

6. Will New Technology Boost Turnout? Experiments in e-Voting and All-Postal Voting in British Local Elections

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Proponents argue that the use of remote electronic voting (e-voting) could boost electoral participation, particularly among the young. Pilot schemes carried out among over 6 million people in local elections in the UK suggest that these claims should be regarded with considerable scepticism. Remote e-voting only slightly strengthened turnout among the young—the group least interested in participating. By contrast, all-postal voting boosted turnout among older citizens—the group who are least able to get out to polling stations and the most motivated to take advantage of this reform—by an estimated 18 per cent.

As access to the new communication and information technologies has diffused throughout post-industrial societies, the idea of using electronic tools to modernize the administration of elections has been widely debated. The potential benefits are greater efficiency, speed and accuracy (Norris 2001; Norris 2002 (b); and Norris 2004). Perhaps the most important and influential argument concerns the claim that remote electronic voting will make the process more convenient and thereby strengthen electoral turnout and civic engagement, especially for the 'wired' younger generation (Stratford and

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Stratford 2001; and Borgers 2002). If citizens will not come to the polls, it is argued, why not bring the polls closer to citizens?

Until recently almost no systematic evidence derived from actual elections was available to allow us to examine this issue. Evidence is, however, available from pilot schemes conducted in local government elections in England in 2000 and 2002, and most recently on 1 May 2003. These contests are characteristically low-salience events where only a third of the electorate usually vote. In constituencies that offered all-postal voting facilities (where the electoral authorities automatically send out ballot papers for postal voting to all those on the electoral register during an extended period before election day, and there is no alternative) turnout was about 50 per cent while, in constituencies in which the pilot schemes used remote e-voting combined with traditional polling stations, remote e-voting proved ineffective in improving overall turnout. There are therefore good reasons to be sceptical about claims that electronic technologies can automatically resuscitate electoral participation. Remote e-voting may expand citizen choice, but it proved far less effective in improving turnout than the use of the old-fashioned post.

In its July 2003 report, *The Shape of Elections to Come*, the Electoral Commission in the UK recommended all-postal votes as standard practice for all local elections, with further evaluation before the practice is extended to other types of election (UK Electoral Commission 2003). With regard to e-voting it was more cautious, suggesting that it should continue to be tested, but with the overall aim of using it as a way of providing citizens with more choice of ways of casting their votes rather than of improving turnout.

Electronic voting can be subdivided into two categories.

- remote e-voting—the transmission of a secure and secret official ballot to electoral officials via various electronic information and communication technologies from a site located away from the polling station, whether from home, the workplace or a public access point. It is sometimes taken to mean only voting by the Internet, but here includes the use of many different electronic devices which are capable of transmitting an electronic ballot, including computers, touch-tone terrestrial telephones, cell (mobile) phones, text messaging devices and digital television; and
- on-site electronic voting used within the traditional polling station, exemplified by touch-activated screens, dedicated computer terminals or electronic counting devices.

The Pros and Cons of e-Voting

Its proponents suggest many advantages that may come from implementing e-voting.

- The most important is the added convenience for the voter. Allowing citizens to cast a ballot from home or the workplace could reduce the time and effort required to participate in person at the polling station. It may also help overcome problems of social exclusion, especially for those with limited mobility, such as the elderly, carers confined to the home by dependent relatives, or employees and shift workers with little flexibility in their work hours, as well as for those who are travelling away from home and for overseas residents. The use of remote e-voting can be regarded in many respects as an extension of the use of other familiar and well tested facilities already widely available in many countries, including postal, absentee, overseas or advance voting. (For the best discussion of the administrative arrangements for registration and voting found around the world see the web site of the Administration and Cost of Elections project at <http://www.aceproject.org>. For further detail see Maley 2000; Blais 2000; Massicotte 2000; Blais and Dobrzynska 1998; Lijphart 1997; Jackman and Miller 1995; Jackman 1987; Powell 1986; and Crewe 1981.)
- Both remote and on-site electronic voting could potentially reduce the 'information costs' of participation by providing relevant information at the time people are actually casting their vote, for example, by incorporating an optional web page display of standardized biographies of candidates or providing a briefing synopsis explaining each side of a referendum issue.
- For officials, well designed and effective electronic technologies, either remote or on-site, could potentially improve and streamline the process of electoral administration, by increasing the efficiency, speed and accuracy of recording and counting votes (see e.g. Barber 1998; Rash 1997; Schwartz 1996; Budge 1996; Rheingold 1993; and Arterton 1987).

