

Wired voters: Internet Exposure and Campaign Effects on voters' uncertainty

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Abstract

This paper examines whether voters' use of internet as a source of political news affects their proclivity to consider more than one party as a viable option when voting. We employ data pertaining to the 2011 general election in Ireland, where we are able to link geographical information on broadband coverage with individual-level public opinion data from the 2011 Irish National Election Study. This allows us to adopt a quasi-experimental approach in examining the effects on voters of online political newsgathering during the campaign. Implementing instrumental variable models accounting for political uncertainty, we find consistent evidence of a causal relationship between use of the Internet as a source of political information and higher levels of political uncertainty among voters, *ceteris paribus*.

Introduction

Voters' experiences of politics differ widely according to the extent to which they are politically 'certain'. For those voters who have a strong sense of identification with a party, the act of voting is less a choice among competing alternatives than an opportunity to reaffirm one's partisanship.¹ However, for those who do not strongly identify with a party, the act of vote choice entails discovering and expressing preferences in relation to parties and candidates. While vote choice may thus be a mere formality for strongly partisan voters, for those whom Dalton describes as 'apartisans'² it represents the outcome of an uncertain and variable process of deliberation regarding the merits of those competing for office.

Levels of political uncertainty are static neither across national populations nor within them over time. The highly stable, *frozen* party system scenario described by Lipset and Rokkan³ (1967) in the late 1960s was driven by the capacities of parties to structure political competition along stable societal cleavages and to thus align

¹ Cees van der Eijk and Mark Franklin, *Elections and Voters* (Houndmills: Palgrave, 2009), p. 53.

² Russell Dalton, 'Cognitive Mobilization and Partisan Dealignment in Advanced Industrial Democracies', *The Journal of Politics*, 46: 1 (1984) 264-284, p. 264.

³ Seymour Martin Lipset and Stein Rokkan, *Party Systems and Voter Alignments: Cross National Perspectives*. (New York: Free Press, 1967)

themselves with clearly defined segments of electorates. However, from the mid-1980s onwards, scholars of elections and party systems have devoted considerable attention to observing and explaining the phenomenon of ‘partisan dealignment’.⁴ The concept of partisan dealignment refers to an observed erosion of party membership and identification in established democracies across the world. One of the most notable consequences of this trend has been a marked growth in levels of electoral volatility.⁵ At the individual level, partisan dealignment has been linked to the growing propensity of voters in established democracies to delay their voting decisions – a trend that raises the stakes of political campaigning.⁶

Political uncertainty among voters in multiparty systems remains largely overlooked in the European empirical literature. One aspect of the topic that is much commented upon, but not empirically well understood, is the role of media in establishing or undermining political certainty. The emergence of the Internet as a news medium has led to stark warnings about its potential to create an atomised, polarised and increasingly partisan political sphere. In this article, we aim to explore whether such claims are supported by empirical evidence – by analysing the effect that online news consumption exerts on voters’ level of political certainty.

⁴ Russell Dalton and Martin Wattenberg, eds, *Parties without Partisans: Political Change in Advanced Industrial Democracies* (Oxford: Oxford University Press, 2000).

⁵ Russell Dalton, Ian McAllister and Martin Wattenberg, 'The Consequences of Partisan Dealignment', in Russell Dalton and Martin Wattenberg *Parties without Partisans: Political Change in Advanced Industrial Democracies* (Oxford: Oxford University Press, 2000), pp.37-63.

⁶ Ian McAllister, 'Calculating or Capricious? The New Politics of Late Deciding Voters', in David Farrell and Rüdiger Schmitt-Beck, eds, *Do Political Campaigns Matter? Campaign Effects in Elections and Referendums*, eds. (London: Routledge, 2002), pp.22-40.

Theoretical discussions of the Internet as a medium lead to contrasting expectations with regard to how Internet use may affect users' preferences. On one hand, the diversity of information available online, which is far greater than among traditional media, indicates that the Internet may exert a politically destabilising influence on its users. This is especially true of the Internet in its 'Web 2.0' incarnation – which facilitates even greater diversity of content by allowing a very large proportion of users to generate and post content.⁷ In this diverse environment, it is likely that Internet users will encounter facts, ideas, and opinions that challenge their pre-existing political preference structures. It is easy to imagine how consumption of such content would leave voters less politically certain. On the other hand, there are several factors that may lead us to expect that politicised web use will re-enforce voters' existing preferences – the most important of which is the individualisation of content that the Internet facilitates. Web users are able to define their own experience of the medium in line with their pre-existing preferences to a far greater extent than is the case with other media – with Sunstein contending that online news consumption can lead to politics where 'people sort themselves into echo chambers of their own design'.⁸

Thus, the Internet can be seen as a medium that has the potential to either challenge or solidify users' pre-existing political preferences. Given the foundational importance of vote choice as a means of legitimating political power and holding it accountable in

⁷ Paul Anderson, *What is Web 2.0? Ideas, technologies and implication for education*. JISC Technology and Standards Watch Report (2007)

⁸ Sunstein, Cass R. *Republic.com 2.0* (Princeton, NJ: Princeton University Press, 2012), p. 3.

representative democracies, either effect would be politically relevant, and hence worthy of academic scrutiny.

Our analysis makes use of data from the 2011 Irish National Election Study (hereafter, INES 2011). The 2011 Irish election is an opportune case for a study of political uncertainty – given that the election was by far the most volatile in Irish history and, indeed, that it ranks among the most volatile elections in West European history.⁹ Ireland also presents a uniquely unstructured electorate¹⁰ – primarily due to the lack of ideological competition in a system where the two historically dominant parties profess essentially identical policies¹¹. Thus the Irish politics is an environment where we would anticipate relatively high levels of electoral uncertainty – this expectation is backed up by Kroh *et al.*'s comparative study, where Ireland ranks among the most politically uncertain of the pre-2004 EU15 countries¹².

We merge the INES 2011 dataset with contemporaneous data on the geographic distribution of broadband availability in the Republic of Ireland. The combined

⁹ Michael Gallagher, 'Ireland's Earthquake Election: Analysis of the Results' in Michael Gallagher and Michael Marsh (Eds.) *How Ireland Voted 2011: The Full Story of Ireland's Earthquake Election* (Dublin: Palgrave, (2011); Peter Mair. 'One of Europe's Most Volatile Elections', www.politicalreform.ie, (2011).

¹⁰ Michael Marsh, Party identification in Ireland: An insecure anchor for a floating party system', *Electoral Studies*, 25, (3), 2006, p489 – 508

¹¹ Liam Weeks, 'Parties and the Party System' in John Coakley and Michael Gallagher (Eds.) *Politics in the Republic of Ireland. 5th Edition*. London and New York: Routledge, (2010).

¹² Martin Kroh, Wouter van der Brug & Cees van der Eijk, 'Voter volatility explained' In W. van der Brug & C. van der Eijk (Eds.), *European elections and domestic politics: Lessons from the past and scenarios for the future* (Contemporary European politics and society). Notre Dame, US: University of Notre Dame Press, (2007).

dataset that we generate allows us to adopt a quasi-experimental approach in examining the effects on voters of using the Internet as a source of political information during the campaign. We use variability in broadband coverage in Ireland to generate an instrument that captures politicised web-use, and controls for possible endogenous relationships between the causes and effects of sourcing news online. The methodological approach that we develop here is specifically designed to provide improved leverage over the causal impact of internet use on voters' electoral certainty than has been provided in many previous studies of Internet effects. We argue that this represents a significant methodological contribution to the study of political uncertainty generally, and that it is also a strong addition to the study of the political effects of Internet use by voters in established democracies.

In the next section, we outline the existing literature on political uncertainty and the effects of Internet use on vote choice. We then provide some context on the Irish case, before outlining our theoretical expectations and empirical hypotheses regarding the relationship between internet access/usage and electoral certainty. Subsequently, we describe the data and methodology used to examine these hypotheses, before presenting the results of our analysis. We find that there is evidence that browsing the Internet for political news during the 2011 Irish general election campaign led to higher levels of political uncertainty among voters; this finding is consistent across alternative measures of the dependent variable and various model specifications. We conclude with a discussion of the implications of our findings for both further studies of electoral certainty and future studies of online campaigns and political use of the internet by voters.

Literature Review

The study takes place in a context of generally increasing levels of electoral uncertainty in established democracies across the world. A range of studies have established that aggregate levels of partisan attachment are in decline and that proportion of individuals who decide how to vote during the campaign itself and/or switch their vote intention during the campaign is growing over time (MacAllister, 2002). Nowadays, socio-demographic factors such as class, religion and urban versus rural location appear to play a decreasing role in explaining vote choice (Franklin, Mackie and Valden, 1992; Dalton McAllister and Wattenberg, 2000) and the classic 'left-right' ideological dimension of political contestation also explains less voting behavior than it used to (van der Brug, 2010). Kroh *et al.* find that the proportion of electorally uncertain votes in EU countries has increased over time. The average proportion of uncertain voters recorded in their study of 12 EU states goes from 36% in 1989 to 37% in 1994 and reaches 42% in 1999. In 1999 five (Finland, France, Ireland, Italy and the Netherlands) out of the 15 EU members display a proportion of potential vote switchers that is over 50% of the electorate. This trend is underscored by decreasing levels of party membership in a range of countries (Katz and Mair, 1992). Unsurprisingly in this context, the role of electoral campaigns, once regarded as marginal if not null, has now been reevaluated by scholars, and many now consider the conduct of the campaign by parties and candidates to be a key factor in determining voting behavior patterns (Farrell and Schmidt-Beck, 2002).

