Social Signals and Participation in the Tunisian Revolution

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Revolutionary protests can spread surprisingly rapidly. Social contagion may play a key role in this process: people who observe others participating may be more likely to do so themselves, thus reinforcing the proparticipation signal. We leverage data from two surveys to assess the relationship between exposure to proparticipatory social signals and individual-level participation in the Tunisian revolution. We benchmark these effects to those associated with individual-level characteristics, including those tied to political and economic grievances. We find robust evidence of the importance of social signals: those who reported having friends who participated and those who lived in neighborhoods where others participated in the protests were substantially more likely to participate, even after controlling for an array of individual-level and contextual confounds. We find scant support for the expectation that participants and nonparticipants were distinguished by their commitment to democracy or by economic grievances.

The Tunisian revolution came as a surprise to many observers. Hundreds of thousands of Tunisians took to the streets in mass protests that led to the January 2011 ouster of the authoritarian Ben Ali regime and the establishment of a nascent democratic system—the first instance ever of a revolution in the Arab world leading to a successful transition to democracy (Haas and Lesch 2017, 8; Schraeder and Redissi 2011). Although the Tunisian revolution sparked protests in several other countries in what came to be known as the Arab Spring, Tunisia stands out as the country where popular protests most effectively achieved their apparent goal of democratic reforms (Brownlee, Masoud, and Reynolds 2015). In this paper we examine the correlates of participation in the Tunisian revolution. What distinguished those who took to the streets from those who abstained? And why did the protests spread so rapidly and prolifically?

Existing research on political participation suggests that social forces play an important role in determining who participates and who abstains. These forces may include the accrued social capital or organizational support provided by connections to civic or religious organizations. They may also include exposure to direct mobilization communications. However, social forces may also come in the form of mere exposure to the participation of others. Does a person see acquaintances of theirs participating? Are others in one’s neighborhood participating or not? In this article we focus our attention on these social signals. We posit that these signals—which may be transmitted absent explicit mobilization communications—are particularly consequential in the domain of protest behavior. Indeed, many argue that revolutions often come as a surprise to observers because seemingly localized protests can spread unpredictably as others observe signals sent by the behavior of those around them (e.g., Kuran 1989; Lohmann 1994). The participation of others serves as a powerful signal of dissatisfaction with the regime that may have previously been concealed and may also lead the observer to conclude that the protests are more likely to succeed or that participating will yield reputational benefits. Ultimately, simply observing others in one’s vicinity participating may increase the likelihood that the observer chooses to participate. This participation, in turn, may strengthen the signal available to other potential participants.
Instrumental considerations in the form of political and economic grievances may also play an important role in determining whether an individual chooses to participate in costly protests. For example, those who participated in the revolution that led to Tunisia’s transition to a nascent democracy may have more vigorously supported democracy and democratic reforms than those who abstained. Similarly, economic grievances may have played an important role. Many participants in the Tunisian revolution cited economic problems as a key reason for the protests (Beissinger, Jamal, and Mazur 2015) and other work finds that when the economy is performing poorly, individuals may demand change (e.g., Brancati 2014).

In this paper, we leverage data from two surveys fielded by different researchers that each include measures of participation in the Tunisian revolution. The first data set is from an original survey we conducted in Tunisia in the summer of 2012. The second is the second wave of the Arab Barometer, which was fielded several months after the revolution. These data allow us to rigorously examine the correlates of participation in the Tunisian revolution—the only successful revolution of the Arab Spring. We leverage these data to make three contributions to our understanding of what motivates individuals to participate in democratic revolutions.

First, we assess the extent to which participation was related to exposure to social signals. Using data from the Arab Barometer we find that those who reported having friends and acquaintances who participated were substantially more likely to participate themselves. This relationship is robust to controls for an array of individual-level characteristics like membership in civic organizations and interest in politics that are likely to be correlated with both the likelihood of knowing a participant and the decision to participate. We also take advantage of the clustered sampling design from our original survey to examine the relationship between social cues, in the form of rates of participation in an individual respondent’s neighborhood, and participation. We find that these cues are strongly related to the decision to participate in the revolutionary protests. Moreover, this relationship persists after accounting for an array of respondent characteristics, other characteristics of respondents’ neighborhoods, as well as for whether the individual reported being directly encouraged to participate. These findings offer unique empirical support for the claim that social signaling plays a key role in the diffusion of revolutionary protests.

Second, we compare the effects of these social signals to those associated with political grievances. Although existing work offers reason to be skeptical of claims that an instrumental desire for democratic reforms is a key driver of participation in this type of protest, our analysis is the first we are aware of to directly assess whether participants in this successful democratic revolution were more supportive of democracy than nonparticipants. Consistent with existing theoretical work, and with other empirical evidence in this vein, we find scant evidence that participants in the Tunisian revolution were more supportive of democracy than nonparticipants.

Finally, we consider the relationship between individuals’ socioeconomic status and participation and compare these relationships to those tied to social signaling. Existing work finds that many Tunisian protesters cited economic grievances as a key driver of the revolution (Beissinger et al. 2015). We conduct multivariate analysis to assess the extent to which individuals’ socioeconomic status independently predicted protest participation. Our findings suggest that, although broad dissatisfaction with economic conditions appears to have played a role in precipitating the revolution, economic deprivation was not associated with individuals’ decisions to participate. Additionally, we find little support for the expectation that relative, rather than absolute, levels of deprivation explain participation. Instead, patterns of participation are primarily consistent with a traditional “resources” model of political participation: more socioeconomically advantaged individuals and those with characteristics that were likely to make participation less physically costly (younger individuals and males) were more likely to participate.

**SOCIAL SIGNALS AND REVOLUTIONS**

An extensive body of research finds that social forces substantially affect human judgments and behavior (Asch 1958), including patterns of political participation (e.g., Hassanpour 2014; Huckfeldt and Sprague 1992; Klofstad 2007; McAdam and Paulsen 1993; Schussman and Soule 2005; Siegel 2009; Verba, Schlozman, and Brady 1995). Existing work on political movements and protest behavior (Chong 1991; El-Mahdi 2009; Klandermans 2004; Lim 2008; Opp 1986; Opp and Gern 1993; Opp and Roehl 1990; Schussman and Soule 2005; Walgrave and Wouters 2014), as well as evidence from surveys of participants (but not nonparticipants) in the Arab Spring protests (Tufekci and Wilson 2012), suggests that social forces may play a particularly important role in fostering this type of participation.

