

Ctrl-Alt-Revolt?

Online and Offline Networks during the 2011 Egyptian Uprising

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Abstract

Analyses of the 2011 Egyptian uprising assign a significant mobilizing role to the interpersonal networks created through Facebook and Twitter. However, these studies fail to investigate online networks in comparison with more traditional “offline” networks, which are similarly theorized to mobilize members to protest participation. In this paper, we analyze nationally representative Arab Barometer survey data from Egypt 2011 to compare the mobilizing effects of memberships in four different types of networks: online, union, community, and religious. We test whether these networks were distinct and operated in competition, or overlapping and operated in tandem to mobilize Egyptians to protest. We demonstrate that different networks mobilized different segments of the population, consistent with theories about the negative revolutionary coalition necessary for successful uprisings. We also show that multiple network membership increases protest propensity, and that individuals at the intersection of online networks and community group networks, such as those formed through membership in charity groups or sports clubs, are most likely to engage in revolutionary protest. These results speak to an important interactive effect between online and offline networks in terms of facilitating successful revolutionary uprisings.

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Keywords

political science – protest mobilization – Arab spring – Twitter – online networks – social media – civil society

Introduction

Popular and academic discourse about mobilization during the 2011 Egyptian uprising assign a central role to social media usage, a proxy for membership in online networks, as an important mobilizer of individuals.¹ Online platforms such as Twitter and Facebook are widely thought to have provided unprecedented forums for citizens to exchange oppositional and logistical information, in turn facilitating the formation of networks crucial to widespread mobilization against the region's authoritarian regimes.² In the words of one activist, "we use Facebook to schedule the protests, Twitter to coordinate, and YouTube to tell the world."³ Internet usage data collected by the Project on Information Technology and Political Islam documented that during the 18 days of protest that ultimately led to the resignation of long-ruling president Hosni Mubarak, spikes in online revolutionary conversation often preceded major protest events. A survey of protesters collected in Tahrir Square in the days after Mubarak's departure likewise found that social media usage was a significant driver of protest behavior.⁴ These claims mirror the findings of a broader social movements literature concerned with the impact of emergent media technologies on protest mobilization, including such contemporary

1 Throughout the article, we use the term "network" to mean membership in a group, rather than in a manner which focuses on the structure of groups typically utilized in contemporary network analyses.

2 David M. Faris, *Dissent and revolution in a digital age: Social media, blogging and activism in Egypt* (London: IB Tauris, 2013); Merlyna Lim, "Clicks, cabs, and coffee houses: Social media and oppositional movements in Egypt, 2004–2011," *Journal of Communication* 62:2 (2012): 231–248.

3 Philip N. Howard, "The Arab Spring's Cascading Effects," *Pacific Standard* February 23, 2011 (available at <http://www.psmag.com/navigation/politics-and-law/the-cascading-effects-of-the-arab-spring-28575/>).

4 Zeynep Tufekci and Christopher Wilson, "Social Media and the Decision to Participate in Political Protest: Observations from Tahrir Square," *Journal of Communication* 62:2 (2012): 363–379.

movements as Occupy Wall Street,⁵ youth protest in Latin America,⁶ and the broader transnational “Arab Spring” movement in Tunisia, Syria, Bahrain, Libya, Yemen, Jordan, and Morocco.⁷

Undoubtedly, Egyptian citizens opposed to the Mubarak regime forged bonds through online platforms. However, evidence from the uprising does not support the assumed ubiquity of social media usage among protest participants, nor does it confirm the singular influence of online networks in mobilizing Egyptian citizens to protest. In 2011, the Arab Social Media Report reported that Facebook penetration in Egypt was merely 5.49 percent⁸ – yet 8 percent of the Egyptian population reported participating in some or all of the protests in the 2011 Arab Barometer collected following the uprising. At the time, Egypt ranked among the tier of the region’s “developing users,” akin to usage rates in countries with low internet availability such as Djibouti and Oman. And while self-reported use of online communication is higher among Egyptian protesters than among the general population, still no more than half of Egyptian protesters sampled by the Arab Barometer reported being internet users at the time of the protests. The first day of protests on January 25, 2011, were certainly organized by youth opposition movements activating online networks, but the number of protesters soon swelled far beyond high estimates of these groups’ membership and mobilizational reach, thus producing the diverse protest coalition necessary for successful uprisings.⁹ First-hand accounts noted the broad cross-class and multi-ideological nature of social groups mobilized during these protests.¹⁰ Protest participants were drawn from an array

5 Kevin M. Deluca, Sean Lawson, and Ye Sun, “Occupy Wall Street on the public screens of social media: The many framings of the birth of a protest movement,” *Communication, Culture & Critique* 5:4 (2012): 483–509.

6 Sebastian Valenzuela, Arturo Arriagada, and Andres Scherman, “The social media basis of youth protest behavior: The case of Chile,” *Journal of Communication* 62:2 (2012): 299–314.

7 Marc Lynch, *Voices of the New Arab Public: Iraq, Al-Jazeera, and Middle East Politics Today* (New York: Columbia University Press, 2006); Axel Bruns, Tim Highfield, and Jean Burgess, “The Arab Spring and social media audiences: English and Arabic Twitter users and their networks,” *American Behavioral Scientist* 57:7 (2013): 871–898; Philip N. Howard and Muzammil M. Hussain, *Democracy’s fourth wave? Digital media and the Arab Spring* (Oxford: Oxford University Press on Demand, 2013).

8 Racha Mourtada and Fadi Salem, “Civil Moments: The Impact of Facebook and Twitter,” *Arab Social Media Report* 1:2 (May 2011).

9 Jack A. Goldstone, “Toward a Fourth Generation of Revolutionary Theory,” *Annual Review of Political Science* (2001): 139–187.

10 Killian Clarke, “Unexpected brokers of mobilization: Contingency and networks in the 2011 Egyptian uprising,” *Comparative Politics* 46.4 (2014): 379–397.

of Egypt's socioeconomic groups and included professionals, manual laborers, agricultural workers, government and private sector employees, housewives, students, and the un- and under-employed.¹¹

The singular focus on the mobilizational power of online networks is not unique to analyses of the Egyptian uprising. Scholars analyzing the relationship between membership in various types of organizations and individual participation in protests commit a similar mistake by largely considering mobilizing networks in isolation, rather than through comparison of multiple groups within a given protest context. In this paper, we challenge existing conceptions of interpersonal networks and protest mobilization, as well as the widespread contention that networks formed through new media technologies have supplanted traditional offline social networks as vanguards of collective action. We seek to explain individual protest participation in the 2011 Egyptian uprising as a function of membership in a wide array of potentially mobilizing groups, including online networks born of social media usage, professional networks of union and syndicate members, community networks created by charity groups and sports collectives, and religious networks between regular mosque lesson attendees. Furthermore, we seek to determine whether these networks operate in isolation, or whether overlapping group memberships – particularly between online and offline networks – produce a higher probability of revolutionary participation. Finally, we consider whether different types of groups mobilized different demographic segments of Egyptian society with regards to age, income, and education.

To test our argument, we analyze nationally representative survey data from the Arab Barometer collected in Egypt in 2011. We find that membership in four types of networks – online, union, community, and religious – significantly and independently predict protest participation during the 2011 revolution. We then perform a series of demographic analyses, highlighting key divergences in the cohort and class profiles of Egyptians mobilized through each of these networks. Finally, we demonstrate that overlapping membership in multiple groups significantly increases an individual's propensity to protest, and that individuals at the intersection of offline and online networks are the most likely to undertake protest behavior. Together, our results demonstrate that online networks and more traditional offline networks worked in tandem to mobilize disparate sectors of Egyptian society in the ultimately successful uprising against the Mubarak regime.