Among the factors that have been discussed as possible causes of partisan dealignment, the media environment has consistently loomed large. For instance,

Dalton and Wattenberg (2002) argue that ‘the expansion of mass media upstages the parties’ role as providers of political information’ (p. 4). In a relatively short space of time, the available media menu for citizens has expanded due to the emergence and growth of the Internet. Political usage of the Internet has grown from a marginal to a mainstream phenomenon among politicians and citizens in political systems across the world. Due to the novelty of such widespread use of Internet technologies by political actors, and the multifaceted nature of the Internet as medium, the political effects of Internet usage on candidates, parties and voters alike are still not well understood in the academic literature.

The Internet itself is a medium of communication, and the communication of information is foundational to politics – and particularly to the formation of political attitudes. Indeed, one idealised standard of electoral campaigns sees them as information provision events – where party ideologies are a convenient shortcut to provide self-interested voters with sufficient information to make an informed choice.¹³ Plato’s parable of the cave illustrates of how perceptions form our beliefs, and it is no coincidence that this metaphor was revived by Lasswell in his seminal contribution to the study of public opinion. Lippmann¹⁴ observes that we, like the prisoners in the cave, cannot observe the entirety of reality, instead, we must form our opinions on the basis of first or second-hand reports. In contemporary society, these reports arrive via a variety of media – newspapers and magazines; television and radio; discussions among personal networks; and, more recently, the Internet.

¹³ Downs, *An Economic Theory of Democracy* 1957.

¹⁴ Walter Lippmann, *Public Opinion*, 1982.

It is therefore unsurprising that the scholarly literature on the role of mediated information in the formation of partisan attitudes has a long and rich history. In a foundational study, Converse *et al.* claim that ‘shifting or floating voters tend to be those whose information about politics is relatively impoverished’¹⁵ (1962: 578-579). As such, a generalised negative correlation between levels of information and voter certainty was initially posited: more information leads to more political certainty. Zaller (1992) refined this position, arguing that individuals with moderate levels of political information and knowledge are in fact the most open to being influence by political communication.

Recently, a relatively large body of empirical literature has proved that media usage and voting behaviour are indeed related¹⁶, specifically demonstrating that media exposure has significant effects on the two key electoral behaviours: turnout¹⁷ and vote choice¹⁸. Even though a number of studies have established a causal relationship between electoral behaviour and exposure to traditional media¹⁹, to date very little known is about the role of the Internet. The research presented in this article addresses two specific questions that have received very little attention to date: does the Internet influence the electoral certainty of voters, and, if so, what is the direction of this influence?

There are few empirically oriented research results to provide us with a solid set of expectations as to the broad question of how citizen use of the Internet impacts electoral behaviour. One promising line of enquiry has sought to measure the extent

¹⁵ Converse et al.

¹⁶ Aarts and Semetko, 2003; Holtz-Bacha and Norris 2001.

¹⁷ (Aarts and Semetko, 2003)

¹⁸ (Enikolopov et al, 2011)

¹⁹ (Enikolopov et al, 2011; Della Vigna and Kaplan, 2007; Kern and Hainmueller, 2009)

to which Internet use is ideologically polarised along the lines identified by Sunstein (2001, 2012). Gentzkow and Shapiro's²⁰ research investigates whether individuals who browse the Internet for news limit their news consumption to sources that are 'likely to confirm their prior views' (1799)²¹. They compare face-to-face interactions to 'old' (broadcast and cable television, newspapers, magazines) and 'new' media. Their core finding is that 'the Internet is far from segregated' (p. 1801) and traditional methods of political information gathering – namely via discussion with members of one's offline social networks (including family, work, neighborhoods, voluntary associations and trusted friends) are considerably more segregated than newsgathering on the Internet. However, while this research contributes greatly to the debate about the extent to which online news consumption is ideologically segregated – it tells us little about the substantive effects of such consumption. Indeed, the authors make this point explicitly: 'none of the evidence here speaks to the way people translate the content they encounter into beliefs' (p. 1802).

Gibson and McAllister make a strong contribution to the empirical exploration of the political effects of online news consumption; they discuss and examine the possibility that the internet performs a 'conversion' effect. They produce an analysis that compares voters who followed election news on the internet to those who did not in the Australian 2008 general election campaign. Gibson and McAllister found that

²⁰ Gentzkow, Matthew and Shapiro, Jesse M., 'Ideological Segregation Online and Offline' *The Quarterly Journal of Economics* 126 pp. 1799-1839 (2011)

²¹ To do so, they estimate the 'share conservative' (that is, the proportion of a site's visitors who are self-identified conservatives) of over 1,300 news and politics websites. For each individual, they calculate a *conservative exposure* score, which gives the average share conservative of all of the websites visited by that individual. They finally calculate an isolation index, which is arrived at by finding the absolute difference between the average *conservative exposure* score of self-identified conservatives and the average score of self-identified liberals.

‘those voters accessing election related information via the web were significantly different in their campaign behaviour and attitudes compared to other voters (...) Most crucially, online election news seekers are more independently minded than other voters’ (p.256).

In this paper, we aim to expand on extant exploratory work, by performing a more causally-oriented analysis of whether browsing for electoral news may indeed affect levels of certainty. While Gibson and McAllister (2006) identified a positive correlation between internet use and political uncertainty, we investigate whether there is a causal relationship between these variables, treating internet use as an independent variable, and political certainty as a dependent variable in the second stage of a structural equation model (the first stage predicts the dependent variable ‘usage of the internet’ by broadband coverage and a set of covariates). We do so by implementing a methodology that, by accounting for endogeneity-related concerns, allows us to make advancements in our understanding of what the causal effects of the internet on political behavior are.

The 2011 Irish election

The data gathered for this study pertain to the 2011 Irish election. While we chose this case for methodological reasons (because of the availability of data on broadband availability among respondents), the campaign itself proved a fascinating electoral event. The result saw the seemingly rock solid electoral dominance of the Fianna Fáil party, firmly established in Irish electoral politics since its first victory in 1932, radically overturned. To those who follow Irish politics closely, however, the result

was not a surprise. The last days of the outgoing administration saw Ireland faced with an unprecedented conflagration of economic, fiscal and employment crises, which culminated in an Irish ‘bailout’, under strict ‘conditionalities’ from the ECB/EU/IMF.²² As these crises unfolded, the government parties’ popularity plummeted, and while Fianna Fáil was heavily damaged at the polls, the Green Party was wiped out, winning no seats at all. As the results in Table 1 show, all of the opposition parties, as well as several independents, benefitted from newly available electoral support, but Fine Gael and Labour made the greatest gains.

Table 1. 2011 Irish general election results

Party	Seats	% 1st Pref	% Swing 2007
Fine Gael	76	36.1	8.8%
Labour Party	37	19.4	9.3%
Fianna Fáil	20	17.4	-24.1%
Independent	15	12.6	6.8%
Sinn Féin	14	9.9	3.0%
Green Party	0	1.8	-2.8%
Socialist Party	2	1.2	0.6%
People Before Profit Alliance	2	1	1.0%
South Kerry Independent Alliance	0	0.2	0.2%
Workers' Party	0	0.1	0.0%
Christian Solidarity Party	0	0.1	0.0%

With regard to the online dimension of the 2011 campaign, Web 2.0 platforms were widely used by candidates and parties; all major parties had Facebook and Twitter presences as well as relatively sophisticated campaign websites while 74% of candidates running for office had a Facebook presence and 53% had a Twitter

²² Gary Murphy, ‘The Background to the Election’ in Michael Gallagher and Michael Marsh (Eds.) *How Ireland Voted 2011: the Full Story of Ireland’s Earthquake Election* (Dublin: Palgrave, 2011).

account. Overall, the Internet was a source of considerable political activity among parties, candidates and voters during the campaign period.²³

Long before the results that led 2011 to be described as Ireland's 'earthquake election',²⁴ Marsh had made the argument that 'a majority of voters appear to be open to persuasion according to the balance of short-term forces'.²⁵ According to Kroh *et al.*'s comparative study, the proportion of potential voter changers in the case of the 2011 Irish national election is very much in line with the figures presented by Kroh *et al.*²⁶ for European Parliament elections in 1989; 1994; and 1999. Indeed, in spite of having produced relatively stable electoral outcomes in past decades, the Irish electorate has exhibited a large latent potential for electoral change for quite some time (van der Eijk and Franklin 2009; Kroh et al 2007), and the lack of party identification among a large swathe of Irish voters has been pointed out before (Marsh, 1985; Mair and Marsh, 2004; Sinnott 1998). The 2011 election was unusual, however, in that this pronounced political uncertainty among the electorate translated into an exceptionally high level of aggregate electoral change.

