 DOES E-GOVERNMENT USE CONTRIBUTE TO CIVIC ENGAGEMENT WITH GOVERNMENT AND COMMUNITY?

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ABSTRACT: Is e-government changing patterns of interaction between citizens and government? Does it support civic engagement by citizens, with government and with each other? After discussing theories of civic engagement and possible links to e-government, we examine different types of e-government use (service users and policy researchers), and the relationships between these types of use on the one hand, with various kinds of civic engagement on the other: contacting through email, offline interactions with government, online participation in public affairs, and online and offline discussion with neighbors regarding community affairs. Using data from a recent national survey from the Pew Internet and American Life Project (December 2009), we find that policy researchers are more likely to engage in all of these activities, both online and offline. Those who use e-government for services, however, are also more likely than non-e-government users to engage in some of these activities. This suggests multiple ways in which e-government may be assisting in the transformation of governance, not only through service delivery but also through more informed and engaged citizenship.

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INTRODUCTION

Does e-government support civic engagement with government and with others in the civic arena? While e-government has multiple goals, including more efficient service delivery, use of government websites may also encourage knowledge and discussion of public issues, both online and offline, and with government officials as well as other citizens. With the growth of e-government to include 80 percent of internet users (Smith 2010) and the greater diversity of online features in recent years (West 2007; Mossberger, Wu, and Jimenez 2010; Holzer and Manoharan 2008), a fresh look at the democratic potential of e-government is warranted.

A number of studies have explored the association between civic engagement and online sources of information such as news. Less is known about the relationship between the information capacity of e-government and various forms of discussion and participation. Therefore, the primary aim of this study is to examine the potential for online government information to contribute to citizen engagement. Existing research on e-government and civic engagement often focuses on the availability of opportunities for citizen input or dialogue on government websites, yet e-government may facilitate informed participation in other arenas as well.
Various definitions of civic engagement abound, but common elements include knowledge of and discussion of public affairs (Norris 2001, 219; Levine 2007; Mossberger, Tolbert, and McNeal 2008, 48; Jennings and Zeitner 2003). E-government may provide new venues for information, enhancing citizen knowledge of government policies, processes, programs, and performance, as well as community issues. This knowledge, in turn, may facilitate communication between citizens and government officials online or offline. This information may also encourage discussion or participation in civil society around policy or community issues, including joining a group online and face-to-face interaction with neighbors.

Information is a key resource for civic engagement (Norris 2001, 219-20).

E-government has a variety of purposes, however, which may not contribute equally to civic engagement. Citizens who use e-government only for information about services may be less likely to be civically engaged than those who look up information about policies and issues online. On the other hand, both models of reform that have been linked to e-government – customer-oriented service delivery and deliberative democracy – have their own visions of more participatory governance, and it is possible that e-government enables interactions around service delivery as well as policy issues.
To explore these issues, we use recent national survey data from the Pew Internet and American Life Project (December 2009; see Smith 2010). After discussing theories of civic engagement and possible links to e-government, we examine different types of e-government use (service users and policy researchers), and the relationships between these types of use on the one hand, with various kinds of civic engagement on the other: contacting through email, offline interactions with government, online participation in public affairs, and online and offline discussion with neighbors regarding community affairs.

Results show that policy researchers are more likely to engage in all of these activities, both online and offline. Those who use e-government for services, however, are also more likely than non-e-government users to engage in some of these activities. While there are some questions about causality in these relationships, there is an association between e-government use and civic engagement that may be supported (if not originally animated) by the information and communication opportunities online. This suggests multiple ways in which e-government may be assisting in the transformation of governance, not only through service delivery but also through more informed and engaged citizenship.
CIVIC ENGAGEMENT AND E-GOVERNMENT

Elements of civic engagement include knowledge of, interest in and discussion of public affairs, as well as participation (McCall 2002; Skocpol 1997; Uslaner and Brown 2005; Mossberger, Tolbert, and McNeal 2008, 48).1 Citizens can be engaged with government through political activities targeted at processes for selecting government officials and influencing their decisions (Verba, Scholzman, and Brady 1995) or in civil society through voluntarism or community affairs (Uslaner and Brown 2005; Zukin et al. 2006, 51).