11 Mark R. Beissinger, Amaney A. Jamal, and Kevin Mazur, "Explaining divergent revolutionary coalitions: Regime strategies and the structuring of participation in the Tunisian and Egyptian revolutions," *Comparative Politics* 48.1 (2015): 1–24.

The paper proceeds as follows. First, we synthesize the literature on group networks and protest mobilization, and present the competing conceptualizations of online network membership which motivate our empirical strategy. Next, we provide contextual information on the 2011 Egyptian uprising, including theoretical and case-specific justification for the four different networks we choose for analysis drawn from established literature on which networks are central to public life in Egypt. We then outline our models and present the results of our analyses. We conclude with the implications of our findings and outline a number of important considerations for future research on the role of online networks in protest participation, particularly in authoritarian contexts with low or developing internet penetration.

Group Membership, Protest Mobilization, and Online Networks

The study of interpersonal networks and political behavior is anchored in classic theories of civil society and its importance for the functioning of democratic polities. De Tocqueville (1956) first attributed an important role to civil society in American democracy, an observation that continues to define the literature on the topic.¹² Scholars argue that non-political civic society organizations as diverse as volunteer associations, sports and youth clubs, church groups, and trade unions serve as “agents of democratic socialization”¹³ for their network of members, and individuals learn values such as tolerance, pluralism, respect for the law, as well as civic lessons about such topics as their right to be represented and their potential political roles in society.¹⁴ The values and behaviors learned through membership in these organization networks create more participatory citizens.

In addition to their civic educational or information provision role, the networks created by civil society organizations can serve as mobilizational vehicles, propelling the citizens who make up their membership to political action. Once civil society organizations have successfully united individuals with similar interests (political and otherwise), they also serve as critical

12 Alexis de Tocqueville, *Democracy in America*, edited by Richard D. Heffner (New York: New American Library of World Literature: 1956).

13 Amaney Jamal, *Barriers to Democracy: The Other Side of Social Capital in Palestine and the Arab World* (Princeton, New Jersey: Princeton University Press: 2007).

14 Larry Diamond and Marc Plattner, “Towards Democratic Consolidation” in *The Global Resurgence of Democracy* edited by Larry Diamond and Marc Plattner (Baltimore, Maryland: Johns Hopkins University Press, 1996).

components of representative democracy, articulating constituency preferences and competing with each other to create public policy initiatives.¹⁵ High levels of membership in civil society organizations lead to increased levels of interpersonal trust and norms of reciprocity, which in turn remove various barriers preventing collective action, increasing its likelihood both within the organization as well as in society as a whole.¹⁶

A related literature on political mobilization emphasizes the positive traits of civil society in studying the importance of networks, often formed through membership in various types of associations. Scholars of social movements have long highlighted the role of pre-existing interpersonal networks which link and mobilize individuals to public protest and other forms of collective action. These networks, formed through memberships in associational groups, are characterized by high degrees of attitudinal cohesion and interpersonal trust between members, which reduce barriers to collective action.¹⁷ Networks provide channels for the recruitment¹⁸ and increase feelings of efficacy and accountability among participants, allowing for sustained collective action in the face of personal risk.¹⁹ They also facilitate the timely spread of information in protest scenarios through informal and personal connections, particularly in situations where popular or official channels of information may be censored or interrupted.²⁰

While the majority of scholarship on civil society networks has focused on their role in democratic states, this type of networks may serve an even more important function in non-democratic settings. Civic organizations under non-democratic regimes may reinforce pre-existing patterns of clientelism and promote tolerance of non-democratic practices, as associations which are permitted to exist and survive in these contexts are most likely somehow

15 Sidney Verba, Norman H. Nie, and Jae-On Kim, *Participation and Political Equality: A Seven-Nation Comparison* (Chicago, Illinois: The University of Chicago Press, 1978); Steven Rosenstone and John Hansen, *Mobilization, Participation, and Democracy in America* (New York: Macmillan, 1993).

16 Robert Putnam, *Making Democracy Work* (Princeton, New Jersey: Princeton University Press, 1993).

17 Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge, Massachusetts: Harvard University Press, 1971).

18 J. Craig Jenkins, "Resource Mobilization Theory and the Study of Social Movements," *Annual Review of Sociology* (1983): 527–553.

19 Doug McAdam and Ronnelle Paulsen, "Specifying the Relationship between Social Ties and Social Activism," *American Journal of Sociology* (November 1993): 640–667.

20 Jeffrey C. Alexander, *Performative Revolution in Egypt: An Essay in Cultural Power* (London: Bloomsbury Academic, 2012).

connected to the regime.²¹ However, where networks are able to remain beyond the control of the state, they can continue to provide positive benefits for their members, and serve a mobilizational role, particularly during moments of regime weakness or liberalization. In fact, membership in discrete, elective networks is of the utmost importance for collective action under autocratic governments, where more public or explicitly political groups, such as political parties, may be banned or punished by the state.²²

Contemporary work on social media and online networks similarly conceptualize these groups, echoing literature about offline networks and rendering both types of networks comparable. Online networks have emerged among internet users with similar interests, many of which are apolitical. In some instances, online networks emerge from offline communities, but many connect individuals who have not met and may never meet in real life. These networks can build lasting social capital among virtual communities,²³ and members of online groups share both political and apolitical information²⁴ in a manner which can create civic-minded individuals. In building social capital and providing information to users, online networks can be mobilized to costly real world political behaviors, like protest.²⁵ Moreover, online networks may be of fundamental importance for protest and other opposition behavior in non-democratic regimes, which heavily police physical public space but have been less successful in disrupting virtual communities.²⁶

21 Jamal 2007.

22 Maryjane Osa, *Solidarity and Contention: Networks of Polish Opposition* (Minnesota: University of Minnesota Press, 2003).

23 Charles Steinfeld, Nicole B. Ellison, and Cliff Lampe, "Social capital, self-esteem, and use of online social network sites: A longitudinal analysis," *Journal of Applied Developmental Psychology* 29:6 (2008): 434–445.

24 Christine Greenhow, "Online social networks and learning," *On the horizon* 19:1 (2011): 4–12.

25 Van Laer, Jeroen van Laer, "Activists online and offline: The internet as an information channel for protest demonstrations," *Mobilization: An International Quarterly* 15:3 (2010): 347–366; Sandra Gonzalez-Bailon, Javier Borge-Holthoefer, Alejandro Rivero, and Yamir Moreno, "The dynamics of protest recruitment through an online network," *Scientific Reports* 1 (2011): 197; Yannis Theocharis, Will Lowe, Jan W. van Deth, and Gema Garcia-Albacete, "Using Twitter to mobilize protest action: online mobilization patterns and action repertoires in the Occupy Wall Street, Indignados, and Aganaktismenoi movements," *Information, Communication & Society* 18:2 (2015): 202–220; Anita Breuer, Todd Landman, and Dorothea Farquhar, "Social media and protest mobilization: Evidence from the Tunisian revolution," *Democratization* 22:4 (2015): 764–792.

26 Lynch 2006.

Conceptualizing Network Membership: Isolation or Interaction?

