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Internet Use and Democratic Demands: A Multinational, Multilevel Model of Internet Use and Citizen Attitudes About Democracy

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The success of a democracy depends, in part, on public demand for democratic institutions. How does Internet use shape citizens' preferences for regime type? Combining individual public opinion data from Africa and Asia with country-level indices, we test a multilevel model examining the relationship between Internet penetration, individual Internet use, and citizen demand for democracy across 28 countries. We find that Internet use, but not national Internet penetration, is associated with greater citizen commitment to democratic governance. Furthermore, greater democratization and Internet penetration moderates the relationship between Internet use and demand for democracy.

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Democracy scholars, traditionally concerned with the role of governing institutions and elites, have increasingly turned to emphasize citizen attitudes and information technologies as important components of the democratization process. For nondemocratic regimes to transition to democracy, and for young democracies to consolidate and stabilize, a majority of citizens need to be committed to democracy as their preferred form of government (Bratton, Mattes, & Gyimah-Boadi, 2005; Mattes & Bratton, 2007). Simply put, *democracy* requires *democrats* to be successful. At the same time, the role of information and communication technologies (ICTs), particularly Internet, in the democratization process, either promoting democratic transitions or strengthening young democracies, as has become a highly salient question for scholars and policy-makers alike in recent years (Groshek, 2009; Howard, 2009; Mozorov, 2011; Shirky, 2011).

To date, much of the cross-national quantitative research examining the relationship between the diffusion and penetration of ICTs and democratization has

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centered on the macro relationship between Internet penetration and governmental institutions and political processes, rather than individuals' attitudes, beliefs, and behaviors. Our study fills this lacuna by shifting the focus to citizen attitudes about democracy. By applying multilevel modeling concepts and techniques, we develop a set of theoretical propositions about how national Internet penetration and individual frequency of Internet use are associated with citizen demand for democracy, as well as how these associations may vary by a country's regime type and level of development.

We begin by briefly discussing citizen demand for democracy and its relationship with democratization. We then review the previous scholarship on the relationship between ICT penetration and democratization to develop a set of specific hypotheses and research questions. Next, we use hierarchical linear modeling (HLM) to quantitatively test our theoretical propositions, combining data from cross-sectional surveys of 28 countries conducted by the Afrobarometer and Asian Barometer projects between 2006 and 2008. We conclude our paper by discussing the dynamics between ICTs and citizens' attitudes about democracy, and theoretical lessons for understanding the role of ICTs in the democratization process.

Demand for democracy and media

Democratic consolidation refers to the institutionalization of democracy, such that it becomes self-sustaining and secure from the threat of authoritarian regression and is considered the "only game in town" (Linz & Stepan, 1996, p. 15; Mattes & Thiel, 1998; Pridham, 2000; Schedler, 1998). Democracy is considered "consolidated" when democratic "rules" are institutionalized in governing bodies and there arises a normative consensus among political elites *and the public* to abide by these rules (Bratton et al., 2005). In this sense, democratic consolidation is an outcome of both a high supply of democracy, as provided by a country's governing institutions, *coupled with a high demand for, or commitment to, democracy by its citizens* (Mattes & Bratton, 2007; Nisbet, 2008; Nisbet & Stoycheff, in press; Norris, 2011). Citizen demand for democracy pressures governing institutions to democratize in authoritarian regimes by adopting democratic rules that empower the public (free and fair elections, freedom of expression, open press, etc.). It also supports and stabilizes ongoing democratization in transitioning democratic states by ensuring that democratic rules, once established, remain in place (Inglehart & Welzel, 2005; Welzel, 2007). Thus, for successful democratization, both a high supply and demand for democracy are necessary, and neither alone is sufficient (Bratton et al., 2005).

From a communication viewpoint, previous scholarship has demonstrated that media use in transitioning or democratizing societies encourages citizen demand for democracy by teaching citizens about democratic norms, values, and practices and by creating spaces for open political expression (Mattes & Bratton, 2007; Nisbet, 2008; Schmitt-Beck & Voltmer, 2007). For example, mobilization theory argues that media pluralism furthers citizen political knowledge, which in turn increases both cognitive and behavioral political participation (Newton, 1999). Diffusion of information via the media may foster political interest, discussion, and ideological

sophistication (Dalton, 1996). Scholars have also found that media furthers civic and political education (McLeod, Scheufele, & Moy, 1999; Norris, 2000; Scheufele, Hardy, Brossard, Waismel-Manor, & Nisbet, 2006) and political participation (Lemert, Mitzman, Seither, Cook, & Hackett, 1977; McLeod *et al.*, 1996; Norris, 2000).

Internet penetration and democracy

However, to date, there is scant research examining the relationships between Internet penetration, or Internet use, and citizen attitudes about democracy, as most cross-national research is focused on Internet and democracy at the institutional, or macro, level of analysis. As Howard (2009) notes, much of the research examining the relationship between the Internet and democratization has employed large cross-national time series data sets that have examined the correlation between Internet penetration, usually defined as the percentage of the population who are Internet users, and institutional indicators of democracy from Freedom House or Polity IV democracy rating projects (Best & Wade, 2009; Groshek, 2009; Kedzie, 2002). Most of this research has found a positive relationship between Internet penetration and democracy, though with some nuances. For instance, though Best and Wade (2009) found that Internet penetration significantly increased democracy ratings in their analysis, this relationship varied significantly by region.

