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The Consequences of the Internet for Politics

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Annu. Rev. Polit. Sci. 2012. 15:35–52

First published online as a Review in Advance on March 8, 2012

The *Annual Review of Political Science* is online at polisci.annualreviews.org

This article's doi:
10.1146/annurev-polisci-030810-110815

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1094-2939/12/0615-0035\$20.00

Keywords

homophily, polarization, Arab Spring, information technology, preference falsification, information cascades

Abstract

Political scientists are only now beginning to come to terms with the importance of the Internet to politics. The most promising way to study the Internet is to look at the role that causal mechanisms such as the lowering of transaction costs, homophilous sorting, and preference falsification play in intermediating between specific aspects of the Internet and political outcomes. This will allow scholars to disentangle the relevant causal relationships and contribute to important present debates over whether the Internet exacerbates polarization in the United States, and whether social media helped pave the way toward the Arab Spring uprisings of 2011. Over time, ever fewer political scientists are likely to study the Internet as such, as it becomes more and more a part of everyday political life. However, integrating the Internet's effects with present debates over politics, and taking proper advantage of the extraordinary data that it can provide, requires good causal arguments and attention to their underlying mechanisms.

INTRODUCTION: AGAINST STUDYING THE INTERNET

How should political scientists study the Internet's influence on politics? Political science can surely help improve current public arguments about the Internet, which center around a few very general questions. Does the Internet exacerbate political polarization? Does the Internet empower ordinary citizens vis-à-vis political elites? Can the Internet help activists to topple dictators?

However, political science has paid little attention to the Internet until quite recently. This is changing. Scholars are beginning to uncover specific ways in which the Internet may affect politics, and to explore these relationships using both qualitative and quantitative data.

Thinking about the Internet in this way has some important implications. First—and most significantly—it suggests that one should not study the Internet as such. Instead, one should disaggregate it into more discrete phenomena, allowing scholars to ask research questions that they have some hope, however faint, of answering. One might do this in various ways. For example, different Internet-based technologies have different architectures, encouraging or discouraging different kinds of behavior (Lessig 1999). Thus, for example, one might plausibly study differences in linking practices across blogs, Twitter, and Facebook, exploring how variations in architecture and other factors lead to different outcomes. One could build on this to compare the consequences of these technologies with other means of communication, e.g., by comparing the diffusive force of audio-cassettes in the Iranian revolution and specific social media in the Arab Spring (Ritter & Trechsel 2011). Finally, one could begin to make clearer arguments about interactions between the Internet and other media where such media are important.

In this review, I take a different approach. Adapting Przeworski & Teune's (1970) prescription for good social science, I argue that we should stop thinking about the "Internet" as a proper name, and instead start thinking of it as a bundle of mechanisms that we can in principle disentangle from each other. Doing this will also allow us to think systematically about how politics is likely to change as the Internet becomes ever more assimilated into everyday political activity. It will hence allow us to take advantage of a plethora of new data. If personal interactions on the Internet can be systematically captured in a way that off-line transactions cannot, then we can for the first time begin to observe or make reasonable inferences about, e.g., informal communication flows, the dissemination of ideas across different social groups, and the actual network structures underlying communication.

CHANGING DEBATES OVER THE INTERNET AND POLITICS

Debate over the political consequences of the Internet began not among political scientists but among activists, politicians, and law professors. As the Internet began to change during the 1990s from an obscure network connecting universities and research institutions, it became embroiled in arguments about the role of the state. Johnson & Post (1995) claimed that traditional law was inappropriate to govern the Internet because the Internet was not bound by physical sovereignty. Swire (1998) and Froomkin (1997) argued that the Internet provided private actors with new opportunities vis-à-vis states. Other legal academics, such as Jack Goldsmith (1998), argued that the Internet presented no challenges to state sovereignty that could not be resolved through traditional legal principles such as conflict of law, whereas Kalathil & Boas (2003) claimed that the Internet helped authoritarian regimes rather than harming them.

Some writers explored broader questions about the Internet's social consequences. Negroponte (1995) predicted that the Internet would lead to a world with much less social cohesion, as individuals stopped consuming mass-produced information from newspapers and televisions, instead reading personalized information sources (what he called the "Daily Me").

This claim suggested that the Internet might lead to greater political polarization and extremism (DiMaggio et al. 2001).

Political science played a remarkably modest role in these early arguments. Only a few political scientists (e.g., Bimber 1998) were interested in the topic. The slack was taken up by legal academics. Lessig's (1999) *Code and Other Laws of Cyberspace* was intended as a corrective to libertarian accounts of the Internet. Lessig argued that software code, like laws, provided a set of rules that shaped individual behavior. Hence, he suggested, major features of code should be subject to the same kinds of collective and democratically mandated decision making as are major laws.

A second wave of literature began in the mid-2000s. As US politicians began to move beyond simple campaign websites and the like (Gibson & Ward 2000, Bimber & Davis 2003) and use the Internet actively to raise money and organize supporters, Americanist political scientists began to pay more attention to it. The surprise insurgent campaign of Howard Dean in 2004 highlighted the importance of social media (Hindman 2005, Johnson 2005) in paving the way for the 2008 campaign, in which Barack Obama successfully married traditional campaigning structures with a highly successful, online organizing and fundraising operation (Wilcox 2008).

