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### MENA and the internet : technology and the democratic divide.

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MENA and the Internet: Technology and the Democratic Divide

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## **The Internet and Democratization**

In this chapter, we focus on the increasing political changes in the Middle East caused in part by the growing use of the Internet to distribute political information and organize political opposition. While there is a great deal of conjecture about the role of the Internet in the Middle East, in this chapter we attempt to begin a more systematic measure and assessment of the penetration and importance of the interactive medium of the Internet on politics and its ultimate reach and significance to potential political actors in the Middle East. After exploring the historic assumptions and motivations behind the use of the Internet for political gain, we use data from the 2006-2007 Arab Barometer made available from the Inter-University Consortium for Political and Social Research (ICPSR) to explore the penetration and implications of the use of the Internet in the Middle East. We explore the distribution of Internet use across income levels, education levels, age and gender in the seven countries included in the Arab Barometer. The findings presented suggest that the Internet is of growing importance, but is limited in its penetration and distribution across the Middle East. In addition, there is a measurable divide in access and use of the Internet that is likely to play an increasingly important role in how effective the Internet can be as a political tool.

Making projections and predictions about the future development of political systems is difficult under any circumstances. Anticipating the Middle East, which presents a shifting landscape that is subject to varied, inconsistent, and often simply unmeasurable influences is a significant challenge for scholars. Much has been written about the future of the Middle East and its political actors (See, Rabil 2008). Such a broad inquiry is far beyond the scope of this chapter. In this research, we examine the Middle East through the single lens of technology, and resultantly attempt to isolate the Internet as a variable to measure its impact. We adopt this

approach because the Internet presents more than just a technological improvement in communication technology. It has the potential to reshape the nature of politics in the Middle East by changing how people interact with each other and the states themselves. No state or industry controls the content of the Internet. It is a network of networks that links hundreds of millions of devices around the globe largely outside the traditional networks of communication. The network protocols allow transmissions to be broken into packets and sent virtually anywhere using a remarkably fast yet unpredictable and varied route. The route itself is irrelevant, and the nature of the data transmitted can be virtually any content in multiple formats, making the control of content a difficult task.

What distinguishes the Internet from previous technological advances is that it is not easily co-opted and controlled. That is not to say that the Internet is beyond control or cannot be filtered or limited. It regularly is in nations in the Middle East such as Iran or Saudi Arabia and in other nations around the globe such as China, though with mixed success. There continue to be ways around filters, such as proxies and encryption (Chadwick 2006). Other less sophisticated strategies to avoid filtering and restrictions use websites intended for sports or social interaction to convey political information indirectly. The Internet is unique as a means to convey information in a largely decentralized way. As a result, it is difficult to limit political communication without heavy-handed tactics that halt otherwise permissible, encouraged and increasingly needed social and economic exchanges.

The Internet is an important commercial technology; few international businesses can operate effectively today without a significant Internet presence. It is also an increasingly common means for the state to communicate with its citizens (Gainous and Wagner 2011). Yet, limiting it to the preferred uses is a difficult proposition. The more integrated the Internet

becomes in the state; the harder it is to stop and remove its more politically destabilizing uses. The political applications are a significant rider that becomes available with the economic and governmental benefits. As the network protocols are open and published, it is difficult for any actor to control the Internet, though as indicated above, not impossible, at least in the short term.

Scholars fall largely into two camps when considering the implications of the Internet on politics. Some propose that the Internet will provide the means by which people and politicians can even the otherwise limited political field, creating more opportunities for ideas and candidates (Barber 2001; Corrado and Firestone 1996; Hagen and Mayer 2000; Rash 1997). In this view, the Internet is a positive democratizing entity that helps remove the barriers that favor some groups and individuals in the electorate. This projection is generally called the equalization theory (Barber 2001). This approach drives the belief that Internet integration in nations such as Iran will result in regime change over time. Since many repressive nations maintain themselves through state institutions that restrict political communication and organization, the Internet appears, at least facially, as a potential antidote. Many contemporary journalists are willing to give the Internet, and communication protocols such as Twitter, at least partial credit for uprisings in the regions including Egypt and Tunisia (Dyson 2011).

