040	0.006	0.018
	(0.008)	(0.016)	(0.016)	(0.032)	(0.017)	(0.032)	(0.017)	(0.031)	(0.017)	(0.032)
online politics via social media	-0.046***	-0.004	-0.005	0.056	-0.033	0.006	-0.026	0.033	-0.110***	-0.097**
	(0.010)	(0.020)	(0.021)	(0.041)	(0.022)	(0.042)	(0.020)	(0.038)	(0.019)	(0.038)
high school diploma	-0.183***	-0.169***	-0.188***	-0.164***	-0.163***	-0.145***	-0.211***	-0.199***	-0.168***	-0.163***
	(0.009)	(0.012)	(0.017)	(0.024)	(0.018)	(0.024)	(0.017)	(0.023)	(0.017)	(0.024)
compulsory school	-0.276***	-0.262***	-0.305***	-0.275***	-0.276***	-0.266***	-0.275***	-0.263***	-0.247***	-0.238***
	(0.009)	(0.011)	(0.018)	(0.023)	(0.018)	(0.023)	(0.018)	(0.023)	(0.018)	(0.023)
online politics w/o social media*h.s. diploma		-0.020		-0.029		-0.037		-0.001		-0.030
		(0.019)		(0.038)		(0.040)		(0.038)		(0.040)
online politics w/o social media*compulsory school		-0.002		-0.105**		0.033		0.027		0.030
		(0.025)		(0.050)		(0.051)		(0.048)		(0.051)
online politics via social media*h.s. diploma		-0.040*		-0.073		-0.052		-0.067		0.019
		(0.024)		(0.049)		(0.050)		(0.046)		(0.045)
online politics via social media*compulsory school		-0.098***		-0.089		-0.057		-0.125**		-0.122**
		(0.031)		(0.063)		(0.066)		(0.060)		(0.057)
women	0.046***	0.046***	0.030***	0.029***	0.057***	0.058***	0.048***	0.047***	0.052***	0.052***
	(0.006)	(0.006)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
25-39	-0.189***	-0.191***	-0.172***	-0.175***	-0.136***	-0.137***	-0.244***	-0.247***	-0.207***	-0.209***
	(0.012)	(0.012)	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)
40-54	-0.152***	-0.153***	-0.089***	-0.091***	-0.127***	-0.127***	-0.222***	-0.224***	-0.175***	-0.174***
	(0.013)	(0.013)	(0.025)	(0.025)	(0.025)	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)
55-64	-0.147***	-0.149***	-0.069**	-0.072**	-0.109***	-0.109***	-0.208***	-0.210***	-0.207***	-0.208***
	(0.014)	(0.014)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.029)	(0.028)	(0.028)
65+	-0.051***	-0.053***	-0.019	-0.024	-0.006	-0.005	-0.092***	-0.094***	-0.087***	-0.089***
	(0.014)	(0.014)	(0.028)	(0.028)	(0.028)	(0.028)	(0.029)	(0.029)	(0.028)	(0.028)

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Table A.4.1 (continued)