Social movements theory has historically explained protest mobilization in reference to the activation of individuals through single networks.²⁷ More recent literature on revolutions stresses the importance of diverse coalitions drawing on a multitude of social networks in order to successfully depose a regime.²⁸ Scholarship on revolutionary mobilization in Latin America and Eastern Europe has demonstrated that the success of an uprising hinges on the ability to construct a negative revolutionary coalition, a diverse group of protesters united by common enmity towards the incumbent regime.²⁹ Thus, in a successful revolutionary situation, we should expect a multiplicity of pre-existing groups and networks to be involved in mobilizing citizens to protest, potentially with each network mobilizing a distinct segment of society.

A question naturally arises as to how interpersonal networks born of new media technologies fit into a dense landscape of pre-existing networks in mobilizing individuals to political behavior. While extant literature highlights the role of both new media and traditional organizing groups in mobilizing individuals to protest, it does not theorize or explain the relationship *between* these mobilizing mechanisms. We therefore propose, and test, two alternative conceptualizations of the mobilizing function of online groups in relation to traditional offline networks. In both theories, and as a baseline, membership in both online networks and offline networks (created through unions, community organizations, and mosque groups) should be positively associated with protest participation.

First, online groups may operate parallel to and *in isolation from* traditional organizations. In this conceptualization, online networks – much like traditional offline networks – are discrete collectives shaped by specific demographic, social, or ideological characteristics of their memberships. Here, online networks contribute to revolutionary uprisings by mobilizing specific demographic sectors, such as urban youth, who are outside of the purview of other mobilizing groups. Offline groups maintain their relevance by activating individuals and social networks who are not frequent internet users. Additionally, online and offline networks will each mobilize individuals from within a

27 Herbert Kitschelt, "Political Opportunity Structures and Political Protest: Anti-Nuclear Activism in Four Democracies," *British Journal of Political Science* (1986): 57–85.

28 Goldstone 2001.

29 Robert H. Dix, "Why revolutions succeed and fail," *Polity* 16:3 (1984), 423–462; Mark R. Beissinger, "The Semblance of Democratic Revolution: Coalitions in Ukraine's Orange Revolution," *American Political Science Review* 107:33 (2013): 574–592.

different sector of society, as reflected by social and demographic differences between individuals mobilized to protest through these networks.

Alternatively, online networks may operate *in interaction with* traditional organizations, uniting components of their constituencies into an supra-network capable of extremely efficient mobilization. In this story, online networks are more diverse than traditional organizations, and online networks overlap significantly with multiple offline groups. Members of offline groups may make use of internet technologies to coordinate with each other and with other online activists. Most importantly, multiply-networked individuals at the intersection of online and offline groups should be most likely to participate in protest, and these individuals may play a pivotal role in transmitting information and mobilizing frames between online and offline networks.

Mobilized Groups in the 2011 Egyptian Uprising

Our empirical evidence for the mobilizational capacity of multiple networks is drawn from the Egyptian uprising, which began on January 25, 2011. The protests were inspired by events in Tunisia, where protesters had successfully toppled the 22 year regime of Zine El-Abidine Ben Ali on January 14, and fueled by long-simmering economic and corruption concerns. The protests culminated in the resignation of President Mubarak 18 days later on February 11, 2011 after 30 years in office.³⁰ Roughly 8 percent of Egypt's population of 82.5 million, or 6 million people, reported having participated in some part of the 18 days of protest according to the 2011 Arab Barometer. This percentage alone suggests that the Egyptian uprising mobilized a broad cross-class and multi-ideological coalition of social groups angered by the Egyptian regime, and empirical evidence confirms the diversity of individuals representing different components of society.³¹ It thus appears that those mobilized during the 2011 Egyptian uprising conformed to the pattern identified in the literature on networks and protest mobilization as the negative revolutionary coalition, drawing on citizens of diverse demographic profiles, socioeconomic conditions, and ideological leanings.

In this section, we provide expanded descriptions of the four main mobilized groups we hypothesize were involved in mobilizing individual participation in the 2011 Egyptian uprising. Though these may not be exhaustive of all

30 See appendix for a day-by-day timeline and additional detail of the 18 days of protest mobilization.

31 Beissinger, Jamal, and Mazur 2015; Clarke 2014.

potential network groups that exist in Egypt, they are important for political behavior in Egypt and thus are the main group memberships we later adjudicate between in terms of their predictive power for individual protest participation. These groups served as the bedrock of public and political life in Egypt prior to the 2011. While the regime was largely able to limit or exclude popular participation from formal politics through repression or cooptation, it did not stop citizens from forming alternative political institutions to further their interests through informal means of norms and sanctions, community neighborhood organizations, appropriating public space, and establishing hierarchies of power dynamics and control within familial, social, educational, and neighborhood structures beyond the reach of the regime.³² These civic groups served as the vehicles through which citizens were mobilized to protest during the 2011 uprising.

Online Networks

Our selection of online networks as one of our four groups analyzed reflects our intent to engage directly with popular and academic narratives about the Arab Spring. There are also theoretical and substantive reasons to believe that online network groups created through social media usage were important instruments of mobilization during the Egyptian uprising, particularly in the “first mover” stage. The rise of social media usage among young, liberal activists in Egypt has been well documented.³³ Beginning in the late-1990s and early-2000s, activists began to spread gruesome videos and damning evidence of torture and corruption at the hands of the Egyptian security apparatus through blogs, Facebook, and Twitter. Activists subsequently used the online spaces and networks created during these previous small-scale campaigns to mobilize protesters during the early days of revolutionary protest in January 2011. During the uprising, activists used Facebook to circulate logistical information as well as photos, videos, and pro-revolutionary slogans, encouraging members of these extant social media networks to protest in Tahrir Square.³⁴

32 Diane Singerman, *Avenues of Participation: Family, Politics, and Networks in Urban Quarters of Cairo* (Princeton, New Jersey: Princeton University Press, 1995).

33 Faris 2013.

34 The members of the Mosireen Collective have documented the online presence of bloggers, activists, and artists, prior to, during, and after the uprising on their Youtube page. See also an interview with Aalam Wassef (Narcos News TV, May 19, 2011) and Eltantawy, Nahed, and Julie B. Wiest, “The Arab Spring: Social Media in the Egyptian Revolution: Reconsidering Resource Mobilization Theory,” *International Journal of Communication* 5:18 (2011): 1207–1224, for similar documentary accounts.

Union Networks

Our inclusion of union networks as a second avenue for mobilization is guided by a close reading of Egyptian political history, in which organized labor has played an important opposition role. Unions are historically important actors in Egyptian politics, and scholars of labor in the Middle East have highlighted the important role played by union members during the 2011 uprising.³⁵ More than 2 million workers participated in roughly 3,500 strikes, sit-ins and other forms of labor protest in the decade preceding the uprising. This included a general strike called on April 6, 2008, by Egyptian workers in the state-run textile industry centered in *al-Mahalla al-Kubra*.³⁶ Though the leadership of Egypt's Trade Union Federation (ETUF) was closely tied to the Mubarak regime and did not call for members' participation in 2011 uprising, tens of thousands of union and syndicate members organized to participate in protest during the three days prior to Mubarak's departure, demonstrating the ability of networks to mobilize protesters even in the absence of supportive leadership at the highest echelons.³⁷ Additionally, several unions independent of the ETUF, including the real estate tax authority workers union and the healthcare technicians union, explicitly instructed members to protest against the Mubarak regime and jointly issued a document titled "Demands of the Workers in the Revolution."