An array of social factors may be relevant to understanding patterns of protest participation and political participation more broadly. For example, engagement with social organizations like churches and civic groups may foster solidarity and social connectedness, that is, the formation of social capital (Portes 1998; Putnam 2000). This social capital may increase people’s willingness to engage in collective political ac-
tion, because they are more inclined to take action in order to benefit the group and because they trust that others will not free ride (e.g., Gould 1993; La Due Lake and Huckfeldt 1998). These organizations may also provide incentives and infrastructure that facilitate collective action (Knoke 1988). Beissinger et al. (2015) find a strong relationship between civic organization membership and participation in the Tunisian revolution, suggesting that these organizational ties played an important role in this context.

Social influences can also come in the form of direct mobilization communications. A large body of research shows that people who are explicitly encouraged to participate in a political activity are more likely to do so (e.g., Bond et al. 2012; González-Bailón et al. 2011; Green and Gerber 2008). These communications may affect patterns of participation by providing individuals with useful information about the instrumental benefits of participation or practical information regarding how to go about participating. However, social pressures appear to be a particularly important mechanism: by encouraging participation, the messenger is sending a signal that participation is socially desirable or that failing to participate will result in social penalties (Gerber, Green, and Larimer 2008; Walgrave and Wouters 2014).

Signals regarding the preferences of others in an individual’s social environment may also affect the decision to participate (Klandermans 1984). For example, Opp and Gern (1993) find that individuals who reported having more friends and coworkers who were critical of the situation in East Germany and who participated in demonstrations and other protest activities were, themselves, significantly more likely to participate in the East German revolution of 1989. These explicit messages reveal information about the preferences of others in one’s immediate social sphere.

Importantly for our purposes here, scholars have noted that “cues that occur outside the realm of . . . explicit forms of social interaction” (Cho and Rudolph 2008, 274) may affect participation decisions. For example, the mere observation that others are acting on their preferences constitutes a particularly strong signal to a potential participant compared with direct, but relatively low-cost, verbal communication of preferences or intentions. This is particularly true in an authoritarian regime where people are likely to have incentives to obscure their political preferences. When an individual takes to the street, their dissatisfaction becomes crystal clear. There is little doubt about how a person who is willing to accept the risks associated with protesting in this context feels about the regime or whether they are willing to act on their preferences: their behavior clearly demonstrates where they stand.

It is also important to note that participation in a protest calling for the overthrow of an authoritarian regime carries nontrivial risks—risks that are even more pronounced if it turns out that dissatisfaction with the regime is not sufficiently intense or widespread for the protests to succeed. Beyond receiving information about the depth of others’ dissatisfaction with the regime, those who observe others participating may infer that the protests are more likely to succeed, and that, even if they do not, they are less likely to be singled out for punishment (Kuran 1991). In short, clear signals regarding the preferences of others and whether they are willing to act on those preferences are likely to be especially consequential in the domain of antigovernment protests (Gould 2003; Granovetter 1978; Klandermans 1984; Kuran 1989, 1991; Lohmann 1994).

We note that behavioral signals sent through “weak ties” (Granovetter 1973) may be particularly valuable to a potential participant. All else equal, a person is less likely to know how a casual acquaintance or individual drawn at random from their neighborhood feels about matters relevant to a protest than they are to know how close friends and family members feel. Thus, the participatory behavior of these “weak ties” may serve as an important signal of the depth and ubiquity of dissatisfaction with the regime. This said, signals from “strong ties”—close friends and family—that come in the form of actual behavior divulge more information about those individuals’ preferences and intentions than, say, verbal signals of distaste for the regime.

The key implication of our argument is that exposure to social cues in the form of others’ behavior increases the likelihood that an individual will participate in protests like those that occurred in Tunisia. Completely disentangling the effects of organizational involvement, direct mobilization efforts, and indirect social signals is exceedingly difficult, if not impossible. However, our data provide a rare opportunity to attempt to isolate the effects of social signals communicated by the actions of others from the effects of other individual characteristics as well as from the effects of civic ties and direct mobilization efforts.

The Arab Barometer survey asked respondents whether any of their friends or acquaintances participated in revolution. This measure is a serviceable proxy for exposure to the participatory behavior of others. Our theory suggests that exposure to a social signal in the form of having a friend or acquaintance who participates should increase the likelihood that a given individual participates. Of course, those who know someone who protests are likely to be systematically different from those who do not. For example, individuals who are more interested in politics may be more likely to have friends who are as well. Thus, the bivariate relationship between this measure and protest participation is likely to capture not only the effects of exposure to a signal that others
are participating but also the effects of an individual’s level of interest in politics. Similarly, those who are involved in religious or civic organizations may be both more likely to participate and more likely to know other participants because those groups may have actively coordinated and mobilized participants. We address these and an array of other potentially confounding individual-level characteristics in our model. However, these data have important limitations, including the fact that they do not allow us to separate the effects of signals in the form of others’ behavior from those associated with more direct mobilization communications.

We build on the preliminary evidence we garner from the Arab Barometer using data from the original survey we conducted in 2012 in Tunisia. A particularly relevant feature of this survey is that we employed a clustered sampling design. Our approach yielded sets of surveys in each of 144 districts with a median of 21 usable surveys completed in each district. These districts each consisted of 26–149 households (median = 73.5). The size of these units is well suited to the key question we set out to answer in our analysis. The units are small enough that, given that protesting involved taking to the streets, individual respondents were likely to have observed the participatory behavior of others in their district. On the other hand, they are not so small that an individual living in the district would be expected to have close personal ties to all of the other respondents in the district.

We expect individuals living in areas where participation rates were high to have received a clear social signal that others around them were sufficiently committed to dislodging the regime that they were willing to take costly action to express these preferences. We posit that this signal should increase the likelihood that the individual observer would choose to express their own preferences by participating (Kuran 1989). In contrast, those living in low participation districts would have received no such signal. Thus, we expect that they would be less likely to participate.

As with the Arab Barometer data, the bivariate relationship between our measure of district-level participation and individual-level participation is likely to be confounded. Those living in districts with high rates of participation may be more likely to harbor prodemocracy attitudes and more likely to be engaged with religious organizations or to be interested in politics. Similarly, districts that saw high rates of participation may differ systematically from districts with lower rates of participation. In our analysis we account for a wide array of individual- and district-level characteristics in order to isolate the effects of the social signals sent by district rates of participation. A final feature of our survey that is particularly useful to our purposes here is that we asked respondents whether anyone had encouraged them to participate. Controlling for exposure to direct encouragement to participate allows us to disentangle the effects of direct mobilization from those associated social signals in the form of others’ behavior.