Alternatively, some have contended that the Internet will eventually be captured and harnessed by experienced political actors. As a result, any change will be marginal, preventing a shift in the basic power balance of the political systems. In this view, the use of the Internet will be “normalized” into the current electoral paradigm (Bimber and Davis 2003; Ward, Gibson, and Lusolli 2003; Margolis and Resnick 2000). In application, the supporters of normalization see the Internet as a new tool to be used as part of the conventional political structure, though the theory is generally applied in the context of democratic electoral systems. Applied through the

prism of the Middle East, normalization theory would suggest that the repressive states and the dominant groups in those states will eventually learn how to harness the Internet and use it to their benefit. There is already some evidence that China has begun to control the dominant search engines in that nation, and as a result, turned some of the presumed openness of the Internet into a vehicle for state propaganda (Hille 2011). Other states, including several in the Middle East, regularly monitor and filter the Internet for social and political content that is deemed unlawful or inappropriate (Howard 2011). Depending on which scholarship one adopts, the Internet will either balance out the structural limitations of the system or become just another part of it.

Much of the difficulty in anticipating the effect of the Internet is that both propositions can be true to some degree. The Internet may present a democratizing influence, and it also may be limited and co-opted to some degree by the state or by powerful interest groups within the state. Much depends on the degree of penetration of the Internet and the nature of the political balance in any given nation or even the technological savvy of the opposing sides. In the context of an otherwise open and democratic society, the effects of the Internet can be seen on the margins. The Internet may change campaigning, fund-raising, advertising, and even political organization. While this may well be significant, some scholars will see it more incrementally or within dominant political paradigms (Gibson and Lusolli 2003). We have previously challenged this approach and have argued that even in traditional democratic nations, the changes brought in by the Internet are more significant and revolutionary over time than many have anticipated by shifting some of the foundational pillars of politics such as campaigning and organizing (Gainous and Wagner 2011; Wagner and Gainous 2009). Leaving aside the debate over the impact of the Internet on well-established and mature democracies for the moment, in a more

politically repressive state, we contend it is much harder to dismiss the significant impact of online technologies. Where traditional political communication and organization are heavily restricted, the Internet fills an otherwise inaccessible vacuum. Limiting and censoring print newspapers, radio or television broadcasts is within the ability of most state institutions. The size and scope of the Internet along with its speed of transmission creates a vast new political space for which the management and control requires original strategies that are still being developed and are often inadequate.

The Internet may allow for an organized opposition and opposition outreach that would never have otherwise been previously possible in any meaningful scope, creating the potential for a much more significant shift in political engagement and the overall the political landscape. Consider that the Internet changes the very nature of how people and the state engage with one another. It is a medium that makes everyone your neighbor. It makes the vastness of human knowledge available in homes around the globe. It makes interactive communication possible at an increasingly low cost. It makes the transmission of ideas, images and humanity itself available in ways unimaginable just a few short years ago. It is not just altering the rules; it is changing what people know, when they know it and who is doing the speaking. The Internet is in moments creating a new universe of political actors that are hard to anticipate and identify, and as a result, extremely hard to remove from the conversation.

Even beyond the easing of communication barriers, the Internet creates its own dynamic for the interaction of politicians with the public. Websites can and do become venues for policy debate (Stromer-Galley 2000). This creates a new type of campaign as candidates and the state can lose control of the issues, even on their own website. Further, the Internet allows for easy entrance for interest groups and third parties, resulting in many “digital” parties (Norris 2001).