Likewise, Groshek's (2009) cross-national analysis of the relationship between progressive Internet penetration and democratization between 1994 and 2003 suggests the Internet's impact on democratization is contingent on the existing level of democracy in a country, such that the relationship is most robust among countries that are already at least partly democratic and already have a relatively moderate or high level of ICT diffusion and development. Similarly, through a series of comparative case studies, Howard (2009) examined how high ICT penetration in government services, online activities of political parties, ICT enhanced journalism and civil society organizations employing technology may foster democratic outcomes. Employing fuzzy modeling, Howard identifies a robust online civil society as a significant factor in promoting democratic transitions among authoritarian regimes, while democratic entrenchment results from high levels of national information infrastructure. Like Groshek (2009) and Best and Wade (2009), Howard finds the role of ICT in democratization is contingent upon several contextual factors such as population size and mean educational attainment. Overall, these collective findings confirm the positive role that ICTs play in promoting democratic transitions or deepening democracy in democratizing regimes.

Internet use and citizen attitudes about democracy

Moving from institutions to citizens, an open question is whether greater Internet penetration and use influence individual attitudes about democracy? Though not empirically tested, Howard (2009) answers this question in the affirmative, theorizing that Internet use plays an important role in shaping and mobilizing citizen attitudes about democracy in transitioning or emerging democracies. Howard asserts that

traditional media in nondemocratic states “constrains” public opinion to those of ruling elites, creating a passive public incapable of challenging autocratic institutions and power-relations. Leslie (2002) and Howard view the Internet as distinct from the one-way communication of radio, television, and print media that provide information to an audience, but are incapable of soliciting immediate feedback. The Internet is lauded as having great democratic potential because it does allow for feedback and encourages the development of “participant” citizens, as described by Almond and Verba (1963). Rather than acting as passive receptors of political information, participant citizens are more sophisticated and engage with political information provided to them and subsequently respond or make “demands” from it (Almond & Verba, 1963). For example, as Lei (2011) observes in the case of China, the “Internet has contributed to a more critical and politicized citizenry” with “citizens no longer merely compliant receivers of official discourse” (p. 311). In this sense, Howard sees the potential of the Internet, especially when paired with organizations such as political parties or movements, to promote the formation of “mass” public opinion that *demand*s political change within authoritarian or democratizing states.

Other scholars also embrace the Internet’s capacity to promote political change by serving as a pluralistic media platform (Bratton et al., 2005; Groshek, 2009; Lei, 2011). Bratton and colleagues (2005) argue that media use in transitioning or emerging democracies “expands the range of considerations that people bear in forming their political and economic attitudes,” which promotes democratic citizenship and greater demand for democratic processes and reform (Bratton et al., 2005, p. 209). Media that enjoys low government regulation and high plurality of content have “the greatest impact in inducing an audience to reject authoritarian rule, especially one-party rule,” compared to other forms of media use (p. 210). In this context, Groshek (2009) draws upon media dependency theory (Ball-Rokeach & DeFleur, 1976) to argue that Internet use influences the democratic orientations of audiences—which in turn promotes (democratic) change in sociopolitical systems in which audiences are embedded. Internet penetration, in other words, allows citizens to access more pluralistic content that increases citizen demand for democracy. Increased demand promotes “*bottom-up*” *democratization* by increasing the likelihood of democratic transitions in nondemocratic states or strengthening democratic institutions in young democracies. Lei (2011) asserts this bottom-up democratization has emerged in China, with “netizens” constituting “an important social force that imposes much pressure on the authoritarian state” (p. 311). Moreover, this theoretical perspective is consistent with scholarship examining the role of citizen attitudes in processes of democratization (Inglehart & Welzel, 2005; Mattes & Bratton, 2007; Welzel, 2007).

Although Howard (2009) and Groshek (2009) theorize about the relationship between Internet use and citizen attitudes about democracy, they do not examine these relationships empirically. Unfortunately, most of the empirical scholarship directly examining the relationship between individual Internet use and individuals’ political cognitions, affect, or behaviors has been conducted in fully developed democracies such as the United States or Western Europe (e.g., Bimber, 2003; Norris, 2000,

Xenos & Moy, 2007), attesting to how the Internet promotes democratic citizenship in established, rather than emerging, democracies. For example, a meta-analysis by Boulianne (2009) examined the influence of Internet use on political attitudes and behavior across 38 studies and 166 effects conducted in the United States between 1995 and 2005. She concludes that Internet use appears to have a positive, albeit small, effect on citizen engagement and knowledge across the majority of studies she examined (see also Katz & Rice, 2002). Furthermore, observed Internet effects on citizen attitudes and behavior appear to strengthen over time as Internet infrastructure and use expands within the United States, though the increase is somewhat nonmonotonic.