GRIEVANCES AND PROTEST PARTICIPATION
Although the effects of social signals are our primary focus here, in our analysis we also consider grievance-based explanations for participation in the Tunisian revolution. We do this for two reasons. The first is simply that, although research on grievance-based explanations for political participation is not rare, survey data that measure participation in a successful democratic revolution are. Thus, assessing these relationships with these data is a valuable exercise. The second reason for considering these alternative explanations is that they provide a way to benchmark the effects of social signals to those associated with other factors that may play a role in individuals’ decisions regarding whether to participate. We consider two classes of grievances: political and economic.

Political grievances
Some existing work finds evidence that political grievances can lead people to engage in protests and demand government reforms (e.g., Opp and Gern 1993). In the decade leading up to the Tunisian revolution, the Ben Ali regime adopted increasingly authoritarian policies (Hibou 2006; see also Camau and Geisser 2003). In response, Islamist and secular political groups began to organize and cooperate in an effort to achieve democratic reforms, including freedom of political association and expression (Angrist 2013, 558). Against this backdrop, many observers argued that, although economic dissatisfaction played a role in the Tunisian protests, these breeding political grievances were also consequential. For example, in the immediate wake of the protests, Angrist (2011, 75) argued that “material difficulties were not the central driver in pushing Ben Ali from power…. On a more fundamental level, Tunisians are protesting dictatorship.”

More broadly, the expectation that prodemocracy attitudes are a prerequisite for democratic reforms is an important motivator for research on attitudes about democracy in the developing world—especially the Arab world (e.g., Braizat 2010; Tezcur et al. 2012). In their study of support for democracy in the Arab world, Tessler and Gao (2005) suggest that support for democracy may end up playing an important role in democratic transitions in the region. They note that “large majorities in many Arab countries want their countries to be ruled by democratic systems…. To the extent that popular support can encourage and facilitate transitions to democracy, as it has in several postcommunist countries, the Arab world is ripe for change” (Tessler and Gao 2005, 93). The Tunisian
revolution led to just this type of change. Indeed, the central result of the protests was the establishment of nascent democratic institutions, further suggesting that the protests were driven—at least in part—by participants’ desire for these democratic reforms.

The notion that the protesters were driven by a yearning for democracy is intuitively appealing: presumably successful democratic revolutions are driven—at least in part—by participants’ desire for a democratic system of government. However, we are not aware of any existing work that has directly examined whether the individuals who chose to participate in these protests were any more committed to democracy than those who abstained. One recent study leverages Arab Barometer data to assess the relationship between religiosity and protest participation (Hoffman and Jamal 2014). That study attributes the positive relationship they find between respondents’ frequency of reading the Quran and protest participation, in part, to the positive relationship they find between frequency of reading the Quran and support for democracy. However, the authors do not assess whether support for democracy actually predicts participation. Another recent study found that about half of the Tunisian protesters cited democratic reforms as an important reason for the protests but does not assess whether protesters were any more supportive of democracy than nonprotesters (Beissinger et al. 2015).

It is important to note that, although support for democracy seems like an obvious predictor of participation in a democratic revolution, existing work also casts doubt on the extent to which an instrumental desire for democratic reforms is likely to drive antigovernment protesters. For example, although Beissinger et al. (2015) find that 21% of protesters cited demands for civil and political freedom as the most important reason for the protests and an additional 29% cited these concerns as the second most important reason, they also find that protesters were substantially more likely to point to economic concerns and corruption as the most important reasons for the protests. In a similar vein, a recent study of the country-level factors that influence the likelihood of prodemocracy protests finds that economic conditions play a central role in the emergence of these protests (Brancati 2014). Others have questioned the import of prodemocracy attitudes in facilitating democratic transitions by pointing to the failure of Arab nations to transition to democracy in spite of widespread expressed support for democracy (Diamond 2010). Put simply, democratic transitions like the one that occurred in Tunisia may often simply be a “fortuitous byproduct of [another] struggle” like demands for more favorable economic conditions (e.g., Rustow 1970, 353).

In summary, it is tempting to assume that participants in the only successful democratic revolution of the Arab Spring harbored distinctively favorable attitudes about democracy. However, existing work casts doubt on the extent to which an instrumental desire to bring about democratic reforms is likely to influence individual-level political behavior. In our analysis we directly examine whether individuals who reported higher levels of support for democracy were more likely to participate in the protests.

**Economic grievances**

Another possibility is that some people were willing to take on the risks associated with participating in protests against the established authoritarian regime because they, like Mohamed Bouazizi, the street vendor whose self-immolation triggered the protests, had endured particularly poor standards of living. However, existing work offers little support for this expectation. The two existing survey-based studies of participation in the Tunisian revolution (Beissinger et al. 2015; Hoffman and Jamal 2014) each consider the relationships between respondents’ demographic characteristics and participation in the revolutionary protests. Their findings offer little support for the notion that protesters were disproportionately drawn from the most socioeconomically disadvantaged segments of society. They find that education and income are both positively related to participation—relationships that mirror those found in other survey-based studies of mass protest participation (e.g., Beissinger 2013; Rüdig and Karyotis 2014). These patterns are consistent with a “resources” model of political participation, where those who have the resources to engage in a particular form of participation are most likely to do so (e.g., Dalton, Sickle, and Weldon 2009; Verba et al. 1995).

We also note that in addition to the cognitive and economic resources that foster many forms of participation, we might expect participants in these lengthy, potentially dangerous protests to be more likely to have physical traits that tend to make participation more feasible. For example, we might expect younger individuals to be more likely to participate than their older counterparts or that male Tunisians were more likely to participate than females. These expectations are supported by previous studies of participation in the Arab Spring protests (Beissinger et al. 2015; Hoffman and Jamal 2014).

In our analysis we also consider the possibility that relative, rather than absolute levels of deprivation drove participation (Gurr 1970; Smith and Pettigrew 2012). The idea of relative deprivation is straightforward: individuals’ judgments regarding their own level of deprivation are subjective and rooted in comparisons with other groups or with their own expectations. Thus, among poor or unemployed individuals we might expect to find a strong relationship between
impossible using data from each of the surveys.

We test this possibility using data from each of the surveys.