Even without a physical presence, these third parties can present a sophisticated image across the Internet despite limited resources (Ward et al. 2003). Additionally, communication need not be one way, as in the case of advertisements purchased for broadcast television, radio, or the print media, but can be interactive and engage the public through forums and email (Schneider and Foot 2002).

While we have framed the change brought by the Internet in a positive light, or at least as favoring greater degrees of political opportunity, it is important to note that creating a new political space opens the political sphere to many groups. Some of these groups that have made use of the Internet include fundamentalists and violent extremists. Beheadings and calls for violence against people and state are regularly uploaded to the Internet. While many Americans would prefer to believe that the Internet gives voice to a democratic movement, the undeniable truth is the Internet simply gives voice. The space created is filled by people, and as a result often represents a wide range of ideological and political beliefs that are otherwise limited or repressed.

We propose that the Internet is revolutionary in almost any context (Gainous and Wagner 2011), however, the immediate effects are more likely to appear in states where the Internet creates a communication and political forum that did not previously exist at any notable scale. As such, we contend that within the context of the Middle East and in states lacking basic political freedoms, the normalization theory is likely inapplicable. Where political freedom and communication is most restricted, the Internet becomes the most significant means to circumscribe state control. The degree to which the Internet can alter political activity is higher in nations with stricter political controls. In a politically open nation, the Internet may create

efficiencies in various types of political activity. In a nation with strict political controls, the Internet can be transformative.

All of the above is predicated on an Internet that is both available and accessible by large numbers of people. If sending messages using an Internet protocol such as Twitter is going to result in a substantial protest, then there will need to be a significant number of people who not only have the ability to access Twitter, but also the education and skills to use it. Hence, the predicate to any theory of the transformative influences of the Internet is an assessment of both the penetration of the new technology into the population and the populations' ability and education with Internet use. We will examine both below.

### **Politics and the Internet: Surfing The Digital Divide**

Adopting a theoretical lens for viewing the impact of the Internet in the Middle East is only the first step of the inquiry. To understand the influence of an innovation such as the Internet, the technology must be understood in the context where it is used. Assessing the impact of new technology such as the Internet on the political landscape is difficult. Even in Western nations, where data is more easily available, the measures have been fairly limited. Much of the scholarship is in broad strokes and mostly holds a positive normative view of technology (see, e.g., Brennan and Johnson 2004; Browning 2002; Davis 1999; Selnow 1998). Much of the research has been focused on aspects of the political system such as fund-raising or advertising. Some scholarship has examined the influence of the Internet on news gathering, lobbying, campaigning, and even participation (Davis 1999). Few believe the Internet has no effect, though the significance of the effect is not clear. The nature of the Internet as a political tool as

projected into future political contests is less clear, with differing studies and conclusions on the ultimate significance of the Internet (Chadwick 2006).

Antecedent to any question as to the usefulness of the Internet is the more basic inquiry as to whom, if anyone, is using it. The precursor to any discussion of the Internet is the degree to which the Internet is a viable mechanism in any nation. In the United States, a nation with high levels of Internet use, at least comparatively, this is still an important question. There are significant sociological divisions in both the access and use of the Internet for Americans based on income, race and age (Gainous and Wagner 2007). These divisions, often called the digital divide, are strikingly similar to the types of divisions that already exist in the American electoral system, which regularly produces a voting electorate that over-represents those of higher socio-economic status (Verba, Schlozman, and Henry E. Brady 1995). From 2000-2008, upper-income Americans' use rate hovers around 80 percent, while lower-income Americans stay mostly near or just above 40 percent (Gainous and Wagner 2011).

It is a multifaceted problem. Lower-income Americans are limited in two ways. They do not have easy access to Internet-connected computers, and even if they did, they lack the skills to maximize the access. Similarly, there are significant variations in the use of the Internet among different racial and age categories in the United States. The divisions across racial lines are important in the context of voting, as race is an important factor in both participation and partisan politics in the United States (Gainous and Wagner 2011). The result is that the digital divide limits the usefulness of the Internet to those who have access and expertise, and limits the ability of the Internet to cause widespread change, at least in the short term, to those nations that have smaller divide problems.

