

Algeria's Uprising: A Survey of Protesters and the Military

Supplementary Appendix

August 2019

Sharan Grewal, M. Tahir Kilavuz, Robert Kubinec

Our [Brookings paper](#), released on July 15, reported the results of an online survey we conducted of 9020 Algerians recruited through Facebook advertisements. As detailed in the paper's methodology section, using Facebook allowed us to over-sample protesters, and also to target military personnel. Over 4000 survey takers self-described as protesters, and 1700 as military personnel. The data thus provided a unique opportunity to compare the attitudes of these two groups.

The survey of course is not nationally representative, nor can we say that the self-reported protesters and military personnel who took our survey are representative of the protest movement and military as a whole. While we should be cognizant of the potential biases in the survey sample, these are some of the largest survey samples of protesters and military personnel that we have, and thus can be informative, even if not representative.

In this appendix, we describe how we conducted the survey, the biases of the sample, how we verified that survey takers were indeed Algerian, and how we test for and ultimately discount the possibility that they could have been bots or individuals hired by the regime to influence our survey results.

Table of Contents

Funding and Ethics Approval	2
The Algerian Facebook Population	2
Surveying the Algerian Facebook Population	3
Recruitment of Civilians	4
Oversampling Military Personnel	5
Survey Platform	6
Incentives to Complete Survey	7
Verification and Validation	7

Funding and Ethics Approval

Our survey methodology and questionnaire were approved by the ethics boards at both Princeton University (IRB # 11581) and the College of William & Mary (PHSC-2019-03-11-13532).

The survey was funded through Sharan Grewal's research budget at William & Mary and Robert Kubinec's research budget at Princeton University.

The Algerian Facebook Population

Over 24 million Algerians out of the total population of 42 million (58%) have access to the internet. About 19 million Algerians (45% of the total population) are on Facebook as active monthly users.¹

For these 19 million Algerians, only two demographic variables are public: age and gender. Algerian men are more active than women on Facebook: while men represent 50.6% of Algeria's total population, 64% of Algerian Facebook users are male. Women, 49.4% of the population, claim just 36% of Facebook accounts.²

Algerian Facebook users also tend to be younger than the average population. About 64% of Algerians overall are younger than 35 years old; but 76% of Facebook users are less than 35.³

It is likely that there are other imbalances between the Facebook population and the overall population. For instance, Facebook users likely skew more urban, more educated, and wealthier than the general population. However, there are no Facebook statistics on those demographics.

¹ See: <https://www.internetworldstats.com/stats1.htm>. This figure used to be 22 million, but 3 million allegedly fake accounts were deleted by Facebook in February 2019, prior to our survey. See <https://napoleoncat.com/stats/facebook-users-in-algeria/2019/02> compared to <https://napoleoncat.com/stats/facebook-users-in-algeria/2019/03>.

² See <https://napoleoncat.com/stats/facebook-users-in-algeria/2019/04>.

³ Ibid. The over-representation of youth is concentrated among those 13-34, since those younger than 13 are not permitted on Facebook.

Surveying the Algerian Facebook Population

We recruited Algerian Facebook users into our survey by purchasing advertisements on Facebook. All 19 million Algerian Facebook users can view Facebook advertisements, and users on average click on four advertisements per month.⁴ Because they can be shown to all Algerians on Facebook, advertisements are preferable to relying on Algerian friends to share the survey link on their pages.

We created two advertisements, one designed to target civilians and one to target military personnel, as shown in Figure 1:

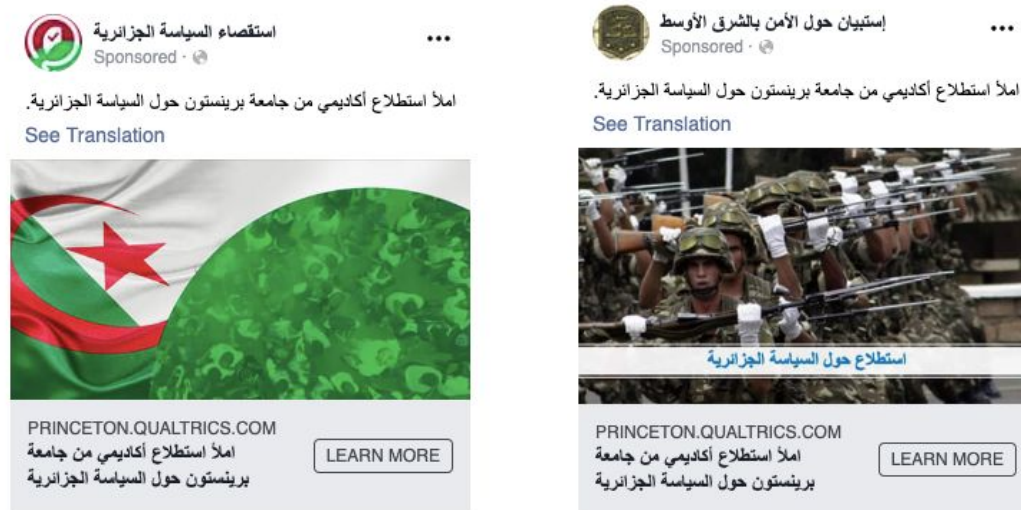


Figure 1: Civilian (left) and Military (right) Facebook advertisements

The text says: “Take this academic survey from Princeton University about Algerian politics.” Clicking the advertisement takes users to our survey in Qualtrics,⁵ a survey platform. Since the survey is conducted on Qualtrics, not Facebook, Facebook does not learn users’ answers to the survey or even if they took the survey at all.⁶

⁴ See: DataReportal, “Digital 2019: Algeria,” January 31, 2019, <https://www.dropbox.com/s/bt5fnybytkgkqbn/datareportal20190131gd100digital2019algeriav01-190203094331.pdf?dl=0>. Algerian men are slightly more likely than women to click on Facebook advertisements, clicking an average of 5 per month, compared to 4 for women.

⁵ Both ads are linked to Facebook pages we created: the civilian one to “Algerian Politics Survey,” and the military one to “Survey about Security in the Middle East.” However, clicking the advertisement takes users directly to Qualtrics, rather than these pages.

⁶ There are important ethical concerns about the data Facebook collects on its users. In our case, all Facebook learns is whether users engaged with or clicked on the advertisement. Facebook does not learn their answers to the survey.

Recruitment of Civilians

Cognizant of the aforementioned biases in the Facebook population, we set age and gender quotas on the civilian advertisement to attempt to generate a more representative sample. We created multiple civilian advertisements (each with the same ad) and targeted each to a specific age-gender group: Algerian women aged 35-44, for instance.⁷ We then altered how much we would spend on each advertisement each day (the “quota”): we set the minimum, \$1/day, for groups over-represented on Facebook, such as men aged 18-24 and 25-34. We spent progressively larger amounts on under-represented groups, up to \$10/day on Algerian women over 65 years old. The amount spent affects how long each day the ad would be shown to the targeted demographic.

These quotas succeeded in creating a more balanced sample. Table 1 presents the age and gender demographics for the overall Algerian population (from the 2015 census), for the total Algerian Facebook population (from April 2019),⁸ and for the civilians in our survey sample (April-July 2019).⁹

Table 1: Algeria’s Facebook Population and Civilian Sample by Age and Gender

	Census, 2015		Total Facebook Population, April 2019		Facebook Survey Sample (Civilians), 2019	
Age	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
0-17 ¹⁰	14.8	14.0	3.8	3.7	0	0
18-24 ¹¹	8.5	8.2	18.0	13.2	17.3	18.5
25-34	9.4	9.2	24.9	12.7	18.9	16.9
35-44	6.9	6.9	10.6	3.9	10.2	8.3
45-54	4.9	4.9	4.1	1.5	4.0	3.3
55-64	3.3	3.2	1.5	0.5	1.7	0.1
65+	2.9	3.0	1.1	0.5	0.2	0.01
Total	50.6	49.4	64	36	52.2	47.8

⁷ At the time of specifying these targets, Facebook shows how large the reach would be - the maximum number of Algerian Facebook users in that category. For instance, there are 860,000 Algerian women aged 35-44 on Facebook.

⁸ Facebook population data from: <https://napoleoncat.com/stats/facebook-users-in-algeria/2019/04>.

⁹ Civilians are those who self-reported not having experience in the military or security forces.

¹⁰ For Facebook, this row represents 13-17; for the census, this row represents 0-14.