Against these arguments, sceptics counter that many current limitations—technological, socio-economic and practical—combine to create substantial barriers to the effective implementation of e-voting.

Technological Barriers

Democratic electoral systems must meet certain stringent standards of security, data protection, secrecy, reliability, accuracy, efficiency, integrity and equality, and public confidence in the integrity of the electoral system must be maintained to ensure the legitimacy of the outcome. Electronic votes cast in a general election could be a high-

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profile target for malicious publicity-seeking hackers. Various high-profile cases, the recent spate of disruptive viruses and the volume of e-mail 'spam' may have reduced public confidence in the security of the Internet. Critics claim that the technology required to authenticate voters and to ensure the accuracy and integrity of the election system either does not exist at present or is not sufficiently widely available to be assessed. Task forces reviewing the evidence, such as those of the US National Science Foundation and the British Electoral Reform Society, are doubtful about the technological, security and legal issues surrounding e-voting, suggesting that further exploratory pilot studies are required before it is adopted (Internet Policy Institute 2001; and Independent Commission on Alternative Voting Methods 2002).

When remote e-voting has been tried in small-scale pilot studies, the security and technological issues involved in casting even hundreds of votes electronically have often proved problematic. In October 2001, for example, the residents of the Dutch towns of Leidschendam and Voorburg were given the chance to vote via the Internet on the choices for the merged towns' new name. The vote was abandoned when it became obvious that more votes had been cast than there were electors (British Broadcasting Corporation 7 January 2002). The Arizona Democratic primary election of 2000, which also experienced many technical glitches, has been widely quoted, although it remains difficult to assess how far it is possible to generalize from it given the particular circumstances of this unique contest (Gibson 2002; and Solop 2001).

It remains unclear whether the purely administrative problems that currently surround the practical issues of security, secrecy and integrity might eventually be resolved by technological and scientific innovations. Potential problems of voter fraud might be overcome by advances in biometric voice recognition, retina scanning and fingerprint recognition, for example, or by the widespread use of 'smart cards' as identifiers with a computer chip and unique digital certificates.

Social Barriers

Setting aside these important technical and security matters for the moment, another fundamental issue is the problems that could arise if remote e-voting serves to exacerbate existing structural inequalities in electoral participation. In democracies the electoral process should be equally available to every citizen, without discriminating against any particular group. This important principle is widely recognized in the practices of locating traditional polling stations throughout local communities and of translating the instructions for registration and voting

Figure 6.1: Social Profile of the Online Community, European Union Member Countries, 1996–2000

	% online spring 1996	% online spring 2000	Change 1996–2000
<i>Age group</i>			
15–25	9	28	+ 19
26–44	7	28	+ 21
45–64	5	21	+ 16
65+	1	6	+ 5
<i>HH income category</i>			
--	4	12	+ 8
-	3	15	+ 12
+	5	24	+ 19
++	10	44	+ 34
<i>Age finished education</i>			
Up to 15	1	7	+ 6
16–19 years	4	19	+ 15
20+	9	38	+ 29
<i>Gender</i>			
Men	6	25	+ 19
Women	4	21	+ 17
<i>Occupational status</i>			
Managers	14	44	+ 30
Other white collar	8	29	+ 21
Manual worker	3	15	+ 12
Home worker	2	8	+ 6
Unemployed	3	10	+ 7
Student	13	44	+ 31
All	5	22	+ 17

Note: HH = Head of household.