²³ Matthew Wall and Maria Laura Sudulich, 'Internet Explorers? The Online Campaign' in Michael Gallagher and Michael Marsh (Eds.) *How Ireland Voted 2011: the Full Story of Ireland's Earthquake Election* (Dublin: Palgrave, 2011).

²⁴ Michael Gallagher and Michael Marsh (Eds.) *How Ireland Voted 2011: the Full Story of Ireland's Earthquake Election* (Dublin: Palgrave, 2011).

²⁵ Michael Marsh, 'Party identification in Ireland: An insecure anchor for a floating party system', *Electoral Studies*, 25, (3), 2006, p. 489 – 508, p. 491.

²⁶ Just over 50% of the representative sample responding to the questionnaire of the 2011 INES showed potential for switching.

Theory and hypotheses

The Internet, like any single source of political information, is just one aspect of what is a very complex phenomenon to disentangle, namely, an individual's vote choice. We know from the extant literature that vote choice is influenced by an array of elements including *inter alia* socio-economic status, party identification, evaluation of the incumbent government's performance and competency evaluations on key issues. With so many overlapping drivers, at the individual, party and societal levels, political uncertainty is a complex phenomenon, and we would not argue that media technology, in isolation, exerts a determinative influence on societal levels of political certainty. Instead, we acknowledge that the Internet represents a component (of variable importance) of the political information mix received by voters during a political campaign period.

Our focus here is voters' levels of electoral uncertainty – our dependent variable – and the question of whether this property of individual voters is influenced by their consumption of online news. However, the direction of such an effect is not clear *a priori*. Two schools of thought have characterized the debate on the effect that the internet may have on political information and political engagement. On the one hand, several scholars (Bimber and Davis, 2003; Mutz and Martin, 2001, Sunstein 2002; 2012) have argued that the internet emphasises *selective exposure*, ultimately leading users to reinforce their pre-existent beliefs. They argue that the pull-in nature of the Internet leads individuals to explore the web by searching among information sources and *loci* that are already in line with their preferences. Research emphasizes the role of habit in navigating the online environment – with people consistently relying on

trusted and known sites²⁷. Gibson and McAllister (2009 paper on bridging) found that bonding activities outnumber bridging ones in people's online interactions. Rather than an open market square, such a view would depict the internet as a private club, where the likelihood of bumping into outsiders is practically nil. Furthermore, some argue that Internet's extensive reliance on targeted advertising and automated personalisation software create 'filter bubbles', where users are exposed primarily to content that reflects their prior choices and dispositions, without necessarily realising that this is the case.²⁸ This view of the informational role of the internet would lead us to expect internet exposure/use to confirm voters' prior preferences. Empirically, this approach leads to the following hypothesis:

H1: Internet use for newsgathering during a political campaign is associated with lower levels of political uncertainty among voters, *ceteris paribus*.

On the other hand, a number of studies (Putnam 2000, Norris, 2002, 2001 ref in Gibson and McAllister 2009) indicated that use of the internet can actually weaken social boundaries by exposing users to alternative opinions, views and sources. While habit and prior preferences do play a significant part in determining one's online news experience, it appears that 'accidental' news exposure still occurs, especially when Internet users consult the sites of general interest news broadcasts as key sources of

²⁷ Arvind Diddi and Robert LaRose, 'Getting Hooked on News: Uses and Gratifications and the Formation of News Habits Among College Students in an Internet Environment' *Journal of Broadcasting & Electronic Media* 50: 2 (2006).

²⁸ Eli Pariser, *The Filter Bubble: What the Internet Is Hiding From You*. Penguin Press: New York, 2011.

online news. Tweeksbury and Rittenburg²⁹ characterize the findings of empirical studies on news selectivity as indicating that, for Internet news consumers, ‘selectivity occurs through a mixture of purposeful evaluation of sites and topics and healthy doses of habit and chance’. Furthermore, the Internet has some technological features that favour the dissemination of information that runs contrary to one’s prior preferences. The internet’s innate characteristic of being relatively unencumbered by geographical boundaries provides for exchanges of information and ideas across state borders. Exposure to a plurality of sources, especially on web 2.0 platforms, where practically every user is also a content producer, may even happen in spite of the filters that both the user and the sites themselves place on content. While users do have control over whom to friend, like and follow on social networks, the very nature of Social Networking Sites exposes users to unexpected content and links to news and opinion items. These considerations would lead us to anticipate that exposure to diverse, often contradictory information online should lessen voters’ political certainty. This approach leads to an opposing hypothesis to that stated in H1:

H2: Internet use for newsgathering during a political campaign is associated with higher levels of political uncertainty among voters, *ceteris paribus*.

As such, there is no definitive consensus on whether using the internet would reinforce existent political beliefs of whether, by offering almost limitless information, it would present voter with more options, making them more doubtful and ‘open’ to seriously considering more than one party as a potential vote choice. A

²⁹ David Tewksbury and Jason Rittenberg, *News on the Internet: Information and Citizenship in the 21st Century (Oxford Studies in Digital Politics)* (Oxford: OUP, 2012).

significant negative relationship between the two elements (internet consumption leads to lower potential for switching) would reinforce the claim that the pull-in nature of Internet leads to a self-reinforcing dynamic - furnishing users with self-selected information that serves to reinforce their beliefs. A significant positive relationship would instead point towards the internet being a locus where people gather a variety of information and consider a multiplicity of options – the consequence being that they are often less politically certain than those who do not go online for their news.

Research design

In this research, as in many other studies of individuals, organisations and societies, we confront a fundamental problem of causal inference: the impossibility of observing the counterfactual, *i.e.*, the outcome for the same unit in the absence of the treatment. The ideal scenario from a methodological standpoint would be a random assignment of the possibility of browsing political news online to individuals. Given random assignment, we could then simply compare individuals who go online with individuals who do not. The difference between the average levels of uncertainty for the treated group and the average level of electoral uncertainty for the control group would constitute the causal effect of the internet, since both groups would be comparable with respect to observed and unobserved confounding factors.

However, this ideal scenario is not feasible with observational data drawn from a representative sample of society at a given point in time. Simply put, browsing political news online is not randomly assigned to individuals. One approach is to

control for those characteristics that are likely to affect both the probability of going online and political uncertainty. For instance, we could use multivariate regressions or matching techniques employing a set of control variables. However, this approach would not help us with the problem of selection on unobserved factors that are correlated with the treatment and the outcome variables. This selection effect would induce correlation between the dependent variable and the error term, which undermines causal inference.

In this context, instrumental variables can be an effective identification strategy. We exploit the fact that broadband coverage was geographically uneven in the Republic of Ireland during the period under investigation. We code a binary instrument ‘broadband coverage’ based on information about where respondents live. This dummy variable scores ‘1’ if a respondent lives in an area with broadband coverage and scores ‘0’ if a respondent lives in an area without broadband coverage. By instrumenting patterns of internet usage on the basis of broadband coverage, our treatment, we can draw conclusions concerning whether an individual who has gathered news via the Internet would be more (or less) certain of her vote preferences, our dependent variable, had she lived somewhere where a lack of broadband coverage had prevented her from doing so. Clearly, for an individual who lives in areas with broadband coverage we are not able to observe the counterfactual level of electoral certainty that (s)he would have showed with no coverage. However, we can estimate this treatment effect by finding a control group that is similar enough to the treatment group in all the covariates (and possibly beyond) except in that it was not covered by broadband availability. In this way, we argue, our methodological approach facilitates the identification of our treatment’s effect on outcome variable of interest.

Moreover, we include in the model a number of elements that previous studies found to be related to voter uncertainty to further mitigate the issue of reverse causality. Dependent and independent variables are detailed in the next section.

Data

We use data from the INES 2011, the third national election study conducted in the Republic of Ireland³⁰. In order to perform our analysis, we first integrated this dataset with a new variable accounting for the availability of broadband to each respondent based on their geographical location. This additional variable was created by firstly encoding the geographical (latitude and longitude) location of respondents, and then by performing a search for broadband availability for each respondent's geographical location. The 1,854 respondents to the INES 2011 were living in 309 different geographical locations (*i.e.*, six respondents per location figure in the survey).