¹¹ For the census, this row represents ages 15-24.

Table 1 suggests that while Algerians on Facebook tend to skew younger and more male, our quotas succeeded in countering these biases. About 48% of our survey sample was female, compared to only 36% of the overall Algerian Facebook population. About 71% of our sample were under 35, compared to 76% of the Facebook population.

Oversampling Military Personnel

To recruit military personnel, we targeted the military advertisement to those Algerians who Facebook has determined has an interest in the military. We specified every “interest” related to the military, as shown in Figure 2. Facebook categorizes users into these interests based on information they report to Facebook (perhaps listing in their employment history that they have worked in the Ministry of Defense) as well as their activity on Facebook (such as “liking” Facebook pages related to the military).¹²

Locations Included	DZ
Age	18 - 65+
Gender	All
Detailed Targeting Included	People Who Match
	Interests: Military, Division (military), Military strategy, Soldier, Military aviation, Staff (military), Military reserve force, Colonel, Sergeant, Military history, Army, Military rank, Company (military unit), Military base, Military tactics, Military organization, Military police, Corporal, Military branch
	Industries: Military (Global)
	Work positions: Corporal, Sergeant first class, First sergeant, Lieutenant colonel

Figure 2: Recruiting Algerians with an interest in the Military

Facebook has classified 3.9 million Algerian Facebook users as having an interest in the military. Not all of these users have actual military experience, but targeting ads just to this subsample of

¹² A representative survey in the US conducted by the Pew Research Center found that 59% said their Facebook-assigned interests “somewhat” or “very accurately” represented them, while only 27% said they were “not very” or “not at all” accurate. The remaining 14% either refused to answer or were not assigned interests by Facebook due to lack of activity. See: Paul Hiltin and Lee Rainie, “Facebook Algorithms and Personal Data,” Pew Research Center, January 16, 2019, <https://www.pewinternet.org/2019/01/16/facebook-algorithms-and-personal-data/>

Facebook users allowed us to over-sample the number of military personnel who saw the advertisement and took our survey.

One should keep in mind that we do not report everyone who clicked the military advertisement as part of our military respondents. For this classification, we rely on respondents' self-reporting in the survey, rather than Facebook classifications. While 17% of those who clicked the civilian ad reported in the survey that they have military experience, over 30% of those who clicked the military ad did so. The Facebook targeting therefore appears to have worked.

In total, 1727 survey takers self-reported in the survey as having military experience. Of these, 44% subsequently answered that they were active-duty, with the remainder answering retired.

Survey Platform

Clicking on the Facebook advertisement takes users to our survey in Qualtrics. Figure 3 displays the top of the first page of the survey. At the top of every page is the Princeton University Survey Research Center logo, as we wished to be transparent that this is an academic study.



PRINCETON UNIVERSITY
Survey Research Center

العربية

يرجى الإجابة عن الأسئلة التالية لتحديد أهليتك لإتمام الاستطلاع.

هل عمرك 18 سنة أو أكثر؟

Figure 3: First page of Qualtrics Survey

On this first page, respondents first answered three eligibility questions (age over 18, Algerian nationality, and currently living in Algeria). We can later confirm that they are living in Algeria using the geolocation of IP addresses; we exclude any survey completed outside of Algeria.

After answering the eligibility questions, eligible users then proceeded to the consent form, which described any risks and benefits to the users. If they clicked agree, they could proceed to the survey itself. Thanks to the consent form, the respondents were aware of the procedure and anonymity of the survey before they started taking it. The respondents who had any concerns

were free not to give consent and terminate the survey before answering any questions, as it is entirely on a voluntary basis.

The survey itself featured nearly 100 questions, including demographics questions, attitudes toward the protests, attitudes toward political developments since Bouteflika's ouster, attitudes toward the military and toward democracy, and intended voting behavior. The questionnaire featured randomization in question order as well as answer order.

Between April 1 and July 1, 9020 Algerians clicked on our advertisement and completed the entire survey.

Incentives to Complete Survey

In the consent form, respondents were informed that if they completed the survey, they would be eligible to receive 100DZD (<\$1) of mobile phone credit. At the end of the survey, respondents who wished to claim their reward were taken to a separate platform, a google form, where they could enter their mobile phone number separate from their answers in the survey. Since phone numbers are collected in a separate form, there is no way to link survey takers' numbers to their answers.