Although the positive effects of Internet use on democratic citizenship may have been quantitatively demonstrated in established democratic contexts such as the United States, quantitative research that provides insight as to how Internet use directly influences citizen attitudes or behaviors in democratic transitions or emerging democracies is scant. Norris's (2011) analysis of the 2005 World Values Survey found a robust relationship between both mass media and Internet use and citizen demand for democracy across 42 countries. Yet, Norris's country sample included highly developed, Western democracies as well as emerging democracies and authoritarian regimes in other regions, muddling the findings as to whether Internet use indeed leads to democratic transition in authoritarian and transitioning regimes. Recent single-country studies employing either survey or experimental methods in nondemocratic states such as China and Tanzania have suggested that greater Internet use and access leads to greater demand for democracy in nondemocratic states as well (Bailard, 2011; Lei, 2011).

In addition, some scholars have cited the Internet as key to the recent rise of democracy movements in the Middle East (Howard & Hussain, 2011). Survey evidence from Egypt, collected by the Pew Global Attitudes Project in 2007, supports this assertion, as Egyptian Internet users express a greater demand for democracy than nonusers.¹ Egyptian Internet users compared to nonusers are more likely to prefer democracy over either a strong economy (51% vs. 43%) or strong man rule (59% vs. 50%), believe honest, competitive elections are very important (59% vs. 50%), and have a negative evaluation of President Hosni Mubarak (43% vs. 26%). However, whether individual Internet use is associated with greater citizen demand across a range of political and development contexts, and has a relationship independent of other individual attributes, still needs further empirical validation.

Hypotheses

The scholarship reviewed above suggests a significant relationship between Internet use, Internet penetration, and democratization, though this relationship has been shown to be contingent on regional, political, economic, or social contextual factors. Furthermore, just as there is extensive evidence that mass media use is associated with citizen attitudes about democracy, the scant research available suggests that Internet use may be associated with citizen attitudes as well. Indeed, if greater Internet

penetration and use promotes citizen demand for democracy, this relationship may be *as yet another theoretical mechanism* by which Internet penetration promotes and strengthens democratization through “bottom-up” processes described by the likes of Groshek (2009) and Inglehart and Wezel (2005). To empirically evaluate these relationships at both the micro (individual) and macro (country) levels of analysis, we hypothesize that individual frequency of Internet use (H1) and country-level Internet penetration (H2) will each be positively associated with citizen demand for democracy.

Second, the reviewed literature also suggests the relationship between the Internet and democratization may be contingent upon political or developmental factors (Groshek, 2009), which may extend to the hypothesized relationship (H1) between citizen attitudes about democracy individual Internet use as well. Thus, we speculate that cross-level interactions where contextual or macrolevel factors moderate the relationship between Internet use and citizen demand at individual-level analysis may occur. For example, greater Internet penetration may enhance the ability the citizens who use the Internet to access content or engage in communicative acts that promote democratic citizenship. Likewise, using the Internet within more open, democratic political contexts may promote citizen demand for democracy more so than accessing the Internet in more closed, authoritarian regimes that monitor or restrict Internet activities. Therefore, we ask whether either the level of Internet penetration (RQ1) or the degree of democratization in a country (RQ2) moderates the relationship between the frequency of individual Internet use and citizen demand for democracy?

Methodology

Data collection and coding

To test the aforementioned hypotheses and research questions, an analysis of secondary data was conducted by employing survey data from the 2008 Afrobarometer and the 2006–2008 Asian Barometer surveys. These two datasets were selected as they are the most recent cross-national datasets that contained comparable survey items measuring our focal variables of interest in developing/transitioning polities: demand for democracy and Internet use.² Furthermore, these two datasets also contain comparable survey items assessing key control variables such as sociodemographics and political/psychological/attitudinal predispositions associated with democratic attitudes. Both survey projects conduct face-to-face interviews based on national probability samples (see www.afrobarometer.org for detailed methodological information on the Afrobarometer surveys and www.asianbarometer.org for similar information on the Asian Barometer surveys). Combining these two data sets yielded a total of 37,549 survey respondents across 28 countries.³

Sub-Saharan Africa and Asia are focal regions of interest as they are both experiencing an exceptional growth in Internet penetration and have a large number of authoritarian states and emerging democracies. The number of Internet users in sub-Saharan Africa quadrupled between 2005 and 2009, an annual growth rate of

45%, with the total number of users (~69 million) now larger than found in all Arab states combined for example. In Asia, the number of Internet users more than doubled during the same 5-year period at annual rate of 21% (ITU, 2010). Asia also accounts for nearly 45% of worldwide Internet users even though Internet penetration rates remain low at an estimated 19% of the total Asian population using the Internet (ITU, 2010). At the same time, less than one-quarter of sub-Saharan Africa's 47 states are considered democracies while Asia still has a significant number of nondemocratic regimes such as Singapore, China/Hong Kong, Vietnam, Thailand, and Malaysia (Freedom House, 2011).⁴ Considering these technological trends combined with the prevalence of nondemocratic or transitioning regimes, examining the relationship between Internet penetration, Internet use, and citizen attitudes about democracy in these regions is of great importance.

Two sets of measures were coded for the multilevel analysis, one set at the country level of analysis and one set at the individual level of analysis. At the country level of analysis, four variables were coded for each country: *Freedom House's democracy rating*, *Human development index*, *Internet penetration*, and *survey region*. By including measures of political context, human development, and survey region as controls, we ensure that any significant relationships between Internet penetration and citizen demand for democracy are independent of these factors.