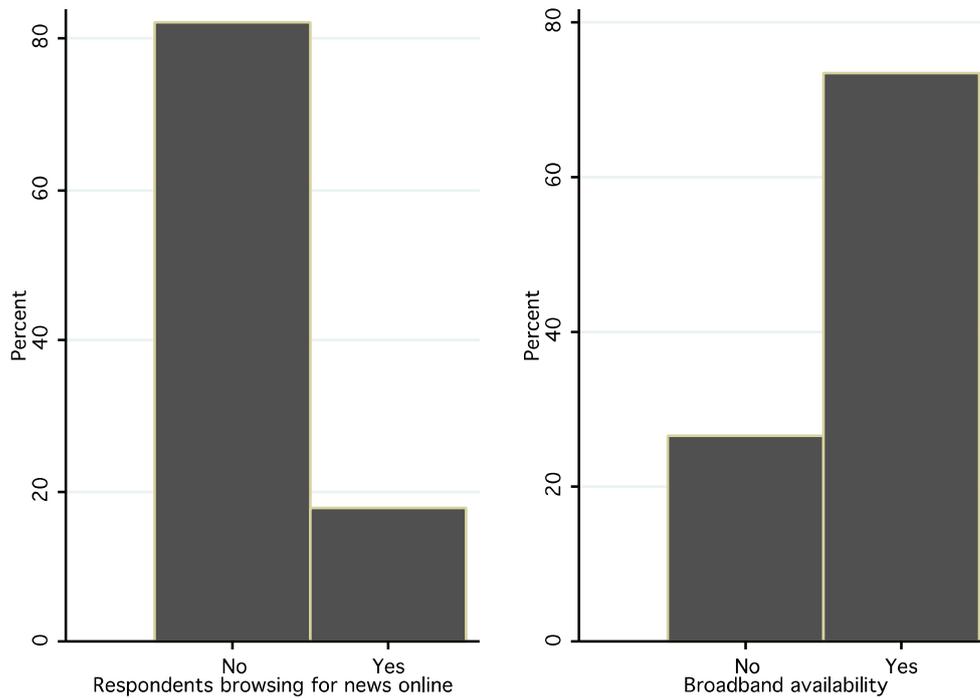
We searched for broadband coverage/availability in each location by consulting information on broadband availability supplied by major providers and, additionally, by using two online services which provide detailed information on broadband coverage by location (getbroadband.ie and www.bonkers.ie). For those locations where all of these sources indicated no broadband coverage, we also performed a final check by searching for the keywords location+broadband on google.ie.³¹ Figure 1 describes the distribution of broadband availability as well as internet use among

³⁰ The INES 2011 full data has not been publically released yet; data presented here was made available to the authors by the PI, Professor Michael Marsh, to whom the authors are deeply grateful.

³¹ For all those locations whose name was present in more than one county we used location+broadband+constituency. Finally, we produced a comparison between answers to the question on internet use for news browsing and the variable accounting for broadband. When a conflict between a geographical location (each of them accounting for 6 observations) and the information provided by respondents existed we drop from the analysis these respondents who live in a village without broadband coverage and who look at political news online more than twice a week.

respondents to the 2011 INES and Figure 2 maps the geographic distribution of the variable in the Republic of Ireland.

Figure1. Distribution of Broadband availability and browsing the internet for political news among INES 2011 respondents

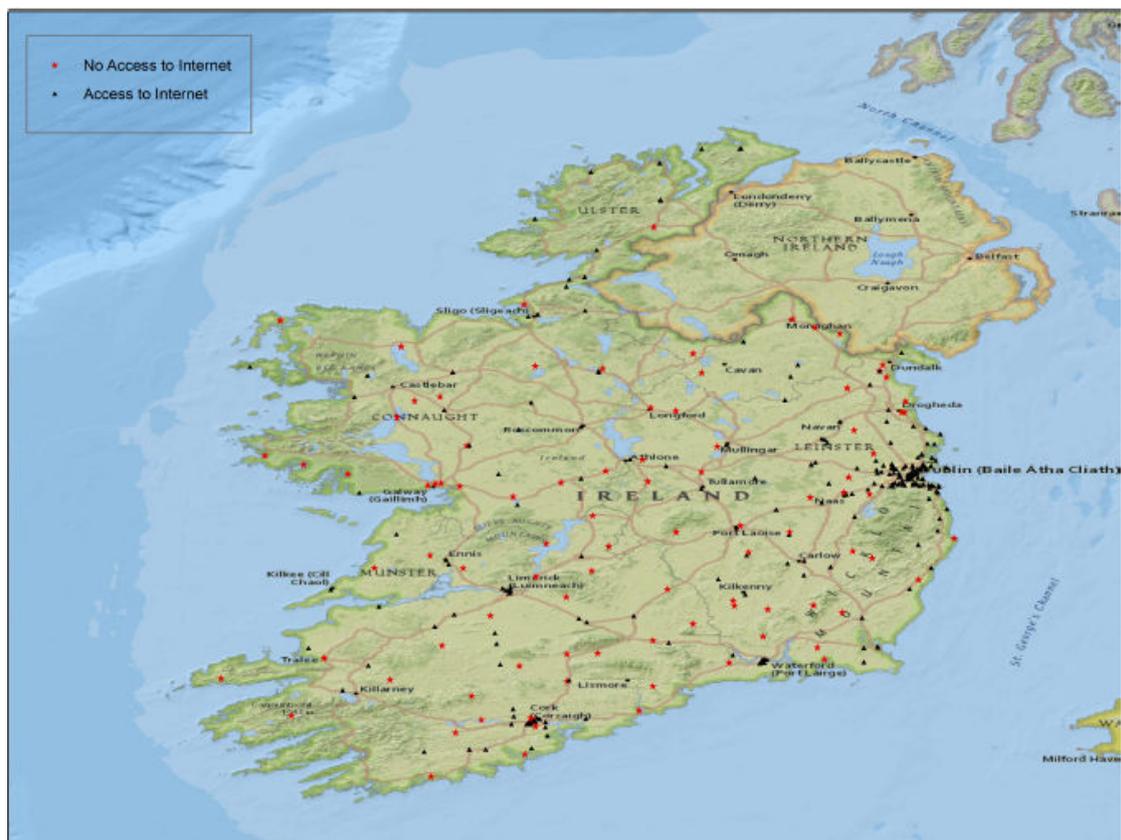


An example demonstrates the precision of our instrument. Carkerbeg is a small village in County Cork with less than 1000 residents. Carkerbeg does not have broadband coverage. Buttevant is a medieval market town in County Cork with 1,667 residents according to the 2006 census. Buttevant is less than five miles away from Carkerbeg.³² However, Digiweb, Eircom, and Vodafone provide broadband coverage

³² We calculated the distance using the STATA 12 command GEODIST.

in Buttevant. The monthly price of a subscription ranges from 19 euro to 48 euro depending on the speed.³³

Figure 2. Broadband availability in the Republic of Ireland



Dependent variables

³³ Information available on getbroadband.ie.

Some explanation is required in relation to the operationalization of the dependent variable, which is the level of uncertainty of individual voters with regard to their vote choice. We intend to capture potential for vote switching as well as electoral ‘openness’ to multiple parties, and we do so by deploying two measures of this dependent variable in our analysis. Many election studies capture voters’ orientations towards parties via a battery of survey items on their ‘propensity to vote’ for each party. This set of questions on the likelihood of voting for each party was first introduced in the early 1980s by van der Eijk and Niemöller in the Dutch National Election Study (van der Eijk and Niemöller 1984), and it has since been adopted by numerous European countries (*e.g.*, UK, Ireland, Spain and Germany, among others). These ‘Propensity to Vote’ (PTV) questions have also featured in every European Election Study since 1989 (van der Eijk and Marsh, 2007). The value of this approach is that, especially in multiparty systems, it represents a fine-grained measure of how preferences over several parties are distributed in voters’ minds.

We make use of this measure in order to shed some light on the issue of electoral volatility and potential for electoral change. Firstly, for descriptive purposes, in order to have consistent findings comparable to previous studies, we adopt the operationalization of potential for vote switching developed by Kroh et al. (2007). The question that we use to develop this index reads:

“How probable is it that you will ever give your first preference vote to the following parties? Please use the numbers on this scale to indicate your views, where ‘1’ means ‘NOT AT ALL PROBABLE’ and ‘10’ means ‘VERY PROBABLE’”.

Following Kroh et al., we define likely switchers as those respondents who either have two or more parties tied for their highest probability score, or whose second preference is only one point less than their first. This approach generates a binary measure, taking the value of ‘1’ for likely switchers and the value of ‘0’ for non-switchers³⁴. Table 2 displays the distribution of this binary variable in the Irish electorate over the three INES studies. We can see from table 2 that levels of political uncertainty among the Irish electorate are comparatively stable over time – and we note that the proportion of ‘switchers’ in the Irish electorate is comparatively high (compared to Kroh et al.’s 15 country average of .43).

Table 2. Proportion of potential switchers over three INES studies

	% Switchers	% Non switchers
2002	50.75	49.25
2007	51.51	49.49
2011	50.34	49.66

Another measure, also adopted by Kroh et al. is somewhat more nuanced, providing a continuous measure of the degree to which a voter is certain of voting for their most-preferred party – and we employ this measure as our first dependent variable in our analysis. This measure is obtained by computing the inverse of the difference between each respondent’s two most-preferred parties. The variable ranges from -10 to 0, where -10 indicates a high degree of certainty that the respondent will vote for their

³⁴ The measure is computed, once again following Kroh et al., by separating those respondents that have either a tie for the PTV question or whose first and second most preferred parties are 1 unit away, from those respondents whose first preference is more than 1 unit away from the second. We do not use this variable in our inferential analysis for two reasons: firstly, its binary form does not account for possible important differences among those considered to be ‘switchers’ (Kroh *et al.*: 216). Secondly, this dichotomous measure is very sensitive to changes in the number of observations, potentially leading to blurry results.

most preferred party and 0 indicates that they are equally likely to vote for at least two parties.

