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Electronic Grassroots: Does Online Campaigning Work?

KEVIN M. WAGNER* and JASON GAINOUS

This research explores the implications of the growing use of the Internet to campaign and win elections in the United States. After exploring the historic assumptions and motivations behind the use of the Internet to campaign, the authors use election data from the 2006 midterm congressional elections and webpage ranking data from the leading web-based ranking service to assess the impact of Internet campaigning. The findings indicate that web presence is a significant predictor of the total votes candidates garnered in the 2006 congressional elections, even when controlling for variables such as funding, incumbency and experience. Further, the findings also suggest that, generally, Democrats had a stronger web presence than Republicans and this increased presence contributed to their success in the election. This research suggests that potential candidates need to be particularly concerned about the success of their websites and their popularity within the Internet community when running for office.

Keywords: Internet; campaigns and elections; congress; online politics; technology and politics; political behaviour.

In this study, we focus on the increasing changes to the US electoral system caused by the interaction between congressional candidates and voters through the use of the Internet. In particular, we assess the effectiveness of using the interactive medium of the Internet to campaign for office and ultimately reach and motivate voters. After exploring the historic assumptions and motivations behind the use of the Internet to campaign, we use election data from the 2006 midterm US congressional elections and webpage ranking data from the leading web-based ranking service to do so. The findings presented suggest that Internet campaigning is no longer just a desirable accessory to the national campaign, but, in fact, a significant predictor of the number of votes candidates running for Congress receive. Specifically, the results indicate that candidates' web presence influenced the proportion of the vote they got. We found some variation across parties as the Democrats appear to have received much of the initial benefit of this effect.

Politics, Campaigning, and the Internet: Looking Back

Predicting the nature of the impact of new technology such as the Internet on the American political system is difficult, though scholars have tried, typically in broad strokes and mostly with a positive normative view of technology

(see, for example, Selnow 1998, Davis 1999, Browning 2002, Brennan and Johnson 2004). Early works have explored the influence of the Internet on news gathering, lobbying, campaigning, and even participation (Davis 1999) with much of this research concluding that it has a measurable effect, if not agreeing on the nature or importance of that influence. When confined to discussions of American politics and government, the assertions by scholars are largely affirmative in concluding that there is some impact, though they are not in accord with the magnitude of this impact. The nature of that impact as projected into future political contests is less clear, with differing studies and conclusions on the ultimate significance of the Internet and online campaigning.

The history of the Internet as a political medium is not a long one. The 1992 presidential election was the first major national campaign in the United States to make significant use of the Internet. While there were no Web browsers, the Clinton/Gore campaign made use of email, bulletin boards and discussion groups to disseminate information on the campaign and position papers. The discussion group 'alt.politics.Clinton' received approximately 800 postings a day during the height of the campaign (Smith 1994). Enthusiastic Clinton volunteers monitored the discussion lists and sent summaries to the campaign offices in Little Rock, Arkansas. This practice was discontinued, however, when the Clinton campaign failed to respond (Smith 1994).

Initially, the Internet remained a fairly low-resource campaign tool, though an early warning of the potential impact of the Internet was displayed in 1994, when then-House Speaker Thomas Foley was defeated in part through the efforts of a political action committee that was organised almost entirely on the Internet (Browning 2002). Since then, the Internet has been growing in importance with each national election cycle. Republican presidential candidate Robert Dole made history in 1996 by being the first political candidate to mention a campaign website at a presidential debate, though he inadvertently failed to give the proper web address (Klotz 2004). Even though Dole mis-stated the web address, many viewers were able to figure out the correct one and proceeded to collapse the campaign website through the volume of Internet traffic (Klotz 2004). Despite this mis-step, a web presence would become an increasing part of any subsequent national campaign. This has held true despite the lack of initial clarity concerning the ultimate utility of the Internet for winning elections.

Nonetheless, the increasing use of the Internet in campaigning has begun to transform some of the fundamental ways that politics has historically been conducted, leading some scholars to assert that a significant Internet effort has become integrated into an effective campaign (Selnow 1998, Bimber and Davis 2003). Candidates are using the Internet to bypass traditional campaign methods to reach voters as well as to raise campaign funds. In the 2000 Republican presidential primaries, Senator John McCain of Arizona repeatedly advertised his webpage and used the Internet to turn his surprise victory in New Hampshire into an effective alternate means of fund-raising (Salant 2000). McCain raised a then-unprecedented \$4 million over the Internet (Salant 2000).

There is little dispute that the Internet has become an effective means for raising campaign funds. The impact on fund-raising has become increasingly significant. The Internet allows candidates to tap funds to which they may not have had access prior to the Internet (Browning 2002). In the 2004 Democratic presidential primaries, Howard Dean successfully fuelled his campaign by using the Internet for both raising awareness of his insurgent campaign and in raising funds (Trippi 2004). He organised supporters using the Internet to plan meetings around the nation in unprecedented fashion (Wolf 2004). Dean, despite beginning the race in obscurity, became the front-runner fuelled by large amounts of money drawn largely from small contributions over the Internet.

Despite losing the election to John Kerry, Dean, as a later Chairman of the Democratic Party, shifted the party's focus and concentrated on raising funds in small amounts over the Internet rather than focusing more exclusively on large wealthy donors. This mimicked the strategy that proved successful for him in his own campaign (Bolton 2005). Also learning from Dean's example, leading Democratic and Republican national candidates organised Internet resources in a similar fashion, both for communication and fund raising, though Democrats seemed to have an initial advantage. John Kerry raised approximately \$82 million over the Internet compared to George W. Bush's \$9 million in the 2004 general election (Chadwick 2006, p. 167). Both campaigns marshalled substantial email lists of subscribers.

Measuring the role of the Internet beyond fund-raising presents more challenges. The most effusive voices suggest an almost revolutionary role for the Internet. While some political scientists have already surmised that the implications of the Internet are substantial and have caused some changes in the manner in which campaigns are conducted (Davis 1999, Shapiro 1999, Saco 2002), one scholar has expanded the implications of the Internet and predicted that the technology itself will not only improve American democracy, but through the communication of ideas and basic rights, it also will help bring democratic government and, ultimately, peace to the world (Allison 2002).