Sources: Eurobarometer 44.2 (spring 1996) and 53.0 (spring 2000).

into the languages spoken by minority populations. Critics charge that the use of remote e-voting from home or work could violate the principle of equitable access, given the existence of the familiar 'digital divide' between the information 'haves' and the 'have-nots'—between rich and poor, between graduates and those with minimal educational qualifications, and between the younger and older generations (Norris 2001; and Norris 2002 (b), chapter 5). Making remote voting easier for those with access to electronic technologies could further skew participation, and therefore political influence, towards more affluent and wired socio-economic groups. Surveys by Eurobarometer show the European digital divide in 1996: access to online technologies was concentrated among the younger generations, more affluent households, university graduates, managers and white-collar workers, students and, to a lesser extent, men; and by spring 2000 the social profile had not changed much (see

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figure 6.1). The strongest rise in access had been among the most affluent households, the well educated, and managerial professionals, although use had spread rapidly among the early-middle-aged as well as the youngest age group. In 2000 the digital divide by age, gender, education, income and class remained significant, as did the marked contrasts in Internet access between the countries of Northern and Southern Europe (Eurobarometer spring 1996, spring 2000). Age is very important for turnout, as is discussed later.

This familiar pattern suggests that the digital divide would probably reinforce, or even widen, many of the familiar socio-economic disparities in electoral participation that already exist, including those of social class, education, gender and income. Yet there is one important qualification to this conclusion: remote e-voting could encourage younger people to take advantage of this opportunity.

This argument does not, of course, apply to other forms of remote e-voting from public kiosks at traditional polling stations or in public places such as libraries, town halls, schools and community centres, where principles similar to those that determine the location of traditional polling stations would apply. But it becomes relevant if remote e-voting is available from any home or workplace computer terminal, which is the most radical and exciting application of this principle. Moreover, poor design could discourage some citizens from voting using new technologies, for example, the disabled, those with low literacy skills or the elderly. On the other hand, the real advantages of e-voting are reduced because people would still have to travel to a public location, while the security problems would remain.

Practical Barriers

The theory that we can use to understand electoral participation, developed more fully elsewhere, suggests that the incentives that motivate citizens to vote represent a product of three factors (see also Norris 2002 (b); and Norris 2004):

- the electoral costs involved in registering to vote, sorting out relevant information, deciding how to vote, and then actually casting a ballot;
- electoral choices, determined largely by the range of political parties, candidates and issues listed on the ballot paper; and
- electoral decisiveness, influenced by how far votes cast for each party, candidate or issue are thought to determine the outcome.

Electoral Costs

The theory assumes that rational citizens will be less likely to vote if they face major costs in participating.

This includes registering as electors, becoming informed about the issues, parties and candidates, and finally casting a ballot to express their voting choice. Standard rational choice theories suggest that, all other things being equal, the deterrent of higher costs reduces electoral participation.

Holding elections on a weekend or holiday, or over a series of days, rather than on a workday can reduce costs (Franklin 2004).

Registration procedures are often believed to be an important hurdle. In many countries, including the UK, Sweden and Canada, registration is the responsibility of the government, conducted via a door-to-door canvas or annual census, so most eligible citizens are automatically enrolled to vote. In others, including the United States, France and Brazil, citizens have to apply to register, often well ahead of the election, and complicated procedures and time-consuming or restrictive practices can depress participation levels (Katz 1997, table 13.2).

In this regard, remote e-voting can be seen as essentially similar in principle to other remote voting facilities that are in common use, exemplified by the widely available special arrangements for mobile populations, including the use of mail, proxy, absentee or overseas votes, as well as polling facilities for the elderly and disabled in nursing homes and hospitals.

Electoral Choices

Electoral choices are determined by broader characteristics of the political system, including the options available on the ballot paper (notably the range of parties and candidates) and the policy alternatives listed for referendum issues. In turn, these options can be related to the type of electoral system, the party system, and other basic political institutions such as a parliamentary or presidential system.

Rational voter theories suggest that in general, all other things being equal, the greater the range of choices available on the ballot, the more easily the voter will find an option (a party, candidate or referendum issue) that reflects his or her own viewpoint, preferences and interests, and therefore the stronger the incentive to vote. Remote e-voting is unlikely to have an impact on any of these factors.

Electoral Decisiveness

Electoral decisiveness, meaning the political benefits anticipated from voting in determining the composition of parliament and government, and the public policy agenda, is also important. In elections that are expected to be close, citizens are likely to feel a greater incentive to get to the polls than they do in those where the outcome appears to be a foregone conclusion. Studies in the UK, for example, have found that, since the Second World

War, the smaller the difference between the national shares of the vote for the two major parties, the higher the level of electoral participation (Heath and Taylor 1999). Of course the actual benefits of casting a single vote may, on purely rational grounds, be illusory, because one vote is unlikely to decide the outcome of an election, but this is not to deny the psychological belief that in close elections each vote counts for more than it does in safe contests.