We complement this measure with a new variable that, while capturing something of possibility for vote switching, is best conceptualized as an individual's overall openness to multiple parties. The aforementioned measures are derived from the first and second highest scoring parties in the PTV question. Our additional dependent variable makes use of all the PTVs that respondents filled in; therefore we capture more information and we have a measure that while being in line with the previous one, gives us some extra details. The index that we employ here is based on the Herfindahl- Hirschman (hereafter HH) index. The HH index or revised versions of this index (inverse and/or normalized versions) have been used to measure the extent of societal fragmentation of states into different ethnic, linguistic, and religious groups (see Alesina et al., 2003 for a detailed discussion) as well as the well-known 'effective number of parties' measure developed by Laakso and Taagepera (1979).

Here we compute it as follows:

$$HH = \frac{1}{\sum_{i=1}^n x_i^2}$$

where x_i is the PTV of each party divided by the total of all probabilities filled in by respondents. For instance a respondent that gave a PTV of 10 to party X and a PTV of 0 to all the remaining party would have an HH equal to 1. Respondents who indicate that they would consider voting more than one party, by giving them PTV scores greater than 0 will have values smaller than one. The smaller the HH value, the

greater the extent to which the respondent is divided between multiple parties. To make the discussion of this index more intuitive in our analysis we reverse it so that high values correspond to uncertainty/electoral openness and small values correspond to certainty. Therefore, for both measures of our dependent variable, higher values relate to greater levels of electoral uncertainty.

Control Variables

As discussed above, Kroh *et al.* (2007) examined individuals' potential for vote switching across EU member states in European Parliament elections, providing possibly the most comprehensive comparative empirical investigation on this topic to date. We replicate their approach here, adapting it to the study of a single national-level election and focusing our attention on voters' exposure to and use of the Internet as our key explanatory variable. Kroh *et al.* identify both individual-level and systematic variables that could potentially influence one's level of electoral certainty. As this study pertains to only one election, we do not include their systematic variables (which relate to the polarisation and fragmentation of the party system) in our analysis. 'Individual characteristics' are subdivided into three further sub categories in Kroh *et al.*'s model – Social Background; Political Involvement, and Political Attitudes and Experiences. Social Background characteristics include age, gender, education, social class, union membership and church attendance. The only one of these variables that they find consistently influences political certainty is age, with younger voters typically being less politically certain than older voters. In terms of Political Involvement, the authors include party identification (which is positively related to political certainty) frequency of political television and newspaper

consumption and political attentiveness. We expand their model by testing whether internet usage (for gathering news during the campaign) affects levels of electoral uncertainty. Under Political Attitudes and Experiences, Kroh et al. include left-right self-placement and extremeness, and EU integration policy stance and the extremeness, as well as a battery of questions pertaining to the efficacy of the current political system. We sought to replicate this approach using data from the 2011 INES survey, and a detailed version of how these control variables were measured is included in the Appendix to this article.

Econometric strategy

We deploy a methodological approach that allows us to investigate the relationship between online usage and voting behaviour. Traditional techniques such as linear OLS regression are limited in their capacity to establish causation because they fail to control for endogenous causal relationships between independent and dependent variables. Internet use, the purportedly independent variable in our study, is indeed endogenous to several of the individual level characteristics that we use to predict uncertainty in vote choice. As such, if we limit our analysis to a linear model we produce an estimate breaks one of the linear regression model's fundamental assumptions. Instead, we estimate our model by instrumenting patterns of Internet usage on the basis of internet availability and a set of covariates. We do so by implementing Two-Stage-Least-Squares (2SLS) estimations on the two dependent variables discussed above³⁵.

³⁵ As the first equation outcome is dichotomous, we prefer the TRATREG approach, IVREG2 estimates are reported in the Appendix.

We outline here the rationale behind using these techniques, the assumptions on which they are based and the differences between them. The variable ‘broadband’ is employed as an instrumental variable (IV). We analytically treat respondents as existing in a natural experimental set-up, where the group that has access to broadband is the treatment group and the group that does not is the control group³⁶. To justify this assumption, we must perform several quality controls to assure ourselves that the causation that we observe is not attributable to correlation with another, unobserved, variable. In short, we seek to show that the effects that we measure are the causal effects of Internet newsgathering, and not an artefact of a relationship between Internet use and some other explanatory variable.

Identification Strategy

In terms of precedent in the literature, our research design is similar to that adopted in Bhuller *et al.*³⁷ However; we more closely follow Kern and Hainmueller’s identification strategy, which we will now briefly explain. According to Abadie (2003), the following four nonparametric assumptions allow one to identify causal effects in an instrumental variable (IV) model. Let Y represent the potential outcome, Z be the instrument, (i.e., living in a village with broadband coverage), D be the treatment, (i.e., looking at political news online), and X represents a vector of covariates. Given these parameters, a good instrument fulfills four key assumptions. .

³⁶ T-test shows that also for this variable the difference in the mean of the treatment group and that of the control group is statistically different from zero at the conventional level.

³⁷ Manudeep Bhuller Tarjei Havnes Edwin Leuven Magne Mogstad ‘Broadband Internet: An Information Superhighway to Sex Crime?’ (Publication details?, 2011)

First, and most importantly, a crucial requirement is that the area in which a respondent lives is ‘as good as randomly assigned’, once we condition on control variables. Moreover, and relatedly, Z (broadband coverage) explains the variation of the dependent variable only through its effect on D (browsing for political news). These two assumptions together imply that, once we control for a set of covariates, living in an area without broadband *per se* should not only impact on a respondents’ electoral certainty via influencing their capacity and propensity to news gather on the Internet.

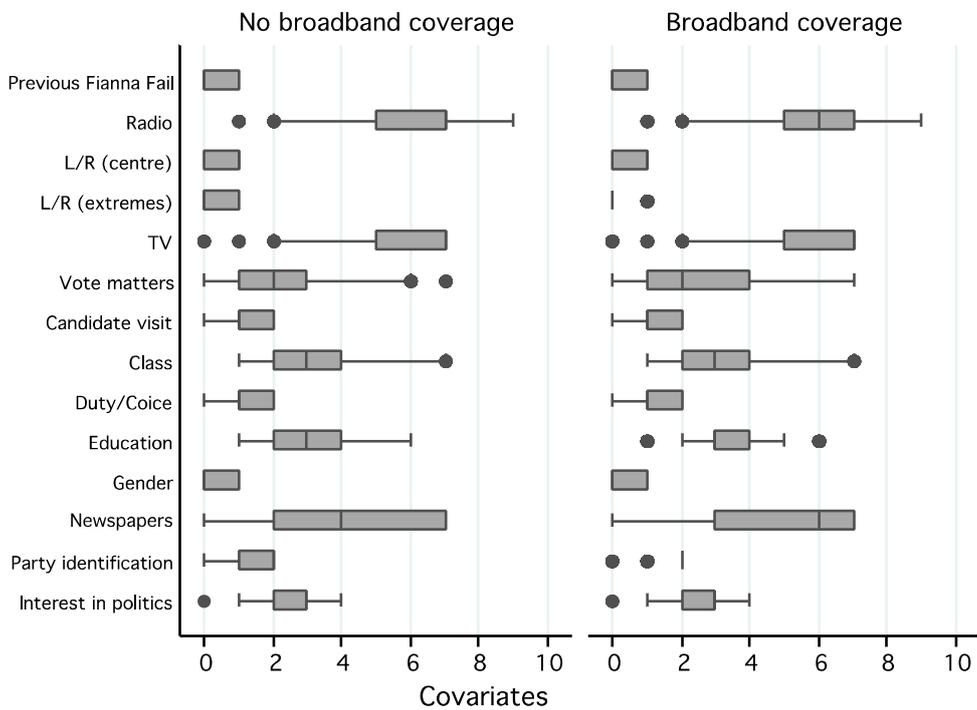
A way to make sure that these two assumptions are met is to include a large set of control variables that capture respondents’ characteristics associated with the probability of switching party. We thus include a number of covariates in the main models (Rosenbaum 2002: 76). We also can examine an array of socio-demographic control variables for signs that the treatment and control groups are not systematically different along variables of interest. Thus, we seek to show below that areas with broadband coverage are highly similar to those without broadband coverage.

We examine the distribution of covariates, including socio-economic characteristics and patterns of other media use. As Figure 3³⁸ shows, areas with broadband coverage are very similar to areas without broadband coverage in terms of, social class and gender. The boxplots showing the distribution across the two zones for levels of education indicate that inhabitants of areas without broadband coverage tend to have levels of education that are more spread across the range. There are higher levels of

³⁸ The graph does not include age, which does not scale with the other variables. The distribution of age is balanced, with a median of 43 for the group with broadband and 45 for the group without. 25th and 75th percentiles are 34 and 60 years for the group without broadband coverage and 32 and 57 for the group with broadband coverage.

education in areas with broadband coverage compared to those without broadband coverage, though the median levels are the same.³⁹

Figure 3. Box plots of the covariates distribution in areas with and without broadband coverage



³⁹ T-test shows that for both variables $\text{mean}(Z_0) - \text{mean}(Z_1)$ is statistically different from zero at the conventional level.