Freedom House (FH) is a nonpartisan, nonprofit organization that annually rates 195 countries level of democracy in terms of civil and political liberties (see www.freedomhouse.org for more information on methodology). Their ratings range from 1 to 7 (high being less free) for the amount of citizen political and civil liberty in each country—for a combined country score ranging from 2 to 14. In the analysis, we reversed-coded the FH ratings so greater democracy was coded high ($M = 9.36$, $SD = 2.7$) with country ratings within the sample ranging from 3 (e.g., Zimbabwe) to 14 (e.g., Cape Verde). The FH democracy rating corresponding to the year (2006–2008), a country's survey was conducted, was included in the model.

The second country-level measure included in the model was an index assessing Internet penetration. Two component measures taken from the *World Telecommunication/ICT Indicators 2010* published by the International Telecommunications Union were combined to form this measure. The first was the percentage of the population that uses the Internet ($M = 13.8\%$, $SD = 17.2$). This measure was selected as it indicates the amount of communicative potential online, either directly between Internet users or in terms of relevant available content, for citizens within that country. The second indicator selected for the composite measure was international bandwidth per Internet user (Mbs) for each country ($M = 21,588$, $SD = 103,874$). This measure assesses the potential for citizens to access large volumes of information, particularly multimedia, which are increasingly important for proper functionality of online content. Both measures were standardized (z -scored) and combined into one additive index of Internet penetration ($r = 0.52$, $p < .01$).

The third country-level measure included in the model, the UNDP human development index (HDI), ranks a state's overall socioeconomic development in terms

of health, education, and standard of living (see <http://hdr.undp.org/en/statistics/> for more information on methodology and components). The three dimensions are averaged together to arrive at a score between 0 and 1, with higher scores representative of higher human development (Human Development Report, 2010). The annual HDI rating corresponding most closely to the year the barometer survey was conducted was included in the model for each country. The last country-level measure was a dichotomous measure (0–1) of the country's survey region (Asia or Africa) in order to control for any variance stemming from possible between-survey differences in administration even though each survey had comparable question items. Asian countries were coded high as "one" (28.5%).

At the individual level of analysis, sociodemographic variables included in the analysis were gender, age, urbanity, and educational attainment. *Gender* is a dichotomous measure in which men were coded high (49.7%) and *age* ranged from 18 to 110 ($M = 37.8$, $SD = 14.9$). Whether a respondent resided in an *urban area* was coded into a dichotomous variable with urban coded high (42.9%). *Educational attainment* was measured on a 9-point scale that ranged from no formal education to post graduate education ($M = 3.6$, $SD = 1.74$).

Beyond sociodemographics, a range of political, attitudinal, and evaluative variables were introduced that previous research has demonstrated influence how much citizens demand democracy. For instance, Bratton and colleagues (Bratton et al., 2005; Mattes & Bratton, 2007) assert that the level of citizen interest in politics, their general trust toward others, and citizen beliefs about the economy, the governing regime, how well democracy works will all influence citizen demand for democracy. By including assessments of these orientations and beliefs in the analysis, we limit the possibility that any significant relationship between Internet use and citizen attitudes about democracy may be spurious.

Thus, two items assessing citizen interest and trust of others were included in the model. Citizens' *interest in politics* was measured on a 4-point scale ranging from *not at all interested* to *very interested* ($M = 2.7$, $SD = 1.1$). *Interpersonal trust* was assessed by combining two 4-point items asking respondents how much they trusted their friends/family and their neighbors ($M = 6.0$, $SD = 1.6$, $r = 0.55$).

In addition, several measures tapping citizen's attitudes about their national government and performance were included in the analysis. Respondents' evaluations of their own *personal economic status* ($M = 3.2$, $SD = 1.1$) and *national economic status* ($M = 3.3$, $SD = 1.2$) on a 5-point scale ranging from *very good* to *very bad* (bad coded high) were included. Respondents' *satisfaction with how democracy works* in their country ($M = 3.2$, $SD = 1.4$) on a 5-point scale from *not at all satisfied* to *very satisfied*, was also placed into the model. Lastly, the amount of trust or confidence the respondent had in the governing regime was assessed through an additive index asking respondents how much they trusted their (a) president/prime minister, (b) parliament/national assembly, (c) national government/ruling party, (d) police, (e) courts on a 4-point scale ranging from *not at all* to *a lot*. These five items were combined into one overall additive index of *regime confidence* ($M = 13.7$,

$SD = 4.0$, $\alpha = 0.85$). Lastly, *frequency of Internet use* was measured on a 5-point scale, from *never* to *every day* ($M = 1.5$, $SD = 1.1$).

The dependent variable in our multilevel model is a composite measure originally developed by Bratton and colleagues (Bratton et al., 2005; Mattes & Bratton, 2007) for the Afrobarometer survey project and was subsequently adopted by the Asian Barometer surveys. The variable combines four survey items that assess how willing respondents are to tolerate nondemocratic regimes, each coded to be on a 3-point scale. The first item asks whether respondents believe “democracy is always preferable to any other kind of government” while the other three items assess how willing the respondent is to accept nondemocratic governments controlled either by (a) a strong man, (b) a single ruling party, or (c) the military with all coded so preference for democratic governance was coded high. Combining these four items into an additive index assesses overall *citizen demand for democracy* ($M = 10.3$, $SD = 1.9$, $\alpha = 0.52$).