These more positive interpretations of the role of the Internet suggest a reconstruction of the nature of political organisation, as the Internet can provide opportunity for groups to access and engage the public despite having limited means (Morris 1999, Chadwick 2006: 148). As a two-way medium, the Internet provides a mechanism to allow supporters and potential contributors to interact more directly with politicians and parties, creating a differing electoral model that moves beyond the traditional hierarchal structure (Morris 1999). There is some evidence that these projections have merit. Using surveys from 1996 and 2000, Thomas Johnson and Barbara Kaye (2003) found that the Internet empowers individuals and increases interest and participation in politics. Politicians and parties are responding to this perceived impact. Parties, candidates and government agencies are increasingly active online in creating and providing various forms of political information and engagement opportunities, though there is some

question as to whether many people are making use of such opportunities, especially outside the United States (Lusoli and Ward 2005a).

To counter the more buoyant predictions concerning the Internet, some scholars have suggested its impact is not as significant as has been argued. Directly contrary to the research suggesting greater degrees of public interest, David Tewksberry (2003) used weblogs to measure actual Internet usage and found that more than half of the Internet users did not access public affairs information. Studies of the elections conducted in 1996 and 2000 yield less optimistic results as well. Empirical research has suggested that the effects of the Internet may in fact be modest and have a limited impact on elections (Bimber 1998, Bimber and Davis 2003).

In 1996, studies found that the magnitude and value of the Internet was less than expected with the actual numbers of voters using websites fairly small compared to the voting electorate (Davis 1999, Chadwick 2006). Similarly, based on measures in 2000, Bimber and Davis (2003) reviewed the impact of the Internet and ultimately predicted that, though the Internet has a role, it is unlikely to play a critical function in future elections. Though clearly an early study, Bimber (2001) found that Internet use does not correlate with voting, suggesting that the medium is of limited use in the campaign. Nonetheless, in reviewing the 2000 election, some scholars did find that the use of the Internet as a structural component in elections could alter some elements of the electorate itself (Solop 2001, Gainous and Wagner 2007). However, this finding was limited to the use of the Internet as an actual means of voting.

Even researchers willing to concede the growth of the Internet as a campaign vehicle argue that its importance may be overstated. Proposing a normalisation thesis, these scholars suggest that as politicians and political operatives become more familiar with the technology, they will gain expertise and ultimately package and control the Internet as a medium (Davis 1999, Margolis and Resnick 2000, Chadwick 2006). In the context of an Internet campaign, the wealthier parties or candidates should be able to hire the best web designers and better integrate the web into the larger campaign vehicle (Chadwick 2006, p. 149). As is the case with traditional campaigning, the groups with resources will be advantaged, and the natural campaign advantages will not shift in any revolutionary ways (Klotz 2004). The normalisation thesis suggests, at least to some degree, that the Internet will become significant, if only to be ultimately co-opted.

Outside the United States, studies also reached more limited conclusions. Early research from the 1997 and 1998 campaigns in the United Kingdom concluded that, though the candidates made use of the technology, they and the parties were limited in the use of online resources and used the Internet primarily as an electronic newspaper or online brochure with limited interactivity (Gibson and Ward 1998, Ward and Gibson 2003). As in the United States, the use of the Internet as a campaign tool increased in subsequent elections as a means of organisation and communication. Nonetheless, the usage by candidates was extremely

limited, with only approximately one-quarter of the candidates having campaign websites in 2001 (Ward and Gibson 2003). The more limited use of the Internet by the candidates in the United Kingdom is in part driven by campaign laws, and the lower rates of Internet penetration relative to the United States (Chadwick 2006: 159). Interestingly, higher cell phone ownership in the United Kingdom did lead to campaign use of cellular networks and text messaging as a campaign tool (Coleman and Hall 2001).

Ultimately, the Internet appears to have been of limited value in helping voters in the UK reach decisions, as it trailed both television and newspapers widely in contemporary surveys of media influence (Chadwick 2006, p. 161). Similar, though admittedly not definitive, conclusions were reached in an examination of European elections. In the 2004 European Parliamentary elections, the data suggest the Internet is a secondary medium (with some variance based on the nation), though it appears increasingly integrated into the larger campaign structure (Lusoli 2005, p. 262). Particularly in the United Kingdom, only 6 per cent of voters reported using the Internet to gather information in the same 2004 election (Lusoli and Ward 2005).

The Internet Campaign: Looking Forward

Future projections made based on past data are difficult at best, as the familiarity with the technology by candidates, the penetration of that technology into the electorate, as well as innovations as yet unseen, make the process dynamic. Further, the relevant variables are not only hard to measure, but difficult to ascertain as an ongoing concern. Some well-founded assumptions are already coming into question. Despite the more limited use and effect of the Internet in previous campaigns, there are reasons to believe its importance will grow. The Internet was initially thought to be of little use as a source for fundraising (Ward *et al.* 2003). Yet, after the success of John Kerry and then Barack Obama in raising unprecedented amounts of money over the Internet, the earlier presumption must be reconsidered. It is worth noting, though, that this growth in Internet fundraising is likely not to be as important in many European nations where campaign financing is through the state or strictly controlled by the state.

There is little argument that the Internet will force at least some change in political candidates because of the ease in disseminating information and the increased avenues in which to interact and engage with the electorate. Even beyond the easing of communication barriers, the Internet creates its own dynamic for the interaction of politicians with the public. Candidates' websites can and do become venues for policy debate (Stromer-Galley 2000). This creates a new type of campaign problem as candidates can lose control of the issues on their own website. Further, the Internet allows for easy entrance for interest groups and third parties resulting in literally dozens of 'digital' parties in both the United States and the United Kingdom (Norris 2001). Even without a physical presence, these third parties can present a sophisticated image

across the Internet despite limited resources (Ward *et al.* 2003). Additionally, communication need not be one way, as in the case of advertisements purchased for broadcast television, radio, or the print media, but can be interactive and engage the public through forums and email (Schneider and Foot 2002). As we project these changing dynamics into the future, the Internet may alter electoral structure by changing how we vote, and ultimately who votes (Gainous and Wagner 2007).