There are trade-offs between electoral choice and electoral decisiveness. Widening the range of choice on the ballot paper may allow citizens to find a closer match to their interests. But if the party system becomes too fragmented with multiple choices, then casting a vote for a smaller party will be even less likely to influence the outcome. Moreover a wider range of choices increases the costs of becoming informed about alternative candidates, parties and issues.

The introduction of remote e-voting from the home or workplace would probably marginally reduce the costs to the elector of casting a vote at a polling station but it would be unlikely to affect other important costs, such as the significant cognitive demands required to sort out the relevant information in deciding how to vote, nor would it influence electoral choices and electoral decisiveness. The Internet as such cannot be regarded as a panacea for all the ills of electoral participation, which are the result of many deep-seated forces. In particular, it cannot affect how far citizens feel that they have a genuine choice that matches their prior preferences and that their vote counts.

Evidence for Evaluating Remote e-Voting

What evidence would allow us to evaluate these issues? Here we can turn to the UK, which has gone further than any other country in testing the impact of a wide variety of remote e-voting technologies during actual elections.

Concern about electoral participation has risen in the UK. The 2001 general election saw turnout plummet, from 71.5 per cent to 59.4 per cent of the electorate—the lowest since 1918. Moreover, this followed historically low levels of turnout at successive local elections from 1998 to 2000 and in the European Parliament elections of 1999 when only 27 per cent of the electorate bothered to vote. (For details, see the tables in Part III.) This pattern is worrying for democracy as the legitimacy of the electoral process, and the mandate of the government, might eventually be undermined. The Labour government has proposed modernizing electoral administration in the attempt to re-engage the electorate. Recent changes enabled by the Representation of the People Acts 2000 and 2001 include universal postal voting (available on request without a reason having to be given), an extension of the traditional polling hours, and more modern

methods of voting, including the use of telephone and Internet-based voting.

Innovations in polling places, polling hours and all-postal ballots were tested in 38 pilot schemes used among 3.5 million eligible electors in the May 2000 local elections and 30 more pilot schemes tried among 2.5 million eligible electors in the May 2002 local elections. The Electoral Commission concluded that these generated interesting preliminary results, with significant increases in turnout (particularly from all-postal voting schemes), no significant technical problems of implementation or electoral management, and no evidence of fraud. Following evaluation, the government signalled its desire to use e-voting by the next general election after 2006, and substantial resources were allocated to fund further pilot studies at local government level. Nevertheless many significant questions remained. The commission concluded that the initial conclusions needed to be tested more extensively, especially facilities for remote e-voting using multiple technologies (UK Electoral Commission 2002).

Accordingly a further series of 59 pilot schemes were conducted in the May 2003 local elections. In all 17 of them explored innovative ways of using remote e-voting. For comparison, the Electoral Commission also continued to examine the use of all-postal ballots in over half of the pilot schemes,¹ and in the remaining constituencies the public cast a traditional in-person vote by marking crosses on standard ballot papers in local polling stations. Examples of the May 2003 initiatives included:

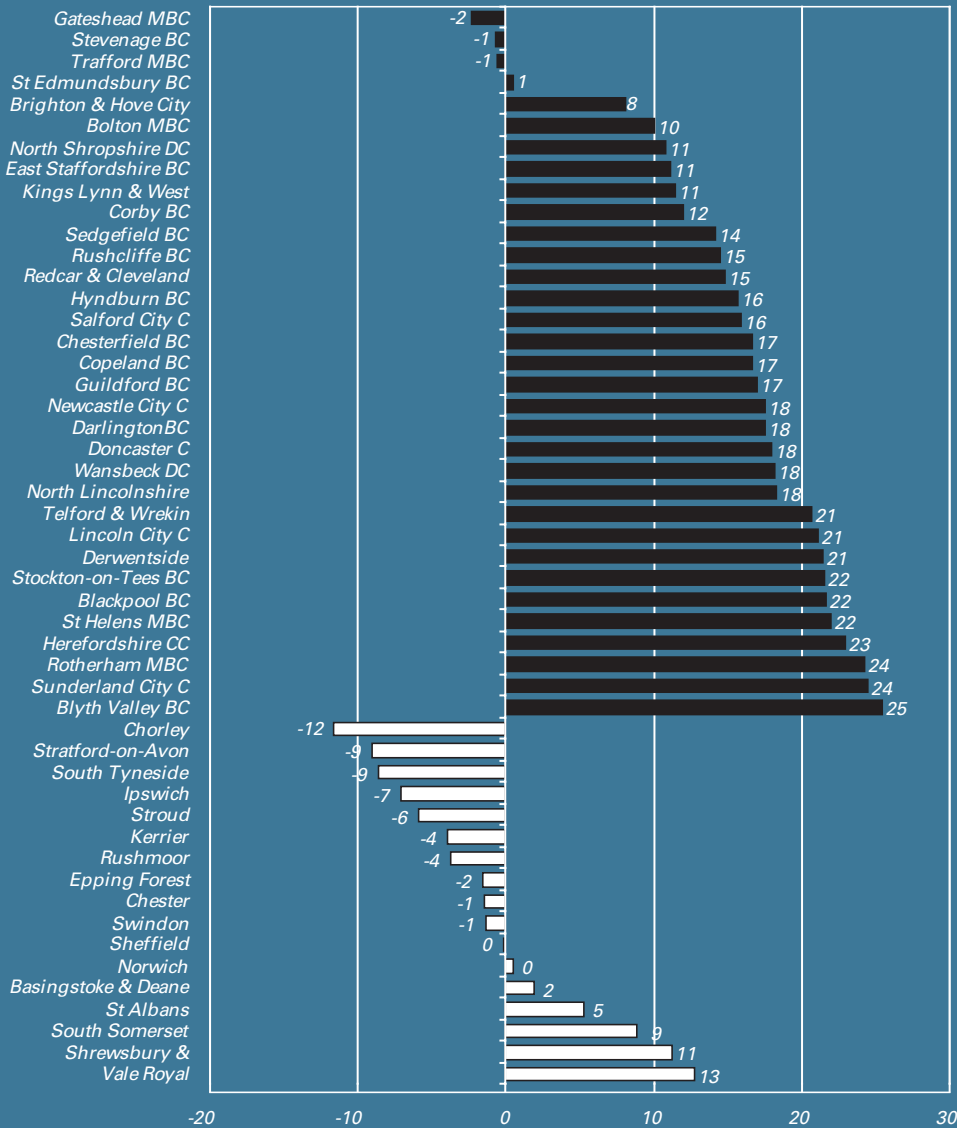
- all-postal voting, Internet and telephone voting throughout, and electronic counting;
- voting via the Internet, by telephone and by SNS text messaging;
- all-postal voting, voting by the Internet, telephone and digital television, and electronic counting;
- voting from terminals in local libraries;
- voting via public kiosks, the Internet, telephone and mobile phone text messaging; and
- extended voting hours.

Other pilot schemes used electronic counting, mobile polling stations and extended polling hours.

The political context in May 2003 was a low-key one, with a strong government in Parliament, the news dominated by events in Iraq, and a degree of 'election overload'. Not surprisingly, overall turnout was down 9 per cent in Scotland (from 1999, the inaugural election for the Scottish Parliament), and 8 per cent in Wales. In England, however, despite expectations, turnout was 37 per cent, a rise of 5 per cent from 1999 and of 3 per cent from 2002.

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Figure 6.2: Percentage Change in Turnout in the May 2003 UK Local Election Pilot Schemes



Notes: Turnout is defined here as valid votes cast as a percentage of the eligible electorate.

Source: The UK Electoral Commission.

The black bars represent all postal ballots and the lighter bars electronic voting pilots.

How far was the increase in the English local elections due to the pilot initiatives?