Analytic strategy

The nature of our hypotheses and research questions dictated a multilevel analysis, wherein we could examine within- and between-country relationships. We fit several hierarchical linear models (Raudenbush & Bryk, 2002; Snijders & Bosker, 2003) using HLM 6.08. To explain variation in citizens’ demand for democracy, the models regressed country-level indicators, such as the democracy rating, human development index ranking, level of Internet penetration, and survey region, while controlling for individual-level sociodemographic, political interest, regime confidence, and Internet use factors. We examined the variance explained in our dependent variable on both the country-level (τ_{00}) and individual-level (σ^2) of analysis, and our results may be interpreted similar to those of a standard OLS regression with unstandardized coefficients, standard errors, and significance tests of the intercept and each predictor variable reported. In addition, several of our models also contain random effects, meaning that the variance of some individual-level predictor variables was allowed to vary across countries to account for additional variation in citizen demand for democracy. For example, satisfaction with democracy and regime confidence are likely to fluctuate from individual to individual as well as by regime type.

Results

As is common in multilevel modeling, a one-way ANOVA model containing no predictor variables was first estimated to examine whether there was evidence of variation in demand for democracy across countries. Results indicate that there are significant differences in demand for democracy across countries, as can be observed in Table 1, Model 1, and approximately 9% of the variance in individual’s demand for democracy is attributable to country-level factors, $ICC = 0.087$.

The remaining 91% of variation in an individual’s demand for democracy exists at the individual level, so we fitted a second model containing individual predictor variables to help explain the Level-1 variance. This second model included

Table 1 Multilevel Model Results for the One-Way ANOVA Model and Models 2, 3, and 4 Predicting Citizen Demand for Democracy

Fixed Effects	Model 1 <i>b</i> (SE)	Model 2 <i>b</i> (SE)	Model 3 <i>b</i> (SE)	Model 4 <i>b</i> (SE)
Intercept	10.31*** (.11)	10.37*** (.11)	10.32*** (0.10)	10.37*** (.10)
Democracy rating	—	—	-0.07 (0.03)*	-0.08* (0.03)
Internet penetration	—	—	0.10 (0.08)	0.16 (0.10)
Human development	—	—	0.91 (0.79)	1.11 (0.89)
Survey region (Asia)	—	—	-1.00 (0.33)**	-0.92** (0.31)
Age	—	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Gender (male)	—	0.21*** (0.04)	0.22*** (0.04)	0.21*** (0.04)
Education	—	0.16*** (0.02)	0.16*** (0.02)	0.16*** (0.01)
Urban resident	—	0.13*** (0.04)	0.13*** (0.04)	0.13*** (0.04)
Political interest	—	0.06** (0.02)	0.06** (0.02)	0.06** (0.02)
Interpersonal trust	—	0.04* (0.02)	0.04* (0.02)	0.04* (0.02)
Personal economic evaluation	—	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
National economic evaluation	—	0.04 (0.02)	0.04 (0.02)	0.04 (0.02)
Regime confidence	—	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)
Satisfaction with democracy	—	0.02 (0.02)	0.02 (0.03)	0.02 (0.02)
Frequency Internet use	—	0.05*** (0.01)	0.05*** (0.01)	.004*** (0.01)
Democracy rating	—	—	—	0.01* (0.00)
Internet infrastructure	—	—	—	0.02* (0.01)
Random effects				
Country level τ_{00}	0.33***	0.33***	0.29***	0.30***
Personal economic evaluation $\tau_{\text{Per Econ}}$	—	0.01***	0.01***	0.01***
National economic evaluation $\tau_{\text{Nat Econ}}$	—	0.01***	0.01***	0.01***
Regime confidence τ_{Regime}	—	0.00***	0.00***	0.00***
Satisfaction with democracy $\tau_{\text{Satisfaction}}$	—	0.01***	0.01***	0.01***
Individual level σ^2	3.43	3.17	3.19	3.16
Percentage of between-country variance explained	—	—	12.1	9.1
Percentage of within-country variance explained	—	7.6	7.0	7.9

Note: Unstandardized coefficients with robust standard errors in parentheses.

* $p < .10$. ** $p < .01$. *** $p < .001$.

demographic control variables (gender, age, education, and urban residence), social and political control variables (interpersonal trust, political interest, regime trust, personal economic status, national economic status and democratic satisfaction), and our independent variable of interest: Internet use. All variables were added group-mean centered to allow for independent interpretation of Level-1 effects (Enders & Tofighi, 2007), and the slopes for regime trust, personal economic status, national economic status, and satisfaction with democracy were allowed to vary randomly.

The highly educated, men, urban-dwellers, those with more social capital, and older citizens, all significantly expressed high demand for democracy, as well as individuals with high self-reported political interest. Regime trust was negatively associated with demand for democracy, suggesting that individuals who have a high degree of confidence in the current regime are less committed to democratic governance. Personal economic status, national economic status, and, interestingly, satisfaction with democracy were not significant. Internet use was positive associated with citizen demand for democracy, supporting H1. Overall, these predictors explained approximately 7.6% of the Level-1 variance in citizen demand. These results can be found in Table 1, Model 2.

