How ICTs Affect Democracy and Corruption in Emerging Societies

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In the wake of the Arab Spring, there's been speculation about the potential of information and communication technologies (ICTs) to contribute to political transformation in emerging societies. Does adoption of these technologies really affect the political destinies of emerging nations?

On 12 June 2009, tens of millions of citizens cast their votes in the Islamic Republic of Iran's 10th presidential election. Within four hours of the polls closing, Iran's state-run media announced that the incumbent candidate, Mahmoud Ahmadinejad, had been reelected to a second four-year term as the nation's president. In the days that followed, hundreds of thousands of Iranians gathered in the streets and squares of their nation's major cities to protest what they believed to be government-perpetrated election fraud on a grand scale.

In an effort to prevent news of the social unrest from spreading throughout the nation and around the world, the Iranian government immediately cut mobile phone service, severed access to the Internet, and expunged most foreign journalists from the country. Despite these efforts, Iranian citizens circumvented government restrictions, and news and video of the unfolding events flowed out of the country over Iran's robust information and communication technology (ICT) networks. After weeks of protests, the Iranian regime ultimately quelled public dissent by using violence, intimidation, and imprisonment. Nevertheless, the mobile phone video and Internet-based discussions engendered by the disputed election made it clear to the world that a desire for change was growing among the people of Iran. Less than two years later, these technologies featured even more prominently in a wave of demonstrations and revolutions, rocking the political foundations of countries throughout North Africa and the Middle East.[1]

While the disputed Iranian presidential election and the events of the Arab Spring have prompted a great deal of speculation and comment on the

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value of ICT-mediated citizen journalism, they also serve as a wellspring for questions about the larger role that ICTs might play in facilitating political transformations in emerging societies. For quite some time, many in the international community have focused on ICTs as a means of accelerating development, thus thrusting ICT adoption to the center of the global development policy debate. Despite this vigorous international interest, only a few scientific investigations have examined how ICTs affect development at the societal level.

Here, we examine the extent to which two prominent ICTs—mobile phones and the Internet—affect levels of democracy and political corruption in emerging societies. Our analysis reveals several fascinating insights about the complex interplay between ICTs and an emerging society's economic, social, and political structures.

ICTs, Corruption, and Democracy

Although political systems exist ideally to support the needs, goals, and values of a society's citizens, emerging societies are frequently plagued by political corruption.[2] Those who possess political power and engage in corrupt activities violate the trust placed in them by their society as custodians of the common good. Although the factors that drive corruption among government officials can vary widely by circumstance, personal gain and the desire to maintain or increase power are commonly cited motivations.[3]

Regardless of what leads a government official to step across the threshold of corruption, he or she will do so only when the anticipated benefits outweigh any ethical considerations and the corresponding risk of detection and punishment is perceived to be low. For example, consider the case of China, where 10 percent of all government spending (approximately US$86 billion) is stolen or funneled into bribes, while fewer than 3 percent of corrupt officials are caught and punished.[4] Corruption, however, isn't limited to nondemocratic emerging societies. India, for example, is also mired in corruption, despite its status as the world's largest democracy. Examples such as these highlight the importance of looking beyond an emerging society's political structures to explain the prevalence of corruption.

Theories of institutional and power transition tie the distribution of power and influence within an emerging society to its information networks.[5,6] Sociologist Manuel Castells' influential theory of network society (TNS) posits that as a society evolves into one based on knowledge and information, the power within that society becomes increasingly decentralized and is redistributed among those connected to the network.[7] Although simply having access to information might be sufficient to alter societal power structures, the ability to share information with others and freely generate new information endows those connected to the network with an even greater degree of societal power and influence.

For evidence of this phenomenon, just consider the emergence of new media (blogs, social networking sites, and other Web-based repositories of user-generated content such as YouTube and Twitter). While initially seen only as curiosities, many now believe that these new media have fundamentally transformed the global political landscape—a view that seems reasonable in the wake of the events of the Arab Spring.