Community Networks

Our inclusion of community associations as a competing network group is driven by comparative politics theories. This literature suggests that membership in nongovernmental community groups (such as charities, volunteer organizations, or team sport activities) that do not address expressly political purposes and goals may nonetheless have political consequences and impact political behavior by building social capital among members in these groups. Members of the same community organizations build interpersonal trust and exchange perspectives and ideas, which in turn facilitates communication among members – all attributes closely associated with increased likelihood of participation in collective action and social protest. Indeed, previous survey-based scholarship on the Arab uprisings has found that membership in a community organization is an important predictor of protest participation during

35 Joel Beinin, "The Rise of Egypt's Workers," Carnegie Endowment for International Peace, 2012.

36 The April 6th Youth Movement was subsequently formed by young activists supporting the strike, and the activists' solidarity promoted and expanded the protest event.

37 See also interview with activist Hossam Hamalawy, *Jadaliyya*, April 9, 2011.

the Arab Spring.³⁸ Many small- and medium-sized community organizations assisted in organizing Egyptians for protest during the 2011 uprising. One prominent example is that of the Ultra Ahlawys, a football fan club formed in 2007 in support of the Cairo-based Egyptian Premier League football club, Al-Ahly, and modeled on European football fan clubs. Though the club issued statement ahead of protests that it would remain non-political, the same statement read, “the group emphasizes that its members are free in their political choices” and football fans were documented to constitute a well-organized pillar of the mobilized coalition.³⁹ Another representative example was *Resala*, a youth volunteer organization established at Cairo University in 1999 and which undertook various charity activities including programs for orphans, children with special needs, the blind, and the deaf, such as holding blood banks and literacy training. These activities were not explicitly political but nonetheless fostered community among its members, which was quickly translated into political mobilization and activism during the uprising.⁴⁰

Religious Networks

We include religious networks as distinct from community associations. Although membership in these can be theorized to increase social capital and mobilization in a similar manner, to other kinds of community organizations we want to acknowledge the unique role religious networks play in society generally, and in Muslim societies like Egypt specifically. Scholars have long noted the potential for religious institutions to mobilize citizens politically, most thoroughly in the United States,⁴¹ and the importance of regular communal prayer as a unique component of religion, with many implications for political behavior.⁴² During the 2011 uprising, Friday prayers at mosques served as catalysts for mass mobilization throughout Egypt,⁴³ suggesting religious networks were mobilized. In addition to Friday prayers (which most male Egyptians

38 Beissinger, Jamal, and Mazur, 2015.

39 James M. Dorsey, “Soccer Fans Play Key Role in Egyptian Protests,” *The Bleacher Report* January 26, 2012.

40 Sara Lei Sparre, “Resala – A Message about Giving: Charity, Youth Volunteerism and an Emerging Imaginary of Egypt,” unpublished working paper, 2012.

41 Sidney Verba, Kay Lehman Schlozman, and Henry Brady, *Voice and Equality*, Cambridge, Massachusetts: Harvard University Press, 1995.

42 Robert Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon and Schuster, 2000); Michael Hoffman, “Communal Religion, Sectarian Interests, and Democracy,” unpublished dissertation manuscript, 2016.

43 Christopher Barrie, and Neil Ketchley, “Opportunity without Organization: Labour Mobilization in Egypt after the 25th January Revolution,” Forthcoming in *Mobilization* (2018).

attend), mosques offer other kinds of activities on their grounds. We assume that those who attend these additional events have a stronger religious network and potential for mobilization than those who simply attend general prayer on Fridays.⁴⁴ Mosques offer regular religious lessons, gatherings where attendants listen to sermons, discuss the practice and text of Islam, and interact with other religious attenders. Anthropological accounts of mosque lessons document how group leaders instruct members of the group on modes of personal conduct befitting a pious Muslim, and that the behaviors recommended may range from personal (e.g. dress and bathing rituals) to social (e.g. relations with kin and neighbors) to economic (e.g. practices relating to moneylending) to political (e.g. debating the role of the state in an Islamic community). The content of sermons and discussions varies between different mosques, with some sermon leaders engaging more explicitly political topics than others.⁴⁵ Members of lesson groups often develop networks underpinned by these common values and experiences, and qualitative evidence suggests that these close-knit religious networks assisted in mobilizing some protest against Mubarak in 2011, particularly on the Fridays during the 18 days of protest.

Data

To test whether the mobilizing effect of online networks to more traditional group membership, we use a nationally-representative survey collected by the

44 In "Religion in the Arab Spring: Between Two Competing Narratives" (*Journal of Politics* 76:3, 2014), Hoffman and Jamal test whether religion motivated participation in protests during the Arab Spring using the same Arab Barometer sample we employ here. They adjudicate between whether individual piety versus communal religious practice (operationalized as Qur'an readership and attendance at Friday prayer, respectively) are related to protest participation. The authors find that individual piety, and *not* mosque attendance, significantly increases the likelihood of participation in protests, and suggests that a religious motivation mechanism based on notions of justice, fairness, and anti-corruption, rather than the traditional social capital and mobilization mechanisms, were at play. While we do not doubt their findings, we also do not extrapolate from their results to assume that mosque membership was not an important mobilizer. Rather, in our analysis, we operationalize mosque network strength differently, measuring it through mosque lessons and not simply attendance at Friday prayer in order to capture additional strength of network beyond regular communal worship attendance.

45 Saba Mahmood, *Politics of Piety: The Islamic revival and the feminist subject* (Princeton University: Princeton University Press, 2011); Richard Gauvain, *Salafi Ritual Purity: In the Presence of God* (London: Routledge, 2013); Neil Ketchley, "The Muslim Brothers take to the streets," *Middle East Report* 269 (2013): 12–17.

Arab Barometer in September and October 2011. The survey polled 1,200 Egyptian citizens on a variety of political, social, and economic topics, opinions, and behaviors. The instrument also included a country-specific battery on participation in, support for, and attitudes related to the 2011 uprising.

To operationalize membership in an online network, we use a measurement of Facebook membership, coded as 1 if the respondent answered affirmatively to being a member of Facebook. We employ Facebook instead of other possible measurements of social media usage because of how we conceptualize social media usage and differentiate between various platforms. First, general internet access does not guarantee any kind of communication with other users, and as a measurement is unhelpful for capturing strength of respondents' online groups. In addition, Twitter is a 'vector-directed' social media platform where members follow certain news sites or figures to receive information, and few twitter members are actively creating content. Employing Twitter usage as a social media usage variable is simply measuring access to curated information. In contrast, a measurement of Facebook usage better captures the idea of a network-creating environment, where members are not only exposed to certain information, but also interact in various ways with linked members and can more actively curate their environment based on similarities and shared interests with other users. As a result, we believe the Facebook measurement provides a closer approximation of measuring social media usage as a proxy for strength of online network group.

We use similar measurements for our three additional networks. To operationalize union network membership, we code the variable as 1 if the respondent answered affirmatively to whether he or she is a member in a professional association or trade union. To operationalize community association network membership, we code the variable as 1 if the respondent reported to be a member of a charitable organization, a youth, cultural, or sports organization, a family or tribal association, or a local community development association. Finally, we operationalize membership in a religious network by an individual's participation in mosque lessons. As we outlined in the previous section, while membership in a mosque in general may be a casual or even individualistic trait, membership in a mosque lesson group in particular indicates both a stronger commitment to Islamic practice and a higher degree of networked connection to fellow mosque lesson participants. We therefore use a measurement of mosque lesson attendance, with original values ranging from 0 for individuals who "never" attend mosque lessons, to 4 for individuals who report "always" attending mosque lessons. We binarize this measure to match the other variables; thus, 1 for mosque lesson attendance, 0 for no attendance.