How is it that e-government might facilitate civic engagement? First, e-government provides opportunities for some forms of participation – mostly contacting officials through email, comment forms on websites, or more recently, through social media such as Facebook and Twitter. More limited in the U.S. are online discussions on government websites rather than one-way feedback (Mossberger, Wu, and Jimenez 2010; Holzer and Manoharan 2008); yet information gathered from government websites may support discussion on non-governmental sites, including blogs or news sites, and websites hosted by interest groups or parties. Online information may encourage citizens to interact with government offline, or at least provide information used in such offline interactions. Similarly, information about policy issues and

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1 Some scholars also add to this political trust or support for the political system (Norris 2001, 217).
community affairs available on government websites might promote discussion and mobilization around these issues with neighbors, both online and offline.

**Information as a Resource for Engagement**

This points to the information capacity of e-government as being a potential resource for acquiring knowledge for engagement and participation. Government websites commonly feature information on government organization and processes, policies and legislation, services, elected officials, and budgets or spending (West 2007; Mossberger, Wu, and Jimenez 2010; Holzer and Manoharan 2008). Promotion of greater transparency has spread from the White House to some local governments through the “open data” movement.\(^2\) Neighborhood information is also customary on local government websites, including neighborhood plans, census data, crime data, information on community organizations and events, and more (Mossberger, Wu and Jimenez 2010).

\(^2\) On the federal level, the Obama administration has posted information online about stimulus spending, and in May 2009, the White House unveiled data.gov to share more than 305,000 data sets and to encourage the formation of an online community around open data sharing (http://fcw.com/articles/2010/11/17/data.gov-communities-open-data.aspx). Local governments, including San Francisco, Portland and New York City are early adopters who have joined this trend (http://freegovinfo.info/node/3122 and http://www.readwriteweb.com/archives/city_of_portland_oregon_officially_backs_open_stru.php); http://www.nyc.gov/html/media/media/PDF/90dayreport.pdf; http://datasf.org.
If civic engagement includes knowledge, interest, discussion, and participation, then information is one of the resources supporting these different aspects of engagement (Verba, Scholzman, and Brady 1995, 3; Norris 2001, 219; Bimber 2003, 200), and the information provided on government websites may act as one ingredient promoting civic engagement.

Research has consistently found a positive relationship between traditional media consumption and civic engagement (Norris 2001, 22; Flanigan and Zingale 1994; Delli Carpini and Keeter 1996; Brians and Wattenberg 1996). Information gathered through new media, including government websites, could be expected to facilitate civic engagement as well. In fact, this may be more likely for online information sources because they lower the cost of information acquisition in a number of ways. Some prior research shows that online news is a better predictor of civic engagement than use of traditional media (Mossberger, Tolbert, and McNeal 2008, 60), and e-government also has many features that lower the costs of information acquisition. These include: round-the-clock availability, searchability (through search engines or searchable data bases), aggregation in portals, and hyperlinking of related websites.

A number of studies have found that Internet use is related to political participation, including offline forms of participation such as voting or volunteering for campaigns (Schlozman et al. 2010, for a recent review). In a meta-analysis of 38 studies, Boulianne (2009) observes that the effects of Internet use on political participation are positive, but modest.
Studies that examine the use of online news (rather than Internet use more generally) tend to find larger effects. One explanation for this may be that unlike Internet use in general, online news is more clearly a relevant source of information on civic affairs. This may apply to e-government as well.

**Motivation and Types of E-Government Use**

Information, alone, however, is insufficient to promote involvement in public affairs – motivation or interest are required as well (Boulianne 2009; Norris 2001, 22; Verba, Scholzman, and Brady 1995, 3). Interest in politics or public affairs may in fact mediate or condition any relationship between information use and civic engagement (Xenos and Moy 2007). One way of understanding the role of motivation or interest is to examine whether different uses of e-government affect discussion and participation. Uses and gratification theory predicts that people use the Internet or other media in a variety of ways for a range of ends to satisfy different goals (Althaus and Tewksbury 2000). Thus, theories about the social effects of “new media” must consider more than the attributes of the technology alone. The effects of using the Internet are likely to be dependent on the gratifications individuals seek from media and their resultant media choices. Media studies have demonstrated differential effects on civic engagement for
viewing of different types of television programs and different uses of the Internet (Prior 2005; Shah 1998).