The digital divide in the Middle East remains significant between countries and within countries of the region (Howard 2011). Yet this is a moving target, as it is a region of fairly stark change. In the 1990s, while the U.S. and Europe competed over the expansion of broadband Internet technology, the Middle East was still far behind in wired telephone access. It is a region that in many areas lacks the infrastructure for large-scale deployment of communications technologies, including the Internet. Yet any statement about these gaps between modern western nations and the Middle East is almost dated as soon as it is written. These gaps are closing, as the adoption rate of technologies and the Internet is more rapid over the last 10 years in the Middle East, and the Muslim world in general, than in Western nations (Howard 2011). Though, it is worth noting that the percentage increase is driven in part by how far those nations had to come. Nonetheless, adoption and expansion rates of Internet technology in the Middle East are significant. As a result, the present circumstance is about 10 percent of the Muslim population is online, but the numbers are growing significantly (Howard 2011).

The pattern of Internet adoption in the Middle East presents an interesting window into its usefulness as a political tool. The growth of Internet use across Muslim nations, and in the greater Middle East, differs from the American experience. This is, in part, because of the lack of infrastructure for the traditional home-based landline service. Initial adopters were primarily businessmen, the wealthy and political leaders who traveled abroad to urban centers where Internet use was more common. The cost of creating an access point in the home or even business as a matter of economics eliminated a large number of potential users (Howard 2011). This retarded the growth of the Internet in the area through the 1990s. However, it was not uncommon to find ex-patriot communities online building the beginnings of a social/political organization, though usually operated and organized from outside the region (Ghareeb 2004).

Outside of the universities in the region, as well as hospitals and some limited urban areas, the infrastructure remained a significant stumbling block to growth in Internet adoption. Limited numbers of Internet users, plus the socioeconomic divide between the users and the regular population, made the Internet a fairly restricted vehicle for any kind of change. The digital divide in the Middle East created the circumstance where those who would most benefit from the voice the Internet could provide lacked the resources to obtain access.

The other primary factor in the restriction of Internet growth through the 1990s in the region and across the Muslim world were obstacles put forward by state governments. It was not uncommon for the Internet to simply be banned, as it was in Syria and Saudi Arabia during the 1990s. The growth of the Internet was seen as a globalizing or Americanizing influence which would champion a western political culture in otherwise closed nations (See, Teitelbaum 2002). Yet, as noted above, the economic implications and usefulness of the Internet led to increasing pressure to relax limitations. Economics forced businesses to use dial-up Internet connections in neighboring nations. The initial state response was to attempt to create national access to the Internet, but to do so in a way that only allowed the economic benefits without the ancillary cultural influences. While this clearly seems appealing to the leaders of repressive states in the abstract, it is difficult in reality. Saudi Arabia planned its first Internet node in 1997 with the plan to use censoring proxies, prohibitions and education to limit the Internet to acceptable uses (Teitelbaum 2002). While it is virtually impossible to measure how many people circumvent these types of restrictions, the strategies for doing so are widely distributed and readily obtainable.

The limiting effects of infrastructure and state controls create a patchwork of various degrees of Internet penetration in the region. The degree to which individuals can freely use the

Internet varies widely depending on where access is available, the speed of the connection, what content is lawfully allowed, and what group or institution is monitoring it. In some poorer nations in the region, Internet access is provided by Non-governmental Organizations (NGOs). These communities are likely to have less limiting of the content, but a more difficult time with physical access points. Other access points are provided by educational institutions, civic groups or local authorities, each with their own rules and restrictions. Many youth in Muslim nations access the Internet through their religious school or madrassa, where supervision and monitoring of the use is likely to be extensive (Howard 2011).