Our outcome variable of interest, protest participation, is measured with a binary indicator, coded as 1 if respondents responded “Yes” to the question, “Did you participate in the protests against former president Hosni Mubarak between January 25 and February 11, 2011?” and 0 otherwise. Finally, we note that when used in our interactive models, demographic variables measuring age, income, and education are also scaled so that values fall between 0 and 1.

Results

We conducted a number of analyses to determine which conceptualization of online networks – either as one in competition with more traditional groups versus one in interaction with these groups – better explains their role in predicting individual protest mobilization. All models are logistic regressions with the dependent variable, protest participation, coded as 1 or 0. Given the difficulty of interpreting logistic regression coefficients, we present predicted probabilities plots corresponding with these models throughout the text. Ninety percent confidence intervals are included where appropriate. Corresponding regression tables may be found in appendices A, B, and C.

Mobilizing Networks in Isolation: Baseline Results and Divergent Demographics

First, we analyze whether membership in each of the four networks significantly increases an individual’s likelihood of protest participation. In order to show a baseline positive and independent relationship between each of the four group memberships and protest participation, each of these four measures are included, and no additional controls are used. Predicted probabilities show in figure 1 confirm that each of these hypothesized networks exerts a positive, significant, and independent effect on protest participation within the 2011 Arab Barometer national sample. For each plot, predicted probabilities are calculated with membership values for other groups are held at their means. The baseline relationship is stronger within community networks and online networks, but is significant in each group, as indicated by regression results found in appendix A. These positive relationships are consistent with both theories of mobilization as well as descriptive observations of mobilization during the 18 days of uprising in Egypt in January 2011.

However, we also want to know to what extent these networks mobilized different segments of Egyptian society. For example, do online networks created

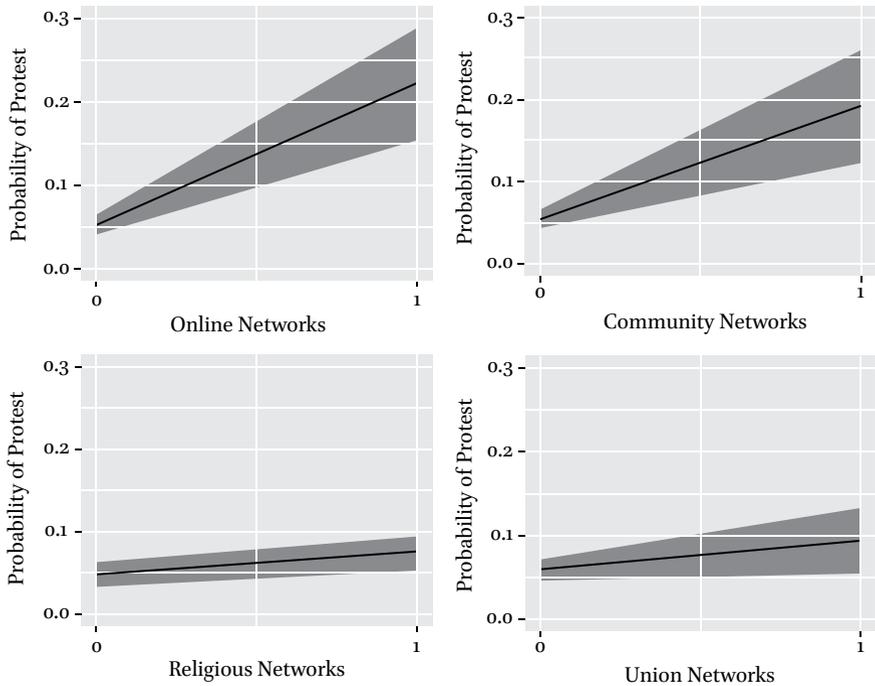


FIGURE 1 *Predicted probabilities of 2011 protest by group membership*

through social media platforms such as Facebook mobilize different types of protesters than offline networks, and do offline networks mobilize different demographic groups from each other? In figures 2 through 4, we present descriptive analysis of revolutionaries mobilized through membership in each of the four network types, identifying differences in terms of age cohort, education, and income. We further analyze these trends through models interacting the four networks with measures of age, income, and education, regression tables for which may be found in appendix B.

Plots in figure 2 show the ages of 2011 revolutionaries who are also members of each of the four mobilizing groups. Mean ages are shown by vertical dotted lines. As may be expected, Facebook revolutionaries are the youngest group of protesters, with a mean age just above thirty. Union-networked revolutionaries are tightly distributed around 40 years of age, with very few individuals on the young and old ends of the age scale. Revolutionaries from community and religious groups are more heterogeneous in terms of age, including a significant number of protesters younger than thirty and older than fifty. Results from the interactive model, which may be found in appendix B, confirm the intuition that the four network types are mobilizing different age cohorts of

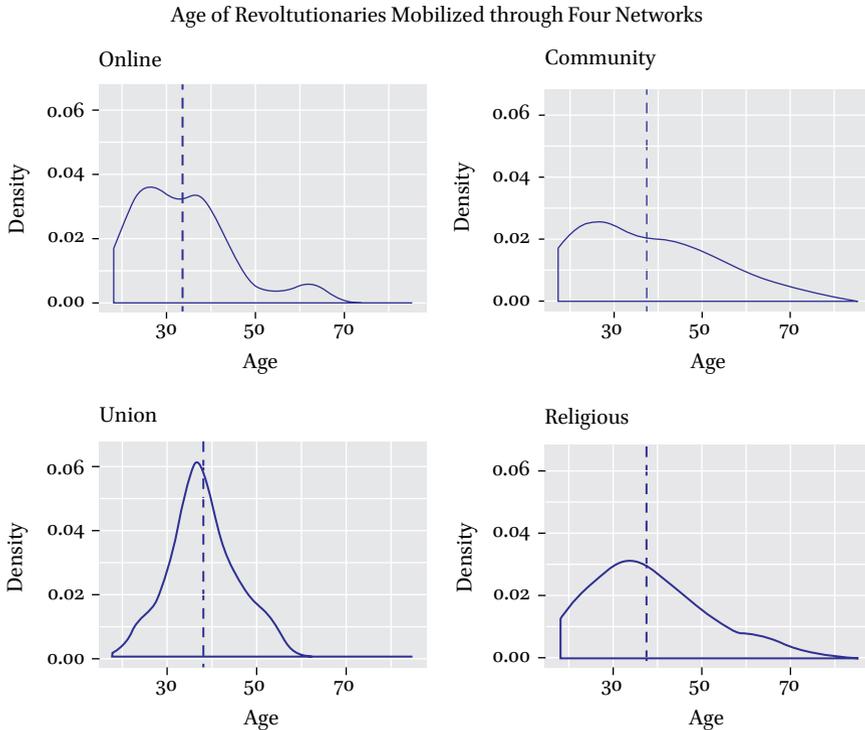


FIGURE 2 Age and mobilizing networks, Egypt 2011

Egyptians, as we find significant results associated with interactions between age with Facebook and union memberships.