While some political scientists have known and predicted for some time that the Internet was likely to be an important element of campaigning and communication for future candidates, empirically measuring that influence has been difficult. As a campaign medium, the Internet presents a new form of interaction with the electorate. Unlike television, there are virtually no inadvertent viewers for a campaign website. Television allows candidates to reach a pool of both interested and uninterested voters, whereas a campaign website or other web campaigning will service only those who seek out the candidate. Instead of seeking the voter, the Internet permits the voter to find the candidate with surprising effect. Internet campaign videos can far outreach traditional advertising, as was the case with the video supporting Barack Obama's campaign for the Democratic presidential nomination entitled 'Yes, We Can!' The video reached nearly four million people in just a few weeks (Memmott and Lawrence 2008). By comparison, Hillary Clinton's competing nationally televised town hall reached a fraction of that audience despite its high cost (Rich 2008).

While it is not impossible that a person could reach a website through mistyping the web address, the chances are extremely small. Consequently, the website would probably have a lesser reach among the casual and undecided voters, especially to those with limited knowledge. Nonetheless, even with that limitation, the website can create a stronger intensity among voters because of the nature and the length of exposure. Television advertisements are typically about 30 seconds in duration. The average visitor to a campaign website will stay for over eight minutes (Klotz 2004). This allows for the candidate to disseminate more information and convey positions on a number of issues, while allowing the visitor to self-select areas of interest from volunteering to voting records. Studies of participation regularly show better educated and informed voters are more likely voters (Verba *et al.* 1995). As these are also the same voters who are most likely to visit websites, the Internet allows a more forceful and concentrated pitch to the voters most likely to participate.

Beyond simply being likely voters, Internet visitors to campaign websites are persons who at least have some interest in the candidate. This allows information to be targeted to an audience possessing some degree of curiosity with at least some opportunity to be persuaded by an effective campaign pitch. It allows those visitors to the website a dynamic and multi-faceted experience with the campaign, including an ability to interact with the candidate through forums and electronic town hall meetings (Klotz 2004). Narrowly tailored websites can target information at specific segments of the population or particular

demographics (Coleman and Goetze 2001). If done well, a website can be a regular destination for not just information, but also social interaction, supplying the type of satisfaction that might drive larger levels of participation when considered in light of participation models (see Sabatier 1992).

This effect can be magnified by drawing the web user into the larger campaign apparatus. The website itself can be connected to social networking websites such as *MySpace* and *Facebook*, creating a broad sweeping effect that draws interested persons back into range of the campaign message regularly in ways that traditional campaign methods including television are neither suited to nor capable of. Though this type of linking is logical, early research suggests that it is not happening to the degree that one might suspect and the measuring of the impact of such links is a difficult proposition (Foot *et al.* 2003). Nonetheless, one might expect that future candidates and campaigns will more successfully integrate such outreach. They may be forced to do so. Studies in the United States and the United Kingdom indicated that large numbers of citizens want to interact and engage with politicians through the Internet and online forums (Coleman and Goetze 2001, Cornfield *et al.* 2003).

Finally, it is worth noting that the entire Internet campaign can be, and often is, integrated into the more traditional aspects of the campaign. Even when seen through the limited paradigm of the traditional campaign machine, the web campaign can be an important component for success. Candidates use opponents' websites for opposition research for debates, commercials or even competing websites. While this may not necessarily produce a better candidate, it is likely to produce a different type of candidate and a different style and approach to the campaign.

Changing the Cost Dynamic: Internet Influence on Campaigns

Few would argue with the proposition that contemporary politics is very much affected by changing technologies such as the Internet. At a very fundamental level, technology advances are affecting the very way that government goes about its tasks in almost every aspect. From filing taxes to obtaining federal documents, the manner by which the government interacts with people is changing rapidly.¹ These changes are no less important for the evolving nature of political campaigning. Nonetheless, it is often difficult to measure this impact and the importance of the evolving uses of technologies like the Internet in real terms. To address this, we create a theoretical understanding of the effect of the Internet on modern campaigning, and we test this theory using data from the 2006 congressional elections.

Though early formulations of campaigns and participation behaviour could not have predicted the substantial technological innovation of the Internet, the basic theory is sound. The Internet presents a dynamic change in campaigning technology, but it does not change the basic calculus behind why people vote and campaign. It simply adds a new procedural lens and some novel variables

to the equation. For voters, the choice concerning whether to vote or otherwise participate in politics or campaigns is still driven in part by individual-level costs or economic considerations (Downs 1957, Tullock 1967, Riker and Ordeshook 1968, 1973, Barry 1970). Limited resources restrict an individual's ability to participate, and therefore help explain the disparity in levels of participation for different socio-economic groups (Verba *et al.* 1995).

Not only does learning about candidates and issues present a significant cost for individuals, but explaining such things to large numbers of voters is increasingly costly for the campaign. These costs ultimately curtail the reach of a candidate who can only marshal limited resources. Traditionally, candidates must be selective about both their means and method of campaigning in order to maximise positive turnout. Many potential voters in large campaigns are regularly neglected as candidates attempt to maximise the power of their resources and reach for larger groups at the expense of smaller ones, or more sympathetic groups at the expense of neutral ones. This puts an increasing strain on candidates and campaigns, as modern outreach often involves buying time in the mass media or, more specifically, on television, which has regularly become the medium of choice and a significant drain on campaign resources (Graber 2006).

The Internet presents a change in this cost dynamic. It allows for easier outreach and education of the voters at a fraction of the cost of traditional media. From both the campaign side and the voter side, the cost is minimised, and the potential exchange is far more substantive as the Internet can hold significantly more information and is interactive in scope. The initial question presented herein is whether one could affect voting results simply by lowering the cost of information delivery and engaging the electorate using a considerably less costly means such as the Internet. By accessing voters through the Internet, candidates should be able to provide voters with more information than might otherwise be possible and reach voters that traditional campaign advertising might otherwise miss.