Questions about new models of fundraising and organization went hand in hand with inquiry into citizen engagement. Putnam (2001) and Skocpol (2004) raised important questions about the decline of civic engagement in American political life. Although Putnam considered the Internet only in passing, his ideas helped inspire Scott Heiferman to found MeetUp, which played a key role in organizing both the 2004 Howard Dean campaign and the Tea Party (Clay Shirky, personal communication). Norris and her colleagues further worried that a digital divide might develop between those who had sufficient skills to master these new technologies and use them to participate in politics and those who did not (Norris 2001; for more recent arguments, see DiMaggio et al. 2004, Hargittai & Shafer 2006, Schlozman et al. 2010). This debate spilled out into wider arguments about economic development (Boas et al. 2005) but also took on a new significance in the United States and other advanced, industrialized democracies as blogs and related forms of communication (e.g., Twitter, YouTube, and Facebook) began to allow individuals to communicate with large numbers of people, at little or no cost.

Some (especially bloggers themselves) argued that this dramatic increase in ease of access would lead to the unseating of traditional elites and the democratization of public debate. Others (Shirky 2003, Farrell & Drezner 2008) pointed out that the distribution of blogs' hyperlinks and readership numbers was heavily skewed, so that a small number of elite blogs received the most attention. As Hindman (2010) has pointed out, the more successful political bloggers also tended overwhelmingly to be white and male with advanced degrees from well-regarded academic institutions. As time has passed, larger blogs and traditional media have started to merge. Even so, community blogs, in which large numbers of like-minded people interact, have some normatively attractive features (Benkler & Shaw 2010).

As the Internet's novelty has diminished, broad debates over the general implications of the Internet for democracy have given rise to a set of more specific inquiries into particular ways in which the Internet might shape politics. It is increasingly possible to break down broad questions (such as the consequences of the Internet for citizenship) into specific lines of inquiry regarding, e.g., effects on political knowledge and political participation and exposure to different opinions (Bimber 2012). A thriving comparative literature is starting to examine how the Internet shapes democratic politics in a variety of national contexts (Gibson et al. 2003, Chadwick 2006, Vaccari 2008, Gibson & McAllister 2011). Furthermore, easier access to good data is transforming the field. Thus, for example, Hindman (2010) is able to use readership data in order to better gauge the political visibility of different online sources. Gentzkow & Shapiro (2010) use a massive dataset to measure the exposure of Americans to ideologically diverse online voices, and Lawrence

et al. (2010) use survey data to identify patterns of blog readership. Although none of these data provide a satisfactory understanding of the causal relations at work, they surely help to eliminate unsubstantiated arguments.

IDENTIFYING CAUSAL MECHANISMS

Even though social scientists are making real progress in understanding the Internet, their impact on public debate is limited. Broader arguments about the Internet are still dominated by public intellectuals (some of whom are excellent, some rather less so), legal academics, and a smattering of sociologists and communications scholars. Some theories from political science indirectly filter through into debates, through legal scholars such as Sunstein who maintain an interest in empirical research, but much is lost. Thus, for example, US public debates about the unrest in Iran in 2009 were dominated by claims for the role of Twitter that were belied both by the available data and by the existing literature on social movements and contentious politics (Aday et al. 2010).

Political scientists can best contribute to these debates by showing how their ideas shed light on major arguments over the relationship between the Internet and politics. In part, this will require changing the questions. For example, the question of whether the Internet helps or hurts democracy has provoked much controversy over the last decade [see, e.g., the disagreement between Shirky (2009) and Morozov (2011a)]. However, it is more or less unanswerable as posed, because it proposes no specific theory as to the connection between the Internet and democracy. Hence, those who believe that the Internet helps democracy can point to one set of relationships, whereas those who believe that it hurts can point to another. Moreover, even those who agree on the broad question may differ dramatically on specifics, depending on which particular theory they adopt. For example, Shirky (2011) argues that policy makers who believe that the Internet helps democracy by lowering the costs of collective action may make a major mistake by pushing to fund democracy activists in nondemocratic countries. Their actions may politicize the Internet so that nondemocratic regimes seek to block access, undermining the possibility that the Internet will build an active civil society and, hence, perhaps forge an alternative path to democratization.

It is here that political science can make an important contribution. Although Shirky does not use academic language, he is clearly arguing that those who assume a simple relationship between new technologies and political outcomes may be making very serious mistakes. Even more sophisticated observers who assume relatively invariant causal relationships may err badly. Instead of positing monocausal relationships, or even more sophisticated predictive explanations, we may be better off focusing on the different mechanisms that might intervene between forms of communication such as the Internet and final political outcomes. Here, our initial ambition is not to predict but to explain. As Jon Elster (2007) describes mechanisms, they are “frequently occurring and easily recognizable causal patterns that are triggered under generally unknown conditions or with indeterminate consequences” (p. 36).

Elster gives the example of children’s exposure to an alcoholic environment—some children may respond by becoming alcoholics themselves, others by eschewing alcohol. Both of these involve mechanisms, and although we cannot easily say in advance which mechanism will pertain in a given circumstance, we can explain *ex post facto* both quite different reactions as being causally linked to the initial condition. The weakness of mechanism-based explanations is that they are indeterminate. Their advantage is that they can help us to identify patterns that at least aid in mapping out the territory of causal relationships by identifying frequently occurring causal patterns and distinguishing them from other such patterns. Looking for mechanisms is furthermore a useful

first step toward finding broader laws—causal relationships that are triggered under more or less predictable conditions.