With regard to other media usage, namely TV, newspapers and radio we observe that respondents in zones with broadband coverage watch TV as much as respondents in areas without broadband coverage. Similarly, the variables that capture how frequently respondents listen to national radio in a week appear to be relatively balanced between the two groups. The variable that captures how frequently respondents watch news on TV is extremely well balanced between the two groups.

The two groups show an identical distribution of the variable ‘candidate visit’ indicating that they were equally exposed to electoral canvassing. The number of individuals that voted for Fianna Fáil in the 2007 general election is also equally spread between the two groups. Moreover, there is no substantial difference in terms of interest in politics; the belief that voting is a choice rather than a duty is also evenly distributed between the two groups. The variables that display a slightly diverse distribution between the two groups are party identification (the ratio of party identifiers versus no identifiers is about 7% higher for the areas with broadband coverage) and self placement on the left-right dimension; however these differences are relatively minor. Overall, there is little evidence that differences among areas with and without broadband coverage could invalidate the exclusion restriction.⁴⁰

A further assumption requires that Z (broadband coverage) is a strong instrument for D (browsing for political news). In other words, Z must be highly correlated with D conditional on X. Figure 5 below shows that living in an area without broadband coverage (our ‘broadband coverage’ variable) is strongly negatively correlated with the probability of ‘browsing for political news online’ (our ‘Internet’ variable as

⁴⁰ We note that respondents who wanted to browse political news might have moved from villages without broadband coverage to villages with broadband coverage. If interest in internet is correlated with the probability of switching party, that would pose a threat to our identification strategy. Unfortunately, we do not have data on the residential mobility at the village level. Thus, we are unable to rule out this possibility at the moment.

called in tables and graphs).⁴¹ Only a few respondents who live in an area without broadband coverage news gather online regularly. Conversely, living in a village with broadband coverage is strongly associated with browsing political news online. The correlation between the variables ‘broadband coverage’ and ‘Internet’ is .41. Moreover, when we regress ‘broadband coverage’ on ‘Internet’, controlling for a large number of covariates, exposure is statistically significant and the t-statistic is larger than 10.

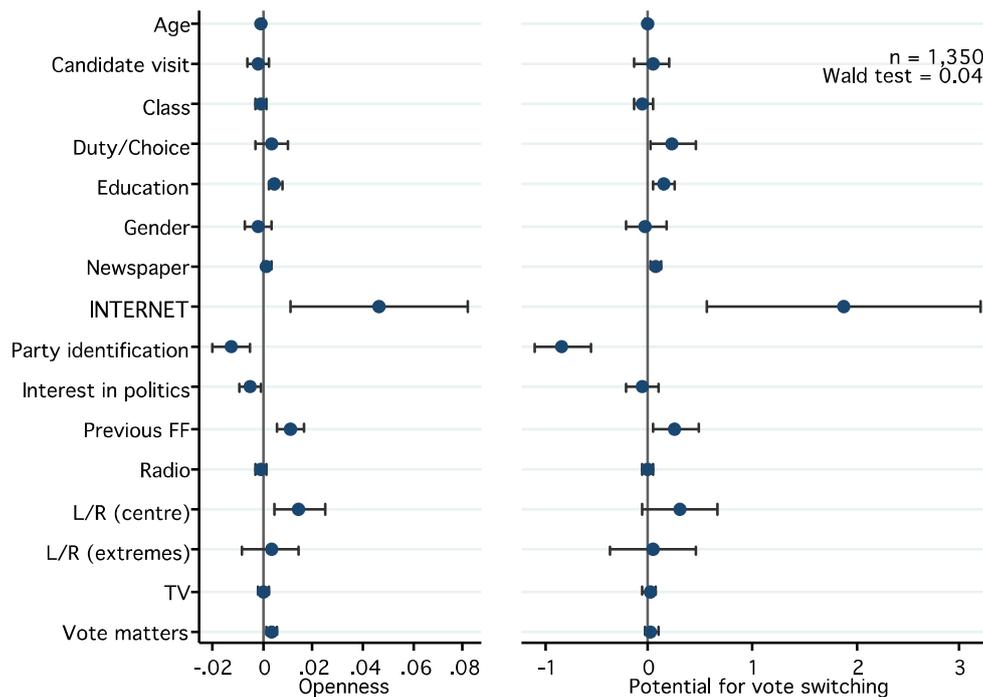
A final assumption requires that there is not an inverse relationship between internet exposure and browsing for political news. For this to be the case, there would have to be individuals who would not have browsed for news less, because they lived in an area with broadband exposure. There is strong evidence that this is not the case: Horrigan (2008) cites evidence provided by the Pew research center to the effect that ‘people with home broadband access are more likely to get the news, visit government websites, and look for campaign information than are people with dial up access (Horrigan, 2008, cited in Tewksbury and Rittenberg, 2012: Chapter 2). Given that broadband exposure greatly facilitates internet use generally, and the observed strongly positive relationship between ‘exposure’ and ‘broadband’ in our data, we argue that our instrument meets assumption 4.

Analysis

⁴¹ We speculate that these respondents browse political news when they are not home, i.e. at work, or that they browse political news online using mobile phones.

We begin by estimating the effect of browsing online for news by implementing the instrumental variable approach on the two dependent variables. Figure 4 below, depicts coefficients and confidence intervals for parameters estimates on the second stage of the model.

Figure 4. Coefficients and Confidence intervals of the second stage estimates on ‘openness’ and ‘potential for vote switch’



The significance – at 99% confidence interval level- of the internet effect is constant across the two dependent variables, which suggests that the browsing online for news actually has an impact on electoral choice, *ceteris paribus*. The direction of this effect is positive, meaning that using the internet leads to more electoral uncertainty/openness. Those who used the internet for gathering politically relevant information appear to be more prone to switch between parties and to consider more options when thinking on how to cast their vote – a finding that supports our H2, and invalidates H1. The graphical representation of the outputs clearly shows that the variable accounting for online news-gathering (Internet) has a considerably wide confidence interval; as such the amount of extra uncertainty determined by using the internet for political news is difficult to quantify precisely. However, clearly our main variable of interest namely, having used the internet for politically relevant information, is playing an important role in enhancing levels of uncertainty.

With regard to other components of the model, low levels of identification with a given political party indicates more uncertainty. The effect of reading newspaper is positive and significant, while watching TV fails reaching significance levels. Interestingly, we find (on the ‘openness’ dependent variable) that those, who place themselves at the centre of the left right continuum, are less inclined to doubt than

those who did not know how to place themselves on the scale (reference category), and that the ‘extremists’ are not significantly different from those who did not place themselves. While going beyond the scope of this research, this particular finding contributes to the debate between the *cognitive limitation* and the *irrelevance* hypotheses (Knusten, 1998: 304) on the left right dimension placement. The effects of age and education are significant predictors of electoral openness and potential for switching; it may be the case that higher educated individual are also younger – we know the two variables are correlated – and they have not formed a stable set of electoral preferences (van der Eijk and Franklin, 2009). The negative sign of the coefficient for political interest suggests that those how have more unstable vote preferences or are open to multiple parties have self-assessed themselves as less interested in politics than the rest. The overall picture that these results are composing is not of straightforward interpretation, and the scarce literature in the field does not proved us with stronger guidelines. Door to door canvassing by candidates standing for election does not have an impact on the dependent variable, which in an electoral context as the Irish one, often depicted as pre-modern, is surprising. It may be the case that the particular nature of the 2011 election, strongly characterized by the consequences of the economic crisis and the bank bailout had made the election a national business rather than a local one. This seems to be backed up by the fact that respondents to the survey indicated that TDs should spend more time on national issues than on local ones. However, we do not have here enough evidence to establish whether this is actually the case. Those who voted for Fianna Fáil in the 2007 election, not surprisingly given the election’s outcomes, are evidently more likely to switch to a different party. We further explore the robustness of our findings by providing some additional tests, mostly by taking into account the geographical characteristics of our data.

Geography robustness

Balancing areas with and without broadband coverage is key to a correct identification strategy in our model. As such, we implement two types of additional analysis aimed to sharpen our identification strategy.

First, although broadband constituency and no-broadband constituency proved to

have similar features in terms of possible confounding factors, some minor imbalance still remains in few variables. To further balance the two constituencies, we ask help to geography. We know that the Dublin area is quite different from the rest of Ireland, i.e. richer, more urban, and more cosmopolitan. A skeptical reader might argue that Dublin is driven our results since the whole area has broadband coverage and internet usage is more frequent among Dubliners. To rule out this possibility, we introduce a variable ‘distance’, which measures in miles how far a town is from Dublin 1.⁴² If distance from Dublin is correlated with our dependent variable, e.g. lower probability of switching between parties, as well as with going online and having access to broadband, the variable ‘distance’ should account for this causal channel. As such, if our results maintain their significance despite the inclusion of ‘distance’, we can be confident that living in Dublin is not the underlying factor driving our results.