To evaluate our second hypotheses, that Internet infrastructure will be associated with demand for democracy, we estimated a third model containing the individual-level predictors and four country-level variables: Freedom House Democracy Rating, human development index, Internet penetration, and survey region. As the focal variables of interest in this model are at Level 2, both Level 1 and Level 2 variables were entered into the model were grand-mean centered (Enders & Tofighi, 2007). Regime trust, personal economic status, and national economic status were allowed to vary randomly, while all other slopes were fixed to zero.

Of the contextual-level variables, only the degree of democratization and survey region were both significant predictors of citizen demand. There was an inverse relationship between the degree of democratization and demand for democracy, with citizens living in less democratic countries demanding more democracy than citizens in more democratic states. Survey respondents in Asian countries also expressed lower demand for democracy compared to African respondents. A country's level of Internet penetration was not a significant predictor of citizen demand, failing to confirm H2. These predictors explained 12.1% of the between-country variance, and results are reported in Table 1, Model 3.

A final interaction model was then estimated to test whether or not Internet penetration in (RQ1), or the country's level of democratization (RQ2) moderates the relationship between the frequency of individual Internet use and citizen demand for democracy (see Table 1, Model 4). Again, all individual-level (group-mean centered) and contextual-level (grand-mean centered) variables were added, and regime trust, personal economic status, national economic status, and satisfaction with democracy were allowed to vary randomly. In addition, two interaction terms were included to examine the moderating effect that democratization and Internet penetration have on the relationship between an individual's Internet use and citizens' demand for

democracy (RQ1, RQ2, respectively). The results displayed in Table 1 (Model 4) affirm that both Internet penetration and the level of democratization moderate the relationship between the frequency of individual Internet use and citizen demand for democracy. As the frequency of Internet use increases in democratic countries, citizen demand for democracy increases at a greater rate than in less democratic countries. Likewise, greater Internet penetration amplifies the relationship between individual Internet use and citizen demand for democracy, with Internet use disproportionately associated with greater citizen demand in countries with higher levels of Internet penetration compared to countries with less penetration.

Discussion

Limitations and future research

Before we discuss the implications and conclusions of our findings, some limitations to our study should be noted. First, as any correlational study based on cross-sectional survey data, this study cannot provide clear causal and directional evidence that Internet use increases citizen demand for democracy. However, robust sets of controls were employed at both levels of analysis to limit the possibility that any significant relationships between Internet use and citizen demand were spurious. Ideally, longitudinal survey data would be employed to examine whether Internet use promotes citizen demand for democracy over time, but unfortunately such data does not exist at this time. Nevertheless, the relationship explicated in our analysis between Internet use and demand for democracy is consistent with prior research and our theoretical expectations.

Second, some of the individual measures employed in the analysis were not ideal. For example, the frequency of Internet use was limited to a single 5-point item. More granulated measurement of how frequently the Internet is used, and from what kinds of technologies, would allow us to better model the impact of Internet use on citizen demand for democracy. Such measures, combined with types of online activities would improve the models further and would also capture the diversity of social media uses. Indeed, poor measurement may be one reason why the effect size of Internet use and country penetration on demand for democracy was rather modest.

Third, the sample of 28 countries included in the analysis were a sample of authoritarian and emerging democracies surveyed by the Afrobarometer and Asian Barometer and did not include all states within Africa and Asia, while excluding states from other regions such as Latin America and the Middle East. Thus, the study, and its generalizability, is constrained by the available comparative survey data. At the same time, as noted in the methodology, the sample of countries employed in the analysis is rather heterogeneous across political and sociodevelopment contexts. We assert such as pooled, cross-national analysis provides a better understanding of the explicated relationships than existing single-country research as the relationship between Internet use and citizen attitudes significantly varies by context. Further cross-national scholarship examining the relationship between Internet use and

demand for democracy more globally, or in other regions specifically, is clearly necessary and may provide insights into the role of the Internet in recent democratic mobilizations witnessed in many Arab countries.

Implications for understanding the Internet and democratization

Our results provide some insights into the role the Internet plays in democratization. First, individual Internet use was associated with increased citizen demand for, or commitment to, democratic governance while national Internet penetration had a null relationship with citizen demand. These findings identify an additional theoretical mechanism by which Internet penetration may promote democratic outcomes—by influencing citizen attitudes. Our study also highlights the need for scholarship examining the relationship between ICTs and democratic governance to account for individual Internet use, rather than focus entirely on macro or institutional-level relationships, to arrive at a comprehensive understanding of how Internet penetration promotes democracy.

Second, the strength of our multilevel approach is that we can empirically examine how the relationship between Internet use and citizen attitudes may vary by context. For instance, consistent with Groshek's (2009) study, the multilevel model suggests the relationship between Internet use and citizen demand is more robust in democratic states than nondemocratic states. Furthermore, the negative relationship between democratization and demand in the model shows that citizens in less democratic countries profess a higher demand for democracy than citizens in more democratic countries, where democratic governance may be taken for granted. Taken together, these findings suggest that Internet use may play a more meaningful role in strengthening and enhancing young democracies through impacting citizen attitudes rather than promoting outright democratic transitions among autocratic regimes. Our results are also consistent with the work of other scholars (e.g., Mozorov, 2011; Stockman & Gallagher, 2011) who have demonstrated the potential for authoritarian regimes to limit the democratic potential of the mass media and/or Internet.