I look at three families of causal mechanisms that can be teased out of the existing literature. This list is not intended to be exhaustive—there are surely other important mechanisms that could be invoked to explain the relationship between the Internet and politics. For example, it is plausible that Internet-based communication can help provide commonly accepted frames for social movements (Benford & Snow 2000). This can in turn enable the scale shift through which local, isolated protests spur national or international processes of contention (McAdam et al. 2001). There is good reason to believe that social media-enabled framing mechanisms helped spur such a scale shift in the Arab Spring protests (Lynch 2012). It is furthermore highly plausible that such a mechanism has played an important role in nationalizing the Occupy Wall Street movement in the United States in 2011.

Nor, however, is this list arbitrary; taken together, these framing mechanisms can help us understand the consequences of the Internet for politics across quite different areas of interest. In the two succeeding sections, I use them to analyze two major debates over the political consequences of the Internet—arguments over the role of the Internet in facilitating contentious politics in nondemocratic regimes (specifically, the so-called Arab Spring), and arguments over whether the Internet is leading to increased political polarization in the United States (and perhaps elsewhere).

First, there are mechanisms that link the Internet to political outcomes via their consequences for the costs of collective action. If the Internet lowers the costs of certain kinds of collective action by, e.g., making it cheaper to communicate with others, or providing the means for decentralized action, etc., it will make it easier for the affected actors to pursue their goals. Shirky (2009) provides an explicitly Coasean (Coase 1960) version of this thesis. He argues that the Internet means that collective activities that used to require central coordination and hierarchy can now be carried out through much looser forms of coordination. Benkler (2006) identifies this kind of collective coordination as a generalizable form of production, which does not really fit in the traditional dichotomy between market and state.

The possible political benefits of lower transaction costs are clear. However, some writers caution that the lowering of transaction costs may have unexpected long-term consequences, perhaps leading to transactional politics with little long-term loyalty (Schmitt 2003, Ammorio 2005). Morozov (2011a) claims that actors will be motivated to engage in cheap and ineffective but showy forms of politics, such as joining Facebook groups, rather than more expensive or risky forms of collective action. Although he does not provide an explicit theoretical framework as Shirky does, one plausible interpretation of his claim is that the Internet lowers the cost of purely expressive political action more than it does the cost of actual physical protest. Gladwell (2010) argues that the Internet is far more likely to create “weak ties” than the strong ties that social movement theorists argue are the bedrock of costly political action, and hence that the Internet will not have the beneficial impact that Shirky claims.

Second, there are mechanisms that link the Internet to political outcomes via homophilous sorting (McPherson et al. 2001)—the propensity of individuals who are similar on some meaningful dimension to form clusters with each other. There are a variety of ways in which the Internet makes it more likely that individuals with shared views or preferences will cluster together. Again, Benkler (2006) provides a useful description of one mechanism. The Internet makes it far more likely that individuals with unusual interests will find each other, because it vastly expands the searchable set of actors with whom one can meaningfully interact. But homophily may also occur more indirectly. Individuals may, for example, converge around a common source of online information that is attractive given their shared interests and cluster together only as a secondary consequence of this shared interest.

As both Benkler and Shirky observe, homophily may be an important precursor to the kinds of collective action observed above. However, homophily may also plausibly shape individual perceptions and preferences in ways that have nothing to do with transaction costs by reinforcing intergroup boundaries, changing the distribution of social knowledge, and in extreme cases, making problem solving among diverse actors more difficult (Page 2008) while making individuals more certain about their beliefs.

Third, the Internet may make preference falsification (Kuran 1997) less likely. As Timur Kuran argues, individuals will have incentives to conceal their true preferences in a wide variety of social situations. For example, even in mildly authoritarian regimes, people may conceal their preferences for a different social order so as to avoid punishment. This means that people will lack information about others' true preferences and may in turn be reluctant to display their own true preferences. Hence, even if a regime is nearly universally loathed, it may still be relatively secure, as long as it is able to control public expression. Mechanisms closely akin to preference falsification may also work in less dramatic ways in democracies (Kuran 1997, Mutz 2006). Internet-based architectures may make preference falsification harder to maintain by supporting more open communication among individuals at a scale that is difficult for authorities to suppress completely (Tufekci & Wilson 2012).

These mechanisms may interact with each other, but in ways that are partially contingent on circumstances. When people join together in homophilous groupings, this may make collective action more likely. Collective action, in turn, may mean that homophily is more likely to change people's beliefs—when people actively work together, they may become more likely to identify with each other closely. Homophily may also interact with preference falsification. The costs of revealing one's true beliefs are likely to be lower when one associates primarily with others who are likely to share those beliefs. Very obviously, preference falsification may affect the costs of collective action—potential dissidents living in oppressive regimes are less likely to engage in action against the regime when they believe that others support the regime. Under other circumstances, though, reducing the degree of preference falsification may decrease the likelihood of collective action. When people believe that their actions will reveal their political preferences, they may be less likely to engage in these actions if they believe that others disapprove.