Likewise, the information choices made by e-government users vary. Users may seek information on services, such as checking bus schedules or reading instructions for filing taxes online. Use may also be related to policy issues, such as watching videos of city council meetings, scrutinizing public budgets online, or checking the White House web site on spending for the stimulus program. The impact of digital government on civic engagement may differ for those who use service information compared to those who use policy-related information. The latter suggests more interest in public affairs. However, it is also plausible that e-government service use may also be related to some forms of participation. How is it that these different types of e-government information might contribute to civic engagement?

E-government has been associated with two types of government reform, each with its own version of citizen participation – as customer-centric government and as deliberative democracy. The customer model of e-government is rooted in the “reinvention” and “new public management” reforms prevalent during the development of e-government in the 1990s (Fountain 2001; Chadwick 2006, 180, 182). This “post-bureaucratic paradigm” (Barzelay and Armajani 1992) encourages active engagement in an effort to construct more customer-oriented
government. Other participatory models, concerned with democratic participation, transparency, and accountability are focused on collective goods or public policy. While public services may be involved, the model is not one of an individual consumer petitioning for service, but of citizens making collective choices on services as well as other policies. For example, policy-driven e-government users may be interested in how much should be budgeted for repaving of roads, and what educational services should be prioritized. Information search and participation around policy issues may involve individuals with higher levels of political interest, typically associated with civic engagement (McCoy 2002; Wright and Street 2007; Fishkin and Laslett 2003; Gutmann and Thompson 2004).

Only a few studies have investigated the potential linkages between the use of e-government websites and measures of civic engagement or participation either online or offline. One study of respondents in New Zealand and Australia found that similar factors predicted e-government use and voting (Goldfinch, Gauld, and Herbison 2009). Using a web survey with a non-random sample, Kang and Gearhart (2010) found that use of city websites for both practical services and direct democracy were significantly associated with offline participation such as voting or attending meetings. The findings from the web survey are suggestive, but need to be tested further with a representative sample that allows for greater generalization, including comparisons with those who don’t use e-government at all, as we do in this research. The Pew
survey analyzed here also allows us to examine a wider range of activities both online and offline than in previous studies, including online and offline interaction with government officials, online participation on policy issues, and online and offline interaction with neighbors. Additionally, we compare the effects of e-government use for services only with use for online policy research, rather than assuming that all e-government use is the same.

**E-Government Use and Arenas of Engagement**

Information about government services and policy could contribute to civic engagement in different venues, with varied forms of engagement. One type of participation is citizen-initiated contact with government officials, both online and offline. Much citizen-initiated contact is service-related, and it differs from other forms of political participation insofar as it is less likely to be associated with higher income and education than more politically-oriented forms of participation, such as voting (Thomas and Melkers 1999; Bimber 1999). But, it is possible that the political interest inherent in policy research is important for taking the initiative to interact with government officials. In his comparison of online and offline contacting, Bimber (1999) found that both were positively related to political connectedness, and in a study of Georgia respondents, researchers found that more partisan and ideological respondents were more likely to engage in contacting through government websites (Thomas and Streib 2005).
Given the previous research, we expect that both service users and policy researchers are more likely to contact government officials online or offline, in comparison with those who don’t use e-government.

We expect that policy researchers are more likely than service users and non-users to participate online around government or policy issues, commenting in online town hall meetings, joining groups, or posting comments on blogs, whether on government or non-governmental websites. Because policy researchers have higher levels of political interest, they could be expected to participate more around policy issues online.

The literature on civic engagement and social capital has often focused on the significance of local democracy, especially face-to-face interactions among citizens, and the potential for participation at the neighborhood level (Berry, Portney, and Thomson 1993; Putnam 2000; Horak and Blokland Forthcoming) Local government websites offer information on neighborhoods as well as on a variety of programs and policies that affect neighborhoods. Because the Pew survey questions about interactions with neighbors focused on community issues rather than services, it is likely that more issue-oriented policy researchers will be engaged with neighbors both online and offline.
In the next section, we examine the differences between service users, policy researchers, and non-users in a variety of venues for online and offline engagement. We hypothesize that:

**H1**: E-government service users are more likely to engage with government online or offline but are no more likely to participate in policy issues online, or to discuss community issues with neighbors, either online or offline.