In the short term, the digital divide presents an opportunity for states to control access to the Internet by monitoring access points. If these circumstances were static, it's possible that the more restrictive regimes may have been able to effectively control the Internet by controlling a fixed number of access points. However, the addition of mobile Internet access has created a new and far less controlled Internet. While wired connections can be limited and monitored, mobile devices are expanding the use of the Internet from the university, madrassa, or café into a much broader context. Modern mobile telephones are increasingly used for Internet access. Ironically, the proliferation of mobile devices was initially viewed by many developing states as a less costly solution to the lack of telephonic infrastructure. Instead of laying down the vast amounts of telephone wiring needed to bring wired telephones to distant communities (or some not so distant communities), states adopted a focus on the wireless system as being both more advanced and easier to implement. The use of mobile devices was so significant that Iran and Albania blocked Internet gateways and entire mobile phone networks during periods of unrest to prevent opposition groups from effectively organizing (Howard 2011).

Aside from education and income, the digital divide can and does exist over gender and age. In the United States, gender is not a significant issue in technology adoption, but age is still a significant divide, with younger Americans adopting the use of the Internet at higher rates (Gainous and Wagner 2011). In the Middle East, we would expect both gender and age to be substantial divides for technology adoption based on nations with a culturally conservative view of the role of women and an older generation with little to no exposure to digital communication technologies. Gender is a significant issue in much of the Middle East. In fact, the regular content of some regional blogs often consists of debates concerning the role of women in society. The blogs themselves are conducted in a cyberspace that allows contributions from within the region and from outside nations such as the United States (Slavin 2005). The Internet is by its nature gender-neutral, allowing women to be active (if not always open) participants in online political discourse (Rahimi 2003).

There is substantial support for the belief that the Internet provides an opportunity for women to become more active political participants (Howard 2011; Griswold, McDonnell, and McDonnell 2006; al-Saggaf 2004). It may over time change the role of women in the political sphere. Yet, the cultural limitations on the role of women in many of the states in the region are likely to be a significant drag on the Internet adoption rate of women. Many women cannot use the Internet in the home even if available, and girls are given less exposure to it in school (Gadio 2001). In addition, poverty, which forces women into early marriages, along with well-defined gender roles, are substantial obstacles for Internet adoption among women. Further, there are few role models for women in technological fields, and little incentive for women to remain in school where they can gain the skills necessary to become adept on the Internet (Sylla 2002). Because of the above obstacles and deep-seated cultural and religious limitations on women, we expect

there to be a gap in gender adoption rates. The end result is that women will have a smaller voice in the new political sphere, at least for a time.

Gender, like age, income and education, represents a structural fault line for the influence of technology on the politics of the region. The nature and scope of the digital divide in the Middle East is foundational to any discussion of the democratizing influence of the Internet. Democratization requires broad civic pressure to be successful. If the Internet is going to be an impetus for such civic pressure, it must also have a sufficiently broad reach to mobilize and engage a significant portion of the population. This is not to say that a limited Internet would have no influence. Political communication, even at the margins, can alter the balance of power, especially where the political lines are precariously balanced as in Libya or Tunisia (Howard 2011). Nonetheless, the power of any communication technology is in part a product of its scope and reach, so the digital divide is central to any analysis. We analyze the nature of the divide and its implications below.

## Data and Methods

One of the typical limitations of many studies of the Middle East is the absence of data across all possible cases (Milner 2006). Our study is limited to a handful of nations where reliable survey data is available. However, the nations used are diverse in both population and geographic locations, so these data do allow us an opportunity to examine the nature of the digital divide in the Middle East. Further, the analysis in this chapter is, to our knowledge, the first quantitative assessment of the digital divide in the Middle East. The data come from the 2006-2007 Arab Barometer made available from the Inter-University Consortium for Political and Social Research (ICPSR). The Arab Barometer is a large scale survey conducted in seven Arab countries, including Algeria (n = 1300), Jordan (n = 1143), Kuwait (n = 750), Lebanon (n = 1200), Morocco (n = 1277), Palestine (n = 1270), and Yemen (n = 1182). Face-to-face interviews were conducted with citizens over 18 using several multi-stage random sampling approaches (see <http://www.icpsr.umich.edu> for complete details). The instrument assesses citizen attitudes about public affairs and governance, including indicators of Internet use.