Thus, disentangling the ways in which these mechanisms work is a crucial first step toward understanding the empirical consequences of the Internet. In the next two sections, I illustrate this, by first examining how these mechanisms may be brought to bear on debates over whether the Internet is increasing political polarization in the United States, and then considering arguments about the Internet and the spread of democracy to nondemocratic regimes.

IS THE INTERNET HELPING TO POLARIZE AMERICAN POLITICS?

American politics is becoming increasingly polarized between left and right. The causes for this polarization are the topic of vigorous debate (McCarty et al. 2006, Fiorina & Abrams 2008). Although the Internet does not explain polarization (which is a long-standing trend), it may exacerbate it. Sunstein (2002), for example, argues that the Internet, far from heralding a libertarian utopia (Negroponte 1995), will reduce contact between people with dissimilar points of view and increase political polarization. Here, Sunstein relies on experiments showing that people who discuss political issues with others who share their views end up adopting more extreme positions than they had before.

These arguments can usefully be recomposed in terms of the mechanisms described above. Most obviously, Sunstein's major claims invoke arguments about homophily. Sunstein argues that the Internet tends both to bring like-minded people together and to make them more like-minded

than they previously were. However, these arguments also have implications for collective action (Mutz 2006).

The Internet makes it easy for individuals to express their political views. There is emphatic evidence that politically engaged content producers cluster with others who share their political orientation. Adamic & Glance (2005) demonstrate that US political bloggers tend to belong to either a left-leaning or right-leaning cluster and to link overwhelmingly to those who share their political beliefs rather than those on the other side. Hargittai et al. (2008) find similar dynamics among a more select group of bloggers. Conover et al. (2011) show similar clustering on Twitter, at least in retweets (messages written by another Twitter user and reposted, sometimes with comments).

This supports the hypothesis that the Internet encourages clustering among politically active content producers. However, it says little about the consequences of clustering. Sunstein claims both that the Internet encourages like-minded people to find each other and that when they do, they will reinforce each other's beliefs so that they become inward looking and extreme. Although the evidence clearly supports the first claim, it is insufficient to support the second. In part, this reflects fundamental methodological problems in distinguishing between homophily and social influence using standard data (Shalizi & Thomas 2011), and in part, genuine ambiguity in research results. Although Hargittai et al. (2008) find high clustering, they also find that genuine political debate may take place across clusters, and that polarization seems not to increase over time. Conover et al. (2011) find that even if retweets are clustered, instances where one Twitter user is referred to by another in order to attract her attention are not clustered, and that readers of partisan Twitter hashtags are exposed "to content from users on both sides of the political spectrum" (p. 94), although much of this exchange is intended to provoke rather than to persuade (Yardi & boyd 2010).

Related dynamics characterize the mass readership of online political information. Prior (2007) argues that the spread of cable television sorted between those who were interested in politics and tended to move toward strongly partisan news sources and those who were not and moved to channels with no political content. Political independents—who tend to be apathetic—stop consuming political information, so that the tastes of partisans increasingly come to dominate the consumption of political news. Lawrence et al. (2010) find that similar patterns reproduce themselves among consumers of political blogs. Blog readers are more interested in politics, and far more partisan and ideologically coherent in their views than others. They are also ideologically one-sided in their reading habits: Readers of left-wing blogs typically do not read right-wing blogs, and vice versa. However, it is unclear whether this suggests that individuals who were already intensely partisan are more likely to search out skewed information sources or that skewed information sources make people more ideological than they otherwise would be (Bennett & Iyengar 2008, 2010).

Even so, readers of political blogs are almost certainly an unrepresentative and self-selecting minority. At the micro level, Wojcieszak & Mutz (2009) examine online discussion forums and find that individuals are more likely to encounter dissenting political views in nonpolitical online forums than in explicitly political ones. Munson & Resnick (2011) find that nonpolitical blogs account for roughly 25% of political postings. At the macro level, Gentzkow & Shapiro (2010) examine evidence from a large sample and find no evidence to support the Sunstein hypothesis. Instead, both the Internet and traditional media are better at exposing people to dissenting points of view than are offline encounters via personal relationships. Even intense partisans are regularly exposed to other points of view online. "Visitors to the most conservative sites are typically more likely to visit nytimes.com in the same month than the average Internet user or the average visitor to Yahoo! News" (Gentzkow & Shapiro 2010, p. 21).

These results are necessarily fragmentary. There is ample scope for future research. These caveats acknowledged, these results may tentatively suggest that a more diffuse version of Prior's sorting process is taking place. On the one hand, there is a broad population, which includes many partisans but is exposed to a broad variety of online sources with different ideological perspectives. On the other hand, there is a more specific and highly politically aware subgroup that preferentially seeks out partisan information via blogs and other means and is less likely to be exposed to dissenting opinions. Although the latter group is far smaller than the former, it is likely to be more involved in politics, and hence more influential than its size would suggest. The Sunstein hypothesis is more likely to apply to the small group of highly politically aware people who, e.g., read blogs than to the wider population described by Gentzkow & Shapiro (2010). However, there is no easy way to measure the effects of cross-cutting and in-group exposure within either of these populations. It is entirely possible that cross-cutting exposure will do nothing to change the political opinions of, e.g., strong partisans or that the effects of exposure to like-minded people will be limited. More field experiments—that might, e.g., change individuals' browsing patterns and investigate whether this results in changes in attitudes—might help us see whether differential exposure affects political opinions. Micro-level work along the lines of Munson & Resnick (2010), which identifies differences between individuals who prefer information that affirms their initial priors and those who prefer some degree of challenging information, would also help clarify whether different mechanisms apply to different people.