**H2**: E-government policy researchers are more likely to be engaged both online and offline with government and are more likely to be engaged in all five measures of online and offline engagement.

**DATA AND METHODS**

The data used in this study come from a December 2009 Pew Internet and American Life survey, which includes questions about internet use on government and non-government sites, and online and offline interaction with government or with neighbors (Smith 2010). The random-digital dialed survey was administered via landline telephone and cell phone to a national sample of 2,258 adults, age 18 and older, between November 30 and December 27, 2009. Interviews were conducted in both English (n=2,197) and Spanish (n=61). The response rate for the landline telephone survey was 19.5 percent while the response rate for the cellular sample was 18.8 percent. (See Smith (2010) for additional details about the survey approach).
The primary interest of this study is to determine whether e-government use facilitates citizen engagement online and offline. The hypotheses state that use of e-government for services or policy leads to increased civic engagement, with some differences across venues for the two types of e-government users. The dependent variables in the five models examined here measure five different types of engagement or participation. *Online interaction with government* is based on whether respondents have ever sent email to their local, state, or federal government.

*Offline interaction with government* is a count of the different ways in which the respondent has interacted with government offline including letter, phone, or face-to-face interaction with a government office or agency in the past 12 months, and ranges from 0 to 3. *Online participation* is measured as a count of activities using the Internet in the last 12 months: participating in an online town hall meeting, posting comments to a blog or other online forum about a policy or public issue, uploading media about a government policy or public issue, and joining a group online that tries to influence government policies; values range from 0 to 4. *Online interaction with neighbors* is a count of the types of Internet mediated- interactions conducted in the past 12 months, including exchanging email, reading a blog dealing with community issues, joining an online group focused on community issues on a social networking site, and following your neighbors on Twitter or another status update service and ranges from 0 to 4. *Offline interaction*
*with neighbors* is a count of whether the respondent talked face-to-face or by phone with neighbors about community issues, and ranges from 0 to 2.

Logistic regression was used for the first dependent variable, *online interaction with government* because it is a dichotomous variable. Because the remaining four dependent variables are count variables, we use negative binomial estimation to test the two primary hypotheses. Negative binomial regression models are allowed to deal with these over-dispersed or under-dispersed count variables (Hilbe 2007). To alleviate dispersion problems, this study first employs negative binomial regression models with Maximum Likelihood method to estimate dispersion parameters and then inputs the parameters into negative binomial regression models of the generalized linear model (Hilbe 2007).

**Independent Variables**

We employ two primary explanatory (independent) variables in our model. First, we identify *Service Users* as respondents who visited a web site of a government or government agency and performed any of a series of interactions related to government services including (1) renewed a driver’s license or auto registration; (2) applied for a fishing, hunting or other recreational license; (3) paid a fine, such as a parking ticket; (4) downloaded government forms; (5) looked up what services a government agency provides; (6) gotten advice or information.
from a government agency about a health or safety issue; (7) gotten recreational or tourist
information from a government agency; (8) gotten information about or applied for government
benefits; (9) gotten information about how to apply for a government job. Service users are those
who have used e-government only for services, and are coded 1 if they meet this criterion, and 0
otherwise.

The second primary explanatory variable in our model, Policy Researcher, measures
whether the respondent visited a government website and conducted at least one policy-related
activity including: (1) looked for information about a public policy or issue of interest to you; (2)
researched official government documents or statistics; (3) followed or become a fan of a
government agency or official through their page on a social networking site; (4) read the blog of
a government agency or official; (5) signed up to receive email alerts from a government agency
or official; (6) watched a video online on a government website; (7) followed a government
agency or official on Twitter; (8) visited a site that provides access to government data, like
data.gov or recovery.gov or usaspending.gov; (9) looked for information on who contributes to
the campaigns of your elected officials; (10) downloaded or read the text of any legislation; and
(11) looked to see how money from the recent federal government stimulus package is being
spent. Policy researchers are coded 1 if the respondent used the government website to perform any of the listed activities and 0 otherwise\(^3\).

**Control Variables**

To assess whether e-government use increases civic engagement or participation, it is necessary to control for other factors that may be related to online and offline engagement.