Plots in figure 3 show that revolutionaries mobilized through Facebook, community, and union networks are similar in terms of income, with average wages exceeding 1000 dollars and some very high income individuals (income greater than 6000 dollars) in each category. By contrast, revolutionaries affiliated with religious networks stand out as lower-income. Figure 4 shows that revolutionaries within online and union networks are almost uniformly highly educated, with a large majority having earned a bachelors degree or higher. Community and mosque network revolutionaries are more diverse in terms of education, and more illiterate and low-education revolutionaries are mobilized through religious networks than through any of the other three groups. Interactive models in appendix B again confirm some significant effects: higher income individuals are significantly more likely to be mobilized by online networks, while lower income individuals are significantly more likely to be mobilized through mosque networks, and are slightly more likely to have

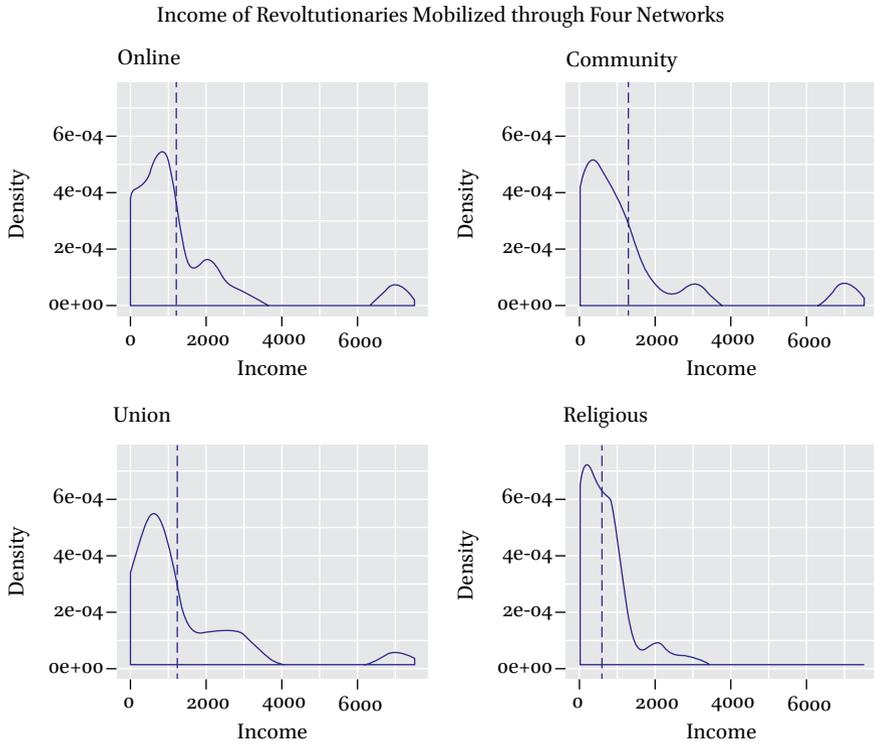


FIGURE 3 *Income and mobilizing networks, Egypt 2011*

been mobilized through union networks. Models also show that individuals of higher income overall were more likely to protest, although interactive terms associated with group membership fall slightly short of statistical significance at the 0.1 level.

In aggregate, these demographic analysis points to some important differences in the social backgrounds of revolutionaries affiliated through these four networks, providing some evidence supporting the theory of multiple organizing groups working in isolation. As may be expected, Egyptians who are young, educated, and slightly wealthier than average were most likely to be mobilized by online networks, confirming the importance of new media technologies in terms of networking a younger generation of urban activists. Union-networked activists were more homogeneous than other groups in terms of age and high education levels, suggesting that professional syndicates were highly effective at mobilizing specifically within their most active memberships.

Revolutionaries affiliated through community networks were comparatively heterogeneous in terms of age and income, reflecting the broader array

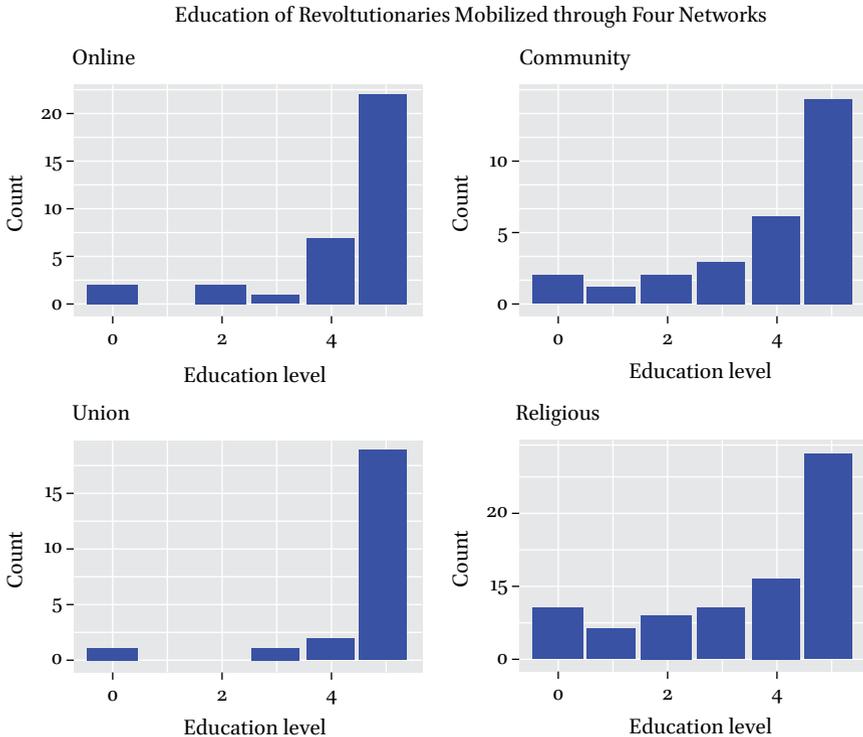


FIGURE 4 *Education and mobilizing networks, Egypt 2011*

of individual groups – from soccer clubs to charity organizations – subsumed within this category. Importantly, community organizations also mobilized individuals from within a broader range of education cohorts than do either Facebook or union networks. Finally, we find that mosque networks stand out the most, demographically and socially speaking, from other categories. Our analyses suggest that religious networks play a crucial role in mobilizing low-income and illiterate Egyptians to protest, whereas online, union, and non-religious networks were less able to do so.

Mobilizing Networks in Interaction: Group Overlap and Additive Effects

Next, we explore the alternative conceptualization of relationships between online and offline mobilizing networks – that online networks operate in interaction with traditional organizations, uniting components of their

TABLE 1 *Group membership, Egypt 2011*

	Online (n = 110)	Union (n = 121)	Community (n = 90)	Religious (n = 613)
Online (n = 110)	–	30 (27%)	27 (24%)	66 (60%)
Union (n = 121)	30 (25%)	–	32 (26%)	71 (58%)
Community (n = 90)	27 (30%)	32 (35%)	–	58 (64%)
Religious (n = 613)	66 (10%)	71 (11%)	58 (9%)	–

constituencies into an unprecedented supra-network. Additionally, we examine overlaps and interactions between offline networks, analyzing individuals who are multiply-networked outside the purview of social media networks. In these analyses, we seek to determine whether highly networked individuals (i.e. individuals who are members of more than one group) have a significantly higher likelihood of protest, which combinations of group memberships yield the highest likelihood of revolutionary protest behavior, and what, if any, relationship exists between online and offline networks.