married	0.042***	0.042***	0.026	0.027	0.033*	0.033*	0.085***	0.086***	0.025	0.024
	(0.010)	(0.010)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
couple with children	-0.067***	-0.067***	-0.053**	-0.053**	-0.080***	-0.080***	-0.089***	-0.089***	-0.046**	-0.045**
	(0.011)	(0.011)	(0.022)	(0.022)	(0.023)	(0.023)	(0.022)	(0.022)	(0.022)	(0.022)
couple without children	-0.063***	-0.063***	-0.011	-0.011	-0.087***	-0.088***	-0.118***	-0.118***	-0.039*	-0.038
	(0.012)	(0.012)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
single-parent father	-0.049**	-0.049**	-0.065	-0.064	-0.131***	-0.130***	-0.014	-0.015	0.008	0.008
	(0.021)	(0.021)	(0.044)	(0.044)	(0.040)	(0.040)	(0.044)	(0.044)	(0.042)	(0.042)
single-parent mother	-0.064***	-0.064***	-0.045*	-0.045*	-0.105***	-0.105***	-0.063***	-0.063***	-0.043*	-0.042*
	(0.012)	(0.012)	(0.024)	(0.024)	(0.024)	(0.024)	(0.023)	(0.023)	(0.024)	(0.024)
municipalities ≤ 10,000 inhabitants	-0.112***	-0.112***	-0.156***	-0.156***	-0.125***	-0.126***	-0.066***	-0.066***	-0.095***	-0.095***
	(0.008)	(0.008)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
municipalities > 10,000 inhabitants	-0.021***	-0.021***	-0.056***	-0.056***	-0.033**	-0.033**	0.014	0.014	-0.004	-0.004
	(0.008)	(0.008)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Italian region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	no	no	no	no	no	no	no	no
Observations	145,728	145,728	37,532	37,532	36,085	36,085	36,825	36,825	35,286	35,286

Source: Source: Multipurpose Survey on Households provided by https://www.istat.it

Notes: Ordered Probit coefficient estimates; robust standard errors in parentheses (data are unweighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on the full sample (employed, unemployed, or out of the labor force) where individuals below 18 years old are excluded. The outcome variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The dummy variable *online politics via social media* measures whether an individual does inquire about politics online through social media, such as Facebook or Twitter. The dummy variable *online politics w/o social media* measures whether an individual does inquire about politics online without using social media.

Table A.4.2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	2013 to 2016		2013		2014		2015		2016	
online politics w/o social media	0.045***	0.060***	0.092***	0.140***	0.035	0.047	0.045**	0.028	0.006	0.026
	(0.011)	(0.019)	(0.021)	(0.039)	(0.022)	(0.039)	(0.021)	(0.038)	(0.022)	(0.040)
online politics via social media	-0.083***	-0.012	-0.050*	0.063	-0.078***	0.003	-0.046*	0.016	-0.147***	-0.102**
	(0.013)	(0.024)	(0.028)	(0.053)	(0.028)	(0.050)	(0.026)	(0.046)	(0.025)	(0.046)
high school diploma	-0.211***	-0.192***	-0.231***	-0.189***	-0.177***	-0.152***	-0.251***	-0.253***	-0.185***	-0.171***
	(0.011)	(0.016)	(0.022)	(0.031)	(0.022)	(0.031)	(0.021)	(0.031)	(0.022)	(0.032)
compulsory school	-0.300***	-0.273***	-0.328***	-0.279***	-0.307***	-0.288***	-0.295***	-0.278***	-0.267***	-0.238***
	(0.013)	(0.016)	(0.025)	(0.032)	(0.026)	(0.032)	(0.025)	(0.032)	(0.026)	(0.033)
online politics w/o social media*h.s. diploma		-0.009		-0.048		-0.021		0.047		-0.017
		(0.024)		(0.047)		(0.049)		(0.047)		(0.050)
online politics w/o social media*compulsory school		-0.026		-0.091		0.024		-0.008		-0.041
		(0.033)		(0.064)		(0.068)		(0.065)		(0.069)
online politics via social media*h.s. diploma		-0.076**		-0.133**		-0.110*		-0.056		-0.028
		(0.030)		(0.065)		(0.062)		(0.058)		(0.057)
online politics via social media*compulsory school		-0.184***		-0.229**		-0.145		-0.205**		-0.180**
		(0.042)		(0.089)		(0.092)		(0.080)		(0.076)
women	0.054***	0.054***	0.016	0.017	0.059***	0.059***	0.070***	0.069***	0.074***	0.073***
	(0.009)	(0.009)	(0.017)	(0.017)	(0.018)	(0.018)	(0.017)	(0.017)	(0.018)	(0.018)
25-39	-0.016	-0.018	-0.009	-0.012	0.080*	0.080*	-0.109**	-0.111**	-0.036	-0.036
	(0.024)	(0.024)	(0.045)	(0.045)	(0.047)	(0.047)	(0.050)	(0.050)	(0.047)	(0.047)
40-54	0.036	0.035	0.089*	0.086*	0.114**	0.114**	-0.079	-0.080	0.008	0.009
	(0.024)	(0.024)	(0.046)	(0.046)	(0.048)	(0.048)	(0.050)	(0.051)	(0.047)	(0.047)
55-64	0.044*	0.043*	0.125**	0.123**	0.115**	0.116**	-0.064	-0.066	-0.007	-0.006
	(0.026)	(0.026)	(0.050)	(0.050)	(0.051)	(0.051)	(0.054)	(0.054)	(0.051)	(0.051)
65+	0.085**	0.083**	-0.054	-0.057	0.329***	0.330***	0.021	0.019	0.020	0.019
	(0.039)	(0.039)	(0.081)	(0.081)	(0.077)	(0.077)	(0.079)	(0.079)	(0.077)	(0.077)