The end result is that a popular campaign website on the Internet should effectively reach and motivate voters to support a candidate at the polls. If this is true, then candidate web pages should be an increasingly important explanatory variable for electoral success as their potential reach and penetration are significant, especially when compared to traditional campaign costs. The effectiveness of using the Internet as a means for distribution will be highly dependent on the penetration the website has in the Internet. This factor, which we will call 'web presence', allows for significant variability, as even the best designed websites are electorally insignificant when they are not widely seen and distributed. Further, there may be some expectation that the overall effect is blunted by the digital divide or the inability of some Americans to access the Internet (see Mossberger *et al.* 2003). Nonetheless, this seems a largely temporal limitation. As technology gains greater penetration and voters increasingly use the Internet to access information, the significance of the Internet as a campaign tool should continue to grow.

Data, Measurement and Methodology

The data used here come from a variety of sources. They are a compilation of turnout results, web presence and traffic indicators, and a host of controls from 86 separate races in the 2006 US congressional elections (106 House candidates and 67 Senate candidates, $N = 173$).² We selected the races that were deemed competitive by Congressional Quarterly, Inc., and included the two leading candidates (incumbent and challenger or the two leading vote-getters for open seats).³ The webpage ranking data come from Google, Inc., an Internet search engine company that also offers other services including PageRank, which estimates web presence. We also use data from Alexa, a web information company. The election data come from the Federal Election Committee and can be obtained at <http://www.TheGreenPapers.com>. We also use US Census data to measure education by state. Finally, data used for political experience control variables were obtained at <http://wikipedia.org>.⁴

The primary dependent variable, *votes received*, was measured by simply counting the total number of votes received for each candidate. We collapsed this variable by dividing it by 1,000 to make the table of results more readily understood and the interpretation easier by making the estimated betas larger. The primary independent variable, *web presence*, is measured using the Google PageRank of the campaign webpage of each of the candidates in the sample. PageRank uses the number of links to a page as an indicator of an individual page's value. It interprets a link from page A to page B as a vote, by page A, for page B. It also includes in the calculus the page that casts the vote. Votes cast by pages with higher rankings themselves are weighted more heavily.⁵ PageRank allows us to approximate the concept of web presence as more than an individual popularity score, but also as a representative indicator of how much success a campaign has had in integrating their web efforts into a larger and sustained political footprint in the Internet community. PageRank is the most effective measure of this larger multifaceted conceptual understanding of web presence. The rankings of candidates' pages in this sample range from 3 to 6 (recoded to range from 0 to 3), with higher values indicating a greater web presence.

After some descriptive analyses, we use a pair of two-stage least squares models to estimate the effect of web presence, political experience, incumbency, district and race competitiveness, campaign spending, party affiliation, and chamber on votes received. We use a two stage approach here to address the possible endogenous variable. It is possible that a high web presence is actually a result of electoral popularity. Hence, our dependent variable may serve as a proxy for the cause of high web presence. Standard linear regression models assume that errors in the dependent variable are uncorrelated with the independent variables. When this is not the case, linear regression using ordinary least squares (OLS) no longer provides an unbiased model estimates. Two-stage least-squares regression uses instrumental variables that are uncorrelated with the error terms to compute estimated values of the problematic predictors, and

then uses those computed values to estimate a linear regression model of the dependent variable. Since the computed values are based on variables that are uncorrelated with the errors, the results of the two-stage model are optimal.

We use web traffic and the race of the candidate to predict web presence and then use those predicted values in the second stage of our estimation. We estimate two separate models, one for Democrats and one for Republicans, to prevent a violation of the independence assumption in linear models. The total votes received by one candidate are negatively correlated with the total votes received by the opponent. Thus, the assumption would be violated if we estimated the relationship using one model. Using OLS, we estimated total votes received as a function of web traffic and candidate race to assure that they were not correlated with total votes received, confirming that they are suitable as predictors in the first stage of our two-stage models. None of these predictors were significant at the 0.05 level in either the Republican or Democrat models.

We measure *web traffic* using data gathered from Alexa.com. The values represent ranking based on the number of hits. We inverted the rankings because those with less traffic had a higher value representing a lower ranking, making interpretation more intuitive. Some might expect web traffic to be correlated with total votes received if our theory is accurate, but we did not expect it to be, for two reasons. First, hits repeated from the same person would indicate higher traffic. Alternatively, it is reasonable to expect that potential voters may visit each of the major candidate's web pages for a given race. Thus, they would cancel each other out. Nevertheless, it is correlated with web presence (Google PageRank), making it a good predictor in the first stage. Finally, race of the candidate is used for an extra control.

We utilise several control variables in the models as well. Each was selected because the extant literature suggests they are important in explaining candidates' share of the vote. The legislative elections literature suggests that political experience is an important source of electoral success (Bond *et al.* 1985, Squire 1989, Abramowitz 1991, Jacobson 1992, Krebs 1998). Thus, we included two measures of *political experience*. The first is the number of *years holding elected office*, and the second is the number of *years in Congress*. The literature also suggests that incumbency is an advantage to candidates, helping them to garner more votes (Abramowitz 1975, Cox and Morgenstern 1995, Levitt and Wolfram 1997, Krebs 1998, Petrocik and Desposato 2004). So, we also employ a dummy variable for *incumbency*.⁶

We included the *number of candidates* in each race because this influences the number of votes garnered by candidates (Holbrook and Tidmarch 1993, Krebs 1998). In addition, district/state competitiveness helps determine the electoral success of both incumbents and challengers (see Breaux and Gierzynski 1991, Welch and Hibbing 1997, Koetzle 1998). *District/state competitiveness* was measured by subtracting the total number of votes attained by the loser of the previous election from the total number of votes attained by the winner in each respective district/state. Evidence indicates that campaign spending is a

determinant of electoral success (Green and Krasno 1988, Erikson and Palfrey 1998), so we also constructed a measure of *campaign spending differential* by subtracting the challenger's spending from the incumbent's spending. We then divided this differential by 100,000 to make the estimate easier to interpret. We also include candidates' chamber in the models because those in the Senate will obviously garner more votes, so this allows us to control for such and examine the effect of web presence across chambers.

Finally, the descriptive analysis looks at web presence across states with varying median education levels. We do not include races from all 50 states in this sample because, as we mentioned previously, the analysis examines only competitive 2006 races. For the purpose of this study, states were coded as 'lower education states' when the median percentage of those with at least a Bachelor's Degree was beneath the national median (US Census 2000).