THE SURVEYS
We use data from two surveys in the analysis that follows. The first is the Tunisia sample from the second wave of the Arab Barometer. This survey was fielded from September 30 to October 11, 2011, and used a sampling technique that combined stratification and clustering to yield a nationally representative sample. The full sample includes 1,196 respondents.1 We restrict our sample to the 1,115 respondents who provided usable responses to all of the items we use in our analysis. We use the sample weights provided with this data set in all of the analyses reported below.

The second survey is a survey we fielded from June 18 to July 9, 2012. Interviews were conducted by mixed-gender teams of five Tunisian interviewers who lived in the governorate where they conducted the interviews. Unfortunately resource constraints prevented us from conducting a national survey. Instead, face-to-face surveys were conducted in each of six governorates: Gafsa, Kairouan, Kasserine, Sfax, Sidi Bouzid, and Sousse. These governorates were selected because they encompass areas that are widely viewed as being at the heart of the revolution. Thus, our sample is drawn from a region where crucial stages of the dynamic we are interested in—scattered protests rapidly and surprisingly growing into a revolution—played out.

In each governorate, we employed a clustered sampling technique. The National Institute of Statistics in Tunisia (INS) provided us with a random sample of 24 districts (each consisting of 26–149 households) within each governorate, with sampling proportional to the population in the district. Teams conducted surveys in one district per day for 24 days (order of districts was randomized). Surveys were conducted in the Tunisian dialect of Arabic. We cluster standard errors by district in all models using data from this survey.2

Our data set included responses from 3,371 respondents out of 6,554 attempted contacts for a response rate of approximately 50%. In the analysis below, we restrict our sample to the 2,756 respondents who provided usable responses to all items used in our models. Because the population across the six governorates varies, but the size of the teams of interviewers and number of days surveys were conducted by each team do not, we use weights. These weights were calculated so the weighted proportion of respondents from each governorate used in our analysis mirrors the share of the population that official records indicate should be accounted for by each governorate.

Each of these data sources has advantages. The Arab Barometer survey was fielded in all governorates in Tunisia. It was also fielded more immediately after the revolution, making it less likely that respondents would misremember their participatory behavior or that respondents’ attitudes about democracy or other respondent characteristics would have changed substantially since the revolution. The survey included an item that asked respondents whether any friends or acquaintances had participated in the revolutionary protests. We use this as our core measure of exposure to proparticipatory social signals in this sample. Additionally, the survey includes measures of respondents’ membership in civil society organizations, allowing us to address the potentially confounding effects of engagement with formal organizations that are not tied to social signaling. Finally, the Arab Barometer includes items that can be used to measure support for democracy that differ from the measure we use in our survey, allowing us to examine the relationship between prodemocracy attitudes and protest participation not only across surveys conducted at different times using different sampling strategies, but also across alternative measures of support for democracy.

Our original survey also has advantages. First, our clustered sampling design provides a unique way for us to construct measures of exposure to proparticipatory social signals in the form of rates of participation in each respondents’ neighborhood. We are also able to construct measures of other neighborhood characteristics to better isolate the effects of the signals we are interested in from other features of respondents’ local context. Our survey also included an item that asked respondents whether they were explicitly encouraged to participate in the revolutionary protests. This allows us to separate the effects of explicit proparticipation signals from indirect

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2. We provide further details regarding the selection of governorates, implementation of the survey in the appendix (available online).
signals sent by the behavior of others in one’s environment. Finally, the survey included measures of political participation after the revolution (voting in the Constituent Assembly elections and participation in the protests that followed that election) as well as measures of whether the respondent was encouraged to participate in these activities—measures we can use to test the robustness of the relationships between revolution-specific social cues and participation in the revolutionary protests.

Our outcome measure is reported participation in the revolutionary protests. Each survey asked respondents whether they participated in the demonstrations that led to President Ben Ali leaving office.3 It is important to acknowledge that, although surveys are arguably the best means we have to empirically address questions about the differences between those who participate and do not participate in a political event, they are imperfect tools. In this case, the most notable limitation is that respondents may have either misremembered or misrepresented their participatory behavior. For example, events in the wake of the revolution may have led people to under- or overreport their participatory behavior to either insulate themselves from or tie themselves to the revolution.

It is not possible to fully address the possibility that inaccuracies in reporting of participation distort the analysis we present below. However, one way to partially address this concern is by leveraging the fact that we have data from two surveys conducted at different points of time. The Tunisian portion of the Arab Barometer survey was fielded from September 30 to October 11, 2011—approximately nine months after the ouster of Ben Ali. Our survey was fielded in the summer of 2012—about eight months after the Arab Barometer. Notably, shortly after the Arab Barometer was fielded, Tunisia held elections for its Constituent Assembly. These were the first democratic elections ever held in Tunisia. By the time our survey was fielded the following summer, the election outcome had been determined, an interim president had been selected, and the contentious process of drafting a new constitution had begun.

If people’s ability or willingness to accurately report their participatory behavior was going to change in response to evidence regarding what the revolutionary protests yielded, it seems likely that the Constituent Assembly elections and period of policy making that followed would play an important role. However, the share of respondents who reported participating in the revolutionary protests is remarkably similar across the two surveys. In our 2012 survey 18.8% of our weighted sample reported participating in the protests. This estimate is almost identical to that found in the full Arab Barometer data set (17.2%), as well as to reported participation rates among only those Arab Barometer respondents living in the six governorates where our survey was fielded (18.7%). More broadly, the characteristics of our weighted sample are quite similar to those found in the overall Tunisian Arab Barometer (wave 2) sample, as well as in that sample restricted to the six governorates where we conducted surveys (see appendix table A1; appendix, including tables A1–A6, is available online). Finally, as we report below, the demographic correlates of participation we identify in our analysis of each survey are similar. In summary, although we cannot entirely rule out the possibility that respondents misreported their participation in a way that could distort our analysis, the fact that surveys conducted prior to and after the Constituent Assembly elections point to similar conclusions is encouraging.