**Intensity of Internet Use.** Because the dependent variables in three of the models are measures of online activity, the intensity of Internet use represents one set of potential influences. The demands for participating online (primarily Internet skills and connectivity), differ from offline participation, which often requires skills in organizing meetings, speaking, etc. (Best and Krueger 2005). Previous research has shown that time spent online and high-speed broadband access are both related to a greater range of activities on the Internet, including politics online (Horrigan and Rainie 2002; Howard, Rainie, and Jones 2001). Home Internet access is important, because it allows users the privacy and autonomy to become familiar with the Internet, to gain skills, and to engage in more demanding human capital enhancing activities, including civic engagement (Hargittai and Hinnant 2008; Hassani 2006). Beyond home access,

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\(^3\) In analysis not shown here, we regressed the independent variables against a dichotomous form of these count variables (i.e. user engaged in at least one of the listed activities) which produced similar results. We chose to use the models with the dichotomous variables in order to better show the magnitude of differences (IRR).
however, use of information technology in multiple settings is even more strongly related to human capital uses online (Hassani 2006). To control for time spent online, we measure the frequency of Internet use at home and the frequency of Internet use at work using a four-point scale ranging from “never” to “several times per day.” Dummy variables for mobile phone user and home dial-up user are included to control for possible effects for online participation, in particular.

**Political Factors.** Some scholars define trust in government as a necessary component of civic engagement (Norris 2001, 217; Nye 1997), although there are disagreements on this issue, with some studies finding that those with lower levels of trust in government are more likely to participate (Goldfinch, Gauld and Herbison 2009). Despite this debate, those who have some basic level of trust might be more likely to invest time to interact with officials, to participate online, and to engage with their neighbors on public affairs. Trust may lead to greater expectations that discussion and participation will make a difference. Trust in government was operationalized with the survey question “How much of the time do you think you can trust federal government?” Responses range from 0 (“never”) to 3 (“always”) with higher levels indicated increased trust in government. Identical question wording was used for state and local government questions, substituting the word “federal” with either “state” or “local.” Trust in local government may be especially important for interaction with neighbors on community
issues. Additional political variables included in the analysis measure ideology, partisanship and whether the respondent is a government employee. Dummy variables for liberal, government employee, Republican, and Democrat were coded 1 and 0 otherwise. For partisanship, those without a strong political affiliation – Independents – were the reference category. Those who are more partisan or ideological could be expected to participate more whether online or offline. Government employees may have incentives to be politically active on issues affecting them or their agencies, or may be more interested in public affairs more generally as part of their public service motivation (Crewson 1997; Perry 1996). There is no measure of political interest in the Pew data, so we cannot control for this directly. The category of policy researcher may indicate higher levels of interest in politics and policy than service use only.

**Education, Income and Age.** Socio-economic variables, especially education, are among the most important predictors of political participation, whether online or offline. Education is an important factor in attention to politics on the Internet, just as it is strongly associated with voting and other forms of offline participation (Schlozman et al. 2010; Best and Krueger 2005). Income is also a common determinant for political or policy involvement as well. We expect that income and education will be positively associated with online and offline interaction with government and with neighbors. Education was measured by on a five-point scale from 1 (less than High School) to 5 (graduate degree). Income refers to respondents’ reported total family
income from all sources before taxes in year of 2008 and was measured on an five-point scale from 1 (less than $10,000) to 5 ($100,000 or more).

Political engagement and participation traditionally increase with age (Campbell et al. 1960; Wolfinger and Rosenstone 1980), but young people are consistently more likely to participate online in a range of political activities because they are most likely to be online frequently (Bimber 2003; Mossberger, Tolbert, and McNeal 2008; Best and Krueger 2005; Krueger 2002). The relationship between online political participation and age is in fact curvilinear. While online participation is higher among the young than offline participation, engagement in politics online increases up through about age 60, and thereafter declines (Schlozman et al. 2010). We expect that younger respondents will be among those who participate online, but not offline, and that older individuals will be more engaged offline. We use three dummy variables to measure age: 18-29, 30-64, and 65 and over. The category 30-64 was the reference category.