Results

While the focus of this study is on the effectiveness of Internet campaigning, we also explore the variation in a candidate's web presence. This exploration is useful because it provides a descriptive foundation for understanding the nature of this growing phenomenon. With conflicting literature on where and how we might see differences in the web presence of candidates, we start by looking for variation across some basic categories, including party affiliation, chamber, and region.

Initially, we test some widely held suspicions and assumptions about Internet use in political campaigns in the United States. Democrats in Congress were at the forefront of bringing public attention to the Internet (for example, Al Gore's High Performance Computing Act of 1991). We might expect that they would have a greater web presence than their Republican counterparts. The data confirm this expectation. As is apparent in Table 1, Democrats have a

Table 1: Web Presence across Party Affiliation, Chamber, and Constituency Education Level

	Mean Web Presence	Standard Deviation	P-value
Democrats	2.07	0.68	0.00
Republicans	1.52	0.66	
House	1.69	0.68	0.02
Senate	1.96	0.77	
Below Median Education	1.75	0.77	0.42
Above Median Education	1.84	0.68	

Note: Data are from Google PageRank, <http://www.TheGreenPapers.com>, and the US Census 2000. P-value represents the probability of being wrong in rejecting the null hypothesis that there is no difference across categories in the general population (t-tests equal variances assumed).

significantly greater web presence than that of their partisan counterparts. Next, given that Senate races are generally more visible, it is reasonable to expect that Senate candidates would have a greater web presence than House candidates. Again, this expectation is also confirmed (see Table 1). Finally, in 2000, the Department of Commerce issued a report revealing that Internet access was more prevalent in homes with higher education. Because education levels are typically lower in some states, candidates may not have the same incentive to campaign on the web. Therefore, we might expect the web presence of candidates in those states to be weaker than that of candidates in other states. As can be seen in Table 1, the data suggest this is not the case. A candidate's web presence is virtually equal across lower and higher education states.

Before moving on to the multiple regression analysis of the effectiveness of Internet campaigning, it is important to note that the bivariate correlation between web presence and total votes received is significant (Pearson's $r = 0.29$, $p < 0.01$). This relationship is clear in Figure 1. The magnitude of the effect is quite strong. The number of votes received increases by nearly 700,000 when moving from the lowest web presence to the highest. This estimate is obviously bolstered by the fact that chamber is not controlled for in this graph. Members of the Senate generally get more votes due to having a larger constituency and they should have larger web presence due to being a higher profile race, but web presence goes up for the lower total votes too. Thus, it is consistently rising for low vote and high vote races. Nonetheless, we do control for chamber in our multivariate models. While the relationship between the numbers of votes received and web presence is revealing, it is not conclusive, because this effect may be

Figure 1: Votes Received by Candidate Web Presence

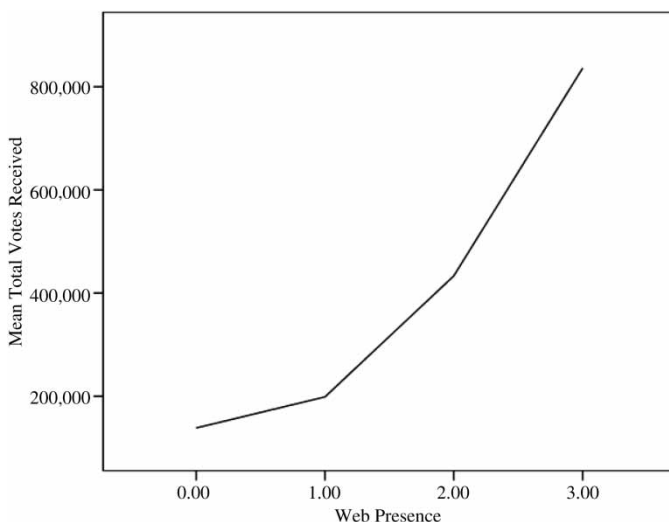


Table 2: The Influence of Web Presence on Votes Received

	B	S.E.	P-value
<i>Democrat Model</i>			
Web Presence	279.19	141.21	0.05
Years Holding Elected Office	9.58	8.83	0.28
Years in Congress	-6.98	7.61	0.36
Incumbency	481.74	187.06	0.01
Number of Candidates	-721.67	351.50	0.04
District/State Competitiveness	0.00	0.00	0.00
Campaign Spending Differential	-2.18	1.70	0.20
Chamber	289.74	146.63	0.05
Multiple R ²	0.84		
N	86		
<i>Republican Model</i>			
Web Presence	-8.32	141.90	0.95
Years Holding Elected Office	14.77	6.93	0.04
Years in Congress	-2.56	7.19	0.72
Incumbency	-2.79	124.12	0.98
Number of Candidates	453.33	453.33	0.46
District/State Competitiveness	0.00	0.00	0.00
Campaign Spending Differential	3.39	1.32	0.01
Chamber	423.66	134.20	0.00
Multiple R ²	0.79		
N	87		

Note: Data are from Google PageRank and Alexa, Federal Elections Committee available at <http://www.TheGreenPapers.com>, and <http://wikipedia.org>. Table entries are two-stage least squares estimates, associated standard errors, and the probability of being wrong in rejecting the null hypothesis that there is no effect of the independent variables in the model.

vitiated when controlling for other factors that influence the number of votes candidates receive. That said, the results reported in Table 2 indicate that this is not the case, at least for Democrats.

As mentioned above, there is an interesting partisan story to be told here. The effects of both web presence and the control variables tell different tales for Democrats and Republicans in the 2006 election. The most significant difference is that web presence seems to matter for Democrats and not for Republicans, while campaign spending and experience was important for Republicans but not for Democrats. Web presence has a significant bivariate relationship with the total votes received for both Democrats (Pearson's $r = 0.25$, $p = 0.02$) and Republicans (Pearson's $r = 0.33$, $p < 0.01$), but this relationship dissipates when controlling for other factors in the Republican Model. This suggests that the bivariate relationship is spurious for Republicans. A combination of the differences across the models explains the variation between the parties.⁷ There were two variables that were significant in the Republican Model, but not in the Democrat Model: political experience and campaign spending. We estimated three more two-stage models for Republicans to isolate which of these variables explains away the variance that web presence seems to capture in the bivariate model. The results indicate that it is a combination of the two. In the

first model, we removed the political experience indicator, and web presence still remained insignificant. In the next, we removed the campaign spending differential, with the same result. Finally, we estimated the model with both removed, and web presence became significant ($p = 0.10$). This suggests that higher web presence for Republicans is driven by experience and spending, while this is not the case for Democrats.