**GRIEVANCES AND REVOLUTIONARY PROTEST PARTICIPATION**

We begin by assessing the extent to which measures tied to political and socioeconomic grievances predict reported participation in the revolutionary protests. We operationalize political grievances in terms of prodemocracy attitudes. In our survey we measured respondents’ commitment to democracy by asking, “And what about you personally, would you prefer that Tunisia have a democratic system of government, even if it means the economy does not improve, or would you prefer a different form of government if it seemed like it would lead to better economic conditions?” Respondents indicated either that they preferred a democratic system even if the economy did not improve (1) or that they would prefer another system in that case (0). Approximately 60% of respondents said they supported a democratic system even if the economy did not improve. For the Arab Barometer data we use a measure of Commitment to Democracy similar to that used by Hoffman and Jamal (2014). This measure is a mean index of agreement with a series of three statements about democracy: “Democratic regimes are indecisive and full of problems.” “A democratic system may have problems, yet it is better than other system,” and “Democracy negatively affects social and ethical values in your country.” Responses were measured on a 5-point scale ranging from strongly disagree to strongly agree. Items were scaled such that higher values indicated greater support for democracy.4

4. We set “don’t know” and other missing values for each item to the midpoint of the scale in order to preserve sample size. In additional analysis (available upon request), we find that our estimates are substantively similar when we exclude respondents who did not provide usable responses to all of the items in the index.
In column 1 of appendix table A2 we estimate a logit model predicting reported revolutionary protests participation with our measure of support for democracy and a vector of governorate indicators. The model also includes an array of measures of other respondent characteristics: logged monthly Family Income (with missing values set to the sample mean), an indicator for cases where family income data is missing, Education, and employment status (indicators for Employed respondents, Students, and those out of the work force for other reasons [Retired/Housewife]; unemployed respondents serve as the reference category). We also control for Age, gender (Male), Individual Religiosity, and an indicator for whether the district the respondent lived in was Rural (odds ratios associated with this model are presented in col. 2). In column 5, we estimate an analogous model using the Arab Barometer data and the measure of Commitment to Democracy described above (odds ratios presented in col. 6). The estimates offer no evidence of a statistically significant relationship between prodemocracy attitudes and protest participation ($p = .210$ and .282 in the 2012 Survey and Arab Barometer, respectively).

In appendix tables A3 (Arab Barometer) and A4 (2012 Survey) we consider the possibility that the relationship between prodemocracy attitudes and protest participation was conditional. For example, it may be that wealthier individuals had the luxury of acting on their political grievances, while lower income individuals did not. Or perhaps well-educated individuals or those who defined democracy in terms of political processes (e.g., presence of elections) rather than substantive outcomes (e.g., reduction in income inequality) were more likely to connect their attitudes about democracy to the protests. For each survey, we model interactions between support for democracy and (a) income (and income missing; cols. 1 and 2); (b) education (cols. 3 and 4); and (c) an indicator for respondents who defined democracy in elite terms (cols. 5 and 6). We estimate these models with (even-numbered columns) and without (odd-numbered columns) controls for other respondent characteristics. We find little evidence that the relationship between support for democracy and protest participation was conditional. All but one of the interaction terms falls short of conventional levels of statistical significance ($p < .05$). In short, our analysis yields little support for the expectation that political grievances were a key factor differentiating participants in this “democratic revolution” from nonparticipants.

Returning to the initial models presented in appendix table A2, we can consider the relationship between socioeconomic status and participation. The results yield mixed evidence on this front. The coefficient on Family Income is positive in both samples but only reaches conventional levels of statistical significance in the 2012 Survey ($p < .05$). We find a positive, statistically significant relationship between Education and participation in both samples ($p < .01$). These estimated relationships run counter to the notion that the protests were driven by the most desperate segments of society.

The occupational status indicators offer some limited support for the notion that economic grievances played a role in determining who participated in the protests. Specifically, in the 2012 Survey we find that Employed individuals were significantly less likely to participate than the unemployed (reference category). This indicator also yields a negative, but statistically insignificant, coefficient in the Arab Barometer sample. In both samples, after accounting for the other covariates in the model, individuals who were out of the work force (Retired/Housewife) were significantly less likely to report participating than the unemployed, and Students were slightly—but not significantly—more likely than the unemployed to participate ($p = .361$ and .531, in the 2012 Survey and Arab Barometer samples, respectively).

We note that, in additional analysis (available upon request), we find that the difference between Employed and unemployed individuals falls short of conventional levels of statistical significance when controls for income and education are not included ($p = .102$ and .665, in the 2012 Survey and

5. A substantial share of respondents fail to provide information about their family income (33% in the 2012 survey; 19% in the Arab Barometer). We set these observations to the mean on the income measure and include an indicator for Family Income (Missing). This allows us to include respondents who did not report family income while accounting for the possibility that the behavior of these respondents differed systematically from what we would expect from an otherwise similar respondent with a mean level of income. For example, a negative coefficient on the Family Income (Missing) indicator would suggest that, after controlling for other variables in the model, those who did not report their income were less likely to participate than those with mean family income.

6. This is an index of responses to three items (frequency of reading the Quran, frequency of prayer, and self-described religiosity). These measures were scaled so that higher values corresponded to greater religiosity. They were each standardized and combined into an index using pairwise deletion; Cronbach’s $\alpha = 0.655$ and 0.691 in the 2012 Survey and Arab Barometer, respectively.

7. The only exception is that, contrary to the expectation that the relationship between prodemocracy attitudes and participation in the revolution would be stronger among those who defined democracy in terms of political reforms, the interaction between Elite Definition of Democracy and prodemocracy attitudes is negative and statistically significant in column 5 of table A3 ($p < .05$).
Arab Barometer samples, respectively). In other words, the effects of employment status only manifest after we have controlled for other measures of socioeconomic status. This suggests that whether respondents had time to participate, rather than variation in economic grievances, may undergird the apparent differences between employed and unemployed respondents reported in appendix table A2.

The other demographic relationships we identify tend to be similar across samples: older respondents, women, and respondents living in rural areas were all significantly less likely to report participating. The one clear divergence across samples is tied to Individual Religiosity. The 2012 Survey yields a significant, negative relationship between this characteristic and participation; the Arab Barometer yields a positive relationship.8

In columns 3, 4, 7, and 8 of appendix table A2 we consider the possibility that relative, rather than absolute, levels of deprivation predicted participation. If relative deprivation distinguished participants from nonparticipants we would expect the relationship between Education and participation to be strongest among those with low incomes: we would expect highly educated, but poor, individuals to be particularly dissatisfied with their circumstances. Similarly, we would expect the positive relationship between Education and participation to be attenuated among those who are employed, rather than unemployed. In columns 3 and 7 we add interactions between Education and Family Income (as well as the indicator for missing income); in columns 4 and 8 we estimate similar models, here interacting Education and the occupational status indicators.