First, we explore the extent to which group memberships overlap. Table 1 shows overlap between the four groups. Online networks are capturing at most thirty percent of individuals affiliated to other groups, underscoring the importance of considering social network-based mobilization in comparison with networks born of more longstanding offline groups. Religious networks are the most populous networks in our sample, and are also highly distinct from the other groups; though mosque network members make up more than 50 percent of other network memberships, an artifact of their size within the sample, examining these relationships in reverse reveals that mosque lesson attendees make up no more than 10, 11, and 9 percent of Facebook users, union members, and community group members respectively. We also note that high levels of overlap exist between community and union groups, and that union and community group members are between 2 and 3 times more likely to be Facebook users than are mosque lesson attendees.

How might membership in two or more types of networks affect and individual's propensity to protest during a revolutionary episode? To analyze the effects of overlapping group membership on protest participation, we first use

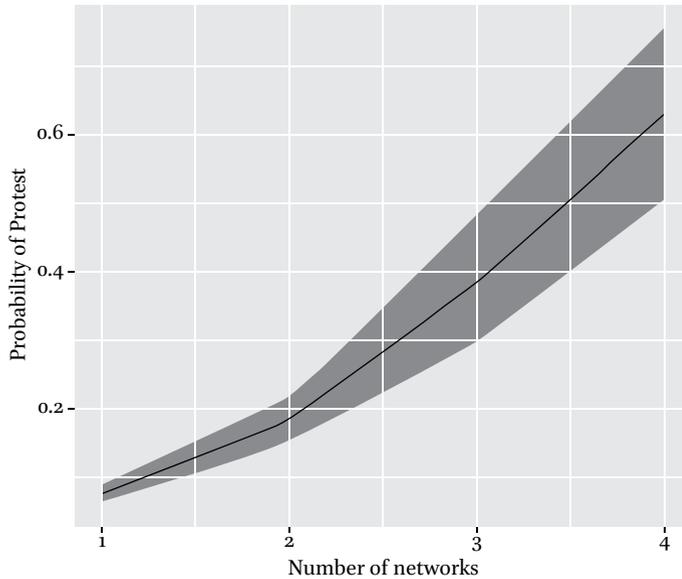


FIGURE 5 *Probabilities of 2011 protest participation by number of network memberships*

a simple additive scale of group memberships to examine the effect of being multiply-networked on protest behavior. We graph these results in figure 5. Regression tables for this model and for other analyses in this section are available in appendix C. These results do indicate a significant and large effect of additional group memberships on likelihood of protest behavior. Individuals belonging to two of our four networks are almost twice as likely to be revolutionaries as individuals belonging to only one of these networks; individuals who are members of three groups are more than three times as likely. These results signify that, while protesters mobilized by online, community, religious, and union groups may be socially and demographically distinct in aggregate, those individuals at the nexus of multiple groups are indeed the most dedicated activists.

While its effect is striking, the additive scale used in this analysis tells us little about the actual mechanics of mobilization through multiple network memberships. In order to determine whether these results are driven by particular combinations of group membership – for example, a particularly strong likelihood of protest for individuals who are members of both union and community group networks – we model two-way interactions between each of these four group membership indicators. Marginal effects plots in figures 6 and 7, corresponding to regression tables found in appendix C, suggest strong divergent effects based on particular combinations of group memberships.

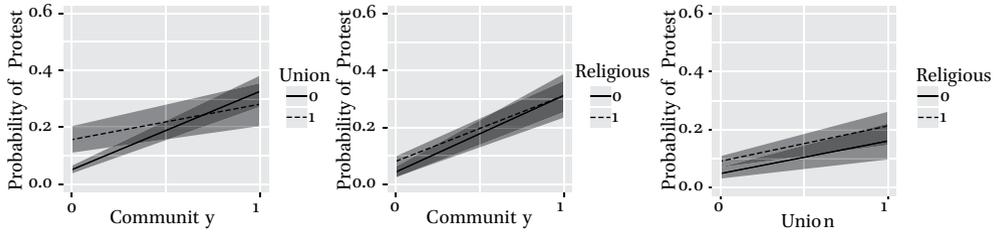


FIGURE 6 *Two-way interactive effects between traditional offline network memberships*

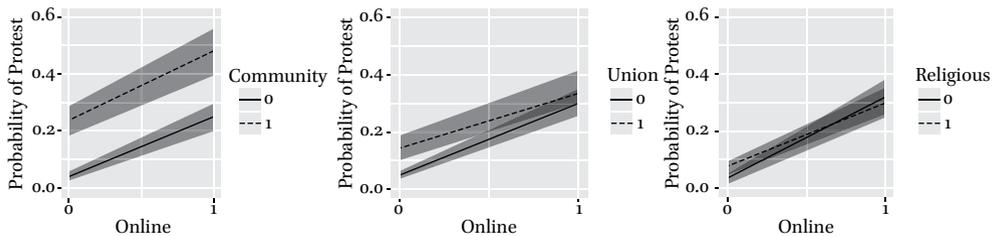


FIGURE 7 *Two-way interactive effects between online and offline network memberships*

First, we examine combinations of traditional offline network memberships: community networks and union networks, community networks and religious networks, and union networks and religious networks. We present marginal effects from these three models in Figure 6. We find that likelihoods of protest for individuals belonging to two offline networks are not statistically distinct from likelihoods associated with a single offline group membership. In other words – given that an individual is a member of a union, community group, or religious network, additional memberships do not greatly increase that individual's likelihood of revolutionary protest.

Next, we examine combinations between traditional and online network membership, and we find very different results. We present marginal effects in Figure 7. Results show that the combination of online network membership with community group membership greatly increases an individual's likelihood of protest; individuals at the interstice of online and community networks protested at nearly 50 percent, as compared with roughly 25 percent for Facebook membership alone or community group membership alone. Comparatively, the effects of union and religious network membership conditional on Facebook membership are statistically indeterminate, through we do note that likelihoods of protest for individuals at the intersection of online/union and online/religious networks are both quite high relative to the population at large, at roughly 30 percent.

In aggregate, the two-way interactive models provide some support for a unique role of online networks *when combined with* membership in traditional, offline groups.⁴⁶ In particular, Facebook appears to play a significant role in amplifying the mobilizational potential of community organizations, including charities, sports and cultural clubs, and volunteer groups. While new interpersonal networks born of social media technologies do play an important mobilizational role in and of themselves, their effect appears strongest when paired with membership in face-to-face community groups born of shared interest and social commitment.

Conclusion

Our results allow us to make a number of important claims about network membership and protest participation during the 2011 Egyptian uprising. First, our results analyzing network membership in isolation demonstrate that a multiplicity of groups were involved in mobilizing individuals to protest. While many popular and academic accounts of mobilization in the Egyptian uprising privilege the role of social media during this event, our analysis using a nationally representative sample demonstrates the existence of other important protest groupings mobilized by more traditional networks such as unions, community associations, and religious groups. These results challenge the outsized causal role attributed to online network in determining protest behavior, in particular the notion that online network networks have supplanted more traditional groups in their role as conduits for mobilization during revolutionary waves. We believe our results are likely similar to mobilizational patterns in other “Arab Spring” countries, where an even smaller percentage of the population were social media users during the 2010–2011 uprisings.