As power becomes increasingly concentrated in the hands of the citizenry, power transition theories predict that those connected to the network will act to maintain and expand their power. When information about government activities flows freely among a society's members, it reduces the information asymmetry between the citizens and their government. The resulting increase in transparency implies that a parallel reduction in the prevalence of corruption among public officials must occur if those officials hope to retain their positions of power. Because ICTs, such as mobile phones and the Internet, enable news and information about government policies and activities to be readily shared among those connected to an emerging society's information networks, an increase in the proportion of citizens who use such technologies should reduce political corruption over time.

This argument leads to our first set of hypotheses:

Hypothesis 1A: Mobile phone adoption inversely impacts levels of corruption in emerging societies.

Hypothesis 1B: Internet adoption inversely impacts levels of corruption in emerging societies.
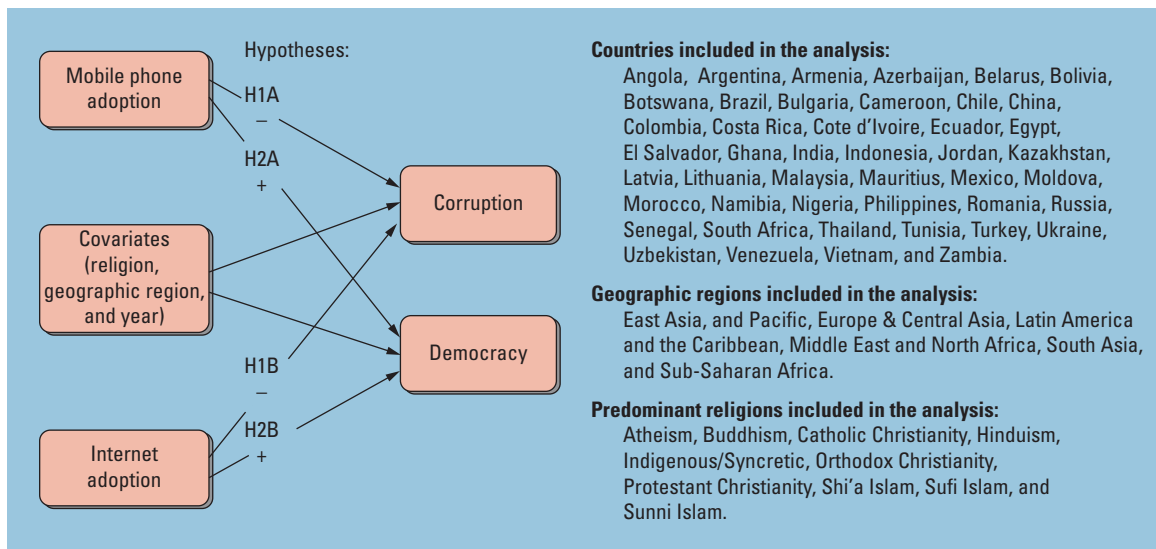
Figure 1. The conceptual research model for testing our four hypotheses and the countries, regions, and religions included in our analysis.

As the ability of citizens to access and share previously unavailable information grows, the political power in an emerging society becomes increasingly concentrated in the hands of the citizenry.[7] Given that both government "by the people" and the open exchange of opinions and information are characteristics of democracies, emerging societies can be expected to progressively adopt and exhibit democratic principles and ideals as they become more information-centric. The adoption of ICT should therefore accelerate the institutionalization of democratic principles within emerging societies.

These conjectures lead to our second set of research hypotheses:

Hypothesis 2A: Mobile phone adoption positively impacts levels of institutionalized democracy in emerging societies.

Hypothesis 2B: Internet adoption positively impacts levels of institutionalized democracy in emerging societies.

Figure 1 depicts the conceptual research model for our study and lists the countries, regions, and religions included in our analysis.

Measuring Corruption and Democracy

To begin our investigation, we first identified the set of emerging nations to include in the analysis. Although many opinions about what constitutes an emerging country exist, there's no widely agreed-upon definition. To ensure generalizable results, we adopted a broad definition that included all 88 countries currently classified by the World Bank as "middle income."