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Table A.4.2 (continued)

married	0.045***	0.045***	0.017	0.018	0.027	0.027	0.091***	0.091***	0.051**	0.050**
	(0.013)	(0.013)	(0.025)	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)	(0.025)	(0.025)
couple with children	-0.091***	-0.091***	-0.065**	-0.066**	-0.085***	-0.084***	-0.118***	-0.118***	-0.097***	-0.096***
	(0.015)	(0.015)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.030)	(0.030)
couple without children	-0.112***	-0.112***	-0.077**	-0.079**	-0.119***	-0.117***	-0.188***	-0.187***	-0.069*	-0.068*
	(0.018)	(0.018)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
single-parent father	-0.074**	-0.073**	-0.029	-0.026	-0.150**	-0.151***	-0.044	-0.044	-0.059	-0.060
	(0.031)	(0.031)	(0.066)	(0.067)	(0.058)	(0.058)	(0.062)	(0.062)	(0.061)	(0.061)
single-parent mother	-0.080***	-0.079***	-0.079**	-0.078**	-0.100***	-0.099***	-0.075**	-0.074**	-0.066*	-0.065*
	(0.018)	(0.018)	(0.037)	(0.037)	(0.037)	(0.037)	(0.035)	(0.035)	(0.036)	(0.036)
municipalities ≤ 10,000 inhabitants	-0.143***	-0.142***	-0.165***	-0.164***	-0.135***	-0.135***	-0.146***	-0.146***	-0.121***	-0.120***
	(0.013)	(0.013)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)
municipalities > 10,000 inhabitants	-0.030**	-0.030**	-0.047*	-0.046*	-0.022	-0.021	-0.043*	-0.043*	-0.003	-0.002
	(0.012)	(0.012)	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.025)	(0.026)	(0.026)
Italian region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	no	no	no	no	no	no	no	no
Observations	61,299	61,299	15,718	15,718	15,041	15,041	15,487	15,487	15,053	15,053

Source: Source: Multipurpose Survey on Households provided by https://www.istat.it

Notes: Ordered Probit coefficient estimates; robust standard errors in parentheses (data are unweighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on the sample of employed workers, where individuals below 18 years old are excluded. The outcome variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The dummy variable *online politics via social media* measures whether an individual does inquire about politics online through social media, such as Facebook or Twitter. The dummy variable *online politics w/o social media* measures whether an individual does inquire about politics online without using social media.