If grievances tied to relative deprivation drove participation in the protests, we would expect to find negative signs on the Education × Family Income and Education × Employed interactions. However, in each sample the coefficients on the Education × Family Income interactions are close to zero and well short of conventional thresholds of statistical significance. The Education × Employed interactions show positive coefficients in each sample, though they fall short of conventional levels of statistical significance (p = .093 and .184, in the 2012 Survey and Arab Barometer samples, respectively). In short, the relationship between Education and participation is largely insensitive to respondents’ economic circumstances. We find little evidence that a sense of relative deprivation drove participation.

**PROTEST PARTICIPATION: THE ROLE OF SOCIAL SIGNALS**

The analysis presented thus far offers little support for the expectation that protest participants and nonparticipants were distinguished by political and economic grievances. Instead, our findings are consistent with a standard model of participation where the factors that distinguish participants from nonparticipants are rooted in whether an individual has the resources to participate. In this section we turn to another explanation: social cues.

In particular, the purpose of our analysis is to isolate the effects of social signals sent by the behavior of others from those associated with other respondent characteristics or with potentially overlapping social forces, including engagement in civil society and direct mobilization communications. Due to the availability of measures, our approach differs somewhat across the two survey samples. In the Arab Barometer the measure we focus on asked respondents, “Did any of your friends or acquaintances participate in the protests against former president Ben Ali between December 17th, 2010 and January 14th, 2011?” Those who said others they knew participated—that is, those who were exposed to a proparticipation signal—are scored as 1, those who said others they knew had not participated are scored as 0 (Any Friends/Acquaintances Protest?). Forty-two percent of the respondents in our analysis reported having a friend or acquaintance who participated.

We begin in column 1 of table 1 by estimating a logit model predicting participation in the revolution with the indicator for Any Friends/Acquaintances Protest? and indicators for governorate. We also control for a vector of respondents’ demographic characteristics that may confound our estimates of the effects of social signals from others in one’s social network. For example, younger people may be more likely to have friends who participated, but their participation may be driven by the fact that young people tend to be more physically capable of participating in this type of protest, rather than their exposure to these social signals. The model estimates indicate that, even after accounting for these factors, knowing someone who participated is associated with a 19 percentage point increase in the likelihood of participation—a substantial relationship given the overall participation rate (17% in this sample).

---

8. In table A5 we report alternative model specifications using the individual items included in the Religiosity index (jointly and then one at a time). We find a negative, statistically significant relationship between reported frequency of reading the Quran and protest participation in the 2012 Survey, but a strong positive relationship in the Arab Barometer data. Apart from a modest negative relationship between reported frequency of prayer and protest participation in the 2012 Survey, none of the other relationships we examine reach conventional thresholds of statistical significance in either survey. In the appendix we note that the divergent findings regarding the relationship between frequency of reading the Quran and protest participation across the surveys may be tied to differences in question wording.
In column 2, we include an indicator for whether the respondent reported being a member of a civil society organization as well as a measure of Frequency of Mosque Attendance. These measures offer a way to control for the effects of being embedded in social organizations that may facilitate participation through coordination efforts or provision of resources. Including these covariates leaves the estimated relationship between our measure of social signals and participation essentially unchanged. Column 3 reports the odds ratios associated with this model and illustrates the substantial relationship between exposure to other participants and participation. The odds of participation are increased tenfold among

<table>
<thead>
<tr>
<th></th>
<th>Participated in Revolutionary Protests (1 = Yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Any Friends/Acquaintances Protest? (1 = yes)</td>
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<td>Education</td>
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<td>Controls for district demographics?</td>
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<tr>
<td>Observations</td>
<td>1,115</td>
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</table>

Note. Cell entries are logit coefficients, except col. 3, which reports odds ratios for the col. 2 specification. Robust standard errors in brackets. Coefficients associated with indicators for governorates are suppressed to save space.

* $p < .05$.

** $p < .01$. 

In column 2, we include an indicator for whether the respondent reported being a member of a civil society organization as well as a measure of Frequency of Mosque Attendance. These measures offer a way to control for the effects of being embedded in social organizations that may facilitate participation through coordination efforts or provision of resources. Including these covariates leaves the estimated relationship between our measure of social signals and participation essentially unchanged. Column 3 reports the odds ratios associated with this model and illustrates the substantial relationship between exposure to other participants and participation. The odds of participation are increased tenfold among
those who reported knowing someone who participated, relative to those who did not.

Before proceeding, we also note that neither the coefficient on Frequency of Mosque Attendance nor the coefficient on Member of Civil Society Org. reaches conventional levels of statistical significance. This said, while the coefficient on the Member of Civil Society Org. indicator is quite modest and falls short of statistical significance ($p = .069$) in this model, it is statistically significant and almost twice the size in a model excluding the Any Friends/Acquaintances Protest indicator. This suggests that the strong relationship between civil society membership and participation reported in previous work (Beissinger et al. 2015) may largely be the product of exposure to other participants.

The results presented in table 1 offer preliminary support for the expectation that individuals who observed others around them participating were more likely to do so themselves. Although this analysis suggests that exposure to pro-participatory social signals increased the likelihood of participation, it does not allow us to isolate the effects associated with observations of others’ behavior from those associated with direct mobilization communications. The data from the 2012 Survey offer a way to further investigate this distinction.

In table 2, we leverage the clustered sampling approach we used in fielding the 2012 Survey. Recall that our sampling frame used an approach where clusters of respondents residing in each of 144 districts were interviewed. Thus, for each respondent we are able to calculate a measure of the rate of participation among others in the district (excluding the participatory behavior of the respondent for whom the measure is being calculated). In our sample this measure ranges from 0 to .724 (72%) and has a standard deviation of .133. The vast majority of respondents in our sample (92%) lived in districts where at least one other individual reported participating.

The model in column 1 reports estimates from a logit model predicting participation with this measure, as well as indicators for governorates and a vector of demographic controls. The results are consistent with our expectation that individuals who observed others participating were more likely to participate themselves: individuals living in high-participation areas were, themselves, significantly more likely to participate. In column 2 we add a measure of Frequency of Mosque Attendance, to capture respondents’ engagement with religious organizations. Again, the estimated relationship between district- and individual-level participation is virtually unchanged. We note that, as with the analyses presented in table 1, we find no support for the expectation that those who were actively engaged with religious organizations were more likely to participate.