The degree of cross-cutting discussion has implications for collective action. Most simply, it will be easier to organize collective action among like-minded people with a similar view of politics. Indeed, netroots bloggers justify their focus on talking with the like-minded by arguing that they are not interested in engaging in debate to convince others but in organizing effective political action (Lawrence et al. 2010). Yet there may also be more subtle effects. Mutz (2006) posits a trade-off between cross-cutting social contacts and political action. The more that Americans have cross-cutting social connections (e.g., connections with neighbors or friends who identify with a different political party), the less likely they are to engage in political activity. This suggests a troubling political dilemma. On the one hand, there is ample reason from democratic theory to favor cross-cutting discussion (Chambers 2003, delli Carpini et al. 2004). On the other, there is also excellent reason to encourage democratic participation (Macedo 2005). Any trade-off between the two poses a vexing problem for democratic theorists (Thompson 2008).

Lawrence et al. (2010) find no evidence that blog readers' exposure to competing views has any consequences for participation, although they do find that readers of right-wing blogs participate in politics at a significantly lower rate than either readers of left-wing blogs or readers of both left- and right-wing blogs. This suggests that factors other than exposure to dissonant points of view explain variation in blog readers' propensity toward political action; Benkler & Shaw (2010), note that prominent left-wing blogs are more likely than their right-wing counterparts to exhort readers to engage in political activity. It would be interesting both to expand this research to a wider set of websites and to see whether this has changed over the last few years, e.g., as the Tea Party movement has sought to connect online and off-line forms of political action (Skocpol & Williamson 2011), and whether this pattern generalizes when applied to a larger and more representative audience than political blog readers.

Finally, preference falsification is directly relevant. The most plausible interpretation of the effects that Mutz (2006) observes is that they stem directly from individuals' willingness to falsify their political preferences in order to lubricate social relations. If one holds minority political opinions within one's social, familial, or work community, one may be tempted to dissimulate about one's true preferences to avoid social friction.

Preference revelation may cut in different directions. On the one hand, the Internet may lower the costs of expressing one's true preferences. The spectrum of opinion among people is obviously likely to be wider on the Internet than in most geographic communities, making it easier for individuals with minority preferences to find others who either share or are tolerant of their own true beliefs. Here, the Internet is a radically expanded (and less sexist) version of the eighteenth-century coffee-house culture identified by Sennett (1977). Research examining the relationship between minorities' exposure to reinforcing points of view via the Internet and political efficacy could have quite interesting results.

On the other hand, the Internet may also dramatically raise the costs of some unpopular forms of political action. For example, California keeps records on those who make financial contributions to support ballot initiatives. This information was once relatively difficult to collate. Now that it is machine-readable, it can be combined with maps so as to show who contributed to specific causes within your neighborhood. Eightmaps.com provides maps showing the name, approximate location, and (where the information is available) addresses of contributors to California's controversial Proposition Eight anti-gay marriage initiative. Mutz's findings suggest that the ready availability of such information via the Internet will dissuade people from donating to controversial causes in future, even if they are not subjected to the death threats that some donors to Proposition Eight received. Easier preference revelation may involve normative trade-offs.

Thus, research on polarization and the Internet strongly suggests that the Internet facilitates homophily among at least one important subgroup of the US population—those who are politically aware and have strong partisan and ideological leanings. It does not, however, suggest that this leads to a breakdown of relations between those with different partisan identities. It is, furthermore, hard to know whether or not heightened clustering leads to political extremism. Among the broader population, the evidence seems to suggest that the Internet is associated with more exposure to alternative views rather than less. Although increased polarization and intragroup contact may lead to higher levels of collective action within each group, other sources of variation may be more important. Finally, although the work of Mutz gives good initial reason to suspect that preference falsification is a key intermediating factor between levels of online polarization and willingness to engage in political action, we need more research (using, *inter alia*, experimental designs) to determine the extent and nature of its importance.

DID THE INTERNET PLAY A ROLE IN THE ARAB SPRING?

Public figures frequently claim that the spread of the Internet increases freedom and propagates democracy. Such claims are often diffuse and poorly supported but are far from entirely ridiculous. Not only is the relevant literature emphatic on the need for authoritarian regimes to control communications (Hardin 1990), but the behavior of these regimes, and of insurgents seeking to defeat them, provides ample evidence of their importance. However, the Internet has turned out to be far more vulnerable to censorship than initially expected (Albert et al. 2000, Deibert et al. 2010). More recent debates have focused not on the Internet's putative resistance to censorship but on the positive ways in which it can (or cannot) make democracy more likely to replace autocracy. Statistical evidence points to a correlation between Internet access and democracy. However, this correlation might be the result of democracies being more likely to allow widespread Internet access rather than of the Internet encouraging democracy (Milner 2006). Howard (2010) has recently argued that the diffusion of the Internet is making democracy more likely across the Arab world. Specifically, he claims that the conjunction of several causal factors in a given country, including most particularly the growth of an Internet-based civil society, is conducive to democratic transition.