Two sources of evidence are available to analyse the patterns of turnout. First, we can examine the change in the macro levels of turnout in the local authority districts using the pilot schemes in May 2003 compared against the level of turnout in the last benchmark election in these same areas. Second, to understand the micro-level behaviour of voters and the reasons behind patterns of

electoral participation, we can analyse the post-election survey conducted by the opinion poll organization MORI on behalf of the Electoral Commission. MORI interviewed a representative sample of approximately 200 adults aged over 18 years in 29 of the 59 authorities which were piloting new voting arrangements at the May 2003 elections. A total of 6,185 interviews were conducted between 2 and 12 May 2003.²

The Impact of e-Voting

In districts where all-postal voting was used, the results illustrate its outstanding success. On average turnout increased from one-third (34 per cent) to almost half (49.3 per cent) of the electorate in these districts. The increase was even more remarkable in some northern areas where turnout had been lowest. Only three saw any slight fall. A 15 per cent average increase in turnout was also found in the 2002 all-postal pilot schemes, and this confirms the consistency and robustness of these results. The Electoral Commission found very limited evidence that the use of all-postal voting led to any increase in fraud or electoral offences. Of course, part of the rise in turnout could be a one-off effect of publicity and novelty value; but the fact that the rise in turnout was fairly substantial and reasonably consistent across many different types of urban and rural areas, as well as different parts of England, suggests that at least some of the benefits of postal voting are likely to persist if it is used more widely in future local elections.

By contrast, the districts using e-voting showed a far more mixed picture of turnout, as illustrated in figure 6.2. Overall only about 9 per cent of the electorate in these districts used the electronic technologies to cast a ballot, with most of the public opting for traditional methods of voting. Three districts using e-voting did experience a rise in turnout of 9–13 per cent, but two of these offered the option of postal voting as well. Overall, two-thirds of the areas experimenting with e-voting registered a modest fall in turnout, disappointing the hopes of the reformers.

All-postal voting and remote e-voting share certain important features. Both offer voters additional convenience over traditional in-person visits to the polling station. So why should areas using these facilities generate such different patterns of macro-level turnout? Here we need to turn to the micro-level survey data to understand more fully how the public responded to these opportunities, and which social groups used the all-postal and e-voting facilities. In particular, even if the electronic facilities generated no positive effects in aggregate turnout that were evident at district level, there could still be differential patterns in which certain social groups took more advantage of the new voting facilities than others. In particular it is important to monitor whether younger people—who are both the most wired generation and also the group least likely to turn out to vote using conventional methods—might prove more likely to vote using e-voting facilities. The MORI post-election survey showed the familiar curvilinear pattern of reported voting by age: as a multitude of studies have found, younger people are persistently less likely to participate, with voting rising to a peak in late middle age, until there is a fall among the over-70s, who often have difficulty in getting out to the polls.

Respondents in the MORI survey can be divided into three major categories according to whether the type of pilot scheme used in their district was (a) combined, (b) any electronic, or (c) all-postal. Figure 6.3 shows the breakdown of reported voting by the type of pilot area and by major age groups.

Figure 6.3: Reported Voting Participation by Age Group in the May 2003 British Local Election Pilot Schemes
Figures are percentages.

Type of pilot	Age group	Did not vote	Reported voting at a polling station	electronically	by post	Total
Combined pilots	Younger	84	N/a	8	8	100
	Middle-aged	61	N/a	9	30	100
	Older	25	N/a	7	68	100
Electronic pilots	Younger	84	10	5	1	100
	Middle-aged	70	20	8	3	100
	Older	47	38	8	8	100
All-postal pilots	Younger	81	N/a	N/a	19	100
	Middle-aged	58	N/a	N/a	42	100
	Older	29	N/a	N/a	71	100

Note: Younger = 18–29 years old; middle-aged = 30–59; older = 60+ years old. N/a = not applicable in pilot area.

Source: MORI post-election survey of 6,185 electors 2–12 May 2003 in 29 local authorities piloting new voting arrangement. The survey results were weighted by wtfinal. For further details see <<http://www.mori.com/polls/2003/electoralcommission.shtml>>.

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In the combined pilot areas there were huge disparities in reported voting participation by age group: 84 per cent of young people said that they did not vote, compared with only one-quarter of the over-60s. Just fewer than one in ten in each of the age groups used the electronic means of voting, and this pattern was fairly similar among young and old. But postal voting proved by far the most popular among the older group, who often have limited mobility.

The all-postal ballot pilots generated similar age differentials to the combined pilot areas: only one-fifth of the younger group reported voting compared with almost three-quarters of the elderly.