In column 3 we go a step further by accounting for other characteristics of respondents’ contexts. Specifically we include a vector of district-level measures of all of the individual-level demographic predictors included in the model reported in column 2. We also include a district-level measure of rates of participation in the Constituent Assembly elections held in October of 2011, as well as a district-level measure of reported participation in the protests that followed the elections. These measures, in concert with the district-level measure of political interest, allow us to account for the possibility that districts vary in their participatory norms. If the relationship between district rates of participation in the revolutionary protests and individual reports of participation is simply the product of prevailing local expectations regarding political engagement, rather than a social signaling process, including these measures should attenuate our estimate of this relationship.

The results point to the conclusion that patterns of participation—specifically participation in the revolutionary protests—in an individual’s immediate surroundings affected their likelihood of participating in the protests. The coefficient on % District Participating in Revolutionary Protests is essentially unchanged. Thus, the relationship between patterns of participation in one’s neighborhood and the likelihood of participation cannot be explained by other characteristics of the neighborhood (e.g., employment or education rates). Notably, the coefficients on the measures of district-level participation in the two other acts (voting and postelection protests) fall well short of statistical significance. This pattern further supports the claim that social signals tied to this particular participatory act, rather than the broader “participatory culture” of the neighborhood, are responsible for the increased likelihood of participation.

Finally, in column 4 we take the additional step of adding controls for whether the respondent reported having been encouraged to participate in the revolutionary protests (9.6% of the weighted sample reported having been encouraged), as well as for whether they reported being encouraged to vote or participate in the postelection protests. Column 5 reports the odds ratios associated with this model. Again, the coefficient on % District Participating in Revolutionary Protests

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9. To be clear, only one individual was surveyed in any given household.

10. We report the full models—coefficients on all district-level measures—from the column 3 and 4 specifications presented in table 2 in columns 1 and 2 of appendix table A6.
Table 2. The Role of Social Signals: 2012 Survey

<table>
<thead>
<tr>
<th>Participated in Revolutionary Protests (1 = Yes)</th>
<th>β</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>% District Participating in Revolutionary Protests (excluding R)</td>
<td>2.528</td>
<td>2.531</td>
</tr>
<tr>
<td></td>
<td>[.595]**</td>
<td>[.595]**</td>
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<tr>
<td>Frequency of Mosque Attendance</td>
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<td>.015</td>
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<tr>
<td></td>
<td>[.056]</td>
<td>[.058]</td>
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<tr>
<td>% District Voting (excluding R)</td>
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<td>-.026</td>
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<tr>
<td></td>
<td>[.351]</td>
<td>[.406]</td>
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<tr>
<td>% District Participating in Postelection Protests (excluding R)</td>
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<td>-.108</td>
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<td></td>
<td>[.698]</td>
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<td>Prefer Democracy Even if Economy Bad (1 = yes)</td>
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<td>[.206]**</td>
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<tr>
<td>Observations</td>
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</tbody>
</table>

Note. Cell entries are logit coefficients, except col. 5, which reports odds ratios for the col. 4 specification. Robust standard errors, clustered by district, in brackets. Coefficients associated with indicators for governorates are suppressed to save space. Controls for district demographics not reported in the table include % Employed, % Retired/Housewife, % Students, Average Income, % Income Missing, Average Education, % Male, Average Age, Average Religiosity, Average Frequency of Mosque Attendance, and Average Interest in Politics. See table A6 for coefficients on all district level measures. In all cases district measures are calculated excluding the respondent’s own characteristics. R = respondent.

* p < .05.

** p < .01.
is effectively unchanged, suggesting that this relationship is not simply capturing patterns of direct mobilization. Additionally, the coefficient on reported encouragement to participate in the revolutionary protests is positive and statistically significant, while the coefficients on reported encouragement to participate in the Constituent Assembly elections and the postelection protests are not. This is important because existing work finds that patterns of overreporting mobilization contacts and overreporting of participation may be correlated (e.g., Vavreck 2007). Our results suggest that, at the very least, this relationship between reported encouragement to participate and reported participation is not simply a product of participants being broadly inclined to overreport exposure to political mobilization messages.

In figure 1 we conclude our analysis by summarizing the magnitudes of the relationships we have identified. In figure 1A we report the marginal effects of key predictors of participation identified in column 2 of table 1; in figure 1B we report estimated effects drawn from column 4 of table 2. In the case of dichotomous indicators we report the estimated effect of a change from 0 to 1; for continuous variables estimates are for change from one standard deviation below the mean to one standard deviation above the mean. For each estimate we set other covariates to their means.

The estimates illustrate the strong relationship between exposure to social signals and reported participation in the protests. In the Arab Barometer data we find that, even after controlling for an array of other individual-level characteristics, those who reported having a friend or acquaintance who participated were 19 percentage points more likely to participate than those who did not. This relationship is larger than that associated with any other predictor. Similarly, in our 2012

![Figure 1](image-url)

**Figure 1.** Comparing the magnitude of relationships between predictors and revolution participation. Markers indicate the estimated effect of a two-standard deviation increase in each covariate on the predicted probability of reporting participation in the revolutionary protests. For presentation purposes, the Age relationship is inverted (i.e., is an estimate for a two standard deviation decrease in age). Estimates for dichotomous variables are for a change from 0 to 1. Estimate for Unemployed based on comparison to Employed. Arab Barometer estimates are from column 2 of table 1; 2012 Survey estimates are from column 4 of table 2. All estimated marginal effects calculated holding covariates at their means. Lines are 95% confidence intervals.
Survey a two standard deviation increase in the share of others in one’s district who participated is associated with a 7.5 percentage point increase in the probability of an individual participating. The magnitude of this relationship is substantial in that it suggests that those living in high participation districts (one standard deviation above the mean) were twice as likely to participate as those living in low participation districts (predicted probabilities of 16.7% and 8.3%, respectively). It is also comparable to that associated with political interest—a measure that is, unsurprisingly, a canonical predictor of political participation. Indeed, apart from reported direct mobilization attempts, only two variables—political interest and gender—are as strongly related to an individual’s decision to participate in the revolution as our measure of district-level participation.

SOCIAL SIGNALS AND TUNISIA’S DEMOCRATIC REVOLUTION

The Tunisian revolution was an instance of what Kuran (1991) labeled the “now out of never.” It came as a surprise to observers who had mostly viewed the Ben Ali regime as stable and deeply entrenched (e.g., see Bellin 2004, 2012; see also Gause 2011). We report findings from two surveys that offer unique empirical support for the claim that the rapid spread of the protests was tied to a process of social signaling where individuals who observed others participating were more likely to do so themselves.