Second, our analysis reveal that different types of networks mobilized Egyptians of different cohorts and social classes. In particular, religious networks born of mosque membership attendance were successful in mobilizing low-income and low-education individuals, while union, community, and Facebook networks were not able to do so. These findings resonate with contemporary theories multi-class revolutions, where a multiplicity of interpersonal networks born of different group memberships contribute to the

46 In appendix C, we also test the interactive effect between Facebook networks and the “offline” networks combined, which confirms findings from these effects tested individually.

formation of a diverse revolutionary coalition. The ability of plural networks within a given society to mobilize in tandem likely contributed to the success of Egypt's 2011 revolution.

Third, our results demonstrate that overlapping online network membership and traditional offline network membership are complementary and interactive, producing individuals who were the most likely to participate in protests. Facebook usage does not nullify the effects of traditional group membership, but rather amplifies it, and this may be because established groups used new online platforms to more effectively mobilize their memberships and to transmit timely information. These results strongly suggest a revolutionary model of "new" and "old" networks working in tandem to produce successful mass mobilization against the regime. We therefore contend that revolutionary situations in the digital age are most successful when individuals are able to draw on both local, face-to-face networks and broader networks born of social media platforms.

In addition to informing our understanding of what occurred during the 2011 Egyptian uprising, our approach to understanding the role of online group membership makes an important contribution to the literature by comparatively analyzing network memberships, in competition and in interaction, within the same revolutionary episode. These results demonstrate that the mobilizational effects of new media platforms, while significant, should not be studied in a vacuum, but rather in comparative perspective with other forms of associational life that precede and make use of new communications technologies. Our approach more closely approximates the way in which online and offline network membership complement each other in individuals' real lives.

Our analyses also suggest some pitfalls of using social media samples to study either protest mobilization, particularly in cases with low internet penetration. While the analysis of Facebook and Twitter data provides many new frontiers for empirical research in the Middle East, our study builds on a growing body of methodological literature suggesting that social media samples suffer from "structural bias"⁴⁷ stemming from the limited range of individuals and groups represented on these platforms. Internet usage is not randomly distributed, but tends to correlate strongly with certain socioeconomic and

47 Zeynep Tufekci, "Big Data: Pitfalls, Methods and Concepts for an Emergent Field", unpublished working paper, March 7, 2013.

demographic characteristics that may pose a challenge to broader inference on questions of public opinion and political behavior. Any analysis of revolutionary protest behavior using a strictly online sample will overlook the critical role of unions, civic associations, and religious groups in mobilizing protesters against the incumbent regimes.

Future research projects leveraging new media data must account for this bias, just as future scholars and analysts of social media and the “Arab Spring” must be precise in their evaluations of the extent to which these technologies have and have not altered the social and political landscapes of Arab states. Scholars might further test our argument, and the relative mobilizing effect of online and offline networks in revolutionary episodes, by extending our analyses to future cases of contemporary popular revolution.

Appendix A: Baseline Model Regression Table

TABLE 2 *Effects of four group memberships on revolutionary protest*

	Dependent variable
	part2011
Online	0.205*** (0.027)
Community	0.186*** (0.029)
Union	0.044* (0.026)
Religious	0.029* (0.015)
Constant	0.029*** (0.011)
Observations	1,220
Log Likelihood	-71.090
Akaike Inf. Crit.	152.180

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

Appendix B: Interactive Models Showing Demographic Determinants of Protest Within-Group

For models in this section, we scale the variables age, income, and education 0–1 in order to better estimate their effects in interaction with the network membership variables.

TABLE 3 *Interaction of age and network membership*

	Dependent variable
	part2011
Online	0.030 (0.084)
Community	0.322*** (0.087)
Union	0.366*** (0.094)
Religious	0.048 (0.045)
Agescale	0.034 (0.065)
Online:agescale	0.421** (0.209)
Community:agescale	-0.269 (0.167)
Union:agescale	-0.618*** (0.171)
Religious:agescale	-0.039 (0.090)
Constant	0.015 (0.032)
Observations	1,220
Log Likelihood	-60.348
Akaike Inf. Crit.	140.697

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

TABLE 4 *Interaction of income and network membership*

	Dependent variable
	part2011
Online	0.159*** (0.033)
Community	0.190*** (0.039)
Union	0.074** (0.034)
Religious	0.054*** (0.018)
Incomescale	0.282** (0.125)
Online:incomescale	0.426** (0.212)
Community:incomescale	-0.172 (0.234)
Union:incomescale	-0.284* (0.169)
Religious:incomescale	-0.423*** (0.153)
Constant	0.017 (0.012)
Observations	1,220
Log Likelihood	-64.125
Akaike Inf. Crit.	148.250

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

TABLE 5 *Interaction of education and network membership*

	Dependent variable
	part2011
Online	0.315*** (0.098)
Community	0.141** (0.066)
Union	-0.041 (0.078)
Religious	0.038 (0.024)
Educscale	0.071** (0.033)
Online:educscale	-0.182 (0.132)
Community:educscale	0.079 (0.100)
Union:educscale	0.106 (0.105)
Religious:educscale	-0.036 (0.046)
Constant	0.007 (0.016)
Observations	1,220
Log Likelihood	-65.945
Akaike Inf. Crit.	151.891

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

Appendix C: Additive and Two-Way Interactions Between Mobilizing Groups

TABLE 6 *Revolutionary protest*

	Dependent variable
	part2011
Groupscale	0.093*** (0.009)
Constant	-0.083*** (0.018)
Observations	1,220
Log Likelihood	-95.216
Akaike Inf. Crit.	194.432

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

TABLE 7 *Two-way interactions between online and offline networks*

	Dependent variable		
	part2011		
	(1)	(2)	(3)
Online	0.206*** (0.029)	0.250*** (0.030)	0.281*** (0.041)
Community	0.191*** (0.033)		
Online:community	0.037 (0.066)		
Union		0.093*** (0.029)	
Online:union		-0.059 (0.063)	

	Dependent variable		
	part2011		
	(1)	(2)	(3)
Religious			0.041*** (0.016)
Online:religious			-0.056 (0.053)
Constant	0.047*** (0.008)	0.050*** (0.008)	0.037*** (0.011)
Observations	1,220	1,220	1,220
Log Likelihood	-74.388	-92.987	-94.925
Akaike Inf. Crit.	156.776	193.974	197.850

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

TABLE 8 Two-way interactions between offline networks

	Dependent variable		
	part2011		
	(1)	(2)	(3)
Community	0.274*** (0.035)		0.269*** (0.048)
Religious		0.040** (0.016)	0.038** (0.016)
Union	0.104*** (0.029)	0.112*** (0.040)	
Community:union	-0.150** (0.065)		
Religious:union		0.011 (0.052)	
Community:religious			-0.040 (0.060)

TABLE 8 *Two-way interactions between offline networks (cont.)*

	Dependent variable		
	part2011		
	(1)	(2)	(3)
Constant	0.054*** (0.008)	0.048*** (0.011)	0.043*** (0.011)
Observations	1,220	1,220	1,220
Log Likelihood	-100.090	-128.190	-103.878
Akaike Inf. Crit.	208.181	264.380	215.755

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

TABLE 9 *Interaction of offline and online networks, combined*

	Dependent variable
	part2011
fb	0.186*** (0.056)
Offline	0.050*** (0.016)
fb:offline	0.066 (0.063)
Constant	0.031*** (0.012)
Observations	1,220
Log Likelihood	-91.664
Akaike Inf. Crit.	191.327

Note: *p < 0.1; **p < 0.05; ***p < 0.01.