Data for our research constructs were acquired from three prevalidated sources. First, we adopted the dependent "democracy" construct from the Polity IV dataset published by the Center for Systemic Peace (CSP).[8] The CSP measure characterizes democratic societies as those that guarantee civil liberties while constraining executive power by endowing citizens with the right to express preferences about alternative leaders and policies. CSP's yearly democracy scores for each country range in value from 0 (no democracy) to 10 (highly democratic).

Next, we operationalized the dependent "corruption" construct using Transparency International's Corruption Perceptions Index (CPI), which provides yearly measures of the extent to which corruption is perceived to exist in a given country.[9] Like the democracy construct, the CPI measures corruption on a scale ranging from 0 to 10. However, we inverted the original scaling so that larger values indicate greater levels of corruption, rather than vice-versa.

We adopted our remaining constructs from the World Bank Group's World Development Indicators database (http://data.worldbank.org/indicator), which provides yearly data on hundreds of attributes for nearly every country in the world. For our "mobile phone adoption" construct, we used the World Bank's "mobile cellular subscriptions" measure, while our "Internet adoption" construct was operationalized as the World
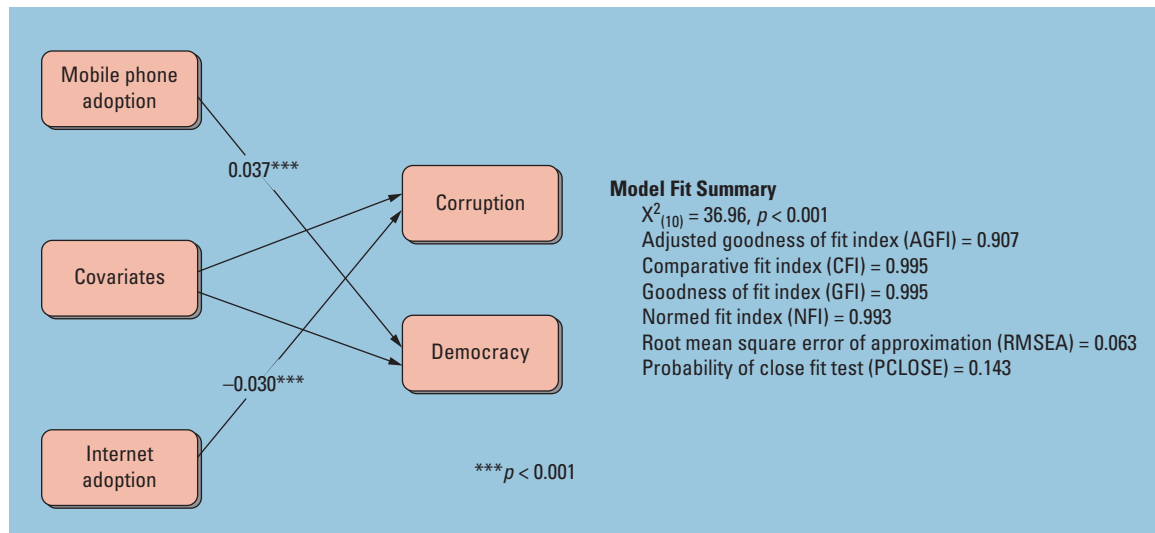
Figure 2. Model parameter estimates and fit statistics.

Bank's "Internet users" measure. The World Bank standardizes both of these measures as percentages of each country's population, thus allowing valid comparisons to be made across countries and timeframes.

In an effort to control for other potentially confounding intersocietal differences, we also included several covariates in the dataset. First, we included each emerging society's predominant religion, because deeply ingrained religious beliefs can influence cultural attitudes, with the impact varying based on the religion.[10] Next, we included each country's geographic region, because ecological similarities and differences are known to be a function of geographic proximity.[11] We coded both of these measures as a series of binary variables in the dataset. To control for the potentially confounding effects of between-society economic differences, we also included each country's per capita gross national income (GNI) as a covariate. Finally, to control for any basal growth or decline in the dependent constructs over time, we added the year of each observation to our dataset. At the time of the study, data for the principal constructs were only concurrently available from 2000 through 2009, so the dataset was constrained to that 10-year analytic timeframe.