Arab Barometer respondents who reported having friends or acquaintances who participated in the protests were substantially more likely to report having done so themselves. This relationship is robust to the inclusion of controls for a wide array of respondent characteristics, including measures of socioeconomic status and interest in politics. Similarly, in our 2012 Survey we find that individuals living in districts where others around them participated at high rates were, themselves, more likely to participate. This relationship persists when we include controls for an array of individual- and district-level characteristics. It is also robust to the inclusion of a measure of self-reported exposure to direct mobilization messages—a measure that is, itself, strongly related to reported participation. The magnitudes of these relationships are comparable to or larger than those associated with almost all of the other predictors we considered in our analysis.

These findings are consistent with the claim that protests—particularly antigovernment protests—can spread surprisingly quickly when people are exposed to previously concealed information about the preferences and intentions of those around them. When an individual sees others participating they learn that others harbor strong feelings about the regime and are willing to act on them. This signal increases the likelihood that the observer will cross the threshold of being willing to participate. When they do so, their own participation may further reinforce the signal available to other potential participants, leading to a self-reinforcing, snowball dynamic.

We also considered the possibility that participants and nonparticipants were distinguished by political grievances. However, the findings we report in appendix tables A2–A4 yield little support for the notion that participants in the Tunisian revolution were more supportive of democracy than those who abstained. We also find limited support for the expectation that economic grievances rooted in either absolute or relative deprivation drove participation.

We note that these findings do not demonstrate that political or economic grievances played no role in the Tunisian revolution. Rather, it seems likely that economic dissatisfaction and grievances with the regime’s oppressive behavior were so widespread that virtually all Tunisians harbored grievances. For example, a pair of Gallup polls conducted in the period leading up to the revolution showed that Tunisians’ subjective evaluations of their personal well-being declined sharply between 2009 and 2010 and that in 2010 only 14% of Tunisians’ ratings of their personal well-being qualified them as “thriving.”11 Thus, our finding that higher socioeconomic status was associated with higher rates of participation may simply reflect a distinction between those who had the resources to act on their grievances and those who did not.

Like all research, the analysis we present here has limitations. For example, ideally our 2012 Survey would have been fielded in all of Tunisia’s governorates. Observational data also inherently limits researchers’ ability to draw definitive causal connections because it is difficult to account for all potential confounding explanations for a behavioral outcome and because some relationships—including relationships between the behavior of an individual and that of others around them (Manski 1993)—may be endogenous.

Our data also do not offer an avenue for investigating what triggers the initial onset of protest contagion or why we find higher overall rates of protest in some districts than others. One possible explanation is suggested by the dynamics that played out in Tunisia more broadly. The revolutionary protests in Tunisia originated with an extreme display of dissatisfaction with the government by a fruit vendor who self-immolated. This act triggered protests that spread at a pace that took the regime and others by sur-

prise. The rapid proliferation of protests—which our evidence suggests were fueled by social contagion—may have been facilitated by widespread public dissatisfaction with conditions in the country.\textsuperscript{12} It may be the case that variation in rates of participation across districts was tied to variation in whether a local “spark” occurred or the depths of local dissatisfaction with the regime. Protests in some districts may have been sparked by a more or less stochastic process where a small number of locals engaged because they were particularly dissatisfied with the regime, exposed to direct mobilization messages from people elsewhere in the country, or any number of reasons. Similarly, in some districts dissatisfaction with the regime may have been particularly widespread or deep-seated, setting the stage for the spark to spread rapidly. We leave a more rigorous examination of these dynamics to future researchers.

Another limitation of our analysis is that some participants may not have accurately recalled whether they participated. Measurement error in our measure of reported participation could be problematic, particularly if these errors are correlated with errors in the measurement of our predictors. For example, if misreporting of participatory behavior is correlated with patterns of misreporting exposure to direct mobilization communications this would distort our estimates. The model we report in column 4 of table 2 partially addresses this concern. The estimated relationship between reported encouragement to participate and participation persists after accounting for reported encouragement to participate in postrevolution political acts. Additionally, reported encouragement to participate in these later acts does not predict reported participation in the revolutionary protests. This suggests that our measure of direct encouragement to participate is not simply serving as a proxy for a broad tendency to overreport both participation and exposure to political mobilization messages.

In a similar vein, if expectations regarding political engagement are geographically clustered, this could mean that over- or underreporting of participation is as well. If so, these patterns of misreporting could distort our estimates of the relationship between district rates of participation and individuals’ decisions about whether to participate. The models reported in columns 3 and 4 of table A2 speak to this concern. If broader social expectations regarding political participation were geographically clustered and affected patterns of misreporting, controlling for district-level measures of political interest, reported rates of participation in the Constituent Assembly elections, and postelection protests should attenuate the estimated relationship between our measure of district-level rates of participation and individual participation in the revolutionary protests. However, including these controls leaves that estimate virtually unchanged.

We also cannot fully address the possibility that some participants’ characteristics or attitudes changed during the window of time between the revolution and when our surveys were conducted, or that this passage of time resulted in some participants misremembering their participatory behavior. We note that our survey and the Arab Barometer—which was conducted more immediately after the revolution and before the Constituent Assembly elections—yield similar reported rates of participation and similar patterns of relationships between respondent characteristics and participation. This offers some reassurance that the passage of time did not lead to substantial changes in the share or segments of the Tunisian public who reported participating.\textsuperscript{13} All of this said, we readily acknowledge the inherent limitations of our data.

The revolutionary protests in Tunisia sparked the broader Arab Spring protests and led to the only successful democratic transition in the region. Our findings offer new empirical evidence regarding the social dynamics that can turn the “sparks” that start revolutionary protests into a “prairie fire” (Kuran 1989). Individuals who observed others participating were significantly more likely to participate themselves—a dynamic that has the potential to rapidly snowball through a self-reinforcing process.

\textbf{REFERENCES}


\textsuperscript{12} In contrast, substantial protests in Gafsa in 2008 failed to gain momentum and were crushed by the regime, perhaps because dissatisfaction with the regime was not yet sufficiently widespread.

\textsuperscript{13} In a similar vein, although there is some evidence that Tunisians’ attitudes about particular features of democracy shifted during the window of time between the revolution and the time when we fielded our survey, there was little change in patterns of response to items that measure overall support for democracy, like those we use in our analysis (Robbins 2015).