Howard's arguments feed into a more micro-level debate about the ways in which the Internet does, or does not, provide tools that empower social movements. In a recent discussion in the *Journal of Democracy*, Diamond (2010) argues that despite censorship, the Internet can allow citizens to "report news, expose wrongdoing, express opinions, mobilize protest, monitor elections, scrutinize government, deepen participation, and expand the horizons of freedom" (p. 70). This may allow dissidents to bring governments down. However, it may also help promote the liberalization of society, and the creation of a pluralistic public sphere, even before democratization occurs. Deibert & Rohozinski (2010) reply by pointing out that not only democracy activists use the Internet to mobilize and organize, so too do criminal enterprises, espionage networks, and political and religious extremists. Morozov (2011b) argues that methods of Internet control are moving beyond technological measures to more subtle forms of social engineering aimed at disrupting networks of dissenters.

This discussion has bled over into interpretation of recent events, starting with the color revolutions in the former Soviet bloc and in Lebanon, the 2009 social upheavals in Iran, and most recently and topically, the uprisings of the so-called Arab Spring (still ongoing at the time of this writing). The Internet has been repeatedly described as a major precipitating factor in all of these. Good quantitative and qualitative data on these events are still extremely sparse but suggest that the Internet's role has been more complicated than popular accounts might suggest.

There is evidence that the Internet played a significant role in previous upheavals, such as the color revolutions in the former East bloc (McFaul 2005), despite limited popular access (Dyczok 2005). However, the role of the Internet has likely been exaggerated in many accounts, as it has in later unrest in Moldova (Mungiu-Pippidi & Munteanu 2009), where, e.g., Twitter seems at most to have played an extremely limited role on the ground (Morozov 2009). Some public commentators claimed that the social unrest in Iran was a "Twitter revolution," despite the nearly complete lack of any evidence that Twitter was used by demonstrating Iranians to communicate among themselves, let alone to organize a revolution (Aday et al. 2010). Most recent and urgent is the nascent debate over the Internet's role in the Arab Spring—the process of political upheavals across Arab countries that began in Tunisia, led to the fall of the Egyptian and Libyan governments, and is still reverberating in Syria. No synthetic accounts have yet been published comparing the countries that saw major changes (Tunisia, Egypt, Libya, and perhaps Yemen), those that saw moderate political concessions to protesters (e.g., Jordan), those that saw significant but unsuccessful protests (e.g., Algeria, Bahrain), and those that saw no major protests at all (e.g., Saudi Arabia). Howard & Hussain (2011) and Lynch (2011) provide somewhat different accounts of change in Tunisia and Egypt, whereas Tufekci & Wilson (2012) provide some initial data on the Egyptian regime change.

Howard & Hussain (2011) find it no surprise that Tunisia (with a very large population of Facebook users) and Egypt (with more Internet users than any other country in the region, except Iran) saw greater civil disobedience and resulting pressure toward change. In their argument, popular frustration had not been translated into action until cell phones and the Internet became available, helping to unite disparate grievances in a common agenda and turning localized patches of discontent into a "structured movement with a collective consciousness about both shared rights and opportunities for action." Social media provided the movement with necessary scaffolding and a means of organizing outside the control of the state. Lynch (2011), though agreeing with some of these arguments, is much more circumspect in his interpretation of the evidence. He suggests that "[w]hile protestors effectively used social media in their struggles, it is surprisingly difficult to demonstrate rigorously that these new media directly caused any of the outcomes with which they have been associated" (p. 302). There is evidence strongly suggesting that new media empowered activists, but it is largely correlational—there is no smoking gun to demonstrate

causation. Facebook and other organizing tools played a significant role—but only together with more traditional means of organizing, and more traditional media such as al-Jazeera.

We need better data to resolve controversies over whether the Internet is essential or inessential to explaining the political changes in Egypt and Tunisia. Online data alone are insufficient to measure empirical consequences. Both Lotan et al. (2011) and Freelon (2011) show that there was substantial discussion of the Arab Spring protests on Twitter. However, both are careful to discuss their findings in terms of the dynamics of the global conversation around these events rather than seeking to demonstrate that online conversations in any way shaped events on the ground. Good data on the timing and place of protests as well as the timing and point of origin of online discussions might help clarify whether such a relationship exists. Tufekci & Wilson (2012) analyze some initial survey evidence on the relationship between technology and protest in Egypt. However, as they note, their data were gathered using a snowball sample, so that there is no guarantee that it is at all representative of the broader population.

Access to Internet-based tools substantially lowered the costs of collective action for protestors in both Tunisia and Egypt. The Kefaya movement, which began in the early 2000s, used the Internet to organize itself in a semi-clandestine way before it began to publicize its cause (Faris 2008, Oweidat et al. 2008, Lynch 2011). It is clear that the Egyptian government adapted to the strategies of protesters, responding far more effectively to Facebook-organized protests in 2007 than in 2006 (Lynch 2011). However, according to one journalistic account of the protests of 2011, key Egyptian dissidents used Facebook to not only organize protests but direct authorities' attention to some protest marches, while communicating via more surreptitious channels about another more crucial demonstration (Levinson & Coker 2011). Zeynep & Wilson (2012) report that Twitter users were more likely than other respondents to their survey to have turned up on the first day of protest and that almost half of their respondents produced and disseminated photos or videos of the protest. They also find, contrary to Gladwell (2010), that Internet-mediated "weak ties" seem to have had significant mobilizing force.