As you might imagine, gathering high-quality descriptive data for every emerging country in the world is a monumental task, even for large nongovernmental organizations such as the World Bank. This problem impacted our study insofar as our dataset contained several incomplete observations. After excluding these incomplete rows of data, our final dataset contained 679 observations from 45 emerging countries, comprising a total of 10 religions and 6 geographic regions. Finally, we simultaneously tested all of our hypotheses using structural equation modeling with full maximum-likelihood estimation.

Results and Recommendations

The structural equation model produced the following parameter estimates for our hypotheses:

- H1A = 0.000 ($p = 0.86$),
- H1B = −0.032 ($p < 0.001$),
- H2A = 0.033 ($p < 0.001$), and
- H2B = 0.017 ($p = 0.16$).

After controlling for the combined effects of the covariates, we concluded that mobile phone adoption does not significantly impact corruption in emerging societies but does exert a significant and positive influence on democracy. Conversely, Internet adoption significantly reduces corruption in emerging societies but did not significantly affect democracy. So, our data supported H1B and H2A but not H1A or H2B.

Several covariates were also found to have no significant impact on the dependent variables. Per capita GNI and Shi'a Islam, for example, had no effect on democracy in emerging societies, while Sunni Islam, Orthodox Christianity, syncretic beliefs, and being located in South Asia or Sub-Saharan Africa had no significant effect on corruption. Removing these nonsignificant paths and reestimating the structural model produced our final results (see Figure 2).

Given the scaling of the dataset's variables, we can interpret these results as follows: For each additional 1 percent of an emerging society's population that adopts mobile phones, democracy in that society can be expected to increase by 0.37 percent. Conversely, for each additional 1 percent of an emerging society's population that adopts the Internet, corruption in that society can be expected to decrease by 0.30 percent.

There are, of course, some caveats to these findings, resulting from inherent limitations in studies of this type. Although our study relied on data from 45 emerging countries, there's limited availability of high-quality data from other countries—highlighting the importance of expanding data-gathering activities in the developing world. Our investigation was also constrained to a 10-year timeframe, and it seems reasonable to expect that the nature of the relationships among ICTs, democracy, and corruption will change as societies evolve in the coming years. Nevertheless, our findings suggest that both mobile phone and Internet adoption contribute to political development in emerging societies.

The transformative effects of those ICTs, however, are felt in very different ways. Specifically, our results raise two interesting questions for future research:

- Why is democracy in emerging societies affected by mobile phone adoption but not by Internet adoption?
- Why is corruption in emerging societies affected by Internet adoption but not by mobile phone adoption?

One way of approaching these questions is to use a bit of deductive reasoning. We now know, for example, that mobile phones and the Internet exert different levels of influence on democracy and corruption in emerging societies. We can therefore conclude that something intrinsically different about these technologies or the way people use them is producing the observed effects. There are at least two major categories of such differences that merit consideration. First, mobile phones and the Internet support different modes and types of communication, and second, these technologies are used to transmit and share different types of information.

With respect to the former, both technologies support synchronous and asynchronous communication, but mobile phones are more naturally inclined toward synchronous communication, while much of the communication that takes place over the Internet is asynchronous. What's more, mobile phones are most often used for personal communication, while the Internet is more supportive of impersonal exchanges of information. With respect to the information, mobile phone conversations and text messages are typically private and of a transient nature, while much of the information available online is publicly accessible and of a less-transient nature. One or more of these differences in modes of communication and the type of information being conveyed might be responsible for the different impacts that mobile phones and the Internet were observed to have on democracy and corruption.