Second, we match our instrument on distance from the closest unit (either a village or a neighborhood) in the other group. Referring back to the example provided in the data section, we compute the distance – in miles – for each village where no broadband is available e.g. Carkebeg, from the closest village where there is broadband coverage e.g. Buttevant, as geographical proximity should imply similarities in socio-economic characteristics. We match on “distance” by making use of STATA 11 module of the Coarsened Exact Matching Software (Blackwell et al. 2009; Iacus, King and Porro, 2011). By doing so the L_1 overall balance measure, that captures the imbalance for the full joint distribution, drops from .27 to .13 reducing by over 50% the imbalance of the full joint distribution. The sample size suffers a reduction of 18 observations (all in the group with broadband coverage). Table 3 below reports estimate results for both dependent variables controlling for distance in the full sample (models 3 and 4) and in the matched one (models 5 and 6).

Table 3. Second stage estimates on ‘openness’ and ‘potential for vote switching’ with geographical control and matched samples
Full sample

⁴² Results are similar if we use the natural logarithm of the variable Distance.

	Model 2	Model 3	Model 4	Model 5
	Openness	Potential for vote switching	Openness	Potential for vote switching
TV	0.000 (-0.002 - 0.003)	-0.007 (-0.091 - 0.076)	0.000 (-0.002 - 0.003)	-0.009 (-0.098 - 0.080)
Newspaper	0.002*** (0.001 - 0.003)	0.059** (0.005 - 0.114)	0.002** (0.000 - 0.003)	0.060** (0.002 - 0.118)
Radio	-0.001 (-0.003 - 0.001)	-0.009 (-0.080 - 0.061)	-0.001 (-0.003 - 0.001)	-0.007 (-0.080 - 0.067)
Gender	-0.002 (-0.009 - 0.004)	-0.029 (-0.271 - 0.214)	-0.002 (-0.009 - 0.004)	-0.025 (-0.262 - 0.212)
Education	0.004*** (0.001 - 0.008)	0.123** (0.004 - 0.243)	0.005*** (0.001 - 0.008)	0.124** (0.004 - 0.243)
Age	-0.000*** (-0.001 - -0.000)	-0.016*** (-0.025 - -0.007)	-0.000*** (-0.001 - -0.000)	-0.016*** (-0.025 - -0.007)
Class	-0.001 (-0.003 - 0.002)	-0.039 (-0.130 - 0.052)	-0.001 (-0.003 - 0.002)	-0.046 (-0.147 - 0.054)
Party identification	-0.013*** (-0.021 - -0.005)	-0.805*** (-1.095 - -0.514)	-0.014*** (-0.023 - -0.005)	-0.815*** (-1.144 - -0.486)
Vote matters	0.003*** (0.002 - 0.005)	0.012 (-0.057 - 0.082)	0.003*** (0.001 - 0.005)	0.011 (-0.064 - 0.086)
L/R (centre)	0.014** (0.003 - 0.025)	0.321 (-0.085 - 0.726)	0.014** (0.001 - 0.026)	0.327 (-0.111 - 0.765)
L/R (extremes)	0.002 (-0.010 - 0.014)	0.111 (-0.342 - 0.563)	0.003 (-0.011 - 0.016)	0.116 (-0.370 - 0.601)
Interest in politics	-0.005** (-0.010 - -0.001)	-0.099 (-0.265 - 0.068)	-0.005* (-0.010 - 0.000)	-0.103 (-0.289 - 0.083)
Candidate visit	-0.002 (-0.007 - 0.004)	0.007 (-0.204 - 0.217)	-0.002 (-0.008 - 0.003)	0.010 (-0.198 - 0.217)
Duty/Choice	0.003 (-0.004 - 0.011)	0.262* (-0.018 - 0.542)	0.003 (-0.004 - 0.011)	0.252* (-0.015 - 0.518)
Previous Fianna Fáil	0.010*** (0.004 - 0.017)	0.306** (0.062 - 0.550)	0.010*** (0.004 - 0.017)	0.305** (0.052 - 0.558)
Distance	0.000 (-0.000 - 0.000)	-0.004*** (-0.007 - -0.002)	0.000 (-0.000 - 0.000)	-0.004*** (-0.007 - -0.002)
Internet	0.036*** (0.013 - 0.059)	1.230*** (0.322 - 2.139)	0.034*** (0.016 - 0.053)	1.241*** (0.509 - 1.973)
Broadband (1 st stage)	0.890*** (0.653 - 1.127)	0.889*** (0.651 - 1.127)	0.878*** (0.636 - 1.121)	0.879*** (0.638 - 1.120)
Constant	0.772*** (0.740 - 0.804)	-2.074*** (-3.266 - -0.881)	0.772*** (0.738 - 0.806)	-2.045*** (-3.301 - -0.788)
Observations	1321	1321	1311	1311

Note: In models 2 and 3 Distance represents the distance from Dublin, whereas in model 4 and 5 it represents the distance to the nearest village in the other group. Confidence intervals in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The outputs of the analysis on matched observations do not change significantly; for both dependent variables we obtain estimates very consistent with what found in models 2 and 3. Browsing for news remains significant and positive across the two dependent variables, indicating that our findings are robust to both, the control for geographical characteristics and the control for imbalance between treatment (areas with broadband availability) and control group (areas without broadband availability). The confidence intervals, especially in model 3 and 5 remain wide and coefficients do not change substantially from the baseline model in figure 5.

Conclusions

In this paper we have examined the whether use of the internet to gather political information during the campaign period conditions the extent to which voters are certain of which party they will vote for. Our analytical approach allows us to contribute to a broader discussion on the nature and influence of the internet as a new form of media. Some argue that the internet is a space where users can pre-define the content that they receive in a manner that leads to them only receiving information that is in-line with their pre-existing preferences, meaning that internet usage may serve to re-enforce existing predispositions and to polarise groups with differing opinions. We formalised this position as ‘H1’ on our discussion. Others counter that the diversity of content online, with content generated by large numbers of individual users, make it a media platform where users will encounter information and political perspectives that will challenge their pre-existing perspectives, and perhaps make them more open to supporting alternative political positions. This perspective was stated in our second hypothesis.

It is extremely difficult to capture and characterise the political content that is 1) available and 2) consumed online during political campaigns (or at any other time, for that matter); this problem is exacerbated by the fact that the internet is something of a ‘shifting target’ for analysts, a forum characterised by constant evolution in terms of the types of usage that it facilitates.

Bearing these *caveats* in mind, our analysis favours H2's contention that the internet is a source of divergent viewpoints which lead to less, rather than more political certainty among users. This finding is consistent across our two measures of political certainty and robust to diverse analytical approaches designed to minimise erroneous causal attribution due to endogeneity, where other correlated variables are controlled for. These analyses were made possible by the design of the 2011 INES which allowed us to match individual respondent data to information about the availability of broadband in the geographic area where they are resident. This approach offers both a theoretical and methodological contribution to the study of the effects of internet usage by voters during election campaigns and should be applied to further studies.

Appendix

Descriptive statistics of covariates

Variable	Observations	Mean	Std. Dev.	Min	Max
Tv	1754	5.784	1.834	0	7
Newspaper	1754	4.477	2.558	0	7
Radio	1754	5.876	1.794	1	9
Gender	1754	0.495	0.5001	0	1
Education	1754	3.31	1.262	1	6
Age	1754	45.14	16.25	18	90
Class	1754	3.055	1.479	1	7
Party identification	1710	0.2140	0.4102	0	1
Vote matters	1754	2.692	1.804	0	7
L/R (center)	1754	0.6254	0.4841	0	1
L/R (extremes)	1754	0.2309	0.4215	0	1
Interest in politics	1754	2.629	0.8779	0	4
Candidate Visit	1754	1.374	0.5864	0	2
Duty/Choice	1754	1.262	0.4796	0	2
Previous Fianna Fail	1350	0.4422	0.4968	0	1

Base Figure	Model1	Model 2	model as in 4estimated with TRATREG
	Potential for vote switching	Openness	
Tv	0.00108 (0.0426)	0.000349 (0.00114)	
Newspaper	0.0676** (0.0277)	0.00195*** (0.000738)	
Radio	-0.0106 (0.0363)	-0.000798 (0.000967)	
Gender	-0.0238 (0.124)	-0.00227 (0.00332)	
Education	0.130** (0.0612)	0.00444*** (0.00163)	
Age	-0.0165*** (0.00461)	-0.000377*** (0.000123)	
Class	-0.0478 (0.0468)	-0.000771 (0.00125)	
Party Identification	-0.846*** (0.148)	-0.0131*** (0.00396)	
Vote Matters	0.0209 (0.0358)	0.00338*** (0.000954)	
L/R (centre)	0.288 (0.208)	0.0139** (0.00554)	
L/R (extremes)	0.0168 (0.231)	0.00260 (0.00615)	
Interest in politics	-0.0669 (0.0849)	-0.00517** (0.00227)	
Candidate visit	0.0356 (0.108)	-0.00179 (0.00287)	
Duty/Choice	0.219 (0.143)	0.00354 (0.00381)	
Previous	0.254** (0.124)	0.0105*** (0.00332)	
Internet	1.355*** (0.424)	0.0353*** (0.0119)	
Constant	-2.447*** (0.602)	0.773*** (0.0160)	
Observations	1,321	1,321	