Overall, this evidence suggests that the Democratic Party success is due in part to their web efforts. The Democrats' web presence was significantly higher than that of Republicans (refer to Table 1), reflecting a systematically larger outreach to voters through the use of the Internet. The results of the multivariate analysis indicate that this effort bore fruit. By using a two-stage approach, we took steps in the model to address the possibility that the context of this particular election caused the effect. Our method provides support to the contention that the Democrats' share of the vote is not simply a reflection of their relative popularity at the time. In this data, the increased web presence of the Democrats is a predictor of success. The insignificant findings for the Republican Model combined with the lower web presence of Republicans suggest the possibility that their electoral fate, or at least the number of votes they got, may have increased, with more attention to increasing their web presence. More directly, while their successful campaigns were driven largely by traditional indicators, it is possible that they could have improved their results with a greater focus on the Internet.

The specifics of the models paint an even clearer picture. The Democrat model performs well overall; the R^2 is high (0.84) and diagnostics indicate that multi-collinearity is not an issue (see Table 2). Web presence is a significant predictor of the total number of votes even when controlling for the other variables in the model ($p = 0.05$). For every one unit increase in web presence, the model estimates that candidates receive roughly 279,000 more votes. Interestingly, the magnitude of the effect does not dissipate from that graphed in Figure 1 when adding controls. Further, the fact that the statistical significance holds up even when controlling for other theoretical predictors lends considerable support to the contention that web presence matters. The Republican model does not perform as well. The R^2 is lower (0.79) and there are only two significant predictors in the model other than years of political experience and campaign spending differential; they are district competitiveness and chamber. The Democratic Model has a total of one more significant variable.

The significance of the controls in the Democratic Model strengthens the argument that web presence matters, because web presence's significance is independent of these other effects. Because the sample consists of only those races that were competitive, some of the traditional predictors of votes garnered do not matter as much as one might expect. Nonetheless, several variables in the model are significant. The estimate for the effect of the number of candidates in the race suggests that for each additional candidate in the race, each respective candidate will lose roughly 721,000 votes. The coefficient for district

competitiveness is also significant, but the magnitude is not as large as the other variables (in both models). For every additional vote separating the winner and loser of the previous election, the number of votes decreased by less than 1,000. Finally, not surprisingly, chamber is significant in both models. The estimate indicates that Democratic Senators on average got 289,000 votes more than members of the House, and 423,000 for Republicans. This would be larger if the sample were all large states.

Conclusion

The Internet has become an integral part of American society. Scholars are in the early stages of exploring its impact in terms of voting behaviour and change. This paper presents one view on how to measure that influence. Based on these data, campaigning on the Internet is of growing importance. With the lower entry cost to the web, we expect the online campaign to continue to grow as a matter of financial expediency as well as a crafted means of targeting and engaging the electorate. Traditional forms of campaigning, including media advertisements, mass mailings and travelling to give stump speeches, while often effective, are considerably more costly than creating a web presence. We do not suggest that candidates could forgo these more traditional forms of campaigning, but cultivating a web presence as a supplement integrated into the traditional campaign structure would certainly appear to be of benefit with relatively low cost.

The implications of the Internet as a source of political information and engagement is a moving target, as the number of voters using the medium is still a relatively small, yet clearly growing, part of the electorate. Further, the techniques used are evolving and growing as well. The Internet today, which includes faster transmissions, along with mobile devices that connect to the Internet, is far different than the Internet first measured in many of the studies from just a few years ago. More voters and a new generation of younger voters are moving to the Internet as a significant source of political information. Additional work needs to be done to understand what is likely to be one of the more significant changes in politics and voting in the next decade. By no means does this study address every question that needs answering when it comes to this burgeoning subject of inquiry, but it begins to put one type of physical measure on the value of an Internet presence in the campaign.

Nonetheless, we concede more work needs to be done to replicate these findings using alternative measures of web presence. Questions centred on the influence of web advertising on individual-level vote choice also need exploration. In addition, more research needs to be done to investigate variation in the effectiveness of Internet campaigning based on the increasing quality and availability of interactive applications on candidates' web pages. These are difficult measures, as innovations are rapid, research is often far slower, and parties and candidates are not waiting to reach their own conclusions. Considering the fact that nearly every candidate for major public office in the United States now has a

webpage, they did not need empirical evidence to believe that it would be effective. Nonetheless, now they have it. In these data, a robust web presence during a political campaign does have a positive impact on the number of votes garnered.

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Notes

1. People can now obtain government forms and receive instruction over the Internet through websites such as IRS.gov.
2. There were very few missing values. Most of the variables used here had none. We were unable to obtain a Google PageRank for three cases and years holding political office for 13. These values were replaced using the Expectation Maximisation (EM) algorithm (Dempster *et al.* 1977) in the multivariate model that follows. This is a technique that finds maximum likelihood estimates in parametric models for incomplete data. The EM algorithm is an iterative procedure that finds the MLE of the parameter vector by first calculating the conditional expectation of the complete-data log likelihood given the observed data and the parameter estimates. Next, it finds the parameter estimates to maximise the complete-data log likelihood from the first step. The two steps are iterated until the iterations converge (for a complete description see Little and Rubin 1987, McLachlan and Krishnan 1997, Schafer 1997).
3. The Senate race for Connecticut included three candidates because Joseph Lieberman, the incumbent, faced challenges from a Democrat and Republican candidate. We coded Lieberman as a Democrat for the analysis because he primarily votes with the Democrats. We also coded Bernie Sanders (Democratic Socialist) as a Democrat for the same reason. The Indiana Senate race included a Republican incumbent and Libertarian challenger. We coded the challenger, Steve Osborn, as a Republican because Libertarians are ideologically closer to Republicans. These three coding choices prevented us from losing cases in the analysis.
4. While we are aware that data from Wikipedia can be inaccurate, we are not concerned with this problem here because the measures we use from Wikipedia are not controversial. It is used to gather data on the number of years of political experience and the number of years in Congress. To validate our measures we took a random sample of 5 per cent of the cases of those who won and verified that the data were correct by checking their personal websites available through the US Congress homepage.
5. See <http://en.wikipedia.org/wiki/PageRank> for a more thorough description of Google's PageRank.
6. In open seat races, the candidate who shared the party affiliation of the prior incumbent was treated as the incumbent.
7. One might expect multicollinearity to be an issue because of the relationship between the experience variables and incumbency, but the results suggest that it is not. While the experience variables