It's important to briefly reflect on the role of technological progress and the impact of time with respect to our findings. During much of the 2000–2009 timeframe, mobile phones and the Internet were largely distinct technologies, especially in the early years of our analytic period. As time has passed, however, the line that once sharply divided these technologies has begun to blur. Modern smartphones not only provide mobile phone capabilities but are also fully featured Internet devices in and of themselves. With the ongoing convergence of mobile phone and Internet technologies, the nature of the effects reported here will likely also evolve over time. Future work in this area should therefore incorporate this convergence phenomenon and consider its effects on democratization and corruption in emerging societies.

If there's a more general lesson here, it's that ICT adoption can have unanticipated effects that reach far beyond the scope of individuals, groups, or organizations. Mobile phones, for example, weren't designed to foster democracy in emerging societies, and yet they do. The Internet wasn't designed to constrain corruption in emerging societies, and yet it does. What we find most fascinating is that the effects don't seem to result from any intentional or concerted action on the part of the users of these technologies. Rather, they seem in general to be emergent properties that arise naturally when citizens

in emerging societies adopt ICTs and integrate them into their lives.

Corporate managers and policy makers interested in improving the political climate in emerging societies should thus target their efforts toward increasing mobile phone and Internet adoption by

- investing in mobile phones and Internet infrastructure to ensure sufficient telecommunications capacity;
- subsidizing the cost of obtaining mobile phone service and Internet access;
- building local ICT competencies by providing training and educational opportunities;
- supporting the creation of e-commerce and other ICT-based services;
- encouraging the development of Web content that's relevant and useful to the local population;
- creating expressive and easy-to-use digital platforms for online communication and social interaction;
- advocating for policies and laws that support the free flow of ideas and information, and
- encouraging the development of digital entertainment.

Following these recommendations should stimulate positive changes in democracy and corruption (see Figure 3).

Eighteen months after the events detailed in the introduction, a 26-year-old man named Mohamed Bouazizi stood in the middle of traffic facing the governor's office in the town of Sidi Bouzid, Tunisia, and asked, "How do you expect me to earn a living?" A moment later, in an act of self-immolation, Bouazizi doused himself with gasoline and set himself on fire. Earlier in the day, he had been harassed and humiliated by a local official for selling produce from his cart without a permit.

Hundreds of citizens gathered in the streets of Sidi Bouzid to demonstrate in antigovernment protests. Mobile phone video of the protests and news of Bouazizi's final act of desperation quickly spread across the country's ICT networks. The frustration and dissent that had been building for years among the Tunisian people suddenly
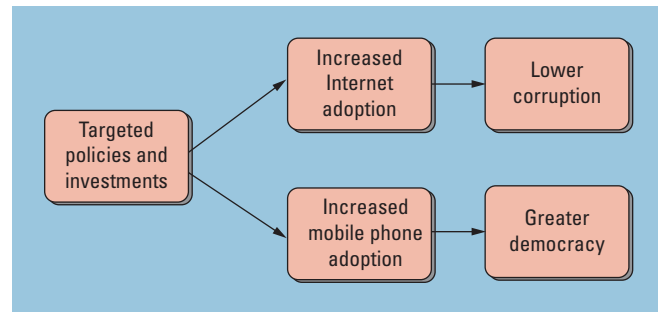
Figure 3. Improving democracy and reducing corruption in emerging societies through targeted policies and investments.

seemed to reach a critical mass, and soon thousands of protesters were marching in cities across central Tunisia. Using batons and bullets, the corrupt and autocratic government desperately tried to suppress the uprising, but eyewitness accounts of government atrocities and a flood of new mobile phone videos soon precipitated a full-scale revolution. Just 10 days after Bouazizi's death, the Tunisian government collapsed. Images and video of jubilant Tunisians rejoicing in their new-found freedom soon ignited uprisings and major protests in countries across North Africa and the Middle East. With a little help from ICTs, a wave of revolution that would ultimately bring freedom and dignity to tens of millions of people had begun. 🖵

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