**Other Demographic Variables.** Other control variables included are gender, race, ethnicity, and rural residence. Dummy variables for male, African-American, Hispanic, and rural residence were coded 1 and 0 otherwise. Reference groups were females for gender, whites for race, non-Hispanics for ethnicity, and non-rural residents for geographic location. Some studies
have concluded that men are more interested in Internet politics, including online discussion and contacting of officials (Gibson, Lusoli, and Ward 2005; Mossberger, Tolbert, and Stansbury 2003). Other research has found that women are slightly more likely to participate online than offline when differences in Internet skills are taken into account (Best and Krueger 2005). African-Americans are somewhat less likely to participate online, controlling for Internet skills and other influences on participation (Best and Krueger 2005). Latinos, as a group, have the lowest rates of Internet use and so are less likely to have the experience and access needed for online participation (NTIA 2011). Rural residents may find it more difficult to communicate with distant governments or neighbors offline. Whether or not they are therefore more likely to engage in politics online is an interesting question, but unclear given somewhat lower rates of technology use in rural areas (NTIA 2011).

**Findings**

Table 1 reports the descriptive statistics and rank correlations among the variables used in the estimations. We first note that 14% of respondents are services only e-government users and 49% engaged in at least one policy research-related activity on a government website. This means the remaining 37% of respondents did not conduct any of the service and policy research related transactions studied. Second, the standard deviations of the four count dependent
variables – online participation, offline interaction with government, online interaction with neighbors and offline interaction with neighbors – greatly exceed its mean, which indicates over dispersion and validates the regression method used. Finally, correlations are generally modest.

The results from the five models, including the four negative binomial regressions show expected differences between service users and policy researchers across types of civic engagement (see Table 2). As hypothesized, policy researchers are significantly more likely to be involved in all five types of engagement or participation – online and offline interaction with government, online participation, and online and offline interaction with neighbors. Based on the incidence rate ratios (IRR), policy research is the most important predictor of all five dependent variables. As such, our findings are consistent with the research on online information use (such as online news), and are particularly robust across a broad range of activities online and offline, including civic engagement with neighbors. The combination of policy information (and likely motivation) predicts higher rates of engagement in multiple ways.

Service users are also more civically engaged and to a greater extent than we expected. We hypothesized that service users would be more likely than those who do not use e-government to interact with government officials both online and offline (possibly about service delivery concerns). But, we believed they would be less likely to participate online more
generally, on government and non-governmental websites, and also to be less likely to be engaged on community issues with neighbors. Compared to non-e-government users, we found that service users are more likely than non-e-government users to email agencies or officials, and to interact with government offline, as we hypothesized. Service users are also significantly more likely than those who do not use e-government to participate online more generally in public affairs, which we did not expect. Still, the relationships between service use and online participation are not as strong as the association between policy research and these forms of participation. Additionally, the size of the effect (IRR) for service use on online and offline interaction with government and online participation are not as large as for policy researchers. As expected, service use is not a significant predictor for interaction on community issues with neighbors whether online or offline.

Looking at the size of the association (I.R.R) for service users and policy researcher across the five models, we find that policy researchers are much more likely than service users to engage in online interaction with government officials and in online participation, relative to service users. Whereas the size of the association of service users and policy researchers is much more equal in the models predicting offline interaction with government and online and offline interaction with neighbors.
The control variables are generally as expected. Online engagement is somewhat less
determined by traditional predictors of civic engagement, as Best and Krueger (2005) found.

Education is significant and positive for most types of engagement, although the relationship is
stronger for offline forms of participation. It is not a significant predictor of online interaction
with neighbors. Income is associated with both types of interactions with neighbors, but not
other forms of participation.

African-Americans are less likely to interact with government officials offline, but are
more likely to engage with neighbors online. Race is often associated with lower levels of
participation (Leighley and Vedlitz 1999) so the findings about online civic engagement with
neighbors is an intriguing one.

Age was associated with engagement mostly in predicted ways, with younger respondents
(ages 18-29) less likely to interact with either government or neighbors offline, while those in the
oldest age group (age 65+), were significantly more likely to interact with neighbors offline.

Younger respondents also had a lower probability of emailing public officials, although some
early studies showed that younger individuals were more likely to contact officials through email
(Bimber 1999). Men were less likely to communicate with neighbors online than women. Most
of the political variables were not significant. Trust in the federal government was negatively
associated with some models of engagement (offline interaction with neighbors and email).