We subsequently sent phone credit remotely using the Swiss company CY.SEND, which partners with the three largest mobile phone companies in Algeria: Mobilis, Djezzy, and Ooredoo. In total, 3291 of the 9020 survey takers entered their phone numbers and received credit.

Verification and Validation

We have received questions on how we can verify that our survey takers are actually from Algeria, and whether they could be bots or regime supporters paid to influence the results. We test and ultimately discount these possibilities in six ways:

1. IP Addresses

Qualtrics, our survey platform, collected IP addresses for all respondents who completed the survey. We had already deleted respondents whose IP addresses were not located in Algeria; all

9020 remaining surveys had Algerian IP addresses.¹³ Therefore, even if a survey taker outside of Algeria lies in the eligibility question, his/her survey is deleted and left out of the analysis.

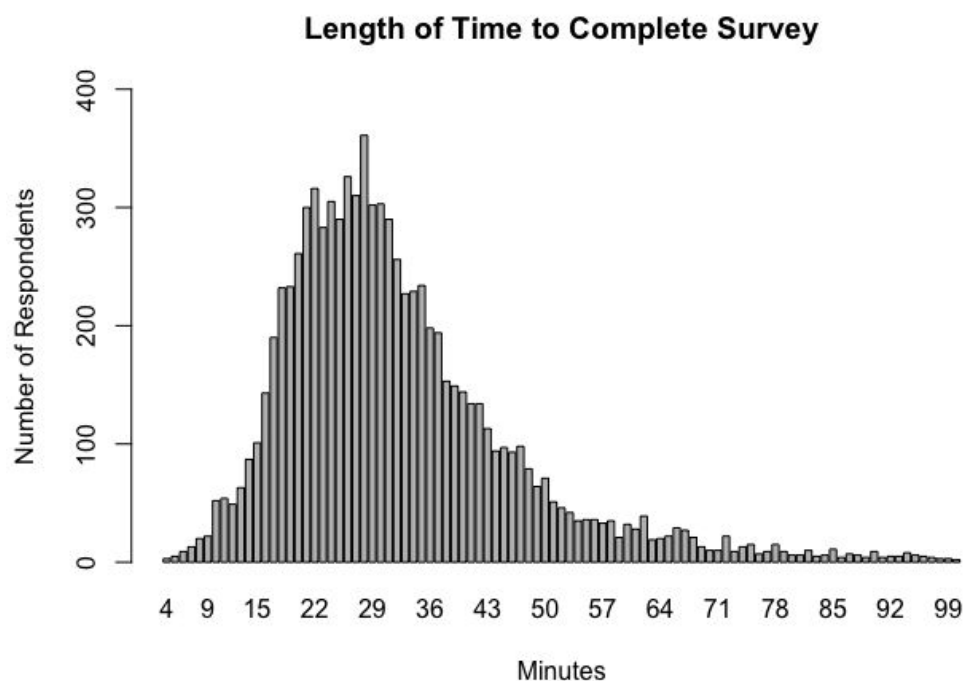
Qualtrics also prevents the same IP address from taking the survey again. While not insurmountable, this is the first of many defenses against bots or paid regime supporters trying to flood the survey.

2. Phone numbers

Survey takers had the option of providing their mobile phone number at the end of the survey if they wished to receive 100 DZD in phone credit as a reward for completing the survey.¹⁴ All phone numbers entered were Algerian numbers (country code +213). In addition, there were no duplicate numbers that would suggest that someone re-took the survey.

3. Length of time to complete the survey

If there were bots taking the survey, we would expect them to complete the survey instantly. However, our quickest survey completion took 4.1 minutes. Only 1 percent of the 9020 surveys were completed in less than 10 minutes. The median time to completion was 30 minutes. Respondents therefore appeared to be thoughtfully filling out the survey.