The analysis that follows, first, looks at the frequency distribution of Internet use and draws comparisons to the U.S. to get a sense of the relative pervasiveness of the Internet. Second, we explore the distribution of Internet use across income levels, education levels, age, and gender in the seven countries included in the Arab Barometer. Finally, we model Internet use as a function of income, education, age, and gender. These models assure us that the bivariate findings are not spurious (i.e. the gender divide is not accounted for by variation in income, education, and age) giving us insight into who exactly is most likely to rely on the Internet for information. *Internet Use* was measured using a single item. Respondents were asked the following question translated in their respective language: How often do you use the Internet?

(daily or almost daily, at least once a week, at least once a month, several times a year, I do not use the Internet). *Income* is measured in deciles (1-10), *Education* is grouped (Illiterate = 1, Elementary = 2, Primary = 3, Secondary = 4, College diploma/2 years = 5, Bachelor's = 6, Master's or higher = 7), *Age* is measured in categories (18-24 = 1, 25-34 = 2, 35-44 = 3, 45-54 = 4, 55-64 = 5, 65-74 = 6, 75, and gender is measured a dummy variable (female = 1, male = 0). The items were coded where higher values represented more Internet use, higher income, more education, and older, and then rescaled to range from 0-1 for use in the multivariate model. Dummy variable were also created for income, education, and age for the bivariate test (1 = at or above the median, 0 = below the median).

-Insert Table 1 here-

## **Results**

It is important to look at general use of the Internet in the Middle East before moving on to the examination of the digital divide. This provides a context from which to interpret the findings that follow. The results presented in Table 1 suggest that most people within the sample do not use the Internet at all (62.34 percent). This is several magnitudes higher than the 6.6 percent who claim to never use the Internet in the U.S. in 2008 (Gainous and Wagner 2011). That said, 12.15 percent of the sample claim to use the Internet at least once a month or several times a year, which is not much different from the 8.7 percent who claim to use the Internet every few weeks or less often in the U.S. in 2008 (Gainous and Wagner 2011). Just as the difference at the low end of use differs across the Middle East and the U.S., there is also a significant difference on the high end of use. While 84.7 percent in 2008 in the U.S. claim to use the Internet 1-2 days a week or more (Gainous and Wagner 2011), only 25.51 percent of those in the Arab Barometer data claim to use the Internet at least once a week or more. The statistics

provide a framework for understanding the findings that follow. The ability of the Internet to serve as a democratizing force in the Middle East is first constrained by the pervasiveness of use. If it does, indeed, stimulate democratization, presumably, use and access would need to be widespread for this to happen. Additionally, if the frequency of use is further delineated across the digital divide, the potential for the Internet to serve as a democratizing force faces more challenges.

-Insert Figure 1 here-

The results presented in Figure 1 clearly indicate that there is a digital divide present in these data. Those in the sample at or above the median income are more likely to use the Internet. A Wilcoxon-Mann-Whitney test indicates that this difference is, indeed, statistically significant ( $p = 0.00$ ). The results suggest also that those at or above the median education level claim to use the Internet more frequently ( $p = 0.00$ ). Younger people and males are clearly more likely to use the Internet (both  $p = 0.00$ ). So, combined with the results presented in Table 1, the penetration of the Internet still has some hurdles to clear for its full influence as a democratizing force to come to fruition.