Overall, however, trust did not play a major role in explaining participation. Home Internet use was negatively related to offline interaction with government, and positively associated with online interaction with neighbors. Most of the Internet variables were positively related to email contacting, except broadband, which was not significant. The results for the control variables generally support previous findings on these variables and online and offline engagement.

**CONCLUSION: E-GOVERNMENT AS A FACILITATOR OF CIVIC ENGAGEMENT**

The purpose of this study was to understand whether e-government supports civic engagement with government and with others in the civic arena. Our main research question was whether government website use encourages knowledge and discussion of public issues, both online and offline, and with government officials as well as other citizens. Further, however, we disaggregated prevalent types of e-government use – for services and for policy research – and tested for differential impacts. Consistent with previous research on civic engagement, we conceptualized e-government use as influencing resources for participation, but dependent upon motivation (Norris 2001; Verba, Schlozman and Brady 1995; Xenos and Brady 2007; Bimber 2003). E-government information, we hypothesized, contributes to civic engagement. As there are different types of information on government websites, however, and
users have different motivations for visiting these sites, we expected that service users would be more likely engage in contacting with government officials online or offline, in modes of participation that reflect the customer service model of e-government. Consistent with higher interest in policy and politics, we hypothesized that policy researchers would be more engaged in all ways.

These expectations were mostly borne out by the evidence here, although service use had some positive effects that were unanticipated. There is indeed a strong and consistent relationship between policy research and all forms of online and offline engagement, and this mattered more than any other factors predicting engagement. Service use does predict a greater likelihood of contacting government officials offline and online. It is also associated with a higher probability of participating online on policy issues, in comparison with those who have not used e-government at all. The difference that service use makes for online participation, controlling for other factors, is not nearly as pronounced as policy research. But, the results for online participation suggest that some variables not directly measured here may be important to examine in future research. For example, service users may not be entirely uninterested in policy or politics, but may have more modest levels of political interest. We were not able to control for political interest here except through the assumption that it is higher for those who research policy online.
One particular contribution of this study is the finding that use of e-government is not only associated with greater interaction with government, but also citizen participation online, and online and offline engagement around neighborhood issues. In other words, e-government use is associated more generally with civic engagement and political participation, in a variety of settings. From this cross-sectional research, however, we are unable to determine whether e-government causes greater civic engagement. Indeed, given the strength of the association between policy research and participation, it may be that those who are already most interested and informed are more likely to use digital government to support their civic engagement. Yet, e-government may facilitate some types of participation even among those who are more modestly interested in public affairs.

Digital government has been at the center of government reforms that envision improved customer service and more robust citizenship. The evidence here suggests across a range of activities both online and offline that the information capacity of e-government may indeed be affecting the possibilities for government interaction with citizens and other forms of civic engagement.
REFERENCES