Even if the Internet lowers the costs of collective action, it may do so in ways that have unexpected consequences. Both Lynch (2011) and Howard & Hussain (2011) caution that even if the protests were sufficient to destabilize the old regimes in Tunisia and Egypt, they may not be sufficient to build self-sustaining democracies in their places. Lynch is by far the more emphatic; he suggests that authoritarian Arab states may be able to adapt to these new challenges, as they have to previous ones. One reason for pessimism is that the very ease of Internet-based collective action may make it more difficult to build the more durable structures that can achieve long-term political goals (Faris & Etling 2008). The failure of the Tahrir Square protesters to create a viable political party or movement is strongly suggestive; although they helped bring down a government, they have been unable to organize in the ways that would allow them to appeal to a broader political constituency. In contrast, the Muslim Brotherhood, which had a much stronger traditional organization, appears likely to play a key role in any new political dispensation.

Lynch (2011) argues that preference falsification played a significant role in the Tunisian uprising but was far less important to recent events in Egypt. Before the outbreak of civil unrest, Tunisia was a highly cloistered society in which individuals did not talk openly about politics for fear that the apparently ubiquitous secret police would hear about it. The result was a general dearth of information on people's true political preferences. When people did realize that a majority of their fellow citizens shared their dislike of the regime, this generated an informational cascade that led to the regime's rapid demise. In Egypt, in contrast, the previously existing Kefaya movement had already demonstrated the regime's unpopularity with a broad swathe of the population. This in turn suggested to observers that the Mubarak regime, even if it still had power, lacked popular support.

Even so, a focus on preference falsification helps focus attention on the importance of identity and signals in precipitating (or preventing) unrest (Tufekci & Wilson 2012). The identity of protesters is key—protesters who appear to be more representative of the general population provide more convincing signals of the privately held preferences of the majority than unrepresentative ones (Lohmann 1994). This helps explain why Arab governments facing mass demonstrations were at pains to claim that the demonstrators constituted an unrepresentative minority and that the demonstrations were being fomented by outsiders. The indirect availability of evidence to the contrary (e.g., cell phone video of protests uploaded and then rebroadcast by satellite television stations) possibly helped damage the government’s credibility. Equally important, protesters took actions that were intended to suggest that they represented the views of a majority—Marc Lynch describes how they deliberately recruited “nonactivists into the early protests, which sent a signal of a widespread societal consensus.” Reaching ordinary Egyptians required the use of leaflets and other off-line publicity (Levinson & Coker 2011).

Hence, government, protesters and others seek to use signals to shape the beliefs of individual members of the public about what others believe. Some forms of signaling—e.g., the 2009 campaign to persuade Facebook users to have green-bordered pages in solidarity with the protesters in Iran—have negligible political impact. They are costless, do not come from typical Iranians, and are unlikely to be seen by them. More costly signals are more likely to be effective (Kricheli et al. 2010). Thus, the Internet’s most important effect on preference falsification may be to document the costly off-line signals sent by others (e.g., by disseminating information about protests in which individuals risk being hurt or killed) or, when the Internet is suddenly censored, as in Egypt, to allow individuals to make inferences about the regime’s private information about its popularity. This dynamic may change as regimes begin more systematically to investigate individuals’ online social networks, on the one hand making online signals of dissent more credible (because they are costly) and on the other, making individuals less willing to pay them (again, because they are costly). It is also possible that Facebook and similar online spaces played a more systematic role in helping to create and disseminate an oppositional identity. Slee (2011) argues that Facebook provided a low-risk place where people could develop and express their opposition to the regime, in ways that made them more likely to take place in protests later.

The evidence on the political consequences of homophily is scanty. However, it is sufficient to explode one frequent misconception among Western observers—that Arab online discourse is a hotbed of extremist rhetoric that serves to recruit young Muslims to active or passive sympathy with terrorism. The publicizing of beheading videos by smaller groups has made it more difficult for al Qaeda to broaden its appeal to mainstream Muslims (Lynch 2006). Substantially fewer contributions to major online discussion boards supported the September 11 attacks than opposed them in their immediate aftermath (Abdulla 2007). The most comprehensive survey of the Arabic language blogosphere finds that there is “very little support for terrorism or violent jihad in the Arabic blogosphere and quite a lot of criticism” (Etling 2009, p. 10).

However, there is insufficient evidence to decide whether homophily may play a more subtle role. What circumstantial evidence there is suggests a greater tendency toward heterophily among regime opponents before the regime is displaced—shared dislike of one’s government may prove a powerful solvent to barriers. In Iran, both critics and supporters of the regime took to the blogosphere in large numbers (Aday et al. 2010). However, not only did they frequently link to each other, but the cleavage between them did not shape the blogosphere as a whole, which included a variety of partly intersecting clusters, some religious (but largely apolitical), others concerned with poetry and literature, and so on (Aday et al. 2010). Egyptian political blogs tended to be (a) strongly critical of the Mubarak regime and (b) willing to emphasize their common opposition to the regime rather than their specific differences (whether they were Islamists, secularists, or

human rights advocates). Members of the Muslim Brotherhood who blogged were more likely to be pluralist than their brothers who did not (Lynch 2007).