NOTE: While Figure 4 shows Confidence Intervals, this table shows robust Standard Errors

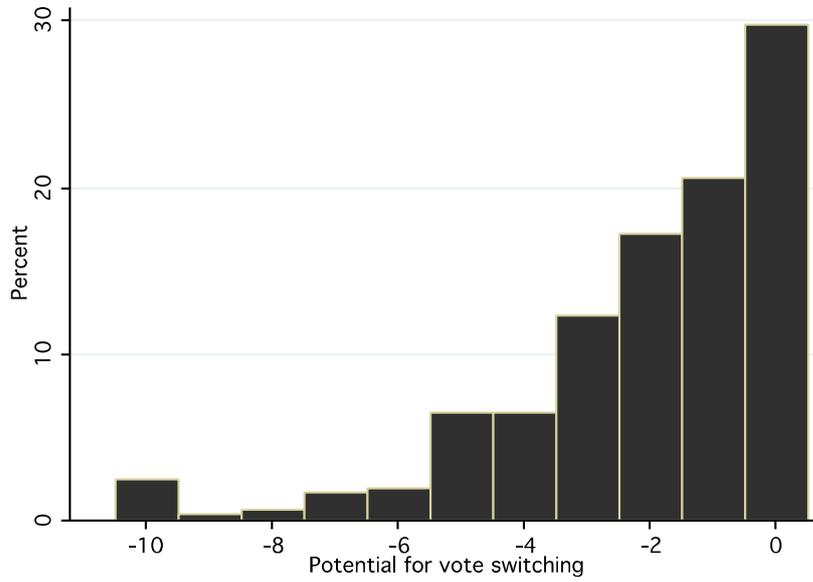
Base Model in figure 4 estimated with IVREG2

	Potential for vote switching	Openness
Tv	-0.027 (-0.125 - 0.071)	-0.000 (-0.003 - 0.002)
Newspaper	0.073** (0.012 - 0.134)	0.002** (0.000 - 0.004)
Radio	-0.015 (-0.092 - 0.062)	-0.001 (-0.003 - 0.001)
Gender	-0.027 (-0.278 - 0.225)	-0.002 (-0.009 - 0.004)
Education	0.053 (-0.094 - 0.200)	0.003 (-0.001 - 0.007)
Age	-0.006 (-0.020 - 0.008)	-0.000 (-0.001 - 0.000)
Class	-0.008 (-0.116 - 0.101)	0.000 (-0.003 - 0.003)
Party Identification	-0.849***	-0.013***

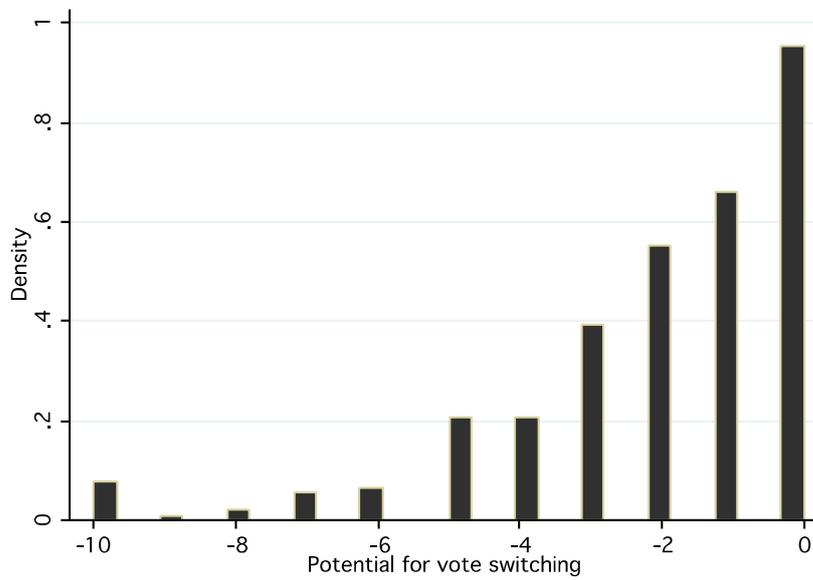
	(-1.188 - -0.510)	(-0.022 - -0.004)
Vote Matters	0.002 (-0.079 - 0.084)	0.003*** (0.001 - 0.005)
L/R (centre)	0.166 (-0.298 - 0.629)	0.011* (-0.001 - 0.024)
L/R (extremes)	-0.052 (-0.555 - 0.452)	0.001 (-0.012 - 0.015)
Interest in politics	-0.156 (-0.367 - 0.056)	-0.007** (-0.013 - -0.001)
Candidate visit	0.081 (-0.144 - 0.307)	-0.001 (-0.007 - 0.005)
Duty/Choice	0.248* (-0.038 - 0.534)	0.004 (-0.004 - 0.012)
Previous Fianna Fail	0.220*	0.010***
	(-0.042 - 0.482)	(0.003 - 0.017)
Constant	-2.504*** (-3.848 - -1.160)	0.772*** (0.736 - 0.807)
Internet	2.364** (0.325 - 4.403)	0.058** (0.004 - 0.112)
R-squared	-0.018	0.024
(Cragg-Donald	43.045	43.045
Kleibergen-Paap rk	62.242	62.242
Hansen J	0.0000	0.0000

Robust ci in parentheses
*** p<0.01, ** p<0.05, * p<0.1

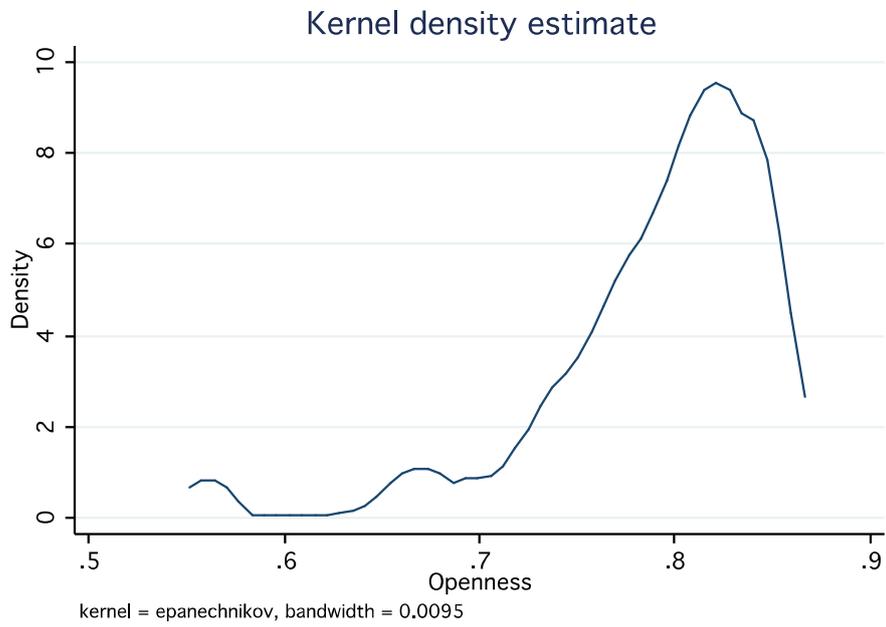
Distribution of the dependent variable Openness



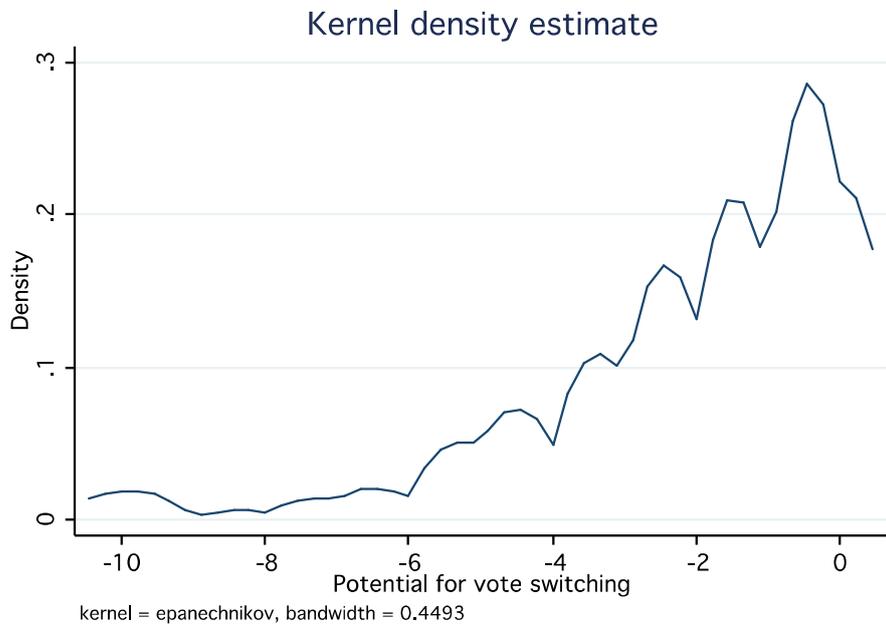
Distribution of the dependent variable Potential for vote switching



Kdensity Openness



Kdensity potential for vote switching



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