Table 1: Descriptive Statistics and Kendall’s Correlations

| # | VARIABLES                                      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  |
|---|------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | Service User Only                              | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2 | Policy Researcher                              | -.44| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3 | Online Interaction with Government            | -.14| .45 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 4 | Offline Interaction with Government           | -.07| .30 | .33 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 5 | Online Participation                          | -.15| .40 | .39 | .26 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 6 | Online Interaction with Neighbor              | -.09| .36 | .30 | .19 | .37 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 7 | Offline Interaction with Neighbor             | -.07| .20 | .20 | .24 | .14 | .27 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 8 | Use Internet at Home                          | .09 | .52 | .33 | .17 | .28 | .30 | .10 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 9 | Use Internet at Work                          | -.02| .39 | .26 | .14 | .23 | .18 | .07 | .39 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 10| Mobile phone User                             | .00 | .28 | .10 | .08 | .15 | .17 | .00 | .32 | .24 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 11| Home Dial-up                                  | .03 | -.01|.03 | -.03|.02 | -.01|.02 | -.01| -.04| -.05| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 12| Trust in Federal Government                   | -.03| .03 | .00 | -.03| -.01| .00 | -.10| .05 | .09 | .04 | -.01| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 13| Trust in State Government                     | -.01| .05 | .03 | -.04| .00 | -.02| -.05| .07 | .07 | .04 | .01 | .49 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 14| Trust in Local Government                     | -.07| .09 | .04 | -.01| .03 | .05 | -.01| .07 | .08 | .04 | -.03| .41 | .52 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 15| Liberal                                      | -.01| .05 | .01 | -.01| .06 | -.03| -.03| .06 | .09 | .06 | -.04| .18 | .07 | .03 | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |
| 16| Republican                                   | .05 | .03 | .03 | -.01| .02 | .03 | .03 | .01 | .00 | .00 | -.01| -.12| .00 | .04 | -.33| 1.00|     |     |     |     |     |     |     |     |     |     |
| 17| Democrat                                      | -.03| .04 | .00 | -.02| .00 | -.06| -.05| -.06| .00 | .01 | .02 | .17 | .08 | .01 | .28 | .48 | 1.00|     |     |     |     |     |     |     |     |     |
| 18| Government Employment                         | -.01| .12 | .09 | .08 | .04 | .05 | .03 | .06 | .21 | .07 | -.01| .03 | .01 | .03 | .01 | .01 | .00 | 1.00|     |     |     |     |     |     |     |     |
| 19| Age 18-29                                     | .07 | .09 | .09 | .05 | .05 | .08 | -.18| .17 | .08 | .28 | -.02| .07 | .06 | .02 | .14 | -.03| -.01| .03 | 1.00|     |     |     |     |     |     |     |
| 20| Age 65+                                       | -.11| -.23| -.10| -.06| -.10| -.11| .04 | -.28| -.32| -.25| .00 | -.05| .01 | .05 | -.08| .06 | .01 | -.13| -.22| 1.00|     |     |     |     |     |     |
| 21| Male                                         | -.03| -.03| .01 | -.02| .02 | -.01| .00 | .03 | .03 | .07 | -.02| -.01| .00 | .06 | -.08| .01 | -.08| .01 | .02 | -.05| 1.00|     |     |     |     |     |
| 22| Education                                    | -.02| .37 | .32 | .23 | .12 | .19 | .18 | .35 | .32 | .13 | -.05| .07 | .06 | .10 | .07 | .05 | .05 | .11 | .09 | -.09| -.03| 1.00|     |     |     |
| 23| Income                                       | .00 | .32 | .23 | .15 | .17 | .19 | .18 | .32 | .33 | .18 | -.07| -.02| .01 | .07 | -.06| .12 | -.10| .16 | -.13| -.16| -.11| .38 | 1.00|     |
| 24| African-American                             | .00 | .09 | .09 | .08 | .07 | -.03| -.06| .10 | -.04| .08 | .08 | .00 | -.08| .05 | .19 | .25 | .02 | .06 | .09 | .00 | -.13| -.16| 1.00|     |
| 25| Hispanic                                     | .00 | .05 | .08 | -.05| -.06| -.02| -.11| -.05| .00 | .09 | .03 | .06 | .04 | .03 | .10 | -.08| .06 | .03 | .17 | -.11| .03 | -.12| -.08| 1.00|     |
| 26| Rural                                        | .00 | -.07| -.05| -.02| -.04| -.05| -.02| -.10| -.10| -.09| .10 | -.03| .02 | .06 | -.09| .05 | -.04| .02 | -.03| .04 | -.03| -.07| -.08| 1.00|     |

Observations: 2258
Mean: 0.14 0.49 0.24 0.77 0.74 0.24 0.26 0.76 1.78 0.96 0.22 0.07 1.16 1.26 1.39 2.75 0.24 0.40 0.11 0.15 0.25 0.44 2.99 3.20 0.12 0.09 0.21
Standard deviation: 0.34 0.5 0.42 0.95 0.62 0.59 0.79 1.28 1.35 0.41 0.26 0.75 0.75 0.79 0.99 0.43 0.49 0.32 0.36 0.43 0.5 1.2 1.21 0.33 0.29 0.41

* Tau-b correlation greater than .04 are significant at P<.1
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<tr>
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<th>Online Interaction with Government Officials&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Offline Interaction with Government&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Online Participation&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Online Interaction with Neighbor&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Offline Interaction with Neighbor&lt;sup&gt;b&lt;/sup&gt;</th>
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(Wald chi² (21) = 272.4)
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<td>-857.3</td>
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<td>1617</td>
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+P<.1, *P<.05, **P<.01, ***P<.001; I.R.R.: Incidence-Rate Ratio
a: logistic regression; b: negative binomial regression