and incumbency are correlated, they do not cause multicollinearity issues in the multivariate model. In straight OLS models for both Democrats and Republicans, the highest tolerance score was 4.03 (reaching 10 is a problem) and the lowest variation inflation factor 0.25 (0.10 or less indicates a problem) (both for the spending variable in the Republican Model). Most were significantly lower and higher, respectively.

References

- Abramowitz, A.I., 1975. Name Familiarity, Reputation, and the Incumbency Effect in a Congressional Election. *Western Political Quarterly*, 28 (4), 668–684.
- Abramowitz, A.I., 1991. Incumbency, Campaign Spending, and the Decline of Competition in US House Elections. *Journal of Politics*, 53 (1), 34–56.
- Allison, J.E., 2002. *Technology, Development, and Democracy: International Conflict and Cooperation in the Information Age*. Albany, NY: State University of New York Press.
- Barry, B., 1970. *Sociologists, Economists and Democracy*. London: Collier–Macmillan.
- Bimber, B., 1998. The Internet and Political Transformation: Populism, Community, and Accelerated Pluralism. *Polity*, 31 (1), 133–160.
- Bimber, B., 2001. Information and Political Engagement in America: The Search for Effects of Information Technology at the Individual Level. *Political Research Quarterly*, 54 (1), 53–67.
- Bimber, B.A. and Davis, R., 2003. *Campaigning Online: The Internet in US Elections*. Oxford: Oxford University Press.
- Bolton, A., 2005. Fundraisers Jilt Dean. *The Hill*, 7 June.
- Bond, J.R., Covington, C., and Fleisher, R., 1985. Explaining Challenger Quality in Congressional Elections. *Journal of Politics*, 47 (2), 510–529.
- Breaux, D.A. and Gierzynski, A., 1991. It's Money That Matters: Campaign Expenditures and State Legislative Primaries. *Legislative Studies Quarterly*, 16 (3), 429–443.
- Brennan, L.L. and Johnson, V., 2004. *Social, Ethical and Policy Implications of Information Technology*. Hershey, PA: Information Science Publishing.
- Browning, G., 2002. *Electronic Democracy: Using the Internet to Transform American Politics*. 2nd ed. Medford, NJ: CyberAge Books.
- Chadwick, A., 2006. *Internet Politics: States, Citizens, and New Communication Technologies*. New York: Oxford University Press.
- Coleman, S. and Goetze, J., 2001. *Bowling Together: Online Public Engagement in Policy Deliberation*. London: Hansard Society.
- Coleman, S. and Hall, N., 2001. Spinning on the Web: E-Campaigning and Beyond. In: S. Coleman, ed. *2001 Cyber Space Odyssey: The Internet in the UK Election*. London: Hansard Society, 7–24.
- Cornfeld, M., Rainie, L., and Horrigan, J., 2003. *Untuned Keyboards: Online Campaigners, Citizens and Portals in the 2002 Elections*. Washington, DC: Pew Internet and American Life Project.
- Cox, G.W. and Morgenstern, S., 1995. The Incumbency Advantage in Multimember Districts: Evidence from the U.S. States. *Legislative Studies Quarterly*, 20 (3), 329–349.
- Davis, R., 1999. *The Web of Politics: The Internets Impact on the American Political System*. New York: Oxford University Press.
- Dempster, A.P., Laird, N.M., and Rubin, D.B., 1977. Maximum Likelihood from Incomplete Data via the EM Algorithm. *Journal of the Royal Statistical Society*, 39 (1), 1–38.
- Downs, A., 1957. *An Economic Theory of Democracy*. New York: Harper.
- Erikson, R.S. and Palfrey, T.R., 1998. Campaign Spending and Incumbency: An Alternative Simultaneous Equations Approach. *Journal of Politics*, 60 (2), 355–373.
- Foot, K., et al., 2003. Analyzing Linking Practices: Candidate Sites in the 2002 US Electoral Web Sphere. *Journal of Computer-Mediated Communication*, 8 (4). Available from: <http://jcmc.indiana.edu/vo18/issue4/foot.html> (accessed 1 June 2009).
- Gainous, J. and Wagner, K., 2007. The Electronic Ballot Box: A Rational Voting Model and the Internet. *American Review of Politics*, 28 (Spring and Summer), 19–35.
- Gibson, R. and Ward, S., 1998. U.K. Political Parties and the Internet: Politics as Usual in the New Media? *The Harvard International Journal of Press/Politics*, 3 (3), 14–38.
- Graber, D.A., 2006. *Mass Media and American Politics*. Washington, DC: CQ Press.