Third, Internet use was also found to be more strongly associated with citizen demand in countries where the communicative potential of the Internet, in terms of number of users and broadband width, is greatest. Although the effect size of Internet use was rather modest in our analysis, this finding suggests that the democratic potential of the Internet may grow disproportionately in countries with high access, as Boulian (2009) found in the United States. This democratic potential remains large within our sample of countries as the mean percentage of the population that were Internet users was only 14% compared to an estimated 80% of the current population in the United States.

By considering our measures of Internet penetration and mean demand for democracy together, it is possible to identify countries where growing Internet use may be most likely to play a role in democratization. This can be seen in Table 2 where the 28 countries studied are arrayed in terms of the combined measure of Internet use and country penetration and the demand for democracy. For each

Table 2 Countries Categorized By Communicative Potential of the Internet and Mean Demand for Democracy (With Current Freedom Score)

Communicative Potential of the Internet	Mean Demand for Democracy		
	Low	Moderate	High
Low	Burkina Faso (pf)	Liberia (pf)	Ghana (fr)
	Lesotho (pf)	Malawi (pf)	
	Madagascar (pf)	Mali (fr)	
	Mozambique (pf)	Tanzania (pf)	
Moderate	Namibia (fr)	Indonesia (fr)	Botswana (fr)
	Mongolia (fr)		Kenya (pf)
	South Africa (fr)		Senegal (pf)
			Uganda (pf)
			Zambia (pf)
High			Zimbabwe (nf)
	Vietnam (nf)	Benin (fr)	Cape Verde (fr)
	Philippines (fr)	Hong Kong (pf)	Singapore (pf)
		Malaysia (pf)	
		Nigeria (pf)	
	Thailand (pf)		

Note: fr = Freedom House Score of “Free”; pf = Freedom House Score of “Partly Free”;
nf = Freedom House Score of “Not Free.”

country, the category of current freedom is also displayed. For example, states that have a moderate to high level of Internet penetration, in which the population on average expresses a high demand for democracy, and enjoy at least a partly democratic political regime are contexts where increasing Internet use is more likely to promote democratic change. Kenya, Senegal, Singapore, and Zambia may be good examples of such a process. Likewise, increased Internet use by citizens in countries such as Benin, Malaysia, Nigeria, and Thailand, countries with high level of Internet penetration, a moderate amount of demand for democracy, and some freedoms, are also more likely to experience political change as citizen Internet use deepens and expands. In contrast, countries that are highly authoritarian, or not free, such as Vietnam or Zimbabwe, are likely to limit the democratic potential of the Internet regardless of the degree of Internet penetration or level of demand.

Current levels of Internet use, similarly, are less likely to promote democratic change in countries with a low to moderate level of demand for democracy and low Internet penetration. However, in partly free countries such as Burkino Faso, Malawi, Mozambique, and Tanzania, where citizen demand for democracy is currently low, increases in the communicative potential of the Internet and individual Internet use may foster greater demand for democracy *over time* that will lead more citizens to critically assess the degree of democracy their governments provide, and in turn challenge autocratic governing institutions. From a policy perspective, whether to

focus on improving access to the Internet and/or developing citizens' abilities to use the Internet effectively for political change in these countries is an important strategic choice for policy-makers and democracy promoters to consider (Epstein, Nisbet, & Gillespie, 2011).

In summary, our study demonstrates the relationship between the Internet and citizen attitudes about democracy may be more nuanced than previous research has suggested and somewhat contingent upon the technological and political context in which citizens are embedded. Nevertheless, our study supports the basic premise that the Internet may foster political change by socializing citizens into the political beliefs required for the democratic citizenship, and in turn promote successful and sustainable democracies.

Notes

- 1 The survey was a nationally representative survey conducted via face-to-face interviews with a total of 1,000 respondents collected by Pew Global Attitudes Project in 2007. The percentage of respondents classified as "Internet users" was 14% based on respondents who responded that they used the Internet to "send/receive e-mail." For more information on the methodology and results, see <http://www.pewglobal.org>.
- 2 Unfortunately, other survey projects such as the Latin Barometer or Arab Barometer did not have comparable survey items thus were excluded from the analysis.
- 3 Countries and sample sizes examined in the analyses are as follows—*Afrobarometer*: Benin, 1,200; Botswana, 1,200; Burkina Faso, 1,200; Cape Verde, 1,264; Ghana, 1,200; Kenya, 1,104; Lesotho, 1,200; Liberia, 1,200; Madagascar, 1,350; Malawi, 1,200; Mali, 1,232; Mozambique, 1,200; Namibia, 2,324; Senegal, 1,200; Nigeria, 2,324; Senegal, 1,200; South Africa, 2,400; Tanzania, 1,208; Uganda, 2,431; Zambia, 1,200; Zimbabwe, 1,200. *Asia Barometer*: Hong Kong, 849; Indonesia, 1,598; Malaysia, 1,218; Mongolia, 1,211; Philippines, 1,200; Singapore, 1,012; Thailand, 1,546; Vietnam, 1,200
- 4 The 28 African and Asian countries for which we have comparable survey data represent a heterogeneous sample of political and socioeconomic contexts. Based on Freedom House ratings, the sample includes 10 fully democratic countries, 15 countries with mixed (partly democratic/partly authoritarian) regimes, and 3 countries with strong authoritarian regimes. In terms of socioeconomic development, 16 countries are classified as low human development, 9 countries as medium human development, and 3 countries as high to very high human development according to the United Nations Development Program (UNDP).