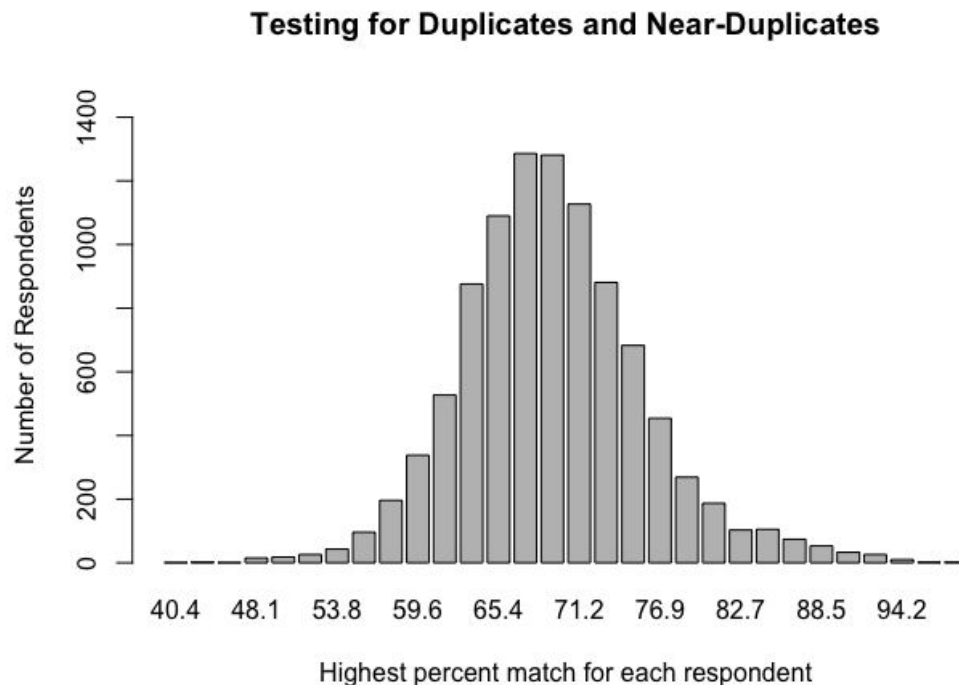
¹³ The IP addresses are not granular enough to reveal a respondent's precise location - at most they reveal what city the survey was taken in. Therefore, the IP addresses do not jeopardize the anonymity of the respondents.

¹⁴ Phone numbers were entered and stored in a separate platform from the survey, thus preserving the anonymity of their answers.

4. Duplicate answers

If there were bots or paid regime supporters attempting to sway the results, we may see duplicate surveys, as they enter the same pro-regime answers to every question. On the contrary, of the 9020 surveys, only one perfectly duplicated another's answers.

Kuriakose and Robbins (2016) suggest that even an 85% match in answers could indicate some falsification or fraud.¹⁵ Only 2% of our surveys had an 85% or higher match with another survey, well below the 5% threshold Kuriakose and Robbins identify as problematic.



5. Substance of the answers

We can also examine whether substantively, the survey results seem to indicate a pro-regime bias. If anything, the survey results are generally in favor of the protesters, not the regime. As the Brookings paper indicates, the vast majority of survey respondents support the protests, want a complete change of the political system, want the removal of interim President Abdelkader Bensalah and Prime Minister Nouredine Bedoui, and do not think the military should referee the political arena. While there is higher support than expected for army chief Ahmed Gaid Salah, these other results are not consistent with an overall attempt to bias the survey in favor of

¹⁵ Noble Kuriakose and Michael Robbins. "Don't Get Duped: Fraud through Duplication in Public Opinion Surveys," *Statistical Journal of the IAOS*, 32 (2016), pp. 283-291. Available at: http://www.mdhrobbins.net/uploads/6/2/8/0/62807029/kuriakose_robbins_-_duplicates_in_survey_data.pdf.

the regime. Moreover, while receiving support in some questions, Gaid Salah does not perform well in others, for instance, as a potential presidential candidate.

6. Feasibility of bots

Finally, logistically, we believe it would be very difficult to set up a bot to take our survey. It is one thing to create a bot to post the same comment everywhere on Facebook, or to take a one-question Facebook poll, but it is another thing entirely to fill out a 100-question survey in Qualtrics, especially when that survey includes randomization of question order as well as answer order.

In short, while we cannot dismiss the possibility of bots or paid regime supporters trying to influence our survey results, each of these tests suggest that it is unlikely.

We would welcome any additional questions or suggestions you may have: ssgrewal@wm.edu.