- Green, D.P. and Krasno, J.S., 1988. Salvation for the Spendthrift Incumbent: Reestimating the Effects of Campaign Spending in House Elections. *American Journal of Political Science*, 32 (4), 884–907.
- Holbrook, T.M. and Tidmarch, C.M., 1993. The Effects of Leadership Positions on Votes for Incumbents in State Legislative Elections. *Political Research Quarterly*, 46 (4), 897–909.
- Jacobson, G.C., 1992. *The Politics of Congressional Elections*. 3rd ed. New York: HarperCollins.
- Johnson, T. and Kaye, B., 2003. A Boost or Bust for Democracy? How the Web Influenced Political Attitudes and Behaviors in 1996 and 2000 Presidential Elections. *International Journal of Press/Politics*, 8 (3), 9–34.
- Klotz, R.J., 2004. *The Politics of Internet Communication*. Lanham, MD: Rowman & Littlefield.
- Koetzle, W., 1998. The Impact of Constituency Diversity upon the Competitiveness of US House Elections, 1962–96. *Legislative Studies Quarterly*, 23 (4), 561–573.
- Krebs, T.B., 1998. The Determinants of Candidates Vote Share and the Advantages of Incumbency in City Council Elections. *American Journal of Political Science*, 42 (3), 921–935.
- Levitt, S.D. and Wolfram, C.D., 1997. Decomposing the Sources of Incumbency Advantage in the U.S. House. *Legislative Studies Quarterly*, 22 (1), 45–60.
- Little, R.J.A. and Rubin, D.B., 1987. *Statistical Analysis with Missing Data*. New York: John Wiley.
- Lusoli, W., 2005. A Second-order Medium? The Internet as a Source of Electoral Information in 25 European Countries. *Information Polity*, 10 (3/4), 247–265.
- Lusoli, W. and Ward, J., 2005. Politics Makes Strange Bedfellows: The Internet in the 2004 European Parliament Election. *The Harvard International Journal of Press/Politics*, 10 (4), 71–97.
- Margolis, M. and Resnick, D., 2000. *Politics as Usual: The Cyberspace Revolution*. London: Sage.
- McLachlan, G.J. and Krishnan, T., 1997. *The EM Algorithm and Extensions*. New York: John Wiley.
- Memmott, M. and Lawrence, J., 2008. Yes We Can has Topped 3.7M Views. *USA Today*, 6 February.
- Morris, D., 1999. *Vote.com: How Big-Money Lobbyists and the Media are Losing Their Influence, and the Internet is Giving Power Back to the People*. Los Angeles, CA: Renaissance Books.
- Mossberger, K., Tolbert, C.J., and Stansbury, M., 2003. *Virtual Inequality: Beyond the Digital Divide*. Washington, DC: Georgetown University Press.
- Norris, P., 2001. *Digital Divide. Civic Engagement, Information Poverty and the Internet World-wide*. Cambridge: Cambridge University Press.
- Petrocik, J.R. and Desposato, S.W., 2004. Incumbency and Short-Term Influences on Voters. *Political Research Quarterly*, 57 (3), 363–373.
- Putnam, R.D., 1995. Bowling Alone: Americas Declining Social Capital. *Journal of Democracy*, 6 (1), 65–78.
- Rich, F., 2008. Next Up for the Democrats: Civil War. *New York Times*, 10 February.
- Riker, W.H. and Ordeshook, P.C., 1968. A Theory of the Calculus of Voting. *American Political Science Review*, 62 (1), 25–42.
- Riker, W.H. and Ordeshook, P.C., 1973. *An Introduction to Positive Political Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Sabatier, P., 1992. Interest Group Membership and Organization: Multiple Theories. In: M. Petracca, ed. *The Politics of Interest*. Boulder, CO: Westview Press, 99–129.
- Saco, D., 2002. *Cybering Democracy: Public Space and the Internet, Electronic Mediations*. Minneapolis, MN: University of Minnesota Press.
- Salant, J.D., 2000. Bush Campaign Last in Internet Fund-Raising. *Associated Press*, 5 February.
- Schafer, J.L., 1997. *Analysis of Incomplete Multivariate Data*. New York: Chapman and Hall.
- Schneider, S. and Foot, K., 2002. Online Structure for Political Action: Exploring Presidential Campaign Websites from the 2000 Presidential Election. *Javnost/The Public*, 9 (2), 43–60.
- Selnow, G.W., 1998. *Electronic Whistle-Stops: The Impact of the Internet on American Politics, Praeger Series in Political Communication*. Westport, CT: Praeger.
- Shapiro, A.L., 1999. *The Control Revolution: How the Internet is Putting Individuals in Charge and Changing the World We Know*. New York: Public Affairs.
- Smith, S.A., 1994. *Bill Clinton on Stump, State, and Stage: The Rhetorical Road to the White House*. Fayetteville, AR: University of Arkansas Press.
- Solop, F.I., 2001. Digital Democracy comes of Age: Internet Voting and the 2000 Arizona Democratic Primary Election. *Political Science and Politics*, 34 (2), 289–293.
- Squire, P., 1989. Challengers in US Senate Elections. *Legislative Studies Quarterly*, 14 (4), 531–537.

- Stromer-Galley, J., 2000. Democratizing Democracy: Strong Democracy, US Political Campaigns and the Internet. In: P. Ferdinand, ed. *The Internet, Democracy and Democratization*. London: Frank Cass.
- Tewksbury, D.H., 2003. What do Americans Really Want to Know? Tracking the Behavior of News Readers on the Internet. *Journal of Communication*, 53 (4), 694–710.
- Trippi, J., 2004. *The Revolution Will Not Be Televised: Democracy, the Internet and the Overthrow of Everything*. New York: HarperCollins.
- Tullock, G., 1967. *Toward a Mathematics of Politics*. Ann Arbor, MI: University of Michigan Press.
- United States Department of Commerce. Bureau of Census, 2000. Statistical Abstract of the United States. Washington, DC: Government Printing Office.
- Verba, S., Schlozman, K.L., and Brady, H.E., 1995. *Voice and Equality: Civic Voluntarism in American Politics*. Cambridge, MA: Harvard University Press.
- Ward, S. and Gibson, R., 2003. On-Line and on Message? Candidate Websites in the 2001 General Election. *British Journal of Politics and International Relations*, 5 (2), 188–205.
- Ward, S., Gibson, R., and Lusoli, W., 2003. Online Participation and Mobilization in Britain: Hype, Hope and Reality. *Parliamentary Affairs*, 56 (4), 652–688.
- Welch, S. and Hibbing, J.R., 1997. The Effects of Charges of Corruption on Voting Behavior in Congressional Elections, 1982–1990. *Journal of Politics*, 59 (1), 226–239.
- Wolf, G., 2004. How the Internet Invented Howard Dean. *Wired*, 1 January, 1–4.