The last category of pilot schemes allowed people to cast a ballot either electronically or in the traditional way in person at the polling station. In these areas, electors could also opt for postal vote by application, but did not receive the option automatically. This category saw an intriguing pattern: as we have seen, aggregate levels of turnout actually fell in some of these areas, and overall across all these pilot schemes turnout did not increase. One of the main reasons uncovered by this analysis is that without all-postal voting the elderly are less likely to vote either in person at polling stations or electronically. And in these areas, while younger people do use the new e-voting means, nevertheless they remain less likely to vote than the older generation. Compared with other pilots, the strength of the age regression coefficient is reduced in the electronic pilot schemes, but this effect occurs mainly by depressing the participation of the elderly, rather than by boosting the participation of the young.

Multivariate analysis, introducing controls for gender, race and class into logistic regression models of voting participation in each category of pilot schemes, confirmed that the effect of age remained consistently significant even after applying controls, and that the age effect diminished most under the electronic pilot schemes. This suggests that the use of electronic voting technologies combined with in-person voting in traditional polling stations alone, if not supplemented by the simultaneous use of automatic postal ballots, would not bolster turnout. Quite simply, the older generation remain the least comfortable using new technologies. They are also the social sector with the strongest habit of voting, and yet the least physical mobility, who are therefore most motivated to take advantage of opportunities to cast their ballot by post.

The theory developed earlier suggests that reducing the costs of voting helps, but in order to participate citizens also need to feel that they have genuine electoral choices and that casting a vote will have an important impact through electoral decisiveness. Convenience in casting a

ballot therefore only facilitates action if citizens are already motivated by broader political considerations.

Conclusions

The evidence presented in this study suggests that at present, even if the technical and social equality issues could be overcome, there are few grounds to believe that remote e-voting from home or from work on a large scale would radically improve turnout. It would probably have a modest impact on the younger generation, judging by the available evidence from the British pilot studies. And automatic postal ballots are far more effective in improving participation among the older generation, as well as being cheaper and more efficient to administer. Technological quick fixes, while superficially attractive, cannot solve long-term and deep-rooted civic ills. Yet this does not mean that we should abandon all hope of modernizing elections. The impact of all-postal voting proved positive and highly significant.

This is not to argue that the Internet fails to serve many other important functions during election campaigns, including for civic engagement. Content analysis of party web sites suggests that the Internet provides a more level playing field for party competition, serving information and communication functions that are particularly important for minor and fringe parties (Norris 2003). US surveys show that online communities can serve both 'bridging' and 'bonding' functions, strengthening social capital (Norris 2002 (a)). Experimental evidence shows that parties' web sites do indeed promote civic learning, and in this regard information on the Internet is analogous to campaign information from newspapers or television news (Norris and Sanders 2004). But survey evidence from the USA suggests strongly that e-voting would be used primarily by the people who are already most likely to participate, thereby still failing to reach the apathetic and disengaged (Norris 2002 (c)).

Perhaps the main impact of the Internet on democratic life will derive from its ability to strengthen the public sphere by expanding the information resources, channels of electronic communication, and networking capacity for organized interest groups, social movements, non-governmental organizations (NGOs), transnational policy networks, and political parties and candidates (Norris 2001). The debate about remote e-voting may in fact fail to identify the principal impact of the new information and communication technologies on democracy.

Endnotes

¹ One evaluation of the experience of all-postal ballots in Oregon found that this had a modest effect on electoral turnout, particularly in low-salience contests, but the main impact was to increase voter participation among the groups already most likely to vote, thereby increasing socio-economic inequalities in turnout (Karp and Banducci, 2000).

² There are limitations in what can be analysed using the MORI survey data. In particular, there was no 'control' sample of voters in non-pilot districts. None of the standard attitudinal measures used for analysing turnout, such as political efficacy and partisanship, were used. Many of the questions were filtered so that they were only asked of sub-samples in different pilot areas, thus making comparison across areas impossible. Moreover, the method of classifying 'pensioners' into the DE socio-economic class skewed the age profile in this category, thus making class analysis unreliable. There were also too few representatives of ethnic minorities to allow reliable analysis by racial group.

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