-Insert Table 2 here-

These results hold up in a multivariate setting. This is important because it assures us that the divide across one variable is not actually explained by the divide across another. Every variable in the model is significant at the 0.01 level, indicating that there is a very low probability that we are falsely rejecting the null hypothesis that there is no relationship between the variables and the frequency with which those in the sample use the Internet, *ceteris paribus*. There is a positive relationship between income and Internet use. The odds ratio suggests that a single decile increase on the income indicator increases the odds of being higher on the Internet

use indicator by 1.78 times. Education is also positively related to the frequency of Internet use. In fact, it is the strongest predictor in the model. A one-unit increase in education increases the odds of being higher on the frequency of Internet use indicator by 3.72 times. As expected, age is negatively associated with Internet use. The older one gets, the less likely they are to use the Internet. The odds ratio for the estimate indicates that a move up one category on the age indicator increases the odds of being lower on the Internet use variable by 0.26 times. While not a large effect, it is nonetheless highly reliable (again,  $p < 0.01$ ). The same can be said for gender. While the effect is not large when controlling for these other factors, it is very reliable. Women are 0.76 times more likely to be lower on the frequency of Internet use indicator while holding all other variables at their respective means.

### **Conclusion**

The recent history of the Middle East is not one that has traditionally been driven by technological innovation, though the political culture of the Middle East has been changed by newer technologies (Allawi 2009; Nasr 2005). There are many stories of people in the Middle East using communication technology to outmaneuver the state or to gain political advantage. Protestors in Tunisia, Iran, Egypt, Libya and Syria have used the Internet to organize, communicate and stay informed (Howard 2011). Much of the popular discussion in the general media of the impact of the Internet in the Middle East began with the Iranian protests following the re-election of Mahmoud Ahmadinejad in June of 2009. What made the 2009 Iranian election different were not the allegations of fraud, irregularities or even tight state media control. All three of those elements were present in Ahmadinejad's election in 2005 (Howard 2011). The difference in 2009 was the presence of a largely independent network that allowed for the distribution of information outside the control of the state. The results were protests unmatched

in size, scope or duration since the Iranian Revolution in 1979. Social networking sites Facebook and Twitter were used extensively in both the campaigns and subsequent protests, with a 25 percent increase in Iranian participation in social media over the last three months of the campaign. The role of social networking was so vital that the U.S. State Department formally asked Twitter on June 16 to delay a network upgrade that would have briefly suspended service (Howard 2011).

Similarly, the Internet has helped fuel and organize protests around the Middle East in nations such as Tunisia, Egypt, Libya, Oman and the Palestinian territories. The Internet has had a profound effect on the nature of governance and journalism in the Middle East (Howard 2011). Since 2000, the number of Muslim Internet users has doubled every eight months (Karatzogianni 2006). Various opposition or democratization movements in Egypt, Tunisia, Kuwait, Iraq, Iran, Albania and Afghanistan have successfully organized and avoided government crackdowns by migrating to the web (Howard 2011). The use of the web has created a communication protocol that is difficult to contain and limit using the more traditional heavy-handed approaches to opposition media (Giustozzi 2001).

This work is clearly just intended to provide a foundation for understanding some of the limitations the Internet faces as a democratizing force in the Middle East. Clearly, there are contextual factors that vary from country to country that may structure the influence of the Internet. For instance, the level of governmental filtering of the publics' access to the Internet may impact how influential a factor in shaping peoples' perceptions it eventually turns out to be. That said, the effect of Internet filtering is a product of limiting access. The potential for the Internet to influence people is determined by how much access the population at large has. The results presented here are two-fold on this front. First, they suggest that, as of 2007, the

penetration of the Internet is quite limited. Second, there is disproportional use among those who do use the Internet. As we expected, gender, income, age and education remain substantial barriers to Internet growth. This is not unique to the Middle East. To a lesser degree, these same divisions mirror in part the digital divide that has been observed in much of the western world in substance, if not in size (Gainous and Wagner 2011). Yet, the ground is shifting at such a rapid rate that long-term conclusions are perilous. There is reason to believe that Internet use is growing exponentially in the Middle East (Howard 2011). That said, there is no evidence in our data to suggest that the digital divide is dissipating even as rates of use go up. While adoption rates in the Middle East are rapidly increasing, the digital divide remains a measurable and substantial factor. As a result, democratization ensuing from Internet use in the Middle East is likely to be constrained by uneven network penetration until the Internet can substantially bridge the divide.