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互联网使用和民主需求：互联网使用和公民对民主态度的多国、多层次模型研究

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【摘要：】

民主的成功在某种程度上取决于公众对民主机构的需求。互联网的使用如何影响公民对政权形式的偏好？本文利用国家级别指数，和来自非洲和亚洲的个人民意调查数据测试了 28 个国家的互联网普及率、个人对互联网的使用、和公民对民主需求关系的多层次模型研究。本文发现互联网的使用，而非国家的互联网普及率，与公民对民主政府的承诺有较大的关联。此外，更大民主化和互联网普及率调节互联网使用和公民对民主需求之间的关系。

L'utilisation de l'Internet et les exigences démocratiques : un modèle multinational à plusieurs niveaux de l'utilisation de l'Internet et des attitudes citoyennes envers la démocratie

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Le succès d'une démocratie dépend en partie des exigences publiques envers les institutions démocratiques. Comment l'utilisation de l'Internet contribue-t-elle aux préférences des citoyens quant au type de régime? En combinant des données individuelles d'opinion publique d'Afrique et d'Asie avec des indices au plan national, nous testons un modèle à plusieurs niveaux qui examine l'association entre la pénétration de l'Internet, l'utilisation individuelle de l'Internet et les exigences citoyennes de démocratie à travers 28 pays. Nous découvrons que l'utilisation de l'Internet, mais pas la pénétration de l'Internet au plan national, est associée à un plus grand engagement citoyen envers la gouvernance démocratique. De plus, une plus grande démocratisation et une plus grande pénétration de l'Internet modèrent l'association entre l'utilisation de l'Internet et l'exigence d'une démocratie.

Internetnutzung und demokratische Ansprüche: Ein multinationales Mehrebenenmodell der Internetnutzung und die Einstellungen der Bürger zur Demokratie

Der Erfolg von Demokratie hängt, zumindest teilweise, von der öffentlichen Forderung nach demokratischen Institutionen ab. Wie beeinflusst die Internetnutzung die Präferenzen der Bürger bezüglich des Regierungstyps? Mit einer Kombination aus individuellen Daten der öffentlichen Meinung aus Afrika und Asien verknüpft mit Indizes auf Länderebene testeten wir ein Mehrebenenmodell zur Beziehung zwischen Internetverbreitung, individueller Internetnutzung und dem Verlangen der Bürger nach Demokratie in 28 Ländern. Wir fanden heraus, dass die Nutzung des Internets nicht aber die nationale Verbreitung des Internets mit einer größeren Zustimmung der Bürger zu demokratischen Regierungen in Zusammenhang steht. Außerdem moderiert eine größere Demokratisierung und Internetdurchdringung die Beziehung zwischen Internetnutzung und dem Verlangen nach Demokratie.

인터넷 사용과 민주적 요구들: 민주주의에 대한 인터넷 사용과 시민들 태도들의 다국가,

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요약

민주주의의 성공은 부분적으로 민주적 기관들에 대한 공공요구에 달려있다. 어떻게 인터넷이 시민들의 정부형태의 선호도를 형성하는가? 아프리카와 아시아로부터 얻은 개인적 대중 여론 데이터를 국가적 차원의 데이터와 결합하여, 본 논문은 28 개 국가에 걸친 인터넷 전파, 개인적 인터넷 사용, 그리고 민주주의에 대한 시민적 요구사이의 관계를 다면적으로 연구하였다. 본 논문은 인터넷사용은 인터넷 전파도가 아니라, 민주적정부에 대한 더욱 강한 시민적 헌신과 연계되어 있다는 것을 발견하였다. 더욱이, 더욱 큰 정도의 민주화와 인터넷 전파도는 인터넷 사용과 민주주의에 대한 요구사이의 관계를 완화시켰다.

El Uso del Internet y la Demandas Democráticas: Un Modelo Multinacional, Multinivel
del Uso del Internet y las Actitudes de los Ciudadanos hacia la Democracia

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Resumen

El éxito de una democracia depende, en parte, de la demanda pública de las instituciones democráticas. Cómo el uso del Internet da forma a las preferencias de los ciudadanos sobre el tipo de régimen? Combinando los datos de la opinión pública individual de África y Asia con los índices a nivel de país, pusimos a prueba un modelo multinivel examinando la relación entre la penetración del Internet, el uso individual del Internet, y la demanda ciudadana de la democracia a través de 28 países. Encontramos que el uso del Internet, pero no la penetración nacional del Internet, está asociada con un mayor compromiso hacia la gobernabilidad democrática. Más aún, una mayor democratización y penetración del Internet modera la relación entre el uso del Internet y la demanda por la democracia.