Table A.5

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Full sample				Sample of employed			
	w/o computer skills		with computer skills		w/o computer skills		with computer skills	
online politics w/o social media	0.024**	0.027	0.010	0.019	0.024	0.026	0.014	0.023
	(0.012)	(0.022)	(0.013)	(0.024)	(0.015)	(0.027)	(0.017)	(0.029)
online politics via social media	-0.069***	-0.034	-0.089***	-0.054*	-0.099***	-0.045	-0.106***	-0.055
	(0.014)	(0.027)	(0.015)	(0.028)	(0.018)	(0.032)	(0.020)	(0.034)
high school diploma	-0.190***	-0.182***	-0.173***	-0.163***	-0.218***	-0.211***	-0.211***	-0.202***
	(0.012)	(0.017)	(0.013)	(0.018)	(0.015)	(0.022)	(0.016)	(0.023)
compulsory school	-0.261***	-0.251***	-0.223***	-0.210***	-0.280***	-0.257***	-0.253***	-0.226***
	(0.013)	(0.016)	(0.014)	(0.018)	(0.018)	(0.023)	(0.021)	(0.026)
online politics w/o social media*h.s. diploma		-0.012		-0.019		0.015		0.005
		(0.027)		(0.029)		(0.034)		(0.036)
online politics w/o social media*compulsory school		0.032		0.024		-0.022		-0.037
		(0.035)		(0.037)		(0.047)		(0.050)
online politics via social media*h.s. diploma		-0.023		-0.019		-0.042		-0.037
		(0.032)		(0.033)		(0.041)		(0.042)
online politics via social media*compulsory school		-0.120***		-0.132***		-0.191***		-0.190***
		(0.041)		(0.043)		(0.055)		(0.058)
women	0.049***	0.049***	0.049***	0.049***	0.072***	0.071***	0.068***	0.067***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.012)	(0.012)	(0.013)	(0.013)
25-39	-0.224***	-0.226***	-0.220***	-0.222***	-0.069**	-0.070**	-0.071**	-0.072**
	(0.017)	(0.017)	(0.018)	(0.018)	(0.034)	(0.034)	(0.035)	(0.035)
40-54	-0.197***	-0.198***	-0.199***	-0.200***	-0.031	-0.032	-0.046	-0.045
	(0.018)	(0.018)	(0.019)	(0.019)	(0.034)	(0.035)	(0.036)	(0.036)
55-64	-0.207***	-0.208***	-0.199***	-0.200***	-0.031	-0.032	-0.038	-0.038
	(0.020)	(0.020)	(0.022)	(0.022)	(0.037)	(0.037)	(0.039)	(0.039)
65+	-0.090***	-0.092***	-0.082***	-0.084***	0.023	0.021	0.003	0.003
	(0.020)	(0.020)	(0.022)	(0.022)	(0.055)	(0.055)	(0.059)	(0.059)

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Table A.5 (continued)

married	0.054***	0.055***	0.065***	0.065***	0.070***	0.069***	0.077***	0.076***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.018)	(0.018)	(0.019)	(0.019)
couple with children	-0.068***	-0.067***	-0.075***	-0.074***	-0.108***	-0.107***	-0.112***	-0.112***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.021)	(0.021)	(0.022)	(0.022)
couple without children	-0.078***	-0.078***	-0.087***	-0.087***	-0.126***	-0.126***	-0.136***	-0.135***
	(0.017)	(0.017)	(0.018)	(0.018)	(0.026)	(0.026)	(0.026)	(0.026)
single-parent father	-0.001	-0.002	-0.008	-0.008	-0.051	-0.051	-0.056	-0.057
	(0.030)	(0.030)	(0.032)	(0.032)	(0.043)	(0.043)	(0.045)	(0.045)
single-parent mother	-0.053***	-0.053***	-0.056***	-0.056***	-0.071***	-0.070***	-0.074***	-0.074***
	(0.016)	(0.016)	(0.017)	(0.017)	(0.025)	(0.025)	(0.026)	(0.026)
municipalities ≤ 10,000 inhabitants	-0.082***	-0.082***	-0.088***	-0.087***	-0.135***	-0.134***	-0.135***	-0.134***
	(0.012)	(0.012)	(0.013)	(0.013)	(0.019)	(0.019)	(0.019)	(0.019)
municipalities > 10,000 inhabitants	0.003	0.004	-0.001	-0.001	-0.025	-0.024	-0.027	-0.027
	(0.011)	(0.011)	(0.012)	(0.012)	(0.018)	(0.018)	(0.018)	(0.018)
proxies for computer skills	no	no	yes	yes	no	no	yes	yes
Italian region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Test for joint significance of computer skills								
F-test			93.24***	93.58***			51.58***	52.17***
Observations	72,111	72,111	66,812	66,812	30,540	30,540	28,402	28,402