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Table 1: Internet Use in the Middle East

	Frequency	Percent	Cumulative Percent
Daily or almost daily	961	12.23	12.23
At least once a week	1044	13.28	25.51
At least once a month	551	7.01	32.52
Several times a year	404	5.14	37.66
I do not use the Internet	4899	62.34	100.00
Total N	7859	100.00	

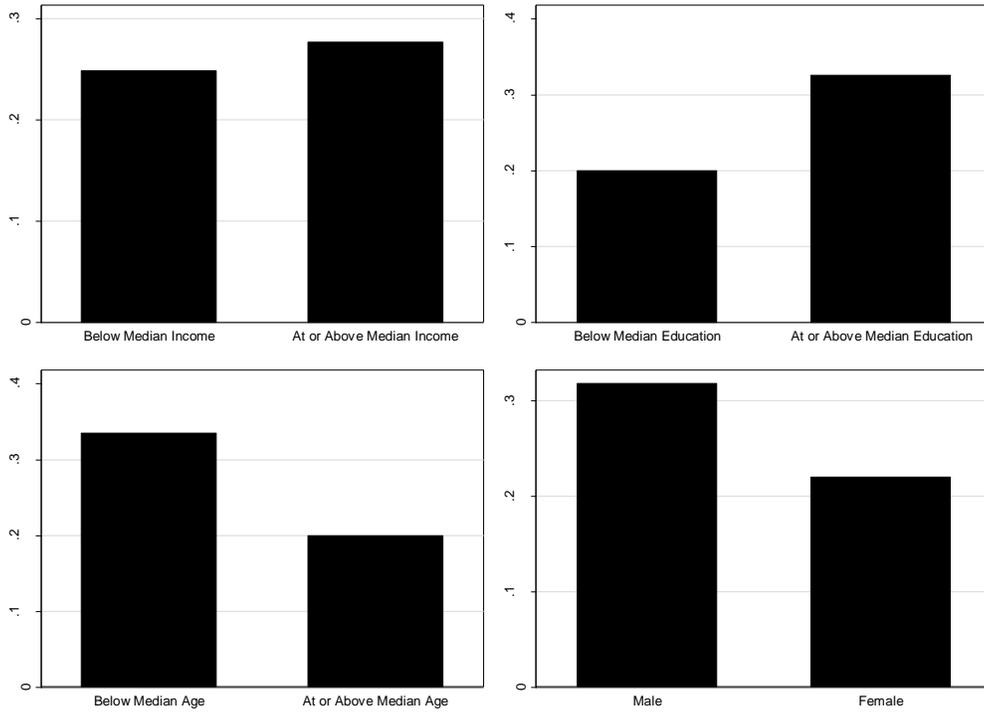
**Note:** Data come from the Arab Barometer 2006-2007.

Table 2: Multivariate Model of the Digital Divide

	Estimate	S.E.	Odds Ratio
Income	0.58*	0.10	1.78
Education	1.31*	0.11	3.72
Age	-1.36*	0.14	0.26
Female	-0.28*	0.06	0.76
Pseudo R <sup>2</sup>	0.04		
N	5062		

**Note:** Data come from the Arab Barometer 2006-2007. Cell entries are ordered-logit estimates. \*p<0.01.

Figure 1: Distribution of Internet Use across Digital Divide Variables



**Note:** A Wilcoxon-Mann-Whitney test indicates that there is a significant difference between the underlying distributions of Internet Use for those below the median and at or above the median income, education, age, and across gender ( $p = 0.00$  for all).