These tentative cross-group solidarities appear not to have survived the change in regime. Secularists are beleaguered in the new Egypt and have found it difficult to build alliances with other groups. The Muslim Brotherhood has disassociated itself from secularist protesters, engaging with other religious groups and (more tacitly) with the interim government. Most of the Muslim Brotherhood bloggers have either left the organization (while remaining political active in other ways) or been expelled from it over the last year. It is impossible to know whether their disaffection springs from innate characteristics (their behavior may reflect long-standing differences between their outlook on life and that of the modal Muslim Brotherhood member) or from exposure to other points of view that may have led them to become less like other members who were not exposed, or some combination of the two.

CONCLUSIONS

Over the next decade, the relationship between the Internet and politics will become increasingly important for the discipline. Paradoxically, it is likely that there will be ever fewer scholars specializing in the Internet and politics. However, this will not be because political scientists will lose interest in the Internet and related technologies. Rather, it will be because these technologies have become so integrated into regular political interactions that it will be impossible to study, e.g., the politics of fundraising, election advertising, political action, public diplomacy, or social movements without paying close attention to the Internet. At the international level, the Internet is substantially affecting diffusion processes, business preferences (Newman 2010), and the credibility of states (exemplified by the Wikileaks controversy). As the Internet becomes politically normalized, it will be ever less appropriate to study it in isolation but ever more important to think clearly, and carefully, about its relationship to politics.

Unbundling the Internet into discrete (yet sometimes mutually reinforcing or undermining) mechanisms will help political scientists to accomplish this task, as the two previous sections demonstrate. It will better integrate political science with broader debates by breaking down the assumptions behind these debates into more specific arguments that can be assayed against the empirical evidence. It will facilitate the transition toward a scholarly discussion in which the Internet is both ubiquitous and invisible, because its intermediating role is taken for granted. Finally, unbundling the Internet will allow more effective comparisons of its particular manifestations (e.g., specific forms of social media), and their potential political effects, against the political impact of earlier technologies.

This will also enable the discipline as a whole to face up to a new—and possibly transformative—challenge. The movement of political activity to the Internet is generating massive amounts of data, as individuals' political conversations, donations, and forms of political organizing leave electronic traces. Much of these data are difficult to reconstruct. For example, even though it is likely that chain emails affect people's political beliefs, it is difficult to sample them in any satisfactory fashion or, given problems of selection bias, to make satisfactory inferences (Liben-Nowell & Kleinberg 2008) about how they spread (Golub & Jackson 2010). Other data (e.g., Facebook relationships) are proprietary and difficult to access. Managing, let alone analyzing, these kinds of data creates a plethora of new problems (Stodden 2010, King 2011). Finally, much of these data are sensitive, creating serious new ethical concerns about privacy.

Even so, the early work of computer scientists suggests that this plethora of data generates spectacular opportunities for political scientists and other social scientists to understand hitherto mysterious political relationships (Lazer et al. 2009). For example, by using discrete fragments of

text as markers, it is possible both to examine the dissemination and gradual transformation of ideas across social networks (Leskovec et al. 2009) and to make inferences as to the underlying topology of the network across which they travel (Gomez et al. 2010). Automated analysis can allow researchers to identify the likely partisanship of authors via both textual analysis (Ahmed & Xing 2010) and analysis of voting in social recommendation systems (Zhou et al. 2011). Online experiments can allow scholars to distinguish between people who seek information confirming or contradicting their priors and to see how these groups respond to treatments that highlight or organize contradictory information in different ways (Munson & Resnick 2010). More generally, online forms of social organization as different as Wikipedia, Digg, and the Daily Kos can be treated as extraordinarily well-documented, and potentially comparable, cases of social information processing (Shalizi 2007, Origgi 2012). Data like these—as they becomes more broadly used—will make it far easier to come to grips with the actual empirical consequences of the mechanisms underlying collective action, political polarization, and preference falsification, and a variety of other important mechanisms too.

Taking full advantage of these data will require a sea change in social scientists' skill set so that it encompasses computer programming, network analysis, large-scale data analysis, and complex systems theory (or, in a pinch, the ability to work and communicate with other colleagues with skills in computer programming, network analysis, *und so weiter*). Yet it will also require greater theoretical sophistication. Transforming data into knowledge will require us to develop our conceptual vocabulary in dialogue with the data so that we can both examine the usefulness of mechanisms described in the existing literature and generate new ones that can be tested against the evidence. Although the conversation about computational social science is only in its beginning stages, the conversation about how computational social science and theory generation should work in tandem should be undertaken. If the argument about the Internet's consequences for politics helps structure our present knowledge better, and paves the way toward this broader debate, it will have done all that it should do, and more.

DISCLOSURE STATEMENT

The author is not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

ACKNOWLEDGMENTS

I am grateful to Marc Lynch, John Sides, Clay Shirky, and Tom Slee, as well as commenters at <http://www.crookedtimber.org> and <http://www.themonkeycage.net>, for suggestions on how to improve earlier versions of this article. The usual caveats about all mistakes being the fault of the author apply.

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Errata

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