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Online Political Participation in Spain:
The Impact of Traditional and Internet Resources

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Abstract

This article examines how traditional and Internet resources are related to three online modes of political participation (contact, donation, petition) in Spain. Using a Heckman selection model, we find that traditional resources are more important in predicting access to the Internet than online participation. Among Internet users, traditional resources are irrelevant for predicting participation, while online resources are important to understanding who participates online. We also find that the effects of resources are not the same for all modes of participation and that some characteristics of the political system may shape the effects of resources on online participation.

Keywords: online political participation, Internet, resources, Heckman model, Spain

Introduction

Regardless of whether we believe that the Internet will change everything (Johnson, Hays, & Hays, 1998) or just leave politics as usual (Margolis & Resnick, 2000), the Web has at least two fundamental implications for political participation: (1) people can now engage in some mode of political participation online and (2) people can now interact and get information through the net. The literature on political participation is beginning to address the online modes of participation and to adjust its explanatory models to the existence of resources that are gathered online.

As is well known, one of the main explanatory models of political participation puts resources at a central position. In their civic voluntarism model, Verba, Scholzman, and Brady (1995) argue that people who have more resources, such as money, time, and civic skills, can more easily afford the costs of participation and develop more positive attitudes towards politics; and thus, they are more likely to participate. In this article, we develop an extension of the resource-based model of political participation that includes the online as well as traditional civic skills. We then use this model to explain online activities such as petitioning, contacting politicians, and donating money in Spain. We find that traditional resources affect citizens' ability to get over the hurdle of going online, but that once over that hurdle, citizens' political participation is more influenced by online resources.

The paper makes several contributions to the existing literature. First, it provides a better understanding of different modes of online participation. Although it is often stated that resources matter differently for different modes of political participation, this is rarely empirically tested. Previous research has typically constructed additive indexes of online participation and used this measure as the dependent variable (Best &

Krueger, 2005; Gibson, Lusoli, & Ward, 2005; Krueger, 2002). However, each political activity has a unique cost structure, and different types of resources should have a unique impact on each mode of participation. We can better evaluate the accuracy of this claim regarding online participation by analyzing the impact of traditional and online resources on three online activities which have a distinct cost-structure: signing petitions, donating money, and contacting politicians.

Second, in the analysis of online participation it is fundamental to adequately distinguish between Internet access and online participation. Traditional resources influence online participation in a two-step process in which they first determine access to the Internet and then they may or may not influence the propensity to participate online. Methodologically, this implies that it is necessary to adequately distinguish between the impact of traditional resources on having access to the Internet and the impact of online participation once access is achieved. We do so by applying a Heckman selection model.

Third, we propose a conceptualization and operationalization of Internet resources and skills as a factor that should be considered in explanatory models of political participation. We consider three different aspects of Internet resources (familiarity with Information and Communication Technologies (ICTs), frequency of use, and extension of repertoire) and discuss their potential consequences for different forms of participation.

Finally, most of the existing research on individual online political participation has been carried out in the US or the UK. By analyzing Spanish data, we test how the resource-based approach to online political participation performs in a non-Anglo-Saxon country. We can also explore the role of contextual features, as Spain is very different from the US or the UK in politically relevant ways. Similar results to those

obtained in the UK or the US would point at the robustness of the resource approach to explaining online participation across different contexts. Conversely, important divergences would suggest that it is necessary to refine the theory in order to encompass the mediating effects of the political context.

The first section of the article outlines the resource approach to political participation, its extension to online resources and participation modes, and the hypotheses to be tested. It also discusses how context, in our case some features of the Spanish political system, may produce significant consequences. In section 2, we describe the variable operationalization and the data used for the analysis, the results of which are presented in section 3¹. The last section finally discusses the findings.

Resource Approaches to Political Participation: The Traditional Model and Online Extensions

Being active in politics involves costs: it is necessary to devote some time, effort, and/or money to participate. According to the civic voluntarism model (Verba, Schlozman, & Brady, 1995), resources are fundamental to understanding why some people participate in politics and why others do not. The model distinguishes several participatory resources and claims that each resource has a unique influence on different acts depending on their cost structure. Free time is a necessary condition to participate in time-consuming activities. Money is relevant for donations. Civic skills, which include the ability to organize, to process information and to communicate it effectively, are relevant to most forms of participation because they reduce the cognitive and information costs and favor certain attitudes such as interest or efficacy.