Source: Source: Multipurpose Survey on Households provided by https://www.istat.it

Notes: Ordered Probit coefficient estimates; robust standard errors in parentheses (data are unweighted). Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on the full sample (employed, unemployed, or out of the labor force) and the sample of employed workers, pooled over 2015 and 2016, where individuals below 18 years old are excluded. The outcome variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The dummy variable *online politics via social media* measures whether an individual does inquire about politics online through social media, such as Facebook or Twitter. The dummy variable *online politics w/o social media* measures whether an individual does inquire about politics online without using social media. The proxy variables for self-assessed computer skills are derived from various operations that were performed in the last 12 months: transfer files between computers and/or other devices such as digital camera, cell phone, or MP3 player (yes/no), install software or applications (yes/no), change the settings of any software, including operating systems or security programs (yes/no), Connect and install peripherals like printers or modems (yes/no), compress or zip files (yes/no), copy or move a file or folder (yes/no), use software for word processing like e.g. Microsoft Word (yes/no), use "copy and paste" to copy or move information within a document (yes/no), create presentations or documents that include texts, images, graphics, tables (yes/no), use spreadsheets for calculation like e.g. Microsoft Excel (yes/no), use the advanced functions of the spreadsheets for calculation to organize and analyze data like e.g. sort, filter, use formulas, create graphics (yes/no), use software to edit photos, videos, audio files (yes/no) and write code in a programming language (yes/no); these variables are available in this form only in 2015 and 2016.

Table A.6

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Labor force sample				Sample of employed			
	Standard ordered probit		IV ordered probit		Standard ordered probit		IV ordered probit	
	Compulsory education	Higher education	Compulsory education	Higher education	Compulsory education	Higher education	Compulsory education	Higher education
online politics w/o social media	0.051*	0.075***	0.01	-0.002	0.03	0.073***	0.048	-0.06
	(0.028)	(0.013)	(0.130)	(0.128)	(0.031)	(0.014)	(0.143)	(0.134)
online politics via social media	-0.171***	-0.033**	-0.406***	0.048	-0.203***	-0.033**	-0.495***	0.053
	(0.034)	(0.015)	(0.134)	(0.070)	(0.038)	(0.017)	(0.139)	(0.075)
control variables	yes	yes	yes	yes	yes	yes	yes	yes
Italian region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
F test (dep. var. -> online politics w/o social media)			439.47***	533.09***			290.87***	371.78***
F test (dep. var. -> online politics via social media)			355.34***	872.19***			242.67***	606.50***
Observations	19,565	38,771	19,495	38,715	14,208	31,373	14,170	31,336

Source: Source: Multipurpose Survey on Households provided by https://www.istat.it

Notes: Standard and IV Ordered Probit coefficient estimates; robust standard errors in parentheses (data are unweighted). The IV ordered probit estimation involves two first-stage probit regressions. Significance: *** p<0.01, ** p<0.05, * p<0.10. The analyses are based on the labor-force sample and the sample of employed workers, pooled over 2014, 2015 and 2016, where individuals below 18 years old are excluded. The outcome variable *trust in European parliament* is an ordinal variable, ranging from 0 (no trust at all) to 10 (complete trust). The dummy variable *online politics via social media* measures whether an individual does inquire about politics online through social media, such as Facebook or Twitter. The dummy variable *online politics w/o social media* measures whether an individual does inquire about politics online without using social media. The control variables are sex, age groups, married, household type, and urban level. The instrumental variables are DSL connexion (yes/no), smartphone connexion (yes/no), SIM/USB connexion (yes/no) and ISDN connexion (yes/no); these four variables are available in this form only in 2014, 2015 and 2016.