The creation and spread of the Internet has made available new forms of political participation. Online activities are new forms of political participation, and they are increasingly relevant in advanced industrial societies (Gibson, Lusoli, & Ward, 2005; Peretti & Micheletti, 2004). For example, the intelligent use of the Internet is nowadays considered an essential part of electoral campaign strategies (Gibson & Rommele 2008; Panagopoulos, 2007; Vedel & Cann, 2008), and it was crucial for the movement for global justice (Della Porta & Mosca, 2005) and other protest movements (van de Donk, Loader, Nixon, & Rucht, 2004).

The spread of information and communication technologies and the possibility of participating online force a revision of the resource model of political participation in at least two respects (Gibson, Lusoli, & Ward, 2005; Krueger, 2002). Firstly, traditional resources can shape online participation indirectly (as they are related to having Internet access) and directly (by making it easier for resource-rich Internet users to participate online). Secondly, participating online requires computer skills, which are a new type of participatory resource. We address these two questions in turn.

Traditional Resources, Internet Access and Online Participation

Traditional resources enable citizens to overcome the costs of having access to the Internet. People with high income and education levels are more likely to use the Internet (Norris, 2001). People with high civic skill developed at work or in the framework of their associational activity (particularly those skills related to writing or to making presentations) should be more likely to use computers in their daily life². However, online activities have a different cost structure than traditional political activities, and it is unclear whether traditional resources are relevant to *also* predicting

who participates online among all Internet users. Once people have access to the Internet, there are two possible scenarios. Political participation should still have costs, and thus being wealthy and highly educated or having free time and civic skills would foster participation. For example, as in the traditional offline context, high income people should be more likely to donate to political causes online. Traditional resources would then still explain who participates.

The alternative situation is that the abilities and resources needed to take part in computer-mediated activities are different from those required to take part in traditional political acts (Best & Krueger, 2005; Delli Carpini, 2000; Krueger, 2002). Online participation is easier and less costly in some respects. The Internet makes it much easier to engage in certain activities. Some activities can be conducted privately online, reducing the costs of social pressure: for example, there's no shame in donating some money or signing a petition about a controversial issue. For people who are computer literate, writing an email requires less effort and time than writing (and posting) a letter. If activities conducted online are carried out in a simpler and faster way, the availability of traditional resources should be less important in determining who is active.

In sum, the influence of resources on online participation is a two-step process: resources are associated with online access, but they may or may not foster participation in online activities. The distinction is important because failing to account for the two-step process could lead to misleading results. Thus, our first hypothesis coming from previous evidence could be stated as follows:

H1: Traditional offline resources such as income, education, and civic skills matter more for Internet use (access) than for online participation.

Internet skills

There are now resources for participation related to computer and Internet abilities that previously did not exist³. These resources enable and facilitate involvement in online activities (Di Gennaro & Dutton, 2006; Gibson, Lusoli, & Ward, 2005; Krueger, 2002). Online resources make the preparation of political activity easier. People can obtain information on political issues online or become acquainted with other political campaigns and experiences. People who are online and have Internet skills may also have a better understanding of how the information society works and can better assess how to have an influence on it. A higher proficiency in dealing with digital applications allows citizens to take advantage of Internet features that save time or increase efficiency in communicating with other people, like public officials.

Among Internet skills, we may distinguish different aspects. In the first place, people may be more or less familiar with computers. People who need to have an advanced knowledge of ICTs for their job or other daily activities are expected to have more sophisticated computer skills, and thus a higher probability of using them efficiently and effectively (Hargittai, 2003), including for political purposes. Secondly, people may spend long hours online, which facilitates familiarity with the medium and expertise in its profitable use. Further, we expect time online to be related with the likelihood that a person gets mobilization stimuli. Finally, some people may use the Internet only to check their email, while others may have a more varied repertoire of uses, ranging from searching for information to shopping, banking, phoning, downloading music or films, posting in blogs or Web sites, etc. The higher the amount and diversity of activities the user is able to perform, the more he or she will develop his or her Internet resources. Moreover, some of these activities are likely to be related to

the amount of confidence in the net, an attitude that may be important for political activities such as online donation.

Thus Internet resources can be expected to be relevant for explanatory models of online participation because people who have more expert skills (knowledge of ICTs, frequency of use, broad repertoire of activities) can more easily find out how to participate and how to do so effectively.

H2: Internet skills and resources are important for all different online modes of participation.

Different Modes of Online Participation

Most of the literature on online political participation either focuses on a single mode of participation (such as participation in an election campaign, Bimber & Davis, 2003) or create a single index by adding together several different modes (Best & Krueger, 2005; Gibson, Lusoli, & Ward, 2005; Krueger, 2002). This latter operationalization assumes that online participation is unidimensional and that the costs and resources necessary to perform any online political activity are the same. However, we expect the costs associated with political participation to vary across modes and across contexts; thus, the importance of resources may vary depending on both dimensions.

We analyze in this study three online participatory acts: contacting officials, donating money, and signing petitions. Online resources, but also traditional resources, are expected to be important in understanding who contacts officials online because this activity involves several steps and requires a fair amount of individual initiative. The

citizen has to be familiar with how to search for information online, locate the appropriate official, and send a message in an adequate format.

We also expect online donations to be related to familiarity and trust in the Web. People that carry out many different activities online (like shopping or transferring money) are expected to be more likely to donate money online. A previous experience in other online activities that involve money transfers permits the gaining of familiarity with the necessary steps to access and use a secure online application. The use of these applications is also likely to both reflect and produce trust in them.

Finally, we expect a strong relationship between online resources and petitioning. A higher degree of proficiency in dealing with the online environment enables the user to effectively search for information about issues of interest, to get in touch with different sources of information (either sought or unintended), and to get in touch with other users with similar interests. This increases the likelihood that a user will receive a stimulus to sign a petition. Particularly, all other things being equal, the more time a person stays online, the more likely she is to get a message asking her to sign a petition.

There are thus different expectations depending on the mode of participation:

H3a: Both traditional and Internet resources are expected to be particularly important for contacting representatives.

H3b: Extension of the online repertoire of activities is expected to be particularly important for making donations.

H3c: Time online is expected to be particularly important for signing petitions.

The Spanish Case and the Expected Implications of the Political Context

Cross-national research has repeatedly found that countries vary greatly in the levels of involvement in different political activities such as voting, contacting, taking part in demonstrations, joining political organizations, etc. (see, for example, Dalton, 2004; van Deth, Montero, & Westholm, 2007). The effect of some individual variables on participation is also different in different countries (Anduiza, 2002). Thus, resources may not play the same role for online political participation in all settings. This happens, among other reasons, because the costs and incentives to participate in politics vary across contexts. The Spanish political context is different from the American and British ones in some important respects, which might mediate the impact of resources on online participation. Although the empirical analysis will only include Spanish data (and thus no inferences will be made on the effect of contextual features), it is important to put this country in perspective and compare it, at least in terms of theoretical expectations, with the two other countries where online resources and political participation have been analyzed most extensively, the UK and the US.

In Spain, elections are held under a proportional representation system (PR) with closed party lists. The relationship between elected representatives is more distant and impersonal under PR than in single member districts systems because the political representatives are less visible and ultimately responsive to the party and not to a territorial constituency. In PR systems, citizens contact their elected representatives much less frequently than in countries with single-member districts (Norris, 2004, p. 241). Whereas in single-member districts it is more straightforward to identify who is the political representative to be contacted, in PR systems it is harder to understand whom to address. Not only are representatives expected to behave differently under different electoral systems (Cain, Ferejohn, & Fiorina, 1987; Carey & Shugart, 1995), but citizen participation may also be conditioned. If identifying who is your

representative in PR systems is relatively difficult, contacting them is also likely to be cumbersome, and thus resources are expected to be particularly important to cover these costs. Thus, resources should be relatively important in predicting contact with politicians in a PR closed-list system such as Spain's.

It is also well known that donations are a very important part of American elections because there are few limits to campaign spending and fundraising. Election results are frequently said to be decided by the amount of money raised by the candidates (Morton & Cameron, 1992). Money donations play a much more limited role in Spanish politics and typically people do not donate large amounts of money to candidates or causes but, if anything, give some small fee to certain organizations. Thus, having a high income is not a necessary condition to donate a small amount of money. The role played by financial resources is likely to be different in Spain because campaigns and candidates do not target well-off citizens in their mobilization efforts to the same extent that this might happen in the US. Thus, we expect resources to be less important for donations in Spain.

H4: We expect resources to play an important role for contacting representatives but less for political donations because of the features of the Spanish political system.

Data and Variable Operationalization

We use data from a face to face survey of the Spanish population (N=3,907), which was carried out in November 2007 by the Spanish Centro de Investigaciones Sociológicas. The sample, created by random routes using a quota design, included an overrepresentation of citizens between 18 and 40 years of age in order to increase the

number of Internet users, which is larger in this age group than among people over 40. This result was obtained through the use of quotas and is corrected in the analysis by applying the appropriate weights.

The survey contained a large number of items on Internet use and online participation (see appendix A for coding details). We consider three online political activities which have a different cost structure: donating money, signing petitions, and contacting politicians. They are coded as dummy variables that identify individuals who have engaged in each of these activities. Internet users are those who report having used the Internet at least once in the last 3 months.

Several questions tap the availability of traditional resources. Time is measured as reported time free from responsibilities, that is, time available in a normal day after doing all the necessary activities such as sleeping, working, eating, maintaining the household, and so on. Money is measured as the total monthly household income measured as a continuous variable with 10 categories from 300 Euros or less to over 6,000 Euros. Missing data have been imputed. Education is coded in four categories: primary, lower secondary, upper secondary, and tertiary. As a measure for civic skills, we asked whether in the course of regular activities, such as work or associational collaboration, the respondent writes letters, performs oral presentations, or attends and organizes meetings. These are indicators of civic skills directly adapted from the Civic Participation Study used by Verba, Schlozman, and Brady (1995)⁴.

Online skills were measured through three different indicators. First, we tapped the extent to which people were familiar with computers by asking whether they needed any basic or advanced knowledge of ICTs for their current activities at work or as members of associations. Secondly, we had available a battery of nine different online activities such as using email, shopping online, searching information, telephoning

online, or maintaining a blog or Web site. People who were not users were coded as having no abilities, and for users the battery items were aggregated in an additive index, with the expectation that people with few online skills only engage in a few of the activities, whereas people with many skills engage in a lot of activities⁵. This index is produced in a way similar to the one proposed by Krueger (2002) and has reasonable reliability⁶. Finally, we also include a measure of frequency of Internet use, which ranges from no time at all to using the Internet 6 to 7 days a week. Age (coded in years) and gender were added as socio-demographic controls.

Results

Table 1 shows the levels of Internet use and online political participation in Spain, including also data from the UK and the US as a reference.

[Table 1 about here]

Fifty one percent of the Spanish population reports having used the Internet in the last three months. The figure of Spain in 2007 is similar to the UK data⁷ in 2002, though lower than the American levels of Internet use in 2003. In Spain, 8% of users declare having donated money online, 14% have signed petitions, and 18% have contacted politicians or public officials. Spanish Internet users perform political activities online more frequently than British users, when half the population in both countries had access to the Internet. Online activity is more widespread among the US Internet users and the population in general, at a moment when 59 percent of the American population used the Internet.

As stated in the introduction, the analysis of how resources affect modes of online participation requires the distinction between Internet use in general and online participation in particular. For this reason, we apply a Heckman selection model to each of the three modes of participation considered. This model (Heckman, 1976; 1979) allows for the specification of the two-step process described by the theory.⁸ It allows us to distinguish the impact of traditional resources first on the probability that an individual will use the Internet, and then on the probability that this individual will be politically active online. This kind of model has two related equations with two different dependent variables. The selection equation has as a dependent variable a dummy for Internet use. The regression equation has as a dependent variable a dummy for each mode of online participation. A Heckman selection model allows for the inclusion of the same independent variables in both equations, something necessary to see what the role of traditional resources is both for Internet use and participation.⁹ Internet resources, however, will only be relevant for explaining online participation among Internet users.

Table 2 reports the results of three probit Heckman selection models for the three modes of online participation analyzed. Traditional resources and socio-demographics are modeled as predictors of Internet use, and they are also included as predictors of each of the three modes of online participation. Online resources, which logically can only be developed by Internet users, are introduced only in the regressions analyzing the modes of online participation. Since all variables except age have been recoded to range between 0 and 1, the size of the coefficients can be roughly compared, and thus we can observe which variables are stronger predictors of online participation.

[Table 2 about here]

Age, education, income, place of residence, and some traditional civic skills (writing and making oral presentations), are related to Internet use in the expected direction: the younger, the more educated, the richer, the inhabitants of large cities, and the more skilled are all more likely to use the Internet. Conversely, gender, available free time, and attending meetings are not significant predictors of Internet use.

The interesting question is: which resources matter once people use the Internet? Internet abilities are the main predictor of online participation in all three activities. Internet abilities are very strongly and significantly related to online activity. In all three acts, the coefficients of this variable are the largest among those in the regression model. In addition, people who need to use ICTs at work or in their regular activities are also more likely to contact politicians online and to sign e-petitions.¹⁰ Frequent Internet users are also more likely to sign petitions online, as suggested earlier, because of a larger likelihood of being exposed to mobilization stimuli. A wider repertoire of online activities positively affects donation, possibly because it increases the level of trust in the net.

Regarding traditional predictors of participation, the Heckman selection model sheds light on the puzzling relationship between age and online participation. Best and Krueger (2005, p. 192) find no relationship between age and online participation, which is an implausible result, given the widespread influence of age on political participation. However, distinguishing between the impact of age on Internet access and on online participation makes the relationship between both variables clear. True, young people are more likely to use the Internet, but, once citizens use the Internet, age is positively related to participation, so that older Internet users are more likely to be active online.

Free time does not show any significant effect on any of the modes of participation considered. This may be considered a confirmation of the hypothesis that online participation is less costly in terms of time, but it may also reflect the difficulty of using subjective measures of free time. Education only has a significant effect on e-donating. Although we expected education to affect contacting representatives, because it is a relatively difficult mode of participation in which to engage, the data do not support this hypothesis.

Civic skills are weakly related to online participation. People who take part in meetings are more likely to contact officials and sign petitions online, and people who make oral presentations regularly are more likely to donate. However the coefficients are small. Writing skills are negatively associated with participation, rather than positively, as was expected. This result is probably due to our controlling for needing basic or advanced knowledge of ICTs at work. People who write at work, but who do not use ICTs there, write by hand, probably in non-qualified jobs; thus, they are less likely to engage in online participation.

In sum, Internet skills are strong and significant predictors of online participation once access to the Internet is achieved¹¹. Traditional resources are sometimes related to participation in the expected way, but most of the time they are unrelated. Although some degree of social interaction seems to matter (taking part in meetings is relevant for contacting and petitioning), once we introduce the distinction between access and participation, traditional resources are not as important as Internet resources for online participation.

As we expected from previous research in other countries (Best &, Krueger, 2005; di Genaro &, Dutton, 2006), traditional resources are important in predicting Internet use but they are not as important for online participation in Spain, too. This

result confirms hypothesis 1. Hypothesis 2 was also confirmed as Internet resources are important for all modes of online participation.

Hypotheses 3 and 4, regarding the differential effects of resources depending on the different participation modes and different contexts, are partially confirmed. We expected contacting representatives to be more costly than other modes of online participation, and thus more affected by resources of all types. This is particularly so in a context, such as the Spanish case, where the characteristics of the political system do not enhance a personal link between voters and representatives. However, the results show that education has no significant effect on contacting representatives, nor do other resources seem particularly important for this mode of participation. The expectations regarding donating and petitioning are, on the other hand, confirmed by the data. Donating requires familiarity and trust in the net and its possibilities. We found confirmation for this hypothesis because a broader repertoire of Internet activities increases the chances of donating money. Conversely, traditional resources, particularly income, have no effect on online donation. Although in Spain donations tend to be small and play a relatively small role in campaigns, this null effect is a surprising result. Perhaps more than the monetary costs of donating, what is relevant here is the non-monetary cost of actually making the donation. Petitioning needs exposure to stimuli and thus time online; the analysis shows that the chances of signing a petition increase significantly with time spent online.

Discussion

The main findings of our analysis can be summarized in two main points that will be discussed in turn.

(a) While traditional resources are more important for Internet use than for participation, Internet resources are fundamental explanatory factors of online participation.

The analysis of the Spanish case has basically confirmed the findings of previous research carried out mainly in the US and the UK on online political participation. This is important because it can be considered evidence in favor of the robustness of the resource-based model of political participation adapted to the online dimension. Although this paper has not explicitly compared offline and online modes of participation, it seems that the type of resources that are relevant to explaining these modes depends to a significant extent on communicative and organizational aspects of the modes of participation. Online activities require different resources and skills than their offline counterparts, among other things, because these are computer-mediated acts (Best & Krueger, 2005; Delli Carpini, 2000; Krueger 2002). What is relevant, then, is whether political participation is carried out online or offline. The stronger affect of Internet resources (compared to other traditional resources such as time, civic skills, or income) can also be interpreted as cognitive abilities being more important in the online sphere.

Some authors have argued that online participation can reduce political inequalities derived from the effect of socioeconomic resources on participation. Resources are important determinants of participation not only because they help us to understand it, but because of their normative implications with respect to political equality. For resource-rich people, it is relatively easier to afford the costs of participation, thus they tend to be disproportionately represented among politically

active participants. In this situation, the voice of privileged groups may be more present in the public debate and their interests and points of view may therefore be more likely to be taken into account by policy-makers (Jacobs & Skocpol, 2005).

Our results show that traditional resources matter little for online participation, even in cases where we would expect some, if small, effect (like education for contacting representatives or income for donating money). Only age keeps the positive effect that it usually has in traditional forms of participation. However, this equalizing potential is limited by the fact that online participation can obviously only occur among those that use the Internet. Internet use is, still, heavily conditioned by traditional resources, and thus, inequalities in access and regular use persist (di Genaro & Dutton, 2006; Mossberger, Tolbert, & McNeal, 2008; van Dijk & Hacker, 2003).

Moreover, if we expand the concept of resources to include Internet skills, then we find that there are indeed important differences in online political participation depending on the level of factors such as knowledge of ICTs, frequency of Internet use, or broadness of the repertoire of Internet activities. The extent to which these Internet related resources also condition traditional modes of offline participation (Hoff, 2008) should be further explored in future research, as the Internet becomes increasingly present in daily life.

The fact that traditional resources are not directly conditioning online participation among users cannot be considered a step towards political equality for yet another reason. As use of the Internet spreads across society, there will be more social heterogeneity among Internet users, and thus some resources that are now relevant only for use may become relevant predictors for online participation as well. Whether the effect of variables such as education and income on online participation remains modest as Internet use becomes generalized is an empirical question still to be examined, and

this would be the crucial test for the equalizing potential of online participation. Thus, greater political equality in the online arena cannot be taken for granted.

(b) The effects of resources on online participation depend, to some extent, on the modes of participation and on the features of the political context.

Although there is a general pattern common to all three modes of participation, consistent with previous findings (the positive effect of age, the lack of effect of traditional resources in general, the importance of online resources), there are also relevant differences across the modes that can only be fully appreciated when they are considered independently. The costs of participation, and their implications for political equality, are different across different modes.

While contacting representatives could be expected to be more difficult and thus more affected by the level of resources in PR systems, our analysis shows that it is unaffected by education.¹² However, online resources, and particularly advanced knowledge of ICTs, are particularly important for this mode. Online petitioning is particularly dependent on time spent using the Internet, as this activity is usually a response to mobilization stimuli that occur while one is online. Donating depends more on using the Internet for a wide variety of activities (some of which necessarily require a certain amount of trust in the net) than on economic resources. This may be favored by the Spanish context, where money donations play a more limited role than in the US, but it is still a somehow perplexing finding that suggests that donation may have relevant procedural extra-monetary costs that the Internet helps to overcome.

By exploring survey data from Spain, this analysis bolsters previous findings on the affect of traditional and Internet resources on online participation in the UK and the

US. Our findings are consistent with the idea that traditional resources are more important for access to the Internet than for online participation. This does not ensure greater political equality in the online dimension, as access is still conditioned by socioeconomic resources, and online resources play a major role as predictors of online participation. This general conclusion requires, however, some more subtle considerations. The affect of resources, both online and traditional, on online political participation depends not only on the specific mode of participation, but also on the features of the political system.

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Appendix A: Variable Coding

For question wording see www.polnetuab.net

E-contact: 1= has contacted a politician or administration by email in the last 12 months; 0= has not contacted

E-donation: 1= has donated money to an organization via the Internet in the last 12 months; 0= has not donated money

E-petition: 1= has signed an online petition in the last 12 months; 0= has not signed an online petition

Woman: 1= woman; 0= man

Age: 18 to 95 years

Education: 0= primary; 0.33= lower secondary; 0.67= upper secondary; 1= tertiary

Big city: 1=lives in a city with more than 400,000 inhabitants; 0= lives in a city with less than 400,000 inhabitants

Writes at work: 1= writes letters and reports at work or normal activities; 0= does not write letters and reports

Takes part in meetings: 1= attends or organizes meetings at work or normal activities; 0= does not attend meetings

Makes oral presentations: 1= exposes in public and makes oral presentations at work or normal activities; 0= does not expose in public

Income: 0= 300 € or less; 0.11= 301 to 600 € 0.22= 601 to 900 € 0.33= 901 to 1,200 € 0.44= 1,201 to 1,800 € 0.56= 1,801 to 2,400 € 0.67= 2,401 to 3,000 € 0.78= 3,001 to 4,500 € 0.89= 4,501 to 6,000 € 1= more than 6,000 €

Free time: free time in minutes each day, ranging from 0 (60 minutes or less) to 1 (7 hours or more)

Internet Abilities: 0= makes no use of the Internet; 0.1 to 1= score in an additive index where doing any activity online (information search, shopping, bank related uses, email, chat, online calling, file sharing, maintaining a web or blog, and navigating with no purpose) adds 0.1 points

Needs ICTS at work: 0=does not need ICTs at work or regular activities; 0.5= needs basic knowledge of ICTs at work or regular activities; 1= needs advanced knowledge of ICTs at work or regular activities

Frequency of Internet use: 0= never; 0.2 less than a few times a month; 0.4= a few times a month; 0.6= 1-2 days a week; 0.8= 3-5 days a week; 1= 6-7 days a week.

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Table 1

Online political participation

	Spain	Spain	GB	GB	USA	USA
% of Internet users over sample	51		49		59	
	% of sample	% of users	% of sample	% of users	% of sample	% of users
E-donation	4	8	Na	Na	Na	Na
E-petition	7	14	2	4	11	19
E-contact	9	18	2	4	14	24
N	3,716	2,169	1,972	965	1,003	730

Source: data for Spain are from CIS 2736 (2007). Data for the UK are from Gibson, Lusoli, & Ward (2005) for the year 2002. Data for USA are from Best & Krueger (2005) collected in 2003 except for percent of Internet users (data for 2003 from <http://www.internetworldstats.com/am/us.htm>, visited on July 27th 2009).

Table 2

The effect of resources on Internet access and online political participation

	E-contact		E-petition		E-donation	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Regression model: online participation						
<i>Traditional resources and socio-demographics</i>						
Woman	0.038	0.084	0.240**	0.092	0.184*	0.110
Age (18-95 years)	0.022***	0.005	0.014**	0.006	0.019***	0.007
Education	-0.141	0.203	0.406	0.260	0.521**	0.264
Income	-0.152	0.331	0.234	0.359	0.174	0.429
Free time	0.023	0.135	0.197	0.150	-0.117	0.171
Writes at work	-0.368*	0.213	-0.174	0.344	-0.502*	0.277
Takes part in meetings	0.204**	0.103	0.270**	0.115	0.195	0.140
Makes oral presentations	0.162	0.103	0.162	0.110	0.242*	0.131
<i>Computer and online resources</i>						
Internet abilities	1.100***	0.234	1.045***	0.262	1.169***	0.293
Needs ICTs at work	0.311**	0.135	0.293**	0.148	0.071	0.195
Frequency Internet use	-0.024	0.272	0.715**	0.333	0.258	0.357
Constant	-1.943***	0.433	-3.510***	0.681	-3.207***	0.626
Selection model: Internet use						
Woman	-0.121	0.078	-0.125	0.080	-0.112	0.079
Age (18-95 years)	-0.041***	0.003	-0.040***	0.003	-0.040***	0.003
Education	1.092***	0.146	1.105***	0.147	1.123***	0.146
Income	1.658***	0.266	1.636***	0.268	1.631***	0.269
Free time	0.111	0.121	0.098	0.123	0.105	0.123
Writes at work	1.379***	0.090	1.375***	0.092	1.373***	0.091
Takes part in meetings	0.155	0.135	0.138	0.135	0.135	0.137
Makes presentations	0.358**	0.166	0.387**	0.166	0.400**	0.168
Lives in big city	0.285**	0.103	0.287**	0.109	0.260**	0.108
Constant	-0.035	0.179	-0.052	0.181	-0.050	0.182
Rho	-0.569	0.201	-0.360	0.375	-0.384	0.265
N	3,276		3,268		3,277	

Source: CIS 2673 * p<0.1; ** p<0.05; *** p<0.005

^a The variable income has many missing values and they have been imputed in order not to lose information. The Stata command *impute* was used with 30 variables as income predictors. The reference category for women is men. for advanced and basic ICT the reference category is no ICT knowledge required at work or normal activities. See appendix for coding values.

¹ The data, as well as details on sampling and the questionnaire, are available for downloading at www.cis.es. An English version of the questionnaire can be found at www.polnetuab.net. The syntaxes and material for replication purposes with Stata 10 are available upon request from the authors.

² According to resource theory another relevant resource is time. However, we have no clear expectations on how free time should matter to predict Internet use.

³ The literature on the digital divide has expanded to take into account new sources of inequality beyond the classical binary distinction between those who have access to the Internet and those who have not. In a second stage, a digital inequality would emerge as a consequence of differences according to the user's ability to use the Internet in a way that enhances access to valuable resources (di Maggio & Hargittai, 2001; Warschauer, 2004).

⁴ We further follow these authors in that being a member of an association in itself does not provide civic skills but that these depend on the activities that are regularly performed in the association (1995: p.340). Thus our question measuring civic skills acquired at work also taps those obtained in association activities.

⁵ We assume these variables are not measuring online political activities or online political participation. When we correlate them with other online political activities, we obtain significant but low coefficients (lower than 0.1) indicating that they are not alike.

⁶ Cronbach's Alpha: 0.616.

⁷ Gibson et al. (2005) do not specify exactly what being online means and of course the percentage may have increased in the last two years.

⁸ In a classic example, in many US states voting is a two step process because people need first to be registered to vote and only then are they able to cast a ballot. Registration is a necessary condition for voting, and a selection model can measure the impact of different variables on the probability of registering. Once a person is in the electoral rolls, she may or may not vote, and we can examine the determinants of this voluntary decision in the second model. Another recent study has also used a selection model to analyse the two-stage decision making process made by voters when they first decide to cast an absentee ballot and then decide what ballot to use, Internet or mail (Kolar, Prevost, & Schaffner, 2008).

⁹ For the model to converge it is necessary to include one variable in the selection equation which is not relevant and not included in the regression equation. This instrumental variable is in our case living in a large city (coded as living in a city with more than 400000 inhabitants). Living in a large city predicts Internet use, but once a citizen uses the Internet, it makes no difference in sorting between online participants and non-participants.

¹⁰ However, physical resources (home access to Internet) are not significant (not reported).

¹¹ The results have not been transformed into predicted probabilities or displayed graphically because of the difficulties of doing this for a Heckman selection model. We found no such transformation in the literature.

¹² This may be because the measure of contacting taps not only contact with representatives, but also with civil servants, which may be less affected by both the level of resources